

Export Nation

A Year in UK Wind, Wave and Tidal Exports

June 2018



RenewableUK

Our members are building our future energy system, powered by clean electricity. We bring them together to deliver that future faster; a future which is better for industry, billpayers, and the environment

We are a UK membership body with a mission to ensure increasing amounts of renewable electricity are deployed across the UK.

We support over 400 members to access UK markets and to export all over the world. Our members are business leaders, technology innovators, and expert thinkers from right across industry.

Cover image: Specialist Marine Consultants Ltd, showing its technicians working on Veja Mate offshore wind farm, Germany. The company is based in Filey, North Yorkshire and Lowestoft, Suffolk.

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Tekmar in the north east of England exports its products to the offshore wind farms in rest of Europe, North America and Asia (Image: Tekmar)

Foreword

Renewable energy is a mainstream power source, delivering 30% of the UK's electricity. Wind alone is generating 15% of our power, and is on course to provide 20% by 2020. The sector is creating highly skilled jobs in new industries, breathing economic life into parts of the country in need of regeneration.

RenewableUK's member companies are innovating and investing, changing their business models, taking risks to break into new energy markets and building new energy systems here and abroad. We are disrupting the status quo, driving down energy costs and winning new work across seven continents.

We are working with the Department for International Trade and the Department for Business, Energy and Industrial Strategy to secure continued growth in the industries we represent. Globally, the renewable energy market is worth over \$300bn a year; in 2017 we saw investment in renewables reach \$333.5 billion, bringing cumulative global investment since 2010 to \$2.5 trillion.

As the UK leaves the European Union, we must ensure that we seize export opportunities for our businesses in global growth sectors such as renewable energy.

As the costs of renewables has fallen rapidly, with technologies cheaper than fossil fuel alternatives in many parts of the world, global demand for these new power sources has boomed. In 2017 a record 160GW of renewable energy generation capacity was installed globally, according to Bloomberg New Energy Finance. Wind and marine renewables accounted for over 56GW or 35% of this new capacity.



Britwind in Gloucestershire exports turbines to the rest of Europe, America and Asia. (Image: Ecotricity)

BNEF forecasts that global investment in wind will be larger than any other technology, at \$3.3 trillion, out of total power sector investment of \$10.2trn from 2017 to 2040. Industry expects the global offshore wind market alone to grow to over £30bn a year by 2030 as investment gears up in new markets including China, Taiwan and the USA, alongside continued strong development in Europe.

Our wind and marine energy industries offer ideal opportunities not only for the UK to retain its prominence on the world map, but also to act as a global trailblazer for manufacturing, investment and exports. To fulfil the ambitions of the UK's Clean Growth Strategy, businesses and politicians must find a way forward together. Already, industry is working with Government to secure a transformational Sector Deal which can make offshore wind the backbone of a clean, reliable and affordable energy system, as well as delivering billions in investment

and generating thousands of jobs. Onshore wind and marine energy exports also play important roles in our renewable energy success story, as this report demonstrates. We must capitalise on our competitive and technological advantages if we are to fully realise the huge opportunities on offer in global markets.

Export Nation in Numbers

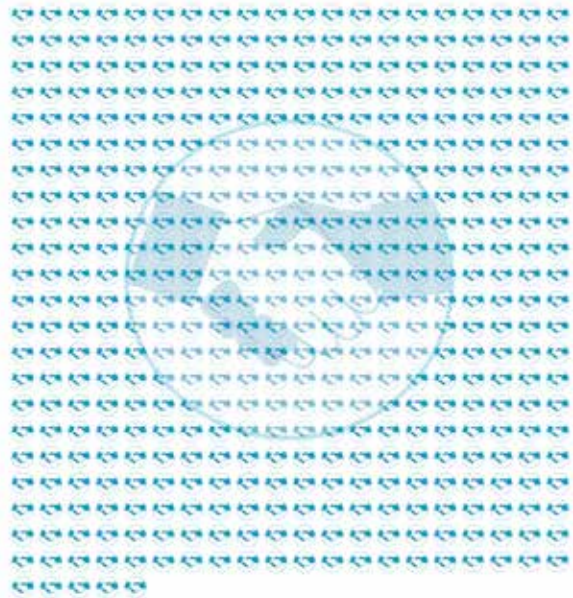
44

Number of countries which bought goods or services from a sample of 43 of the UK's wind, wave and tidal companies in 2017.



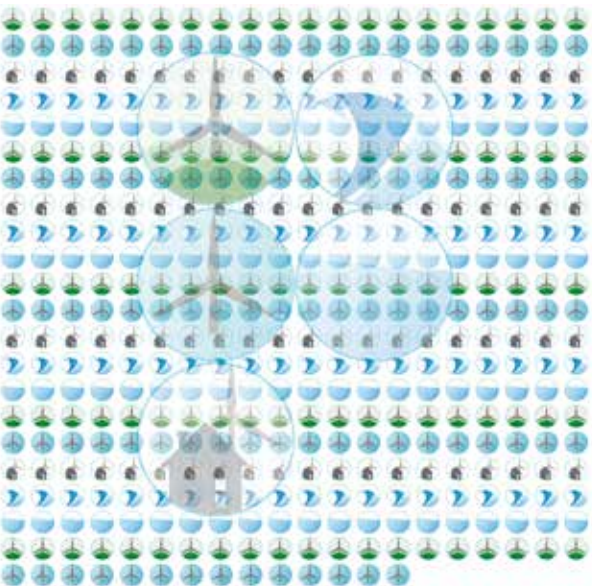
445

Number of export contracts signed by these 43 companies in 2017.



434

Number of renewable energy projects around the world which the 43 companies worked on in 2017.



Contracts range between

**£1,000 to
£7.5 million**

Each company earns

**£60,000 to
£20 million**



Export Nation: Facts and Figures

Our illustrative sample of **43** UK wind and marine companies exported to **44** countries in 2017. The top ten, in order of importance, are **Germany, the USA, France, Denmark, China, the Netherlands, Ireland, Taiwan, Belgium and Japan**. Other significant destinations include **Australia, Singapore and South Korea**. These companies exported onshore wind products and services to **34** countries, offshore wind to **22**, tidal to **14** and wave power to **11** countries.

In total the 43 companies featured signed **445** export contracts last year and worked on a total of **434** renewable energy projects overseas. These range from individual orders for small onshore turbines to multi-million-pound deals to provide massive components and heavy-duty infrastructure for offshore wind farms, such as turbine blades and cables.

Not all the companies included in this report were able to declare the value of each piece of work, due to commercial confidentiality. However, some reported that their contracts ranged in value from **£1,000 to £7.5 million** each. Some of these firms gave further information, stating that the combined value of the contracts they had won ranged from **£60,000 to £20m**.

Supply Chain Diversity

The contracts secured by UK companies working in the wind and marine energy sector cover an extraordinarily wide variety of goods and services, including supplying, installing and maintaining onshore wind turbines and components, designing gearboxes, manufacturing offshore wind turbine blades and steelwork, supplying and laying underwater power cables, installing, inspecting and maintaining offshore wind farms, providing helicopters, crew and vessels, developing wave and tidal energy projects



ITPEnergised and Atlantis Resources staff with their tidal energy project partners at Zhejiang University's Ocean Campus in Zhoushan, China (Image: ITP Energised)

and providing components for the marine energy industry, as well as designing software, conducting geological surveys, monitoring wildlife, and providing financial and legal services.

This diverse range of companies includes companies such as Tekmar in Newton Aycliffe, County Durham, which designs and manufactures subsea cable protection systems for offshore wind farms, employing 100 people. In addition to supplying UK projects, in 2017 the company exported to Belgium, the Netherlands, the USA, China, Taiwan, Japan and South Korea, securing multi-million-pound contracts.

As well as selling industrial kit, we are also exporting knowledge and expertise on how to plan, build and run projects. For example, The Renewables Consulting Group in London won contracts worth up to £750,000 each in Argentina, Denmark, Germany, Ireland, the Netherlands, Norway, South Africa, South Korea, Taiwan and the USA. Strategic consultants BVG Associates, headquartered just outside Swindon, estimates that exports account for 45% of its revenue.

ITPEnergised, with offices in Bristol, Edinburgh, Glasgow and London, provides consultancy services for renewable energy developers and investors, from the feasibility stage, through design and construction, to the operational phase. It won offshore wind and tidal energy contracts in 2017 in Canada, China, the Philippines, Singapore Taiwan and the USA. It is currently working in collaboration with Atlantis Resources (in Edinburgh and Bristol) on a project to deliver a tidal stream turbine to China Three Gorges – China's largest clean energy corporation and generator – which is due to be operating by the end of next year. As ITPE's Associate Director, Dr. Mark Leybourne noted; *"The engagement of innovative British SMEs by such large Chinese state-owned conglomerates provides further evidence that the UK still leads the world in the tidal energy sector and demonstrates that the UK can capitalise on its position through the export of its expertise and leading technologies"*.

Our intellectual capital is one of our greatest economic assets, yielding lucrative export contracts in the global renewable energy sector.

Global Trade and Domestic Growth

Global Trade

The UK has a formidable reputation as an international trader, with hundreds of years of experience as a world-leading exporter of goods, expertise and services to every corner of the world. As the UK leaves the European Union, identifying trading opportunities in markets across the globe is a key priority to secure continued growth in British industry and the future prosperity of the UK economy.

Clean tech offers an extraordinary opportunity for the UK to play a leading role in the global marketplace of the 21st century. We are already making headway. This report, shows that UK-based wind, wave and tidal energy companies won contracts in 2017 to export products and services to every continent: not only to other parts of Europe, but also to the Americas, Africa, Asia, Australasia and Antarctica. Our global reach is extending.

Revitalising Communities

Wind, wave and tidal energy is already providing industrial-scale benefits for the UK, with projects being built around the country, revitalising coastal communities, growing our domestic supply chain which extends deep into every county, and maintaining Britain's international reputation for research and innovation.

For example, Siemens Gamesa Renewable Energy has invested hundreds of millions of pounds in its state-of-the-art offshore wind turbine production and installation facilities at Alexandra Dock in Hull, transforming the lives of thousands of people in the city and its surrounding region. On the Isle of Wight, MHI Vestas Offshore Wind is manufacturing 80-metre blades for domestic and international markets. CWind in Chelmsford is supplying vessels and turbine



Diver at the European Marine Energy Centre in Orkney (EMEC), the world's leading wave and tidal energy test centre, working with developers from around the globe. (Image by Mike Brookes-Roper).

technicians to work on offshore wind projects in Germany, Denmark, Belgium and the Netherlands. Britwind in Stroud is selling small onshore wind turbines to France, the USA and Japan. Aquatera in Orkney is developing wave and tidal energy projects in Australia, Indonesia, Singapore, Mauritius, Peru, Colombia and Chile.

Modernising the Energy Sector

The clean tech industries which RenewableUK is proud to represent employ tens of thousands of people. We are offering apprenticeships to new entrants to the labour market, as well as retraining for workers who bring valuable experience from other sectors such as the oil and gas industries to the modern energy sector which we represent. We are building new infrastructure; a smart, flexible low-carbon energy system which makes the most of our abundant renewable energy resources. The UK has installed more offshore wind capacity than any other country,

and the UK is the number one destination for investment in this technology. A record annual amount of new onshore wind capacity was built in the UK last year, and the industry is urging the Government to allow onshore developers to take part in competitive auctions for contracts for future projects. We are a global leader in wave and tidal energy, with the world's first full-scale arrays and best marine testing facilities in the world.

Investing in these technologies also opens the door to further innovation, with more renewables developers partnering with storage providers, or looking at how they can support with the changes underway in the heat and transport sectors, so that they can decarbonise further, following the lead set by the electricity sector, in which 30% of power comes from renewable sources.

Industrial Strategy

In a White Paper published in November, the Government identified renewable energy as a key part of its Industrial Strategy, stating that *“the global shift to clean growth presents huge opportunities for innovation that government and industry must take advantage of by backing the development, manufacture and use of low carbon technologies”*.

Offshore wind is a global growth opportunity and UK companies must be ready to seize the day in a global market, worth £30bn a year by 2030. The offshore wind industry is already working with Government on a Sector Deal to generate tens of thousands of high-productivity, skilled jobs across the UK and make offshore wind the cornerstone of a clean, reliable and affordable energy system. The UK has successfully developed a domestic supply chain which is currently providing just under 50% of content for UK projects. Increasing numbers of these supply chain firms are, as this report shows, winning contracts in global markets. To deliver a five-fold increase in export value of £2.6 billion a year to the UK by 2030, supporting 27,000 jobs.

Onshore wind is the cheapest option for new power in the UK and the Minister for Energy and Clean Growth, Claire Perry confirmed to Parliament that *“onshore wind is absolutely part of the future”* and that officials in BEIS are working on ways to see how onshore wind could be brought forward in areas of the UK which want to deploy it. Despite the challenging conditions of the domestic market, exports from the onshore wind sector remain substantial. However, continued growth in the domestic market is vital to ensure that UK firms will be able to secure the export opportunities created by significant growth in international markets.



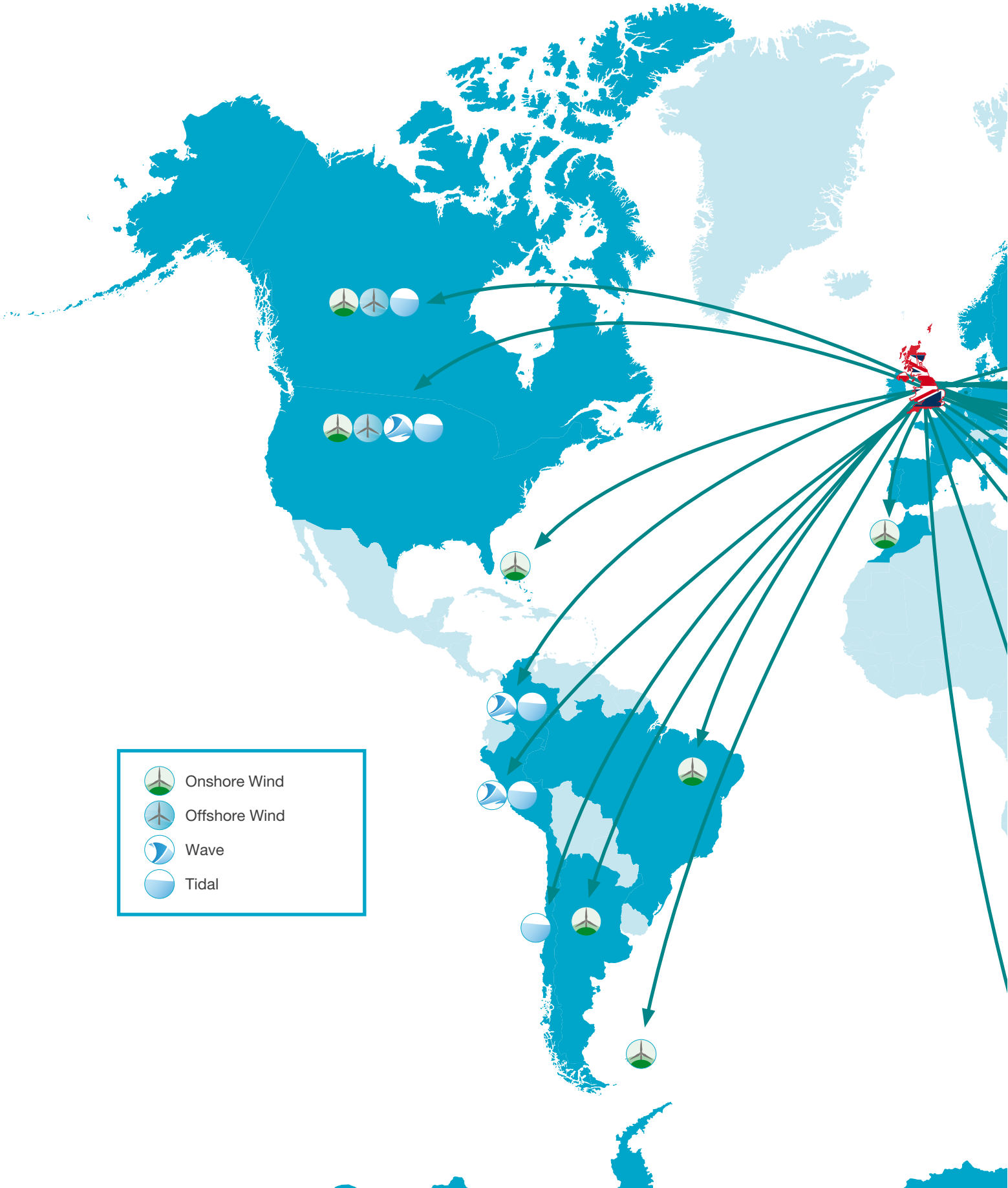
Image: JDR Cables

Investment in developing wave and tidal stream technologies by successive governments and the private sector has enabled the UK to become a world leader in marine energy. A recent report by Offshore Renewable Energy Catapult published a report last month which shows that wave and tidal energy can follow offshore wind's spectacular cost reduction curve and generate thousands of jobs and billions of pounds of net economic benefits for the UK by 2030.

Table of countries or continents to which the UK exported in 2017	
Antarctica	onshore wind
Argentina	onshore wind
Australia	onshore wind, offshore wind, wave energy
The Bahamas	onshore wind
Belgium	onshore wind, offshore wind
Brazil	onshore wind
Bulgaria	onshore wind
Canada	onshore wind, offshore wind, tidal energy
Chile	tidal energy
China	onshore wind, offshore wind, tidal energy, wave energy
Colombia	tidal energy, wave energy
Croatia	onshore wind
Denmark	onshore wind, offshore wind, wave energy
Falkland Islands	onshore wind
Finland	onshore wind
France	onshore wind, offshore wind, tidal energy
Germany	onshore wind, offshore wind
Greece	onshore wind
India	onshore wind
Indonesia	onshore wind, offshore wind, tidal energy, wave energy
Ireland	onshore wind, offshore wind, wave energy
Italy	onshore wind, offshore wind
Israel	onshore wind
Japan	onshore wind, offshore wind, tidal energy, wave energy
Mauritius	offshore wind, tidal energy
Monaco	offshore wind
Morocco	onshore wind
Netherlands	onshore wind, offshore wind
Norway	onshore wind, offshore wind
Peru	tidal energy, wave energy
Philippines	tidal energy
Poland	offshore wind
Portugal	onshore wind, tidal energy
Russia	onshore wind
Singapore	tidal energy, wave energy
Somalia (Somaliland)	onshore wind
South Africa	onshore wind
South Korea	onshore wind, offshore wind, tidal energy, wave energy
Spain	onshore wind
Sweden	onshore wind, offshore wind
Taiwan	offshore wind
Turkey	onshore wind, offshore wind
USA	onshore wind, offshore wind, tidal energy, wave energy
Vietnam	offshore wind

World Exports in 2017

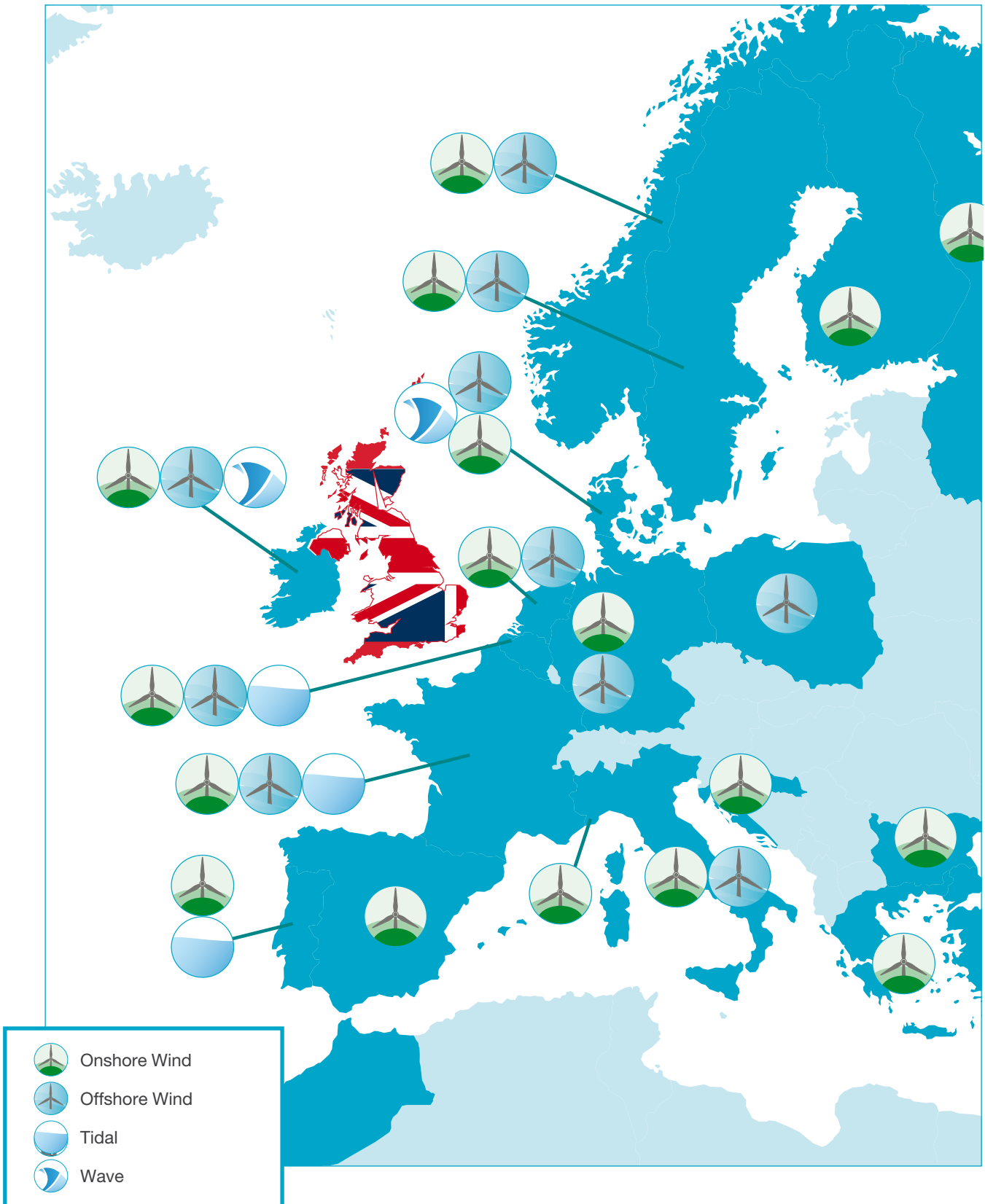
See overleaf for the UK and Europe



RenewableUK's sample of 43 UK-based companies exported goods and services to 44 countries in 2017. The individual contracts ranged in value from £1,000 to £7,500,000 and the total value per company ranged between £60,000 to £20,000,000.



UK Wind, Wave and Tidal Exports: Europe in 2017



Export Nation: the Companies Doing Business Overseas

From the small wind sector to companies providing cables for offshore wind farms, and organisations involved in our burgeoning marine sector, these are just a few of the UK's wind and marine exporters.

CWind

CWind based in Chelmsford, part of the Global Marine Group, supplied vessels and turbine technicians to work on offshore wind projects in Germany, Denmark, Belgium and the Netherlands in 2017. CWind has 93 employees. The contracts ranged in value from £40,000 to £7.5 million each.



JDR Cables

JDR Cables designs and manufactures power cables for offshore wind farms, as well as supporting installation and maintenance activities. The company has manufacturing facilities in Hartlepool, and Littleport in Cambridgeshire, as well as a service centre in Newcastle. It supplied power cable products and services to three German offshore wind farms in 2017.

Images: JDR Cables



MHI Vestas Offshore Wind

MHI Vestas Offshore Wind manufactures offshore wind turbine blades on the Isle of Wight, employing 300 people. In 2017, the company signed contracts to supply blades 80 metres long to 2 German offshore wind farms, Borkum Riffgrund 2 and Deutsche Bucht.



Image: MHI Vestas Offshore Wind

EDS HV Group

High voltage engineering specialist EDS HV Group, based in Haslingden, Lancashire, designs, connects, tests, commissions and operates onshore and offshore wind projects. In 2017 the company worked in Germany, Ireland, the Netherlands, Sweden and the Bahamas, winning contracts worth over £400,000. It employs 70 people.



EDS HV Group testing cables for a German offshore wind project Hohe See (Mark Wynne EDS)

Sustainable Marine Energy

Sustainable Marine Energy in Edinburgh develops tidal stream projects and supplies tidal technology. The company was founded in 2013 on the Isle of Wight and began testing in the sheltered waters of the Solent before moving its technology to a more challenging site at EMEC in Orkney. Having deployed the PLAT-I platform in Scotland in 2017 future activity is going to be focussed on projects in Canada, the Philippines and South East Asia in collaboration with industrial partner SCHOTTEL Hydro. These projects are estimated to be worth £5 million. SME currently employs 16 people.



Sustainable Marine Energy's PLAT-I floating tidal energy platform. (Image: SME)

The European Marine Energy Centre (EMEC)

The European Marine Energy Centre (EMEC) in Orkney is the world's leading wave and tidal energy test and demonstration centre. It offers ready-made, grid-connected berths in some of the harshest marine environments to reduce the time, risk and cost of developing new technology. Since it was established in 2003, EMEC has exported its knowledge to 18 countries. In 2017 its consultants provided expertise to China, Ireland, Peru, South Korea and the USA. An economic impact assessment estimates that EMEC has generated £249.6 million (GVA) for the wider UK economy.



Image of cable drum housing EMEC cable by Mike Brookes-Roper

Windhoist

Windhoist is an onshore wind turbine installer based in Irvine, North Ayrshire. The company uses heavy cranes to erect turbines, and skilled technicians to carry out turbine mechanical and electrical works. It also undertakes maintenance, replacing gearboxes, generators and blades. The Windhoist group and associated companies employ 400 people.

In 2017, the company worked on 25 onshore wind projects outside the UK, in Australia, Belgium, France, Denmark, Finland, Germany, Ireland, Morocco and South Africa. The contracts ranged in value from £100,000 to £7,000,000 each.



Kingspan

Kingspan has designed and exported onshore wind turbines for more than 30 years, to over 5,000 projects in 70 countries. In 2017, the company exported to France, Croatia, Turkey, Israel, South Korea, the Falkland Islands and Antarctica. It employs 14 people in Stewarton, East Ayrshire.



Top left to bottom: Turbines in Antarctica, Kingspan turbine in French vineyards, on the Falkland Islands (images: Kingspan)

Acknowledgments:

The following UK-based companies are included in this study, as they responded to RenewableUK's survey:

Aquatera, Aqualis, Britwind, BVG Associates, Cathie Associates, Celtic Renewable HSE Services, CWind (Global Marine Group), EDS HV Group, EMEC, Frank Cunliffe Ltd, FT Technologies, Horizon Geosciences, Hutchinson Engineering, ITP Energised, James Fisher Marine Services, JDR Cables, Kingspan, London Offshore Consultants Group (LOC), MHI Vestas Offshore Wind, Moventas Gears UK, Oceanflow Energy, Offshore Wind Consultants, PEP (Pure Energy Professionals) Renewables, Renewable Risk Advisers, Renewables Consulting Group, RPS Energy, Seajacks, SeaRoc, Specialist Marine Consultants, Sustainable Marine Energy, Tekmar, Windhoist, Windpark Services, CHC Helicopter, Global Wind Service, Offshore Design Engineering, MC Construction (Cleveland), Harland & Wolff, Granada Material Handling, Houlder, Offshore Marine Management, Manor Renewable Energy, Turbine Transfers.



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**Our vision is for renewable energy to play
a leading role in powering the UK.**

RenewableUK is the country's leading renewable energy trade association, specialising in renewable energy systems, onshore wind, offshore wind, and wave & tidal energy. Formed in 1978, we have a large established corporate membership, ranging from small independent companies to large international corporations and manufacturers.

Our aim is to ensure increasing amounts of renewable electricity are generated sustainably by projects deployed across the UK, and to support our members win business in renewable markets in the UK and around the world. Our priority is to make sure that RenewableUK members are at the heart of delivering this opportunity. To do this we provide them with the highest possible quality services and information, supporting them in any way we can to do more business more effectively.