



scottish  
renewables

# SCOTLAND'S RENEWABLE ENERGY INDUSTRY

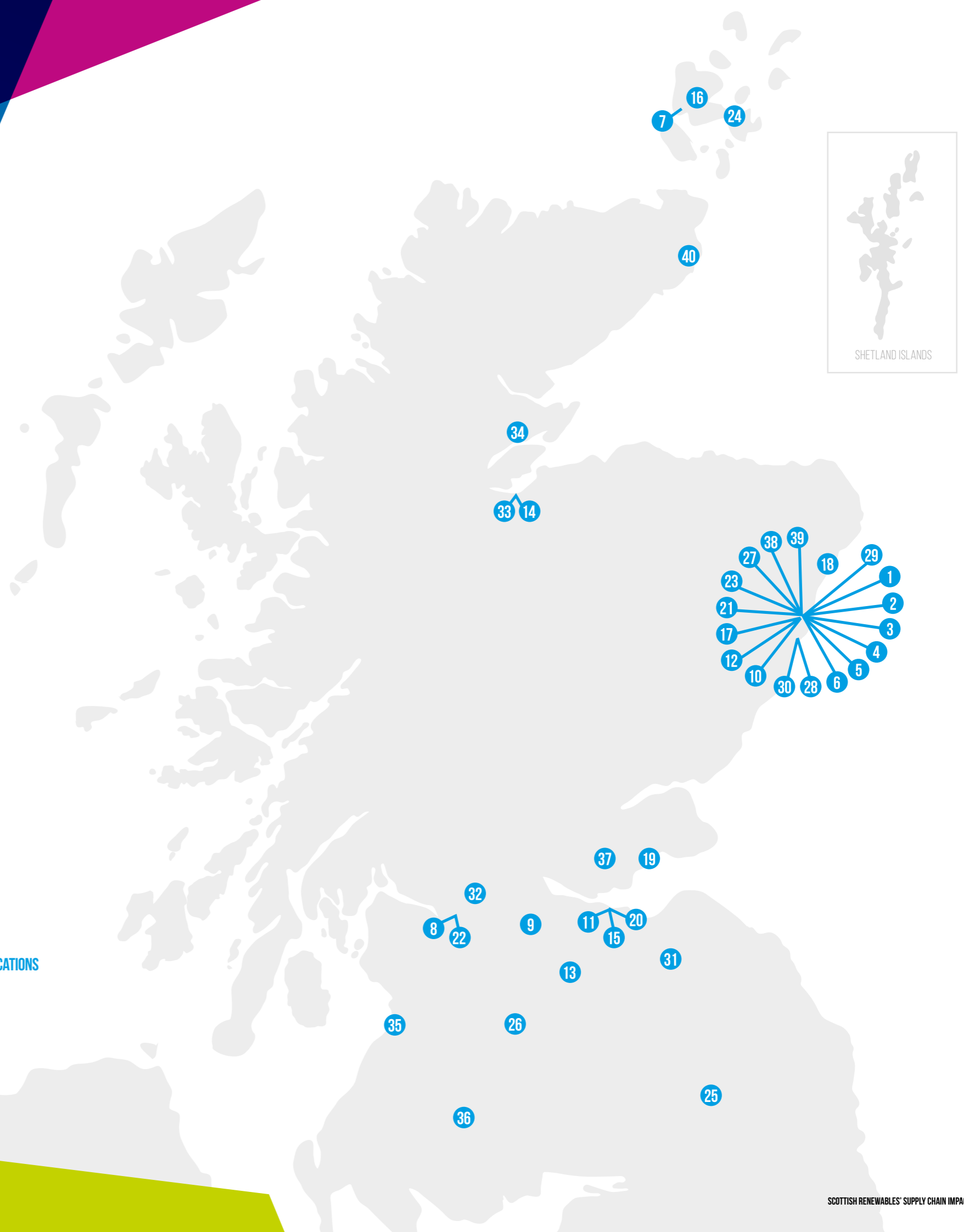
SUPPLY CHAIN IMPACT STATEMENT  
2023/24



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Scotland's renewable energy industry and its supply chain continues to go from strength to strength as we move through the energy transition and work towards a cleaner, greener future.



Delivering renewable energy projects is a Herculean task. That's why it's so inspiring to read through the pages of this publication and learn more about the phenomenal companies making the energy transition happen.

Deploying green energy infrastructure requires a vast array of skills, experience, and engineering know-how, and the case studies we receive never cease to impress.

Hundreds of companies across Scotland are grasping the benefits of the growing decarbonisation pipeline. They're working hard to collaborate, upskill, innovate, expand and develop optimum solutions for clients.

From munitions clearing, robotics and subsea inspection to support vessels and decommissioning, the diversity of organisations in our sector is putting Scotland on the map as a place that is open for business and ready to support the global pipeline of clean energy projects.

Suppliers delivering work packages in technologies as varied as floating offshore wind, gravity energy storage, green hydrogen, wave, tidal, solar and battery technology have weathered the storms of the energy crisis, inflation and rising capital costs with remarkable resilience. Local companies spearheading the green energy revolution have continued to deliver their essential products and services, upskilling their workforce and growing capabilities to meet the needs of our future energy system.

With ambitious targets to deliver 11GW of offshore and 12GW of onshore wind by 2030 – alongside increasing activity in the marine, solar, low-carbon heat and green hydrogen sectors – the approaching economic opportunity for Scotland's green energy supply chain is vast.

That's why over the last 12 months our industry has once again been at the forefront of the political agenda.

In October 2023, Humza Yousaf MSP, First Minister of Scotland, announced that the Scottish Government will leverage investment of up to £500 million over the next five

years in ports, manufacturing and assembly work to support major supply chain opportunities across the country. This was closely followed by a £960 million commitment from the UK Government over the next five years as part of its Green Industries Growth Accelerator to support clean energy manufacturing, recently uplifted to more than £1 billion.

These funding commitments, coupled with initiatives such as the Green Freeport programme and the Floating Offshore Wind Manufacturing Investment Scheme (FLOWMIS), underline a breakthrough in our industry with the renewable energy supply chain capturing the attention of decision-makers across the country.

Beyond these investment measures, the Scottish Government has pledged to prepare a Green Industrial Strategy and to publish its final Energy Strategy and Just Transition Plan by summer 2024. These crucial strategies will build investor confidence, create high-value green jobs and accelerate the transition to clean energy.

To ensure the entrepreneurial spirit of the small and medium-sized businesses working in Scotland's renewable energy industry, it is vital that the Scottish and UK Governments work together to unlock the full potential of public and private investment which our green energy future requires.

With the support of our document sponsors, this publication allows us to highlight the businesses rolling up their sleeves to deliver a net-zero nation. The case studies within this year's Supply Chain Impact Statement once again provide a snapshot of the suppliers who stand as catalysts for economic growth, the creation of green jobs and the future of our industry in Scotland.

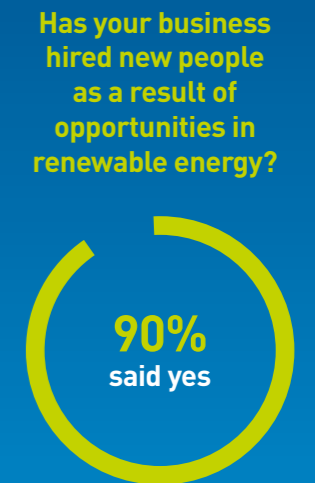
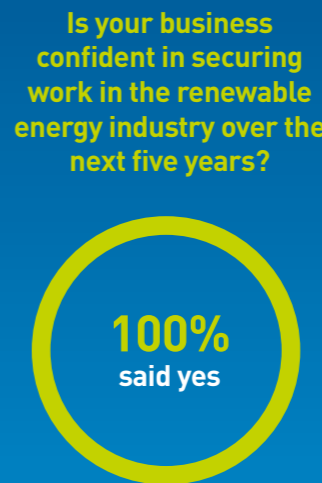
Claire Mack | Chief Executive



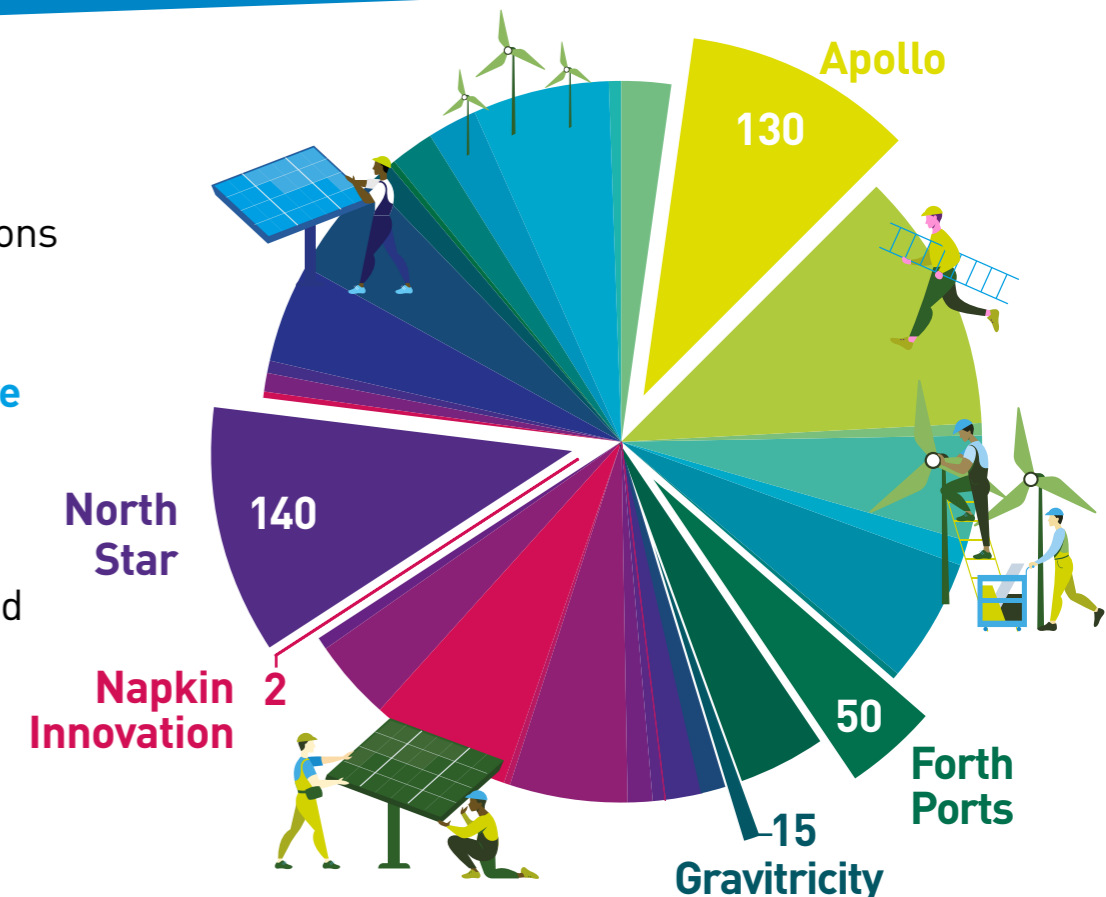
# SUPPLY CHAIN INSIGHT

From the borders to the islands, the Scottish renewable energy supply chain is utilising its expertise, skills and capabilities to deliver specialist work across all technologies.

A survey conducted among the companies within the pages of the Supply Chain Impact Statement 2023/24 revealed unanimous optimism about Scotland's future in the renewable energy sector. The findings underscore Scotland's position as an attractive hub for renewable energy investment, a creator of green jobs and a leader in sustainable economic growth.



The organisations in the pages of this document represent **more than 1,270 renewable energy jobs** across Scotland and beyond.



# AWARD WINNING SUPPLIERS

Scotland stands at the forefront of a vibrant renewable energy industry, a testament to its diverse mix of supply chain companies. Many of these have been recognised as Scottish Renewables award winners.

We take immense pride in championing the exceptional effort of our supply chain and are eagerly anticipating the opportunity to spotlight these outstanding companies and individuals at our upcoming 2024 events.

## NET-ZERO ENERGY TRANSITION AWARDS

PEOPLE AND CULTURE AWARD



GREEN ENERGY SKILLS AWARD



GREEN BUSINESS GROWTH AWARD



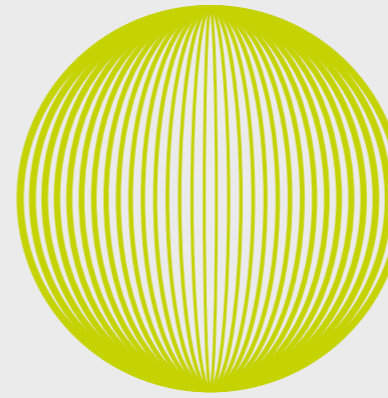
SUSTAINABLE SUPPLIER AWARD



START-UP AWARD



THE SCOTTISH  
**GREEN ENERGY**  
SUPPLY CHAIN AWARDS  
COMING SOON



THE SCOTTISH  
**GREEN ENERGY**  
AWARDS™ 2023

BEST INNOVATION  
NEW TECHNOLOGY PRODUCTS  
AWARD



OUTSTANDING  
SERVICE  
AWARD



POSITIVE  
IMPROVEMENT  
AWARD



# DOCUMENT SPONSORS

Scottish Renewables thanks the following organisations for their support and sponsorship of our Supply Chain Impact Statement 2023/24.

Our sponsors are proud supporters of the local supply chain and encourage collaboration, innovation and improved performance across their projects.

## BLUEFLOAT ENERGY | RENANTIS PARTNERSHIP

BlueFloat Energy and Renantis have come together with the aim of contributing to a world leading floating offshore wind industry in the UK, combining innovative technology with a plan to attract and grow a skilled workforce and stimulate a thriving local supply chain.

In Scotland, the Partnership has a 3.3GW portfolio of five floating offshore wind projects including Broadshore, Bellrock and the Stromar project it is developing in collaboration with Ørsted. The Partnership is also developing two innovation projects as part of the INTOG leasing round, which lie adjacent to Broadshore.

Across Broadshore and Bellrock, the Partnership **has outlined ambitions to spend £2.6 billion through Scottish supply chain**, with more than 60% already committed.



## EDF RENEWABLES UK

In Scotland, EDF Renewables UK's onshore wind portfolio continues to expand, with 10 operational onshore wind farms and 1.5GW of projects in planning and development in Scotland. Projects include Nært na Gaoithe (NnG) offshore wind farm in the Firth of Forth.

different. The operations and maintenance base is creating around 50 high quality jobs at Eyemouth Harbour for the 25-year lifespan of the wind farm.

EDF Renewables UK continues to work closely with suppliers to ensure Scotland benefits as much as possible from its projects. It wants local economies to benefit from its investment – directly through construction work contracts, workers staying in local accommodation or providing local jobs for local people.

With an investment of approximately £2 billion, NnG has created **more than 100 direct jobs**, with many more throughout the supply chain.

EDF Renewables UK has a track record of using local suppliers across its projects, and NnG is no



## INCH CAPE OFFSHORE

Inch Cape offshore wind farm has evolved through several iterations to reach its current configuration, comprising up to 72 turbines, an offshore substation sited 15 kilometres off the Angus coast, a marine export cable corridor of 85 kilometres and an onshore substation.

To date **105 different Scottish suppliers**, firms and consultancies have helped to progress and shape the project - around 260 UK-wide - making it a truly collaborative effort.

Moving towards full construction, Inch Cape has continued its inclusive approach by adopting an

innovative multi-contracting strategy with the aim of directly contracting at least 20 principal work packages, enabling extensive supplier opportunities.

Through this strategy, Inch Cape has widened the market to suppliers not necessarily embedded within major contractors' usual supplier rotas. This approach means Inch Cape is on target to award a quarter of its packages directly with non-tier 1 suppliers.

The team continues to focus on clearing its final hurdles as the project aims for financial close in late 2024.



## OCEAN WINDS

Ocean Winds is **playing a key role** in supporting the impressive Scottish supply chain **with the delivery of the Moray West offshore wind farm.**

The Cromarty Firth ports of Nigg and Invergordon have been busy supporting the construction of Moray West. Global Energy Group also successfully fabricated critical foundations components from its quayside fabrication facilities at Port of Nigg. Invergordon (as pictured) provided an ideal location for marshalling

of the monopiles where a range of planned and reactive tasks were ably supported by local company SarensPSG.

Moray East, operated by Ocean Winds, is benefiting from the strong operations and maintenance sector in the north east, supporting companies to transition. Maintaining the pipeline of offshore wind projects, with projects like Caledonia, will provide the opportunities for further growth in the Scottish supply chain.



## ORE CATAPULT

Behind every successful industry is a strong, competitive supply chain championing the innovation needed for global impact.

ORE Catapult is spearheading the renewable energy supply chain growth through the development of a number of industry

programmes such as the Launch Academy, Fit 4 Offshore Renewables and the Offshore Wind Growth Partnership.



Scottish Renewables is the voice of the renewable energy industry in Scotland and is committed to realising the full economic, social and environmental benefits of renewable energy for our country.

We invite you to join our business network and make your voice heard through the work that the team at Scottish Renewables does on behalf of our members.

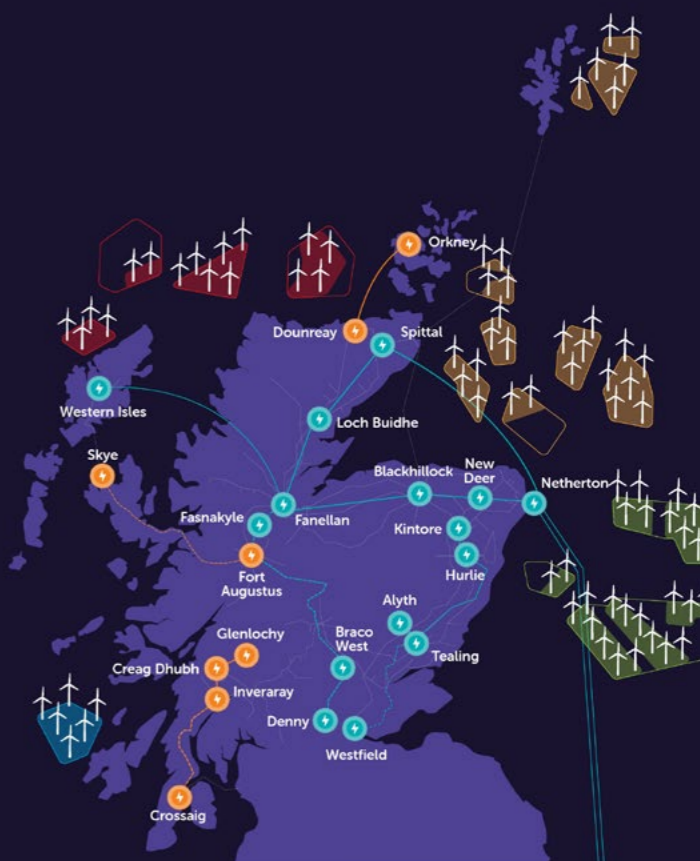
Scan for more Information >>



## PATHWAY TO 2030

- In-flight Investments
- Pathway to 2030 Investments
- New Infrastructure (Routes shown here are for illustrative purposes)
- Upgrade/Replacement of Existing Infrastructure
- Existing Network

*All new reinforcements remain subject to detailed consultation and environmental assessments to help inform route and technology options*



## SSEN TRANSMISSION

Part of SSE, SSEN Transmission owns the high voltage electricity transmission grid in the north of Scotland and Scottish islands.

SSEN Transmission is investing more than £20 billion this decade to deliver critical grid investment that will help to enable the UK and Scottish Government's 2030 renewable energy targets, to strengthen energy security and unlock a pathway to a net-zero economy.

SSEN Transmission is committed to maximising the opportunities that this investment presents including new green jobs, early career development, supply chain opportunities and creating benefits in the regional and wider economy. This includes recruiting for at least 500 new roles in its business this year, 100 of which will be graduates and apprentices and targeting at least 25% local contract spend through its tier 1 suppliers.

SSEN Transmission's 2030 projects are projected to support more than **9,000 jobs across Scotland during peak delivery** and deliver £2.6 billion in Gross Value Added (GVA) to the Scottish economy.

Recognising the vital role local communities will play in hosting critical infrastructure, SSEN Transmission is committed to delivering ambitious and transformational community benefit funding to reflect the significant role that network region will play in delivering net-zero.












TRANSMISSION

# SUPPLIER CASE STUDIES

The following case studies showcase some of the talented and entrepreneurial suppliers who are bringing their expertise to Scotland's renewable energy market.

Scotland's green energy suppliers provide their services to renewable technologies including:

-  HYDRO
-  WIND
-  WAVE AND TIDAL
-  HYDROGEN
-  OFFSHORE WIND
-  STORAGE
-  SOLAR
-  OTHER
-  HEAT

## 2H OFFSHORE ENGINEERING



Digital twin technology enhances predictive maintenance

2H Offshore Engineering delivers advanced engineering solutions for the design, components, materials and processes of offshore wind systems, making them more resilient, efficient and cost-effective.

With more than 30 years of experience in dynamic marine structures and offshore installation operations for wind and wave energy developments around the world, the company is driven by technological innovation.

2H was selected as Innovation Partner in the 2023 TetraSpar Innovation Challenge and has developed the TetraSpar Demonstration Project – the world's first full-scale demonstration of an industrialised floating offshore foundation. Using existing data, the model creates a virtual replica of the turbine and its components. This enables remote monitoring of performance, early detection of faults and predictive maintenance planning for the substructure components, including foundation, tower and mooring lines.

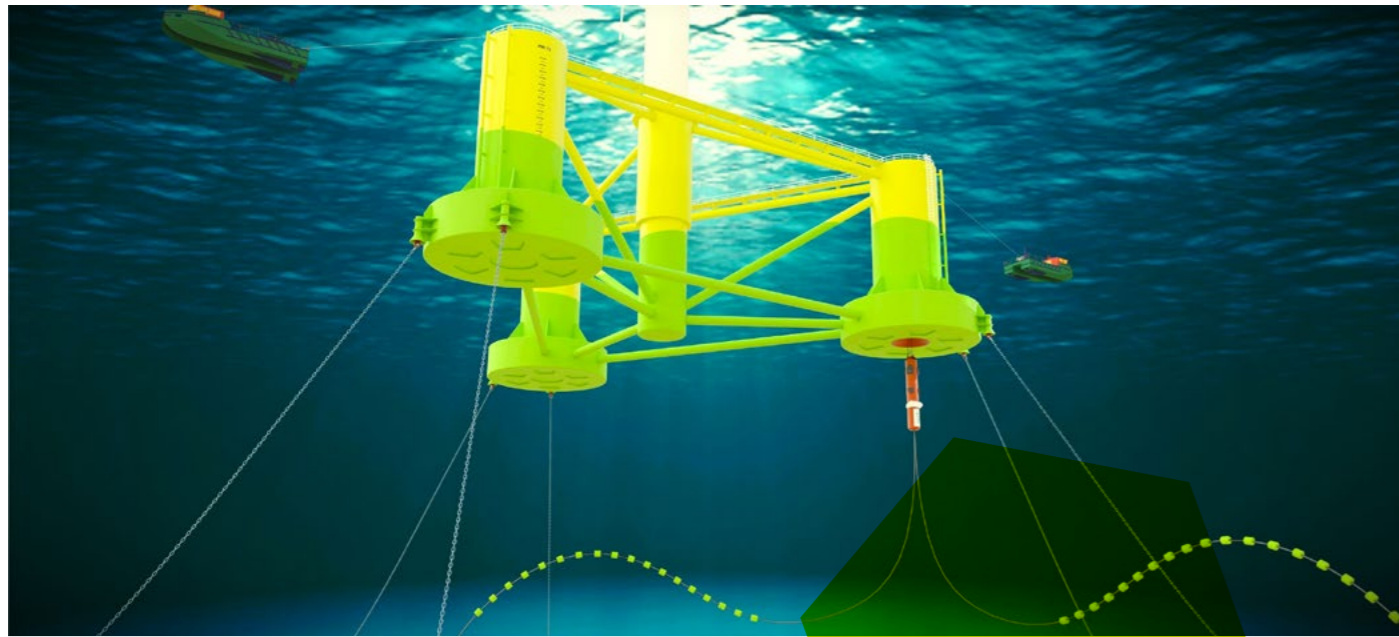
The project will be used for offshore monitoring throughout the lifecycle of the TetraSpar system.

2H Offshore have a team of more than 300 geotechnical, hydrodynamic and structural engineers based around the globe with sites in Aberdeen, London, Paris, Houston, California, Kuala Lumpur, Beijing, Rio de Janeiro, Melbourne and Perth. Reflecting industry growth in the global market, the company has recently appointed a Senior Renewables Expert in California and has ambitions to open a new Edinburgh office.

**“HAVING BEEN WITH 2H FOR MORE THAN A DECADE, I AM PROUD TO SEE THE COMPANY SUCCESSFULLY TRANSITIONING FROM OIL AND GAS TO RENEWABLE ENERGY PROJECTS. IT IS AN EXCITING TIME TO BE AN ENGINEER AND CONTRIBUTE TO THE ADVANCE OF THE ENERGY TRANSITION IN THE WORLD.”**  
 Luiza Ferreira, Principal Engineer,  
 2H Offshore Engineering







## APOLLO



### Offshore maintenance in the PALM of your hand

Having expanded into renewables in 2011, Apollo provides comprehensive analysis, design and consulting of offshore structures, marine systems, moorings, cables and transmission systems, as well as providing environmental and social governance advisory services.

Located across the UK in Aberdeen, Edinburgh, Bristol, Anglesey, Flintshire and Nottingham, Renewable highlights in 2023, include:

- Collaborating with the European Marine Energy Centre and Aquatera Ltd to develop a novel Floating Fuel Depots concept.
- Securing a contract from Celtic Sea Power for the preliminary front-end engineering and design of a multi-connection offshore substation in the 400MW Pembrokeshire Demonstration Zone.
- Being commissioned by ORE Catapult to access challenges and solutions for transportation and installation of 1GW scale floating offshore wind farms.
- A further milestone report for the ORE Catapult to explore tow to port operations and off-station management.

Apollo is committed to innovation with its groundbreaking PALM Quick Connection System which facilitates the disconnection and reconnection of floating offshore systems for maintenance, minimising lost generation time, driving emissions reductions and cutting project maintenance costs. The system is currently undergoing a trial in Scapa Flow, Orkney.

**“APOLLO THRIVES ON CHALLENGES, DRAWING ON DECADES OF EXPERIENCE IN OFFSHORE ENVIRONMENTS WORLDWIDE. TOGETHER, WE ARE SHAPING THE LANDSCAPE OF RENEWABLE ENERGY, EMPOWERING CLIENTS TO HARNESS THE UNTAPPED POTENTIAL OF WIND AND WAVES. OUR JOURNEY IS DEFINED BY RESILIENCE, INNOVATION AND A SHARED COMMITMENT TO BUILDING A CLEANER, MORE SUSTAINABLE FUTURE.”**

Nigel Robinson,  
Offshore Renewables Director,  
**Apollo**

## BALMORAL

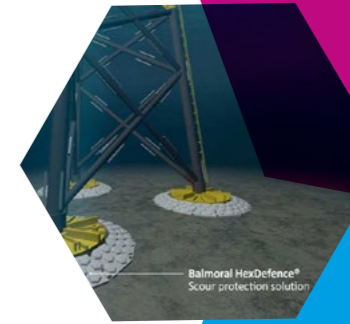


### Revolutionising scour protection in offshore wind

Balmoral’s capabilities span design engineering, manufacturing and in-house hydrostatic and mechanical testing, as well as buoyancy and protection solutions for the fixed and floating offshore wind sector.

In March 2023, Balmoral launched HexDefence, a patented jacket foundation system which aims to dramatically reduce the need for traditional and resource-intensive scour protection methods like rock dumping. The unique system offers the further benefit of being installed at quayside, eliminating the requirement for additional offshore installation vessels.

HexDefence also has the potential to revive abandoned projects and locations deemed unviable due to the amount and size of rock required for scour protection. Analysis indicates that this innovative solution could significantly support the financial viability of projects.



**“HEXDEFENCE REPRESENTS A SIGNIFICANT STEP FORWARD FOR SCOUR PROTECTION, OFFERING HIGHLY COST-EFFECTIVE PERFORMANCE ENHANCEMENT ACROSS INSTALLATION, MANAGEMENT AND MAINTENANCE.”**

Bill Main, Managing Director,  
**Balmoral**



## BRUCE ANCHOR



### Breakthroughs in anchor feasibility assessment

Aberdeen-based Bruce Anchor designs and supplies anchors and mooring equipment to the offshore energy industry. In addition to new anchoring innovations, the company has expanded its engineering division to offer feasibility studies and additional engineering support to the ever-evolving floating offshore wind industry.

While drag embedment anchors have always been used in the offshore industry, the quantity of anchors and the vast areas that they are to be installed in presents new challenges for floating offshore wind.

In collaboration with the University of Dundee, Bruce Anchor has developed a method of centrifuge testing drag embedment anchors to improve the accuracy of anchor assessment and de-risk mooring systems for floating wind turbines, prior to installation.



## CLARKSONS PORT SERVICES



### Powering projects with expert marine integration

Clarksons Port Services (CPS) operates from 23 office locations across the UK and the Netherlands providing marine integration services and coordination to more than 50 wind farms since 2003. CPS recently secured contracts to support multiple clients on the Moray West offshore wind farm project. The Aberdeen and Invergordon offices worked closely together with the project team to ensure the seamless operation of numerous vessels simultaneously deployed across multiple locations. The company played a key role in supporting the vessels delivering monopiles from China and Spain and assisted in their installation. Ongoing support for the project includes helicopter transfer services, customs clearance and freight forwarding.

But it doesn't stop there. The CPS Dundee office has been busy supporting the Neart na Gaoithe offshore wind farm, overseeing the loading of turbines on the installation vessel while the Montrose office has been assisting crew transfer vessel management on the Seagreen offshore wind farm.



**"THE FOUNDATIONS WE HAVE PUT IN PLACE ALLOW US TO SUPPORT MULTIPLE CLIENTS ON NUMEROUS OFFSHORE WIND PROJECTS. SCOTLAND HAS A HUGE PIPELINE OF OPPORTUNITY AND OUR EXPERIENCE AND LOCAL PRESENCE CONFIRMS CPS IS IDEAL FOR SUPPORTING SCOTLAND'S FIXED AND FLOATING WIND PROJECTS."**

Paul Young,  
Account Manager – Offshore Energy,  
Clarksons Port Services



**"FOR DECADES, INDUSTRY HAS CLEARED MUNITIONS USING SECOND WORLD WAR TECHNIQUES: BY BLOWING THEM UP. THIS CAUSES DAMAGE TO THE MARINE ENVIRONMENT. WE ARE PROUD TO PLAY A LEADING ROLE IN EFFORTS TO CHANGE THE LICENSING REGIME SO THAT ONLY PROVEN LOW ORDER CLEARANCE TECHNIQUES CAN BE USED."**

**"I CAN'T THINK OF ANY BETTER DEMONSTRATION OF THE RELIABILITY, SAFETY AND EFFECTIVENESS OF LOW ORDER DEFLAGRATION THAN WITH THIS LARGE-SCALE SUCCESS. FOR THE FUTURE OF OUR INDUSTRY, THIS IS NOTHING SHORT OF A HISTORIC BREAKTHROUGH."**

Simon Morgan, Chief Executive,  
EODEX UK

## EODEX UK



### A silent triumph: clearing offshore munitions with eco-friendly innovation

In 2023, EODEX completed a historic operation for the Moray West offshore wind farm, successfully clearing the largest collection of munitions on a single wind farm development.

More than 80 confirmed items of unexploded ordnance (UXO) were cleared using a low order deflagration technique which neutralises the munition by 'burning out' their explosive contents and is the most environmentally friendly method for clearing marine ordnance on and beneath the seabed. This pioneering approach is cost-effective, ten times quieter and significantly minimises shock waves which damage marine habitats, compared to conventional methods. The technique has been subjected to full quarry and open sea trials and has a track record of success in military circles. The UXO items included naval projectiles, anti-submarine weapons, sea mines and air-dropped weapons. The naval projectiles ranged from 4.5 to 15 inches, and one was dated October 11, 1915. The air-dropped weapons encountered were from both world wars and the sea mines most likely World War II.



## EUROPEAN MARINE ENERGY CENTRE



Two decades of pioneering technology commercialisation

Celebrating its 20th anniversary in 2023, the European Marine Energy Centre (EMEC) is the world's leading centre for demonstrating ocean energy technologies at sea and is the first and only accredited ocean energy test facility of its kind. Beyond its initial mission, the centre is also pioneering developments in green hydrogen, offshore floating wind and a clean energy economy.

Operating as a plug-and-play facility, EMEC is instrumental in reducing the time, cost and risk of testing innovative sustainable technologies and facilitating a smoother path to commercialisation.

Its impact from research and development activities is impressive, contributing £370 million GVA to the UK economy since 2003, with £263 million benefiting Scotland. Orkney alone has seen £130 million in GVA and the creation of 224 jobs.

EMEC's activity has fostered a cluster of activity in Orkney that is enabling other companies to develop and thrive, with the local marine renewables supply chain now exporting services and knowledge across the UK and around the world.

Harnessing the abundant resources available in the Highlands and Islands, EMEC is supporting the just transition and creating economic benefits in rural peripheral areas.



**"EMEC WAS SET UP IN 2003 TO KICK-START AN OCEAN ENERGY SECTOR IN THE UK AND BOOST ECONOMIC DEVELOPMENT IN THE HIGHLANDS AND ISLANDS. THE ACTIVITY THAT HAS TAKEN PLACE IN ORKNEY OVER THE LAST 20 YEARS HAS BEEN A CATALYST FOR ECONOMIC DEVELOPMENT, CREATING JOBS AND A WORLD-LEADING SUPPLY CHAIN NOW EXPORTING SKILLS AND KNOWLEDGE AROUND THE GLOBE."**

Eileen Linklater, External Relationship Manager, European Marine Energy Centre



**"WHAT WE LEARN ABOUT RECYCLING END-OF-LIFE RENEWABLE ASSETS IN SCOTLAND TODAY WILL INFORM HOW WE CREATE A GLOBAL CIRCULAR ECONOMY FOR THESE MATERIALS TOMORROW."**

Charlotte Stamper, Energy Infrastructure Lead, European Metal Recycling

## EUROPEAN METAL RECYCLING



What goes around comes around: creating a circular economy based on decommissioned renewable assets

European Metal Recycling (EMR) is pioneering the world's first circular economy for decommissioned renewable assets, opening a wind turbine processing facility in Glasgow.

Wind turbines and solar panels contain a wealth of materials and components that can be reclaimed to forge the next generation of renewables. This approach negates the need to extract virgin resources from the Earth, aligning with the collective journey towards sustainable, renewable energy.

EMR's state-of-the-art wind turbine processing centre specialises in the recovery of components and materials from turbines and related assets, while the company also works with suppliers and customers to give components a useful second life.

The project is part funded by Re-Rewind, an innovative industry partnership – spearheaded by EMR - dedicated to establishing a circular supply chain for the rare earth magnets found in modern wind turbines. This initiative marks a significant leap forward in fostering a closed-loop system for the lifecycle of renewable assets.

## Advancing solar, district heating and battery technologies for a greener future

In response to the growing demand for renewable energy and low-carbon technology solutions, FES Group launched a dedicated division, 'FES Energy', in 2016.

FES Energy guides stakeholders through the entire lifecycle of a diverse range of technologies including solar PV, battery storage, hydro power, district energy solutions (heating, cooling and ambient) including heat pumps and more.

The company has provided end-to-end services for grid scale, commercial property and domestic solar PV solutions. The FES offering includes project funding and site acquisition, with secured grid connectivity managed via an in-house, high voltage division.

Utilising expertise in creating district energy networks, FES has delivers district heating and ambient networks

utilising low-carbon technologies and waste to energy solutions.

FES recognises the transformative potential of battery storage in reshaping energy consumption and transitioning to sustainable energy sources. Its scalable solutions integrate with renewable technologies such as solar, wind and hydro, creating cohesive and efficient renewable energy plants.

Today, FES Group employs more than 2,000 staff across the UK, including more than 200 apprentices.



**"IT'S AN EXCITING TIME TO BE INVOLVED IN THE ENERGY SECTOR AS WE CONTINUE TO SUPPORT BUSINESSES AND ORGANISATIONS IN THEIR DRIVE TO NET-ZERO. WE ARE WORKING WITH ONE CARBON WORLD TO MAKE SURE WE CONTINUE TO ACHIEVE THE CARBON NEUTRAL INTERNATIONAL STANDARD AND WE ARE ALSO A BUSINESS CHAMPION FOR CONSTRUCT ZERO, THE CONSTRUCTION INDUSTRY'S ZERO CARBON CHANGE PROGRAMME."**

James Reid, Energy Operations Director,  
FES Group

## Cutting-edge steel fabrication in Aberdeen

Forsyth's has ambitious plans to establish an innovative secondary steel fabrication facility, in a strategic move to meet the increasing demand in the offshore wind sector.

With support from the Energy Transition Zone, Port of Aberdeen and Aberdeen City Council, Forsyth's is focusing on secondary steel solutions and modular build work.

Through the refurbishment of an existing building next to Aberdeen South Harbour, the facility will be capable of producing up to 3,000 metric tonnes of steel fabrications per year, designed flexibly to meet the current and future needs of the offshore wind industry. This investment will allow the organisation to explore larger modular sub-assemblies, staging and substructures.

Already serving the secondary steel market in Buckie, Forsyth's aims to overcome capacity constraints with this new facility, leveraging the latest automated technology for increased efficiency .

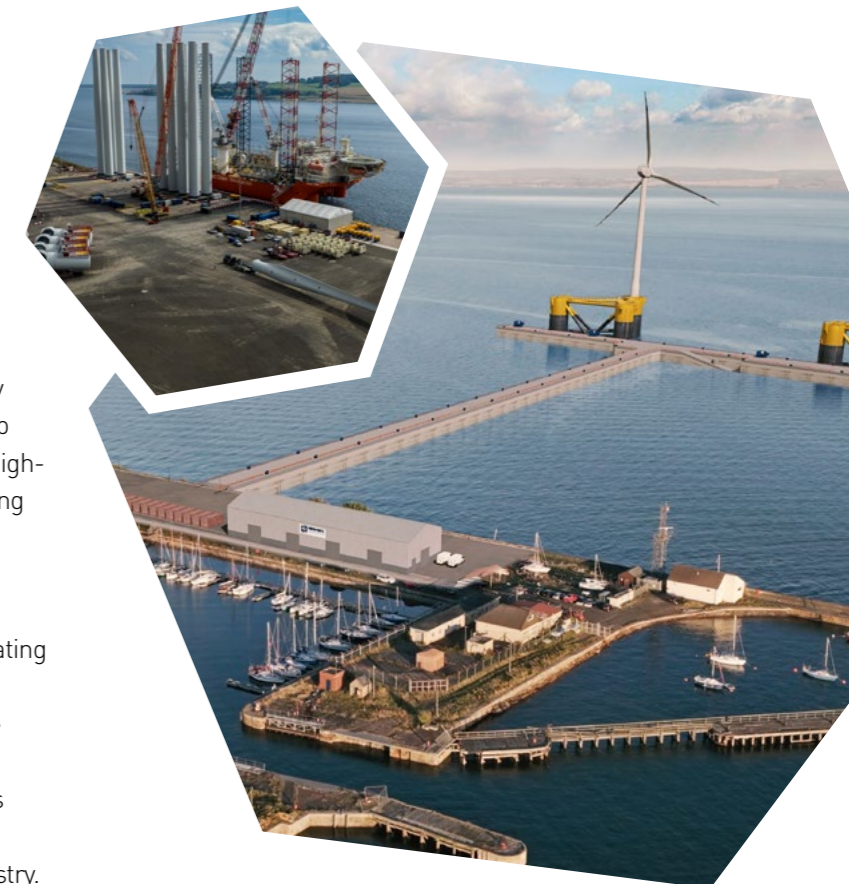


## The power of port potential

Forth Ports is investing more than £150 million to deliver purpose-built renewables infrastructure.

The recently completed Dundee marshalling facility is successfully delivering the Neart na Gaoithe project and in Leith, transformational infrastructure set to be complete by summer 2024 will create Scotland's largest renewables hub over more than 175 acres. The hub is set to support 1,000 high-quality direct jobs and 2,000 indirect jobs from manufacturing and supply chain activities.

Forth Ports' next ambitious project is the development of Scotland's first high-capacity, purpose-built deep water floating wind turbine integration, marshalling and commissioning facility at the Port of Burntisland. The company will operate a multi-port strategy with sister ports Leith and Dundee, supported by deep water wet storage across the Forth. This approach aims to establish a floating wind hub and foster economic and social benefits within the offshore wind industry.





**FUGRO** 

**Diving into the future of subsea surveys**

In 2023, Fugro achieved the world's first fully remote subsea inspection of offshore wind farm assets in the North Sea, off the coast of Aberdeen. This groundbreaking milestone was achieved using its Blue Essence®, an uncrewed surface vessel (USV), in tandem with Blue Volta®, an electrical remotely operated vehicle (eROV). The eROV launched remotely and delivered several inspections to assess the integrity and safety of wind turbines. A detailed map of the seabed was created using data gathered from a deepwater multibeam echosounder sensor mounted on the hull of the vessel. Real-time access to the Geo-data facilitated swift decision-making for the project's

asset maintenance programme. The eROV was recovered from Fugro's remote operations centre (ROC) in Aberdeen.

Blue Essence® forms part of Fugro's uncrewed operations strategy to achieve greater agility, safety and sustainability. The vessel can spend up to two weeks performing inspections at sea without refuelling, resulting in a 95% reduction in carbon emissions compared to conventional ROV support vessels. Blue Essence® is the first USV to receive approval from the Maritime and Coastguard Agency to operate fully remotely with an eROV and undertake surveys in UK waters.

**"THIS IS A LANDMARK MOMENT FOR OFFSHORE OPERATIONS AND DEMONSTRATES HOW REMOTE TECHNOLOGIES ARE BRINGING SIGNIFICANT BENEFITS TO THE OFFSHORE WIND INDUSTRY. OUR USVS CAN BE OPERATED FROM OUR GLOBAL NETWORK OF ROCS, ALLOWING US TO DELIVER FASTER AND MORE SUSTAINABLE INSPECTION AND GEOPHYSICAL SERVICES FROM ONSHORE LOCATIONS, WHICH ARE ALSO MUCH SAFER FOR CREW THAN THE OFFSHORE ENVIRONMENT."**

Nick Simmons, USV and Remote Working Director for Europe and Africa, Fugro

**GEO-STRUCTURAL** 

The SQY is the limit: optimum working-at-height solutions

Geo-Structural has introduced the SQYFlex blade access platform to Scotland and the rest of the UK.

The first of its kind in Scotland, the SQYFlex platform allows work to be carried out in poor weather conditions and as a result, extends the blade maintenance season.

The SQYFlex is powered by the SQYPower battery bank which uses renewable energy generated directly from the wind turbine, reducing the carbon emissions of blade maintenance projects. This technology revolutionises blade maintenance operations, improving overall productivity while enhancing the safety of technicians and reducing the carbon footprint of wind farm projects.

**"I AM DELIGHTED AND PROUD OF THE REMARKABLE SUCCESS WE'VE ACHIEVED WITH THE SQYFLEX DEPLOYMENT ACROSS SCOTLAND. THE SUBSTANTIAL REDUCTION IN DOWNTIME HAS NOT ONLY OPTIMISED OUR OPERATIONS BUT ALSO UNDERSCORED THE INVALUABLE EFFICIENCY THIS INNOVATION BRINGS TO BLADE REPAIRS. THE SQYFLEX HAS PROVEN TO BE A GAME-CHANGER IN THE BLADE REPAIR INDUSTRY, REINFORCING OUR COMMITMENT TO PIONEERING SUSTAINABLE SOLUTIONS IN THE RENEWABLE ENERGY SECTOR."**

Scott Smith, Renewables Manager, Geo-Structural





## Investing in land, assets and people

Owned and operated by Global Energy Group (GEG), the Port of Nigg has managed more than 2.6GW of offshore wind assets. Pursuing an ambitious growth strategy GEG aims to develop Nigg as an offshore renewables 'superhub'.

In 2023, the Port of Nigg was awarded Green Freeport status by the UK and Scottish Governments as part of the Inverness and Cromarty Firth Green Freeport consortium. The initiative will generate up to 16,000 new jobs and unlock up to £3 billion in investment, while accelerating the region's potential to become the largest European hub for offshore wind and associated renewable energy technologies.

In the same year, GEG completed its role with the 1.1GW Seagreen offshore wind farm, delivering pre-assembly and marshalling for the wind turbine generators and jacket foundations.

The group has secured contracts for the 882MW Moray West offshore wind farm, including the marshalling and pre-assembly of the transition pieces and the site has been chosen by Siemens Gamesa to undertake the pre-assembly of the projects wind turbines. In addition, GEG completed the fabrication of the two substation J-tube cages for Moray West, supporting 50 local jobs onsite.



**"GEG CONTINUES TO INVEST IN ITS PEOPLE, LAND AND ASSETS AS WELL AS BEING COMMITTED TO LEADING THE DEVELOPMENT OF AN OFFSHORE RENEWABLES SUPERHUB IN SCOTLAND. BY BUILDING ON EXISTING CORE COMPETENCIES OF STORAGE, MARSHALLING, LOGISTICS AND FABRICATION AND EXPANDING OUR ASSEMBLY, MANUFACTURING AND O&M CAPABILITIES, OUR STRATEGIC GROWTH PLANS ARE ALIGNED TO SUPPORT THE DELIVERY OF GOVERNMENT TARGETS OF 50GW OF OFFSHORE WIND BY 2030."**

Iain Sinclair, Executive Director,  
Global Energy Group



## GRAVITRICITY

### Paving the way for underground energy storage

Building on the success of the company's gravity energy storage demonstrator project in Edinburgh, Gravitricity has advanced its GraviStore technology and is exploring site opportunities for a full-scale commercial demonstrator.

In 2023, Gravitricity achieved significant milestones for the GraviStore system including:

- Signing a Memorandum of Understanding with the Czech Republic's state enterprise DIAMO and delivering a feasibility study in a closed coal mine in Czechia.
- Securing a contract with Geiger Group to investigate the potential of storing energy at a decommissioned mine 150km from Berlin.
- Partnering with Panitek Power on a £194,000 Innovate UK grant funded project to research market requirements, project partners and site requirements to develop the technology in the Indian energy storage market.



In May 2023, Gravitricity was awarded £150,000 funding from the Scottish Government's Hydrogen Innovation Scheme to further develop a novel underground hydrogen storage system, H2FlexiStore. The financial support has empowered Gravitricity engineers to collaborate with key research partners at the University of Edinburgh to optimise the technology and will drive innovation in the production, storage and distribution of green hydrogen in Scotland.

**"AT GRAVITRICITY WE ARE DEVELOPING INNOVATIVE, LONG-LIFE, UNDERGROUND TECHNOLOGIES WHICH STORE ENERGY SAFELY AND DELIVER IT ON DEMAND AT A LOWER LIFETIME COST THAN CURRENT ALTERNATIVES."**

Martin Wright, Co-Founder and Executive Chairman,  
Gravitricity

**“2023 WAS AN EXCITING YEAR FOR GREEN MARINE, OUR FANTASTIC AND DEDICATED STAFF WORKED EXTREMELY HARD TO BRING INNOVATION AND SUCCESS TO THE COMPANY. WE ARE LOOKING FORWARD TO THE OPPORTUNITIES THAT LIE AHEAD IN 2024 AND ARE INVESTING IN OUR ASSETS AND STAFF TO ENHANCE AND EXPAND THE SERVICES WE PROVIDE TO THE ENERGY SECTOR.”**

Jason Schofield, Managing Director, Green Marine



**GREEN MARINE** 

**Riding the wave of success in marine solutions**

Green Marine works on multiple wind farms around Scotland and the UK, providing services including floating light detection, data gathering, buoy installations, hydrographic surveys, seabed sampling and fishery liaison.

Green Marine is a partner in the monumental Wave Energy Demonstration at Utility Scale to Enable Arrays (WEDUSEA) project, one of the largest wave energy initiatives in the world.

Launched in 2023, this initiative will see a wave energy device installed at EMEC’s test site, Billia Croo, in Orkney. Green Marine will play a key role as the installation contractor, coordinating all marine operations. Driven by its ambition to develop zero-



emission operations, Green Marine is part of Project Verdant which aims to improve the green credentials of a crew transfer vessel by replacing diesel propulsion with hydrogen powered electrical drives.

Green Marine was recognised at the National Maritime SME Awards 2023, winning the “Digitalisation in the Workplace” award.

**IKM TESTING** 

**A French connection**

In 2023, IKM Testing delivered a high voltage termination and testing (T&T) scope in France during the construction of three floating offshore wind foundations. The opportunity allowed the company to learn the needs of the cable T&T market and identify where it could leverage its solutions. Through strategic partnerships, IKM Testing provided the complete package including pull-in, T&T and fiber optics.

With support from its sister company, IKM Ocean Team in Denmark, IKM Testing is introducing a solution for the safe and efficient change of lubricants in wind turbine nacelles. Safe Oil Conversion for Offshore Turbines is a compact modular package designed to offer maximum cleanliness and flexibility. This streamlines the lubricant change process, minimises downtime and optimises maintenance schedules.



**“WE ARE EXCITED TO BRING IKM’S SKILLS IN PROJECT DELIVERY AND INNOVATION TO THE RENEWABLES INDUSTRY. IN CONJUNCTION WITH OUR SISTER COMPANIES IN NORWAY AND DENMARK WE WANT TO BRING BEST PRACTICE TO PROJECTS IN THE UK AND EUROPE.”**

Scott Morton, Energy Transition Manager, IKM Testing

**INNOVAIR** 

**Reaching lofty heights with cutting-edge drone technology**

With bases in Aberdeen and Edinburgh, Innovair provides a range of inspection services to those developing, constructing, installing or maintaining wind projects. The company is committed to innovation and investment in the latest inspection technologies including drones, crawlers, remotely operated vehicles, cameras and other sensors.

A recent milestone for Innovair was securing a long-term contract with Inch Cape offshore wind farm for drone inspection services, adding to existing contracts with Equinor and SSE Renewables.

Innovair has ambitious plans to double its headcount in 2024.



**“WE ARE EXCITED BY THE GROWTH OPPORTUNITIES EMERGING ACROSS SCOTLAND DRIVEN BY THE CONSTRUCTION OF NEW WIND FARMS. INNOVAIR TAKES IMMENSE PRIDE IN ACTIVELY CONTRIBUTING TO THE VIBRANT LANDSCAPE OF SCOTLAND’S WIND ENERGY. WE ARE COMMITTED TO LEVERAGING ROBOTICS AND SUPPORTING OUR COUNTRY’S JOURNEY TOWARDS A SUSTAINABLE, LOW-CARBON FUTURE.”**

Andrew Johnston, Inspection Director, Innovair

## INTERNATIONAL TESTING SERVICES



Techniques of tomorrow become a reality for renewables

International Testing Services (ITS) has announced its recent expansion into cutting-edge non-destructive testing methods, including phased array ultrasonic testing, time-of-flight diffraction and a host of other advanced techniques to support the renewable energy market.

These advanced methods provide a new dimension of precision and equip ITS with comprehensive assessments of welds, thickness measurements, corrosion detection and more. The company also continues to grow with the acquisition of new office space.

**“AS WE EXPAND OUR CAPABILITIES AND EMBRACE CUTTING-EDGE TECHNOLOGIES IN THE WORLD OF NON-DESTRUCTIVE TESTING, OUR COMMITMENT TO INNOVATION, QUALITY AND EXCELLENCE REMAINS UNWAVERING. WE’RE DEDICATED TO ENSURING THE INTEGRITY OF CRITICAL ASSETS AND CONTRIBUTING TO A SUSTAINABLE, GREENER FUTURE. WE’RE PROUD OF HOW FAR WE’VE COME SINCE OUR INCEPTION IN 2020, AND WE’RE EXCITED ABOUT THE PROMISING PATH THAT LIES AHEAD.”**

George Shields, Quality Director,  
International Testing Services



## J+S SUBSEA



Small company, big vision: giving new life to old subsea equipment

J+S Subsea Limited was awarded the 2023 Sustainability Decom Award.

Central to the company’s growth and net-zero focus is the innovative Legacy Locker which facilitates the reuse, refurbishment and recycling of subsea equipment. As well as unlocking capital tied up in unwanted equipment, the system helps users to boost their environmental credentials by finding ways to reduce waste.

J+S Subsea is currently focusing on creating an environmental, social and governance (ESG) policy, surveying the supply chain and tackling waste by adopting a range of measures including carrying out carbon assessments on each piece of kit to illustrate potential carbon savings to clients.

**“SMALL COMPANIES LIKE OURS NEED TO BE EMPOWERED BY THE FACT THAT THEY CAN ACHIEVE GREAT THINGS WITH THE RIGHT TEAM AND THE RIGHT ETHOS. WE REMAIN COMMITTED TO OUR JOURNEY TOWARDS NET-ZERO BY FOCUSING ON COLLABORATION AND INNOVATION AND WE LOOK TO THE FUTURE WITH CONFIDENCE AND OPTIMISM.”**

Lucinda Craig,  
Business Development Director,  
J+S Subsea



## ITPENERGISED



Unlocking Scotland’s renewable potential with on and off-grid innovations

In 2023, ITP Energised - part of the SLR Group - supported a growing number of green hydrogen and power-to-X projects, advising on technical, grid, environmental and consenting considerations.

For client Renantis, ITP Energised provided noise assessments and planning support on a pioneering renewables project in New Cumnock, Ayrshire. The proposed site utilises excess wind energy to generate green hydrogen off-grid and was supported by an early site selection strategy for power-to-X developments.

The organisation’s techno-economic, co-location consulting service assists developers in optimising the size of their proposed renewable generators, battery storage and grid connections to maximise the net-zero impact of projects.

ITP Energised continues to offer a transmission network use of system charging prediction service based on a unique digital twin of the GB power network, providing insights for its clients with projects in Scotland and globally.

Beyond traditional consultancy in wind, solar PV and battery storage, the company has entrepreneurial ambitions through the development of an innovative dynamic cable rating tool which aims to reduce offshore grid cabling costs.

**“INNOVATION AND ENTREPRENEURSHIP ARE KEY VALUES THAT UNDERPIN HOW ITPENERGISED WORKS, AND WE CONTINUALLY EVOLVE OUR DIGITAL SERVICES AND TECHNICAL EXPERTISE TO ADDRESS MARKET CHALLENGES AND CHANGES. AS THE ENERGY TRANSITION GATHERS PACE, OUR TECHNOLOGY-ENABLED INNOVATION WILL HELP OUR CLIENTS DELIVER NET-ZERO IN SCOTLAND AND BEYOND.”**

Jonny Clark, Managing Director,  
ITP Energised



## JBA CONSULTING



Strategic planning software supports Inch Cape installation

JBA Consulting is using its strategic and operational planning software, ForeCoast, to inform the installation phases of the 72 turbine Inch Cape offshore wind farm.

ForeCoast simulates the project’s key installation phases including foundations, inter-array cables, offshore substation platforms, export cables and wind turbine generators. Through these simulations, the performance of proposed strategies are compared against key metrics including capital expenditure, operational expenditure, weather and more. This technique reduces project risk and maximises performance.

**“WE WERE DELIGHTED TO BE APPOINTED TO THE INCH CAPE OFFSHORE WIND FARM PROJECT AND ARE PROUD OF THE CONTRIBUTION WE’RE MAKING TO OPTIMISING AND DE-RISKING THE PROJECT DESIGN.”**

Laurie Wilkinson, Operations Manager,  
JBA Consulting







**“KRAKEN IS COMMITTED TO GROWING OUR PRESENCE IN THE UK THROUGH OUR SCOTTISH FACILITY IN ABERDEEN. WE PRIDE OURSELVES IN BEING STRATEGICALLY PLACED TO SUPPORT THE GROWING OFFSHORE WIND SECTOR IN SCOTLAND WHILST SUPPORTED BY OUR CANADIAN HEADQUARTERS TO DELIVER THE BEST TECHNOLOGY SOLUTIONS.”**

Lynne Adu, Executive Vice President  
Commercial and Field Operations,  
**Kraken Robotics**

## KRAKEN ROBOTICS



Deep water and challenging currents are no match for marine technology

Kraken Robotics is a marine technology company providing complex subsea sensors, batteries and robotic systems. Its high-resolution 3D acoustic imaging solutions empower clients to conquer the complexities in our oceans with a focus on safety, efficiency and sustainability.

Based in Aberdeen, Kraken Robotics’ state-of-the-art underwater technology, equipped with advanced Synthetic Aperture Sonar (SAS), enables precise data collection and analysis, safeguarding the integrity of critical infrastructure such as wind turbines and subsea cables.

Kraken has actively contributed to projects throughout Scotland and the UK in 2023, including Seagreen, Western Link and the Moyle Interconnector. These ventures involved deploying more than 1,000km of submarine power cables and natural gas supplies, navigating

through deep waters, strong currents and unexploded ordnance sites. Using Kraken’s remote acoustic sensors, these power cables ensured operational continuity and reduced risks to project teams.

With significant investment in new facilities, Kraken Robotics has experienced substantial growth in Scotland. The expansion encompasses new infrastructure and an expanded workforce, showcasing the company’s commitment to local talent and economic development.



## LEASK MARINE



Making waves: supporting the delivery of 92 global projects in two years

Leask Marine’s fleet of vessels and equipment, coupled with its skilled technical team of marine consultants, means the company can deliver all phases of a project’s lifecycle.

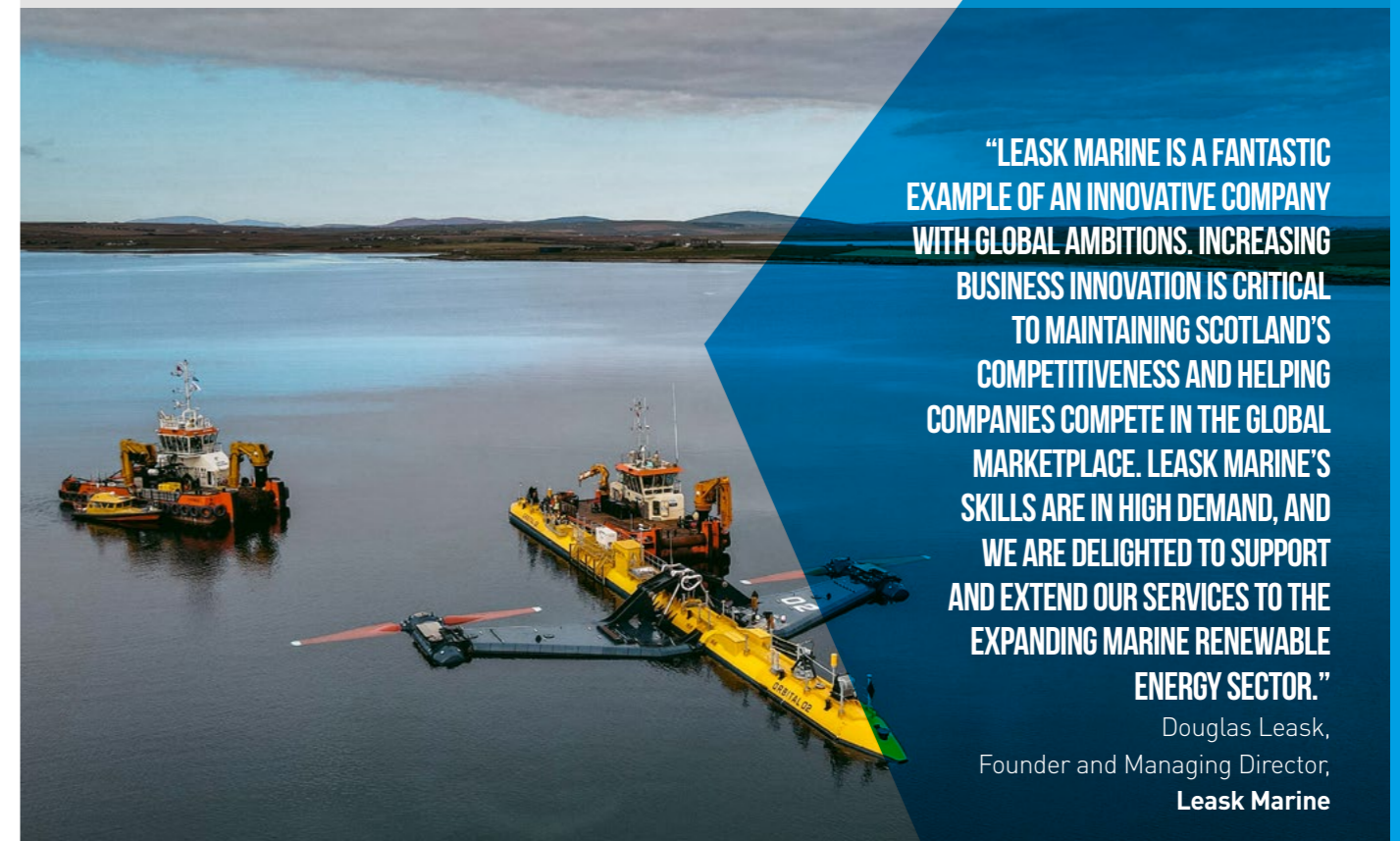
Over the last two years, Leask Marine has completed 92 offshore renewable service projects across the world. This impressive portfolio includes:

- 63 wave and tidal projects
- 14 offshore wind farms
- Nine offshore wind marine construction projects
- Six offshore wind marine operation projects.

Leask Marine has supported Magallanes Tidal Energy with multiple operation and maintenance projects for its ATIR tidal floating platform at EMEC’s tidal test site in Orkney since 2018. Initially involved with de-risking tidal energy technologies through rigorous testing and validation in the marine environment, the company is now building a heeling pontoon to support blade maintenance operations.

The team successfully installed Nova Innovation’s world-leading tidal energy technology at the Étrel Estuary, bringing its turbines to France for the first time. Since then, it has deployed dozens of tidal turbines and the associated infrastructure for Nova and developed a safe, reliable and cost-effective strategy for their marine operations.

Further successes include delivering and installing Mocean’s Blue X wave energy converter platform and Orbital Marine Power’s O2, the world’s most powerful tidal turbine.



**“LEASK MARINE IS A FANTASTIC EXAMPLE OF AN INNOVATIVE COMPANY WITH GLOBAL AMBITIONS. INCREASING BUSINESS INNOVATION IS CRITICAL TO MAINTAINING SCOTLAND’S COMPETITIVENESS AND HELPING COMPANIES COMPETE IN THE GLOBAL MARKETPLACE. LEASK MARINE’S SKILLS ARE IN HIGH DEMAND, AND WE ARE DELIGHTED TO SUPPORT AND EXTEND OUR SERVICES TO THE EXPANDING MARINE RENEWABLE ENERGY SECTOR.”**

Douglas Leask,  
Founder and Managing Director,  
**Leask Marine**



## A new standard for low-noise wind energy generation

Over the last two years, Micrea has made significant strides in the renewable energy sector, notably through its pioneering work on vertical axis wind turbines (VAWT). The floating VAWT projects span from scalable units of 4KW to a substantial 1MW, catering to diverse energy needs.

Positioned close to turbulent Scottish waters, the VAWTs produce less than 10% of the noise of Horizontal Axis Wind Turbines (HAWTs).



Micrea's commitment to sustainability and innovation is reflected in its comprehensive 3MW Floating VAWT system. Equipped with advanced electronics and 24/7 iCloud monitoring, it offers a significant contribution to the renewable energy landscape, with each system generating 6.33GWh annually.



## To grout or not to grout: a new way of installing offshore jacket foundations

Napkin Innovation is developing a mechanical alternative to grout for offshore wind jacket foundation installations. The non-grouted connector (NGC) won an industry-sponsored innovation competition and subsequently progressed to small scale trials with an offshore demonstration aimed for 2026.

Addressing industry-wide concerns around placement, early-age cycling, grout consistency, demonstration of strength and durability, the NGC relies on a series of interconnecting grips and wedges. This design facilitates

almost instantaneous connection between the jacket and pile, eliminating the need for traditional grouting. The absence of grout streamlines installation processes, meaning cost savings and reduced carbon emissions.

Developing technology of this scale requires collaboration and Napkin has a long-standing collaboration with Kent and Strathclyde University. Kent provides crucial engineering support, having dedicated the summer of 2023 to scaling the technology for 20MW turbines, while the Advanced Materials Research Laboratory is currently testing for fatigue and wear.



**“COLLABORATION IS KEY TO DEVELOPING NEW TECHNOLOGIES AND THE WAY WE WORK WITH KENT AND STRATHCLYDE UNIVERSITY IS AN EXAMPLE OF HOW WELL COMPANIES OF DIFFERENT SIZES CAN WORK TOGETHER. COLLEAGUES FROM KENT AND STRATHCLYDE UNIVERSITY ARE VERY MUCH PART OF THE TEAM.”**

Jacqueline Morrison, Founder, Napkin Innovation



## Providing a home-from-home for renewable energy maintenance teams

North Star provides critical logistical support for the offshore wind market through new-build service operations vessels (SOV). These ships provide access to offshore turbines and in-field substations for maintenance teams, offering high-standard accommodation and a warehouse for technicians and equipment in the field.

In 2023, the company took delivery of its first three hybrid SOVs, has three more currently under construction with plans for many more. The new fleet has opened doors for North Star, enhancing job security for its 1,400 strong workforce, creating 40 offshore roles for each new ship delivered.

North Star's target of adding 40 new hybrid SOVs to its fleet by 2040 requires a £2.5 billion capital investment. Committed to future marine talent development, North Star also invests more than £1 million annually in its cadet programme. With bold European expansion plans, North Star is aiming to become the UK and Europe's leading SOV operator.

**“OUR APPROACH TO DEVELOPING OUR NEW SERVICE IN OFFSHORE WIND IS UNDERPINNED BY THE SAME CORE VALUES, ORGANISATIONAL STRUCTURE AND COLLABORATION WITH THE SUPPLY CHAIN IN SCOTLAND AND THE WIDER UK THAT HAS SERVED US WITH SUCCESS FOR THE PAST 40 YEARS.”**

Fraser Dobbie, Chief Financial Officer, North Star



## OFFSHORE SOLUTIONS GROUP



Revolutionising wet storage solutions across Europe

Optimising and de-risking the operational and logistical delivery of commercial scale floating offshore wind farm projects, particularly in terms of crane and vessel usage, hinges on the need for wet storage.

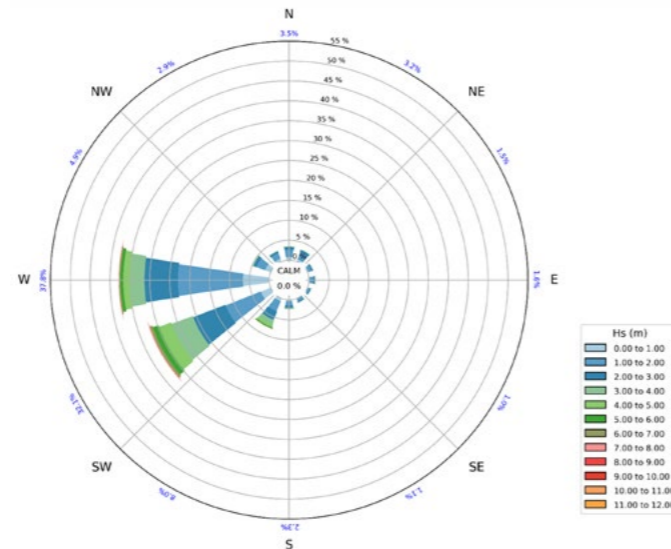
Wet storage provides safe anchorage points where floating wind foundations can be prepared for turbine tower integration and readied for offshore installation. The size and scale of floating wind foundations means that finding suitable wet storage sites is a challenge for the sector.

Offshore Solutions Group's TS-FLOW Wet Storage programme evaluates and assesses more than 40 key parameters to identify suitable large-scale wet storage locations and is now in its third year of development activity.

**"AFTER ALMOST THREE YEARS OF PLANNING, ASSESSMENT AND DEVELOPMENT, THE TS-FLOW WET STORAGE SOLUTION NOW REPRESENTS THE MOST ADVANCED ENABLER TO ANY GIGAWATT-SCALE FLOATING WIND LOGISTICS CHALLENGE."**

Will Rowley, Chief Executive Officer,  
**Offshore Solutions Group**

Example wave rose  
(Celtic Sea)



## PD&MS GROUP



A circular approach to crafting communications

PD&MS Group employs more than 600 people across the globe.

The company's Aberdeen base secured a contract from Montrose Port Authority to supply the communications mast for the Seagreen offshore wind farm.

Its stand-out bid proposed repurposing an existing meteorological mast structure from Moray East wind farm. The 50-metre communications mast now sits on the Montrose quayside, serving as a crucial link between the Seagreen wind farm, 17 miles off the coast and the onshore operations team.

This circular economy approach reduced resources by 68% and contributed to an almost 50% reduction in CO2 emissions compared to manufacturing a new communications mast from scratch.



## PORT OF ABERDEEN



Vast number of renewables vessels in 2023

Port of Aberdeen is a leading renewable energy hub, hosting more than 700 offshore wind vessels in 2023, driven by support for offshore wind projects including the Seagreen and Neart na Gaoithe offshore wind farms.

With the Aberdeen South Harbour expanding its capacity and capability along with an expert local supply chain, the port now attracts vessels that once bypassed the city. Notably, the Blue Tern a wind turbine installation vessel from Fred. Olsen Windcarrier utilised the port for maintenance in 2023.

The port is progressing a capital dredge project for South Harbour to position the port for INTOG and ScotWind turbine integrations and foundation assemblies, as well as longer-term major component exchanges with tow-in, tow-out operations.

In collaboration with Subsea7, Port of Aberdeen is exploring subsea hydrogen storage at South Harbour in a Scottish Government-funded feasibility study.

Committed to supporting its customers' decarbonisation efforts, the port is investing £55 million over the next decade in its ambitions to become the UK's first net-zero port by 2040.



**"OUR INFRASTRUCTURE, EXPERIENCE, STRONG LOCAL SUPPLY CHAIN AND STRATEGIC LOCATION WITHIN 200 KILOMETRES OF ALL CURRENT AND FUTURE WIND FARMS MAKE PORT OF ABERDEEN A PRIME CHOICE TO SUPPORT FUTURE OFFSHORE WIND DEVELOPMENTS."**

Roddy James, Chief Commercial Officer,  
**Port of Aberdeen**

# WE ARE PETERSON

Bringing over 50 years of energy logistics experience and expertise to renewable energy markets.

[energylogistics.onepeterson.com](https://energylogistics.onepeterson.com)

**PETERSON**



**“OUR WORK WITH OCEAN WINDS, AND OTHERS, DEMONSTRATES OUR ABILITY TO PROVIDE THE INNOVATIVE ANALYSIS, DESIGN AND ENGINEERING REQUIRED TO DELIVER WORLD LEADING PROJECTS. QUOCEANT IS PROUD TO BE PART OF THE SCOTTISH SUPPLY CHAIN AS IT PUSHES THE FRONTIERS OF OFFSHORE RENEWABLE ENERGY.”**

Jon Benzie, Co-Founder,  
**Quoceant**



**QUOCEANT** 

Providing innovation offshore

Quoceant’s engineering team offers professional services in analysis, modelling, design and operations planning as well as technology development such as the marine quick connection system.

From Edinburgh, the company supports clients with projects in the fixed and floating offshore wind, wave, tidal and energy storage sectors.

A recent success for Quoceant, which has allowed the company to expand into the offshore wind sector, is its provision of engineering support for Ocean Winds’ Moray West offshore wind farm. The work involved designing temporary steel structures for the installation of the wind turbines and providing third-party engineering support to the 2,000-ton monopiles and associated transition pieces.



**REBLADE**



Re-use, recycle, ReBlade: pioneering decommissioning and repurposing for a circular economy

ReBlade is the UK’s leading wind turbine blade and nacelle decommissioning service, specialising in cutting, transporting, repurposing and recycling decommissioned wind turbine blades.

Its blade triage approach minimises waste, creates remanufacturing economic opportunities, locks in carbon and reduces the demand for virgin materials.

Supported by an Innovate UK award, ReBlade has pioneered the manufacture and installation of blade-derived public realm infrastructure, including the repurposing of decommissioned LM40 blades as electric vehicle charging hub canopies for SSE Energy Solutions.

**“WE ARE EXCITED TO HAVE USED OUR SECTOR KNOWLEDGE TO DEVELOP CIRCULAR MATERIALS HANDLING STRATEGIES FOR SITE DECOMMISSIONING THAT ARE BOTH PRAGMATIC AND SCALABLE. REBLADE IS DELIGHTED TO BE WORKING WITH SOME OF THE BIGGEST NAMES IN THE INDUSTRY TO PIONEER GLOBAL BEST PRACTICE IN THIS EMERGING FIELD.”**

Fiona Lindsay, Managing Director,  
**ReBlade**



## RI CRUDEN



### Growing family-owned business installs solar solutions

In 2023, RI Cruden transitioned into new offices in Inverness to facilitate continued growth.

As part of the move, energy-saving upgrades were identified to produce savings of approximately 21 tonnes of CO2 per annum. The renewable energy systems were installed by RI Cruden's team of engineers and a solar PV system with battery storage now powers the building, with air source heat pumps providing warmth. The building also powers a fleet of electric vehicles via a bank of electric vehicle chargers.

The company's dedication to training is demonstrated through the office training area, which has been established to provide a hands-on experience with the latest renewable energy technologies. These efforts led to various accolades on an individual and company level, including the Highland Business of the Year award in 2023.

RI Cruden has completed many large-scale solar PV installations across Scotland, including multiple sites for Ross-shire Engineering. In 2024, the company will be undertaking further large solar PV projects, including Scottish Water's new Ibrox pumping station in Glasgow and 15 car garages across Scotland for John Clark Motor Group.



**"WE'RE INCREDIBLY PROUD OF THE ENTIRE RI CRUDEN TEAM AND OUR LOCAL PARTNERS FOR HELPING TURN OUR VISION FOR THE RENEWABLE INNOVATION CENTRE INTO REALITY. IT'S THE PERFECT PLATFORM TO CONTINUE GROWING THE BUSINESS AND EXPANDING OUR AWARD-WINNING APPRENTICESHIP SCHEME TO PRODUCE THE NEXT GENERATION OF RENEWABLES EXPERTS."**

Callum Cruden, Director,  
RI Cruden

## SARENS PSG



### Spearheading comprehensive offshore wind solutions at Invergordon

Sarens PSG is a provider of port marshalling, assembly, integration and deployment solutions to the offshore wind sector in Scotland.

Recent success includes providing support to the Moray West offshore wind farm. Entrusted with the management of the newly expanded Invergordon port area, Sarens PSG was contracted to deliver the necessary preparations for the loading and unloading of Moray West's monopiles as well as undertaking a range of ancillary support activities such as inspection, coating, repair and construction services.



**"OUR ABILITY TO OFFER AN INTEGRATED SERVICES PACKAGE BACKED UP BY MARKET-LEADING ENGINEERING SUPPORT AND ALL ASSOCIATED CONSTRUCTION, INSPECTION, INSTALLATION AND REPAIR SERVICES AS A LEAD PRINCIPAL CONTRACTOR IS UNIQUE IN THE MARKET AND WE AIM TO ROLL THIS OUT ACROSS ALL MARSHALLING HARBOURS AND SITES IN THE COUNTRY."**

Steve Clark, Managing Director,  
Sarens PSG



## SD WIND ENERGY



### Small but mighty: small scale wind turbines are going global

SD Wind Energy is a global provider of small-scale wind turbines and hybrid renewable energy systems. Its robust, high-performing turbines have been proudly manufactured in Scotland since the 1980s for projects worldwide.

Previous projects include the development of mini-grids, incorporating solar and battery technology in the small isles of Scotland, as well as off-grid platforms reaching from the North Sea to the Gulf of Thailand. SD Wind Energy has also undertaken installations at new build schools and council buildings across the UK, to remote mountain tops around the world including telecom stations in Greenland and at scientific research centres in Antarctica and the Arctic Circle.

Recent work saw SD Wind Energy manufacture three turbines in Ayrshire which were shipped to a platform 20 miles off the coast of the Netherlands in the North Sea. The project harnesses wind and solar alongside battery storage.

**"WE ARE PROUD TO MANUFACTURE ROBUST AND RELIABLE SMALL WIND TURBINES IN EAST AYRSHIRE WHICH DELIVER RENEWABLE ENERGY ACROSS THE GLOBE. WE ACTIVELY SEARCH FOR INNOVATIVE WAYS OF COMBATTING THE IMPACT OF CLIMATE CHANGE AND THERE HAS NEVER BEEN A MORE CRUCIAL TIME FOR RENEWABLE ENERGY MICROGENERATION AT INDIVIDUAL HOUSEHOLD, BUSINESS AND COMMUNITY LEVELS."**

Gary Mutter, Managing Director,  
SD Wind Energy

## SOUTH WEST ENGINEERING AND FABRICATIONS



### Growing fabricator hires local workforce

South West Engineering and Fabrications (SWEF) specialises in turnkey solutions, custom-made products, and computer-aided design (CAD). Success in the renewable energy industry has enabled the organisation to expand in staff and operations, with new premises currently under construction.

A recent project undertaken included the manufacture of two metal bridges for the South Kyle onshore wind farm.

SWEF is working closely with the local community by involving local suppliers in its operations and the organisation is taking strides in its sustainability efforts having purchased and installed a Nitrocube, a device which recycles nitrogen from the atmosphere into energy and enables equipment to run in a more sustainable way.



**“AT SOUTH WEST ENGINEERING AND FABRICATION LTD, WE HOPE THAT OUR EXPANSION WILL LEAD US IN THE WAY OF MORE RENEWABLE ENERGY PROJECTS AND WE SEE THIS AS A POSITIVE STEP FOR ALL OUR FUTURES, HERE IN SCOTLAND AND THROUGHOUT THE WORLD.”**

Alan Lang, Sales Manager,  
South West Engineering and Fabrication

## UTILITY ROV SERVICES



### Roving in the deep: remotely operated vehicles clear the way for offshore wind farms

Utility ROV Services (URS) designs, builds and operates remotely operated vehicles (ROVs) and Utility ROV (UTROV) to support subsea operations across the offshore wind interconnector and oil and gas decommissioning industries.

Based in Glenrothes, Fife, URS employs a team of 24 including local operational technicians, engineers and ROV pilots.

The company has grown significantly in recent years and its work in the renewable energy sector includes several projects for Ocean Winds. URS provided the developer with clearance operations across several phases of the Moray East and Moray West offshore wind farms, relocating boulders and debris along the export and array cable routes.

URS makes use of its engineering tools for boulder replacement, cable burial, cutting, mattress, grout bag installation and survey work. The integrated cross-capable system, designed, built and operated in-house, enables URS to improve cost performance and safely operate in harsh environments.

**“SUCCESS IN RENEWABLE ENERGY HAS ALLOWED URS TO POSITIVELY IMPACT THE LOCAL FIFE REGION. PROFITS HAVE BEEN REINVESTED TO THE DEVELOPMENT OF NEW TOOLING AND HIRING NEW LOCAL STAFF. ALONG WITH THE RETENTION OF OUR EXPERIENCED OFFSHORE FULL-TIME CREWS, WE CONTINUE TO DEDICATE OURSELVES TO A HIGH-QUALITY SERVICE THROUGH THE USE OF THE ROV-ENABLING TECHNOLOGY.”**

Luke Barnes, Business Development Manager,  
Utility ROV Services



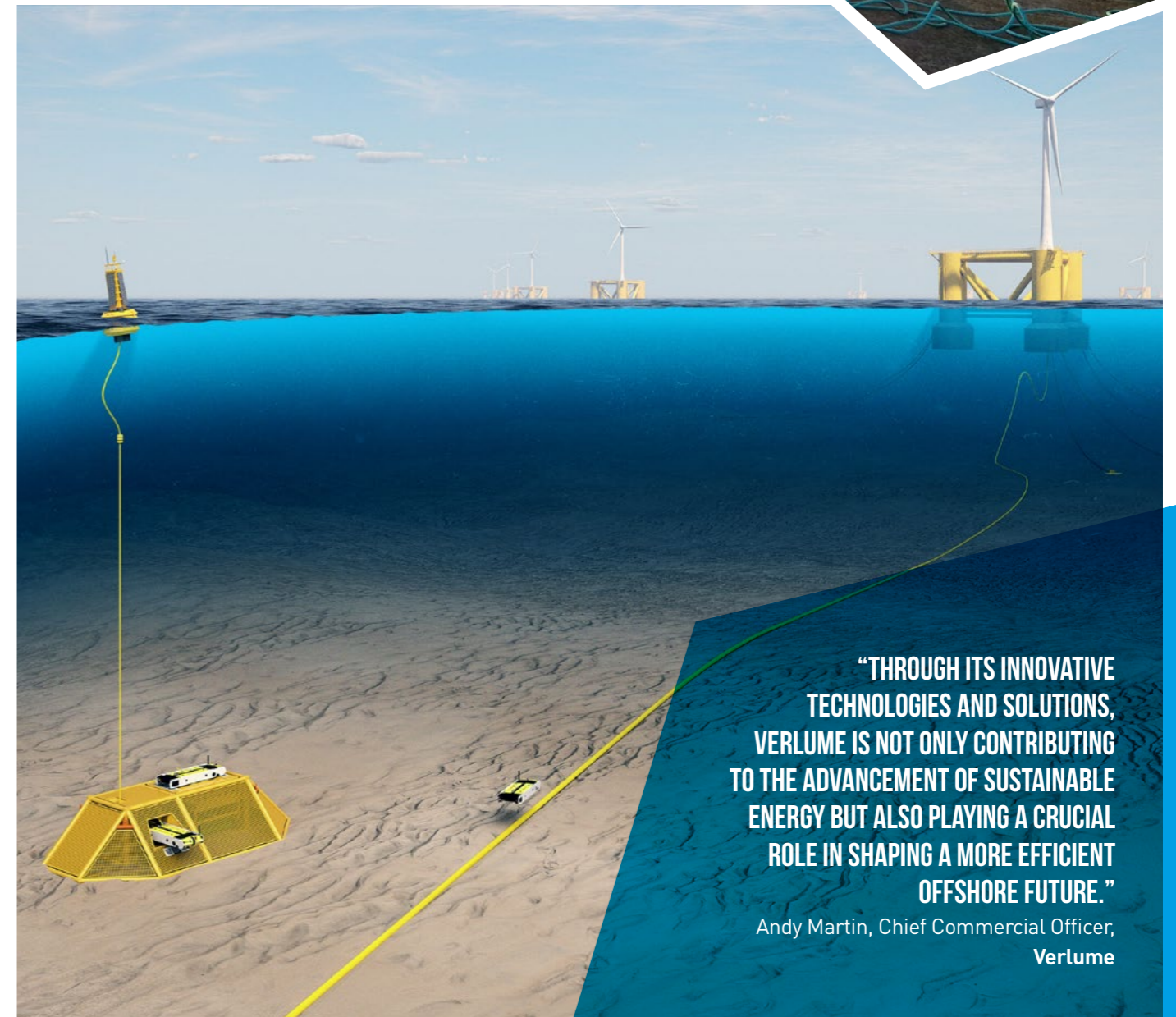
## VERLUME



### Balancing clean energy systems with subsea storage solutions

Founded in 2013 and headquartered in Aberdeen, Verlume deploys underwater energy management and battery storage technologies.

The company supplies multi-megawatt-hour underwater battery systems that are directly coupled to offshore wind turbines, helping to tackle grid curtailment issues. This unique storage solution plays a vital role in power-to-X processes whilst ensuring frequency stabilisation and management of the intermittent nature of renewable energy sources. These systems facilitate critical applications, such as long-duration seabed monitoring with resident charging stations.



**“THROUGH ITS INNOVATIVE TECHNOLOGIES AND SOLUTIONS, VERLUME IS NOT ONLY CONTRIBUTING TO THE ADVANCEMENT OF SUSTAINABLE ENERGY BUT ALSO PLAYING A CRUCIAL ROLE IN SHAPING A MORE EFFICIENT OFFSHORE FUTURE.”**

Andy Martin, Chief Commercial Officer,  
Verlume

**“WE ARE PROUD TO HAVE CONTRIBUTED TO THE MORAY WEST OFFSHORE WIND FARM FOR THE PAST THREE YEARS. OUR SURVEY AND GEOENGINEERING BUSINESS HAS EVOLVED FROM BEING SOLELY RELIANT ON OIL AND GAS PROJECTS TO BEING ALMOST 90% FOCUSED ON THE RENEWABLES SECTOR. WE LOOK FORWARD TO CONTINUING TO SUPPORT THE DEVELOPMENT OF RENEWABLES PROJECTS WITHIN SCOTLAND AND INTERNATIONALLY.”**

Michael Cousins, Vice President,  
Survey and GeoEngineering,  
Vysus Group



**VYSUS GROUP** 

**Reducing risk from the ground up**

Between 2020 and 2023 Vysus Group played a key role in the acquisition, interpretation and characterisation of geophysical and geotechnical data across the Moray West offshore wind farm site and its export cable route corridor.

Vysus Group’s work provided the project with a complete understanding of the ground conditions and risks that existed across the project’s seabed. Support was provided during the pre-construction unexploded ordnance (UXO) activity and during the project’s identifying and clearing campaigns, allowing the developer to safely plan for the start of construction activities.



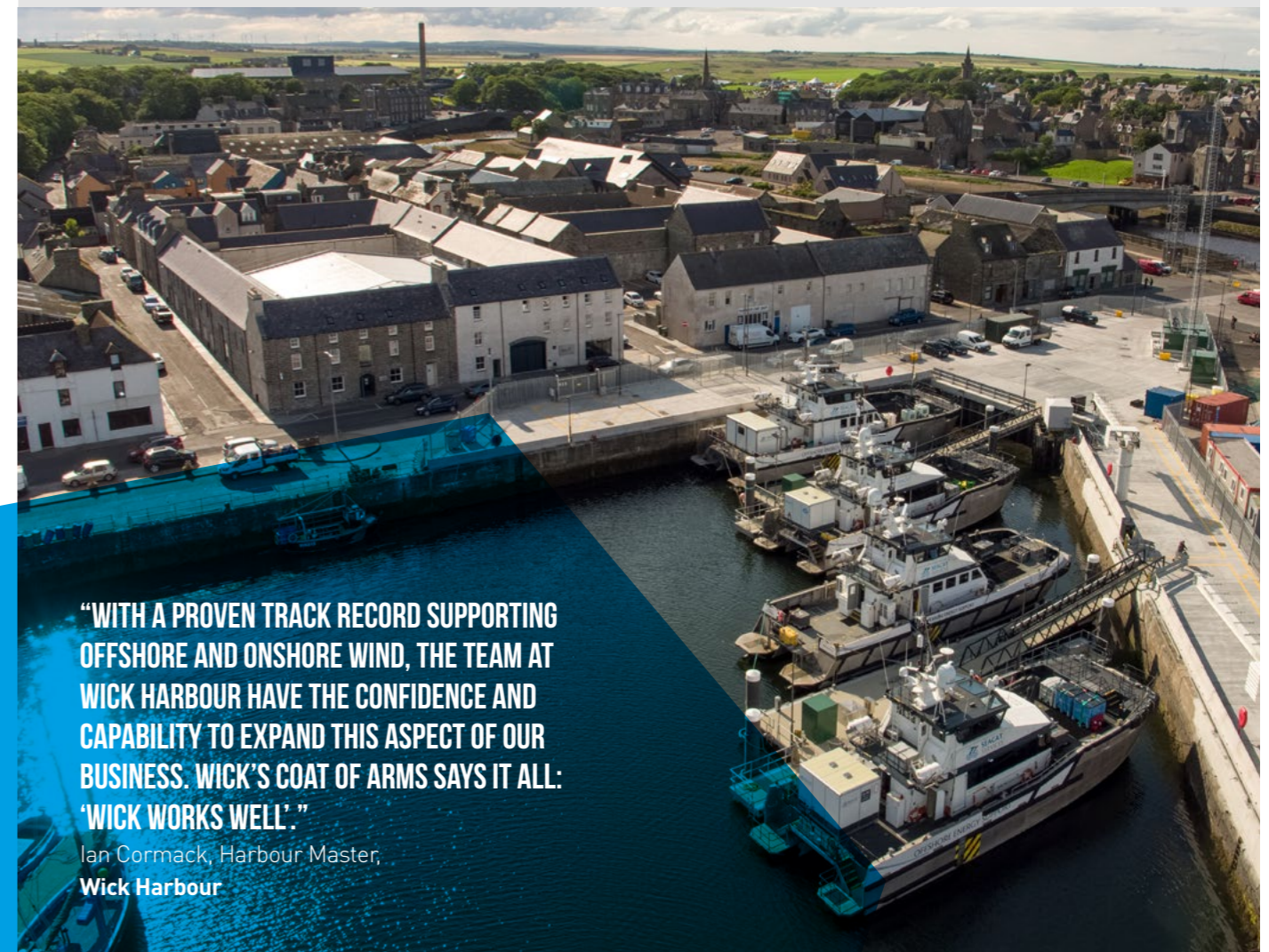
**WICK HARBOUR AUTHORITY** 

‘Wick works well’ to deliver green job opportunities

Almost 10 years have passed since Wick Harbour was first assessed in 2012 as a potential location for the Beatrice offshore wind farm’s operations and maintenance base.

The signing of a 25-year lease in 2017 has led to significant economic growth in the area, delivering highly skilled jobs and apprenticeships. Many old buildings at the harbour have been redeveloped and around 90 long-term jobs created. Up to six permanent crew transfer vessels operate from the dedicated SSE pontoon with the potential for more capacity if needed.

As well as offshore wind the harbour is a local hub for onshore wind activity, having carried out transportation and logistics activity for wind turbine components since the early 2000s.



**“WITH A PROVEN TRACK RECORD SUPPORTING OFFSHORE AND ONSHORE WIND, THE TEAM AT WICK HARBOUR HAVE THE CONFIDENCE AND CAPABILITY TO EXPAND THIS ASPECT OF OUR BUSINESS. WICK’S COAT OF ARMS SAYS IT ALL: ‘WICK WORKS WELL.’”**

Ian Cormack, Harbour Master,  
Wick Harbour

# INDUSTRY GROUPS

At Scottish Renewables we work to champion the diverse organisations making up the growing renewable energy supply chain in Scotland. We do this by working collaboratively across the industry with project developers, government and other sector-specific industry bodies like enterprise agencies.

## THE SCOTTISH OFFSHORE WIND ENERGY COUNCIL

The Scottish Offshore Wind Energy Council (SOWEC) was formed from a pivotal alliance between government and the offshore wind industry.

SOWEC has laid out ambitious goals encompassing delivering 10GW of fixed and floating offshore wind in Scottish waters by 2030; nurturing a highly skilled and diverse workforce and establishing Scotland as a world-class offshore wind sector.



## STRATEGIC INVESTMENT MODEL

Scotland's Strategic Investment Model (SIM) is a collaborative initiative between Scottish offshore wind developers, the Scottish Government and its agencies. The SIM's objective is to secure investment in port infrastructure and supply chain to ensure the successful delivery of Scotland's offshore wind pipeline.

The SIM launched a call for proposals in May 2023, and 38 projects successfully completed Stage one of the process. In early 2024 seven projects were identified as SIM priority projects and 19 identified as highly relevant to offshore wind developers. These projects will go on to be supported collaboratively by offshore wind developers and partners to address how to best support and accelerate readiness for offshore wind build out in Scotland.

## CLUSTERS FOCUS

The Forth and Tay and Deep Wind offshore clusters were established to drive the growth of offshore energy. They aim to best position Scottish businesses to capitalise on offshore wind opportunities as they arise by supporting a supply chain capable of serving every stage of a project's life.

To streamline resources and efforts to deploy effective support for renewable energy businesses, work is underway to amalgamate the clusters to become a single, national cluster.



## ENTERPRISE AGENCIES

Scottish Enterprise, Highlands and Islands Enterprise and South of Scotland Enterprise are development agencies that play a crucial role in enabling businesses to innovate and scale through fostering research and development, international investment and economic development.



# OFFSHORE ENERGIES UK – SUPPLY CHAIN PRINCIPLES

The Offshore Energies UK Supply Chain Principles set out 10 commercial behaviours developed to promote continuous improvement in procurement practices.

-  Risks and costs should be borne appropriately, proportional to the work scope and the opportunity for good performance should benefit everyone.
-  Contractual terms and conditions will seek to utilise industry standards including mutual payment terms. Buyers shall strive towards supporting the Government Prompt Payment Code and 30-day payment terms.
-  All parties should ensure they have the competence and skills to deliver the work being tendered.
-  Contract cancellations should not be without good reason or cause. If buyers and suppliers must have the ability to terminate a contract, the circumstance or risk should be outlined, explained and understood.
-  Purchasers shall endeavour to optimise their tendering and audit requirements to respect the supplier's time and resources.
-  Tender processes and evaluation should be based on value-added rather than unit rates and be flexible to evaluate alternative offers as part of the bidding process.
-  An alternate bid (either technical or commercial) which a buyer sees as a winning proposition should be selected for award on its merit.
-  Buyers and suppliers should discourage the practice of "low-ball" bidding which will lead to contracts being renegotiated early on.
-  Buyers should agree clear rate escalation mechanisms and move away from the practice of fixing labour rates for several years.
-  Where a supplier (or potential supplier) feels unfairly treated, it should notify the buyer's CEO to ensure that speaking up is not held against it.

## UPCOMING EVENTS

<p><b>SUPPLY CHAIN &amp; LOGISTICS CONFERENCE</b></p> <p>29 MAY 2024 DUNDEE</p>	<p>THE SCOTTISH <b>GREEN ENERGY SUPPLY CHAIN AWARDS</b></p> <p>22 AUGUST 2024 ABERDEEN</p>	<p><b>ONSHORE WIND CONFERENCE</b></p> <p>3 &amp; 4 SEPTEMBER 2024 EDINBURGH</p>
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## SPONSORS

