



Bridie Salmon, MOET Apprentice, Ørsted - Credit: Steve Morgan

Offshore Wind Skills Intelligence Report

May 2022^{v5}

**OffshoreWind
IndustryCouncil**

Foreword

The British Energy Security Strategy, launched last month, placed offshore wind at the heart of our nation's efforts to boost home-grown, low carbon energy sources as the long-term answer to an affordable, secure energy system. Our 2022 Skills & Employment Survey reflects the rapid, upward trajectory of our industry; 16% growth in jobs since 2021, a growing pipeline of projects and soaring investment to deliver them.

Since the industry agreed the Sector Deal target of 30GW by 2030, this was raised to 40GW, and the Government has set us a new target of 50GW - quadrupling capacity in the next 8 years. We shouldn't underestimate the challenge, there is a long way to go. As the report notes, currently we are not on track for 50GW and that is why industry and Government are working together to streamline the delivery process, from development and planning through to grid connection and construction.

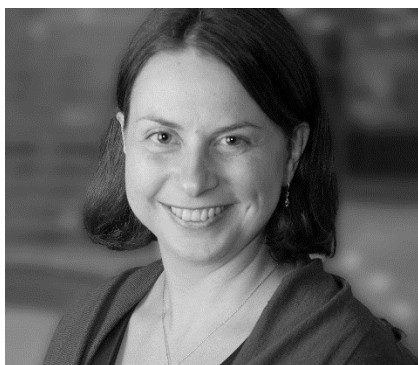
At every step of the process, we'll need even more of the talented, passionate people that make up our workforce. So, unless we get our people strategy right, we won't be able to meet our ambitions. We know that there are skills challenges across the energy sector, and that there will be huge growth in demand for certain skills as the net zero transition accelerates. Already we are seeing electrical engineering and digital skills including data analysis in high demand. These are key roles in project delivery, and we will need ever more of these to hit 50GW.

That's why, as an industry, we're investing huge amounts in attracting and developing talent in the sector. And we're seeing growth in the number of women in our industry, as well as strong progress on our apprenticeships targets, so that we can be an industry that better reflects our society and draws on the widest range of talents.

Developers invest in recruitment, apprenticeships, and upskilling to meet the needs of individual projects or a series of projects. But a project by project can't deliver the rapid rise in workforce needed for our 50GW target and the wider net zero transition. We need to intensify our work with Government, other sectors, training providers and educational institutions to develop an approach that brings new talent through from schools to industry and smooths the path for workers from declining industries into offshore wind.

This report shows that if we can get that approach right, the prize for jobs, levelling-up and investment is bigger than ever. Our industry can support nearly 100,000 jobs through annual investment of over £17bn, all while delivering the clean, low-cost power that will turbocharge the UK's energy security.

Our message to the next generation of workers and people deciding on the next steps in their career is clear: this is the industry delivering energy security, net zero and sustainable growth - come join us to deliver the UK's energy future.



Danielle Lane

Co-Chair, Offshore Wind Industry Council
UK Country Manager, Vattenfall



Melanie Onn

Deputy CEO, Renewable UK
OWIC People, Skill, & Diversity Champion

Executive Summary

This report provides a snapshot of the UK Offshore Wind workforce at the end of 2021 and an analysis of the likely future workforce requirements in this sector out to 2030.

TODAYS
WORKFORCE

31,082 

Total UK Offshore Wind Workforce

19,591 
Direct Jobs

11,491 
Indirect Jobs

AVERAGE
INVESTMENT



£17.2bn

Average Annual Investment

(2022 to 2030)

TOMORROWS
WORKFORCE

By **2030**, UK Offshore Wind is forecast to employ



97,465

jobs. 61,361 direct jobs and 36,104 indirect jobs.

In March 2021, the Offshore Wind Industry Council (OWIC) published the results of its first skills intelligence modelling exercise to benchmark the current workforce active in the offshore wind industry. It concluded that, in December 2020, there were an estimated **26,093** employees working in the UK offshore wind sector. This was made up of **15,205** direct jobs and an additional **10,888** indirect jobs.

The last 12 months have seen significant changes, as the industry continues to grow despite the global challenges surrounding the coronavirus pandemic. Auction Round 4 and the Scotwind license awards have boosted the project pipeline & potential by more than 32GW.

The results of the industry's second skills intelligence modelling exercise are now available in this report forecasting potential future skills and jobs growth out to 2030.

The results are nothing short of extraordinary and underline the incredible resilience of the offshore wind industry and its ability to continue to be the clean energy backbone of the UK's economic renaissance with an increasing ability to provide highly skilled and well-paid jobs to an increasing percentage of the UK's workforce.

The number of employees working in UK offshore wind at the end of 2021 stood at **31,082**. This was made up of **19,591** direct jobs and an additional **11,491** indirect jobs, an increase overall of **16.1%**

The final cut-off date to receive survey results was February 2022, the data was then analysed, and the size of the sample assessed. Some **9,916** individual job records which were received from **97** companies.

Gender Balance

The survey data includes **1,883** women, representing **19.25%** compared to **7,685 (80%)** men. This represents a **1.25% increase** compared to last year's results. For the first time, we can report non-binary submissions, which highlights the positive messaging for inclusion and diversity, and the benefits of surveys such as this to highlight industry progress on gender.

Apprenticeships

Developing the next generation of talent, in particular supporting apprenticeships is a key target of the Offshore Wind Sector Deal.

Through the Deal, the industry has agreed a target of 2.5% of the workforce to be recruited through apprenticeship programmes.

Based on the survey results, apprentices make up 2% of the workforce, an increase of 0.2% based on last year's results.

Future Workforce

Drawing from **RenewableUK's Energy Pulse Database**, the jobs forecasting model uses extrapolated data including both the pipeline of projects and potential projects and robust assumptions to forecast jobs growth and investment to 2030.

We forecast **potential investment of £154.8bn** covering the whole project lifecycle through DEVEX, MANEX (manufacturing) CAPEX, and OPEX across all UK offshore wind projects between

2022 and 2030. This gives an **annual average investment of £17.2 billion** compared to £10.1 billion as forecast in March 2021.

Assumptions include forecast floating wind projects, round 4 awards, and all recent ScotWind awards to the end-2030, taking a more pessimistic view would be possible but would not reflect the recent government support for even greater targets.

Based on the investment data and future casting informed by the survey results, we estimate that by 2030 the industry is forecast to employ **97,465** people. **61,361** of those being direct and **36,104** being indirect.

We see that there is a pipeline for the industry to deliver up to **47GW** of installed capacity by 2030, significantly over-delivering on the Government's end of 2021 target of 40GW.

There is some further potential for the industry to deliver up to **59GW** and so delivering on the governments recently increased target of 50GW, but significant government intervention and investment would be required to achieve this.

The Offshore Wind Sector Deal's original target of 27,000 direct jobs by 2030 and 30GW of capacity were uplifted as part of the Government's Net Zero Strategy, proposing at least 60,000 new jobs (direct and indirect), and supporting 40GW of offshore wind projects, with at least 1GW of floating.

This forecast highlights that the industry could potentially deliver more than twice the original Deal's target on direct jobs. It is likely that some projects may be part-way through construction or have achieved first power by 2030, although not necessarily being fully built-out, as projects will be at different stages of planning and consenting.

The impact of ScotWind is significant on jobs and investment across the sector with overlapping work phases across multiple projects.

The report is an optimistic one but cautions that there is much collaborative work to be done to achieve the potential, centred around significant intervention by the UK and the Devolved Nations Governments.

Areas such as **Consenting & Planning**, the **Legislative Framework** and **Investor Confidence** need to be addressed, as does future **Workforce Stimulation & Training**, energy sector **Workforce Mobility**, common **Apprenticeship Standards**, and common **Safety Training Standards**.

Offshore Wind Skills Intelligence Report 2022

A Report to the Offshore Wind Industry Council

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1 Introduction and Context

This report provides a snapshot of the UK Offshore Wind workforce at the end of 2021 and an analysis of the likely future workforce requirements in this sector out to 2030.

It draws upon the results of an industry-wide survey of the offshore wind work force carried out by the Offshore Wind Industry Council (OWIC) between August 2021 and January 2022. It uses the data gathered from that survey and overlays it with the forecast growth in the industry taken from the Renewable UK Energy Pulse data base to future cast the people and skills needs in 2030.

1.1 The Offshore Wind Sector Deal

In March 2019 the UK Government and the Offshore Wind Industry Council signed a world-leading Sector Deal. It is an ambitious, long-term strategy, in which offshore wind will become the backbone of the UK's power system.

The Deal's People & Skills related targets and ambitions are:

- Increasing to **27,000 direct jobs by 2030**, up from c.11,000 when signed in 2019, supporting at least 60,000 total jobs in the sector.
- **33% women** in offshore wind by 2030 (up from 18%) with ambition to reach 40%
- **9% employees from ethnic minority backgrounds** in offshore wind by 2030 with ambition to reach 12%
- **2.5%** of employed workforce on apprenticeship programmes by 2030
- Supporting transition training for former **military** personnel
- Developing an '**Offshore Energy Passport**' to facilitate greater job-mobility between offshore industries
- Auditing more than **60 apprenticeship standards & frameworks**



1.2 Report Partners

The following organisations have supported this report:

- **RenewableUK:** People & Skills sponsor for Sector Deal, and provision of Project Intelligence and Jobs Forecasting.
- **National Skills Academy for Rail:** developers of the Skills Intelligence Model.
- **Opergy Group:** delivering industry and supply chain engagement, data analysis and reporting.



www.renewableuk.com



www.nsar.co.uk



www.opergy.co.uk

1.3 The Winds of Change

In February 2022, the Department for Business, Energy, and Industrial Strategy (BEIS) announced that Contracts for Difference (CfD) auctions will move from every two years to being held annually, speeding up UK adoption of renewable power and boosting energy security. Along with the work that is being undertaken between the industry and government to improve and speed up the consenting process, it is expected that this will smooth the flow of projects.

Following AR4, BEIS is understood to be exploring ways to improve the quality of data that is provided through the CfD Supply Chain Planning questionnaire that developers are required to submit in the skills section to be considered for the allocation round. The AR4 placed a focus on data gathering, skills gaps and shortages as well as adding a new focus on disabilities and social mobility to the industry's commitments around gender and ethnicity.

The inaugural ScotWind 1, the first leasing round in Scottish waters in a decade, produced considerable interest with 74 bids, culminating in 17 project awards for 25 GW, including 14GW of floating wind projects. Crown Estate Scotland has already announced that ScotWind 2 is "on the horizon".

With both the spotlight on floating wind in ScotWind and the increased targets in AR4, the focus on the transition of the industry from shallow water and fixed bottom installations to deeper water and floating has well and truly begun.

1.4 People & Skills Workstream Strategy

The early work of the People & Skills workstream was to determine the routes forward to address the Sector Deal commitments and to build the engagement from the industry. The focus now is on delivery, to start embedding change in the developers, operators, and manufacturers, acknowledging that every company is in a different position and dealing with the challenges, some brought on by the global pandemic.

The overarching strategic advisory board, the *Investment in Talent Group*, is chaired by Melanie Onn from RenewableUK as the OWIC sponsor. The group includes representation from BEIS, the devolved administrations, Department of Education, Crown Estate, academia, and industry. Recently the group has been expanded to include representation from the new entrant developers and the supply chain. The IITG is responsible for shaping delivery throughout the sector, raising the industry's game to be the exemplar in its support for people and addressing skills issues. More recently it has also begun work on supporting enabling sectors such as the Statutory Nature Conservation Bodies (SNCBs), regulators, and transmission operators.

The priorities for 2022-25 will be to ensure the diversity of the workforce and a flow of skilled people in the talent pipeline to support the continued growth of the offshore wind industry by:

- Facilitating greater workforce mobility into and within the offshore wind sector.
- Addressing critical skills gaps, skills shortages and identifying and putting plans in place to address longer-term skills gaps, shortages, and labour shortages.
- Increasing the number of apprentices, graduates, and trainees, within the industry, including in the supply chain promoting both vocational and academic career pathways.
- Improving the diversity and inclusion throughout the industry focusing on gender, disability, and social mobility, and gathering more robust data on ethnicity.

- Supporting STEM education through partnering with existing bodies and programmes at both national and regional levels.
- Promoting the industry as a career option, showcasing the industry's achievements and the work that is undertaken by OWIC on people and skills.

Communication

The offshore wind industry is becoming the backbone of the UK's energy system, with substantial investments and a vital role in electricity generation. Moving forward, to ensure that the industry attracts, supports, and develops the people needed for the ambitious plans for growth, it is important that it is more effective in its communication both within the industry and outside.

The recent first issue of Quarterly People & Skills Bulletin aims to start this process. Soon the People & Skills workstream will be developing and launching a promotion and marketing campaign to raise awareness of the industry, promoting the initiatives being developed and delivered by companies, profiling the wide diversity of people and jobs in the industry, and enabling sectors championing the work that is being done by the workstream.

Data gathering is essential to provide an evidence-based approach to delivery. It ensures we can monitor the impact and effectiveness of interventions. The current annual survey approach will be reviewed following the release of this report to explore approaches to streamline, strengthen and improve industry-wide reporting and reducing the burden on industry. Where possible, it will seek to align with emerging requirements of ScotWind and CfD Supply Chain Plans and with exploring synergies with complementary technology sectors such as hydrogen and onshore wind.

1.5 Talent Pipeline

At a time of an increasingly tight recruitment market which is leading to a shortage of potential employees, an increase in the number of "hard to fill" vacancies and growing competition from other sectors, the offshore wind sector has significant plans for growth which will require a ramping up of recruitment. It is vital that the industry increases its effort and effectiveness in providing a sustainable, truly diverse pipeline of talent which it then retains.

In summary this will require:

- a) Short term (1-2 years)** – critical skills identification, promoting and communicating to attract from other sectors and mechanisms to support the Just Transition, recruiting trainees and new entrants, tactical organisational school STEM engagement activities, promotion of roles models
- b) Medium term (3-4 years)** – training and development of trainees, providing upskilling training for employees, strategic sector level school STEM engagement activities, development routes
- c) Long term (5+ years)** – trained apprentices and graduates, initiatives impacting sector workforce at scale, from increased study of STEM subjects to more diverse candidates entering the sector (dependent on the significant changes within schools).

1.6 Critical skills gaps & shortages

As there is often a tendency to use the terms "skills gaps", "skills shortages" and "labour shortages" interchangeably, it can lead to confusion. Particularly as future Contract for Difference Supply Chain Plans will require provision of detail of potential skills gaps, skills shortages and labour shortages that may impact on projects and actions to be undertaken to address them these terms, their application in this report is defined below.

- **Skills gap** - can be filled by training the existing workforce.
- **Skills shortage** - requires the recruitment of more people with the required skills into the industry. By implication, if there were a ready number of people in the market with the required skills, there would not be a shortage and so skills shortages are associated with insufficient applicants with the skills, experience, qualifications required to fill vacancies.
- **Labour shortages** - relates to the number of people required and not their skills.

Critical skills gaps and skills shortages are those that will inhibit the delivery of projects within the immediate future. There are several skills gaps and shortages which need to be addressed across the industry including and for example:

- High level electrical skills including Senior Authorised Persons
- Digital skills e.g., data analysts/scientists etc and engineers with an understanding of data analysis and presentation
- Consenting skills, particularly amongst SNCBs and regulators but increasingly within the industry. The OWIC Pathways to Growth workstream has been undertaking work in this area including online training modules released in Q1 of 2022. <https://www.owic.org.uk/p2g-learn-osw-consenting>

Over the longer term anticipated skills shortages include electrical technical and engineering skills (particularly substations, HV and cables); the ability to manage significant sized projects and multiple contractors; high level digital specialisms including data analytics, artificial intelligence, robotics, digital engineering/science, machine learning, SCADA related skills, software development; and on and offshore logistics. Gaps are anticipated with general digital literacy e.g., engineers with data analytical abilities. Floating wind projects are anticipated to require high numbers of people in fabrication and welding.

1.6.1 Recruitment from other sectors

Industry committed under the Sector Deal to facilitate people and workforce mobility from other industries and sectors.

The **Wind Energy Access Portal** has been launched at energycareers2050.com. Its purpose is to facilitate an increasingly cohesive and resilient wind energy sector that ensures opportunities for businesses, individuals, and communities. The portal seeks to provide access and understanding of the structure, standards, and good practise requirements for skills, competence, and Health and Safety within the sector. It is the first phase of the work that will be continued through 2022.

A Memorandum of Understanding has been signed between several the key offshore energy industry, including the Global Wind Organisation (GWO), OPITO, the International Marine Contractors Association (IMCA), and others to facilitate greater levels of engagement and support

for mobilising people into and between the offshore sectors, supporting a Just Transition of people from the fossil fuel-based sectors.

The offshore wind sector is also committed to support the movement of ex-military personnel into the industry and has established a **Military Working Group** to support service-leavers, veterans, and employers, and is maintaining links with the Armed Forces Covenant being a way to support more inclusive practices when working to attract and retain ex. Military. The military background brings the ethics and attitude valued in the industry as well as, in many cases many of the skills in engineering, project management, logistics, that are needed. The main deliverables for the Working Group during 2022 will be to develop a guide for employers to attract and recruit military, and to produce Sector Guides providing an overview of careers in fixed, floating and marine which best align to military skills and knowledge.

1.7 Improving Diversity & Inclusion

The targets set by the industry in gender and ethnicity will take most of the period (if not all) until 2030 to be achieved. Achieving the targets require culture change, change in systems, processes, and attitudes both within companies and across the industry. A key enabler to this is clear leadership and accountability from the most senior levels. It is clear from the data gathered that, whilst things are improving, there is a long way to go in all areas.

- **Gender** – a project is being outlined working with a university to better understand and then address the barriers for women working in the offshore environment.
- **Ethnicity** – the survey results have shown that the supply chain still leads the way in gathering ethnicity data. Substantial progress has been made by the OEMs but far less amongst the developers. This is potentially an area in which new entrants from the oil & gas sector may be able to share best practice.

Recognising that the level of people from ethnic minority backgrounds in the industry background (at 3%) is lower than the original estimated baseline (5%), the approach taken to address the imbalance will be reviewed. The proportion of people in UK from ethnic minority communities is projected to reach between 20 and 30 percent by 2050.

One of the immediate areas of focus is attracting engineers. Whilst the industry is struggling to recruit highly skilled engineers, the Association for Black and Minority Ethnic Engineers points out that 29.9% of engineering university graduates are from ethnic minority backgrounds.

- **Disability and social mobility** – the goal of the offshore wind industry is to have a diverse workforce where everybody is valued and an inclusive culture where everyone's voice is heard. The initial commitments of the offshore wind sector deal were to address the gender and ethnicity balance in the sector. The BEIS Contracts for Difference Supply Chain Plans have placed an additional focus on disability and social mobility which impacts on many that have been disproportionately affected by COVID-19. Social mobility is highly significant in many of the geographical areas in which the industry operates e.g., coastal areas as well as further inland supporting the supply chain growth as well as people with a minority ethnic background.

The **Diversity & Inclusion Best Practice Guide** which was originally produced in 2020 and then provided in an interactive version online, has provided a benchmark for the industry. It has been used as an exemplar to other sectors as well as promoting the industry to university students. During 2022 it will be updated and expanded to include social mobility and disability.

1.8 Apprenticeships

During the pandemic, the supply chain faced more challenges in retaining apprentices and many felt unable to commit to taking a cohort in 2021. Developers and manufacturers were able to continue with their apprentices, with recruitment running to plan in 2021. The challenge moving forward (apart from the continued impact of the pandemic) is to find ways of employing apprentices in advance of project need. It means that the short-term focus is to improve diversity of those attracted to apply and subsequently recruited into all roles, but particularly technical ones, will be even more important.

The **pilot Offshore Wind Apprenticeship Programme** being considered by the industry aims to support the supply chain, increase diversity and to find a way that apprentices could be employed in advance of projects' need.

The **Apprenticeship Working Group** will continue to measure the numbers, levels, and types of apprenticeships, and identify the operational challenges in companies to provide intelligence on what is happening across the industry. It will also be looking at how to support improved attraction, engagement, and recruitment of apprentices to improve diversity. Early work in companies has shown that changes can make significant differences in the applicant talent pool.

1.9 Education

Whilst the focus of the Offshore Wind Sector Deal commitments was on the post-16 age groups, there has been a growing desire for work to be undertaken throughout the education system, at industry level. Research suggests that some of the key decisions which will influence children's careers are made whilst they are still in primary school.

As a result, a new working group has been established specifically to focus on education but excluding apprenticeships which are addressed through its own Working Group. It will:

1. Support delivery of the Offshore Wind Sector Deal commitment to support T levels roll-out, including through developing work experience
2. Influence and inform government policy on education
3. In collaboration with government and education providers, produce offshore wind industry material for incorporation within and in support of the curriculum
4. Deliver 2 or 3 industry level programmes to support education throughout UK
5. Provide information, advice, and guidance (including case studies) through the OWIC & RenewableUK websites to students and employers looking to improve the effectiveness of their engagement with schools

Industry is keen to do more in collaboration with each other as well as with government and education providers.

1.9.1 Higher level research skills

It is important that the industry supports skills at all levels. ORE Supergen reported 2020 that there were 254 PhDs in offshore wind. Work is planned to look at this in more detail and understand how that compares with other sectors and where more needs to be done to increase those numbers both for industrial and academic PhDs.



2 Research Methodology

2.1 Industry Survey

OWIC has committed to report annually on the progress which the industry has made on the Offshore Wind Sector Deal commitments on job creation.

Labour market information is also vital in the submission to Government of Supply Chain Plans by companies seeking to qualify for CfDs. It informs the investment decisions of academic and training bodies too, enabling them to support the supply of skilled people into the industry

In September 2021 an industry-wide call was put out from OWIC and Renewable UK across multiple channels for organisations engaged in the wind industry to provide a range of details about their workforce.

“As a key part of our Offshore Wind Sector Deal work with the Government, we are conducting an annual survey of jobs in the UK offshore wind industry, including employment numbers and roles, regional locations, and opportunities for apprentices and new graduates.

We are also gathering data on gender and ethnicity to enable us to demonstrate that we are a diverse and inclusive sector.

This research is vital for the industry to be able to understand and address any shortages in both the short and long term, to ensure the development and delivery of future projects; especially issues which cannot be addressed at project level, but which need an industry-wide response “

The data requested within the survey was as follows:

- **Organisation Name**
- **Job Title / Description**
- **Job role group**
- **Role-sub-groups**
- **Skill Level**
- **Age (previously date of birth)**
- **Gender identity**
- **Nationality**
- **Ethnicity**
- **Work Phase**
- **Project type (previously Asset type)**
- **Employment status**
- **Development role**
- **Full or Part time**
- **Home location postcode [if living in the UK]**
- **Employer Office Postcode [from which the employee works, if in UK]**

The full detailed set of survey questions is contained in Appendix A.

2.2 Defining Offshore Wind Job Roles

A common set of people & skills terms was created for the first offshore wind people and skill survey in 2020, creating a common and standardised approach to defining job groups and job roles. This was built upon and used to underpin the data gathered in the workforce survey in 2021. The objective being to create a common taxonomy of people & skills categories to be increasingly used across the wind industry and to provide continuity to its use.

Table 1 below shows the taxonomy used for the purposes of this report. This model has also been shared with ORE Catapult's Floating Wind Centre of Excellence to inform similar future modelling for skills and vocational development in floating offshore wind.

Common Taxonomy			
Job Family	Job Family Sub Groups	Approx. Skill Levels (England)	Typical Roles
Management	Leadership	Skill Level 7/8	Company Board roles - Company Directors - C Suite roles etc...
	Management Corporate	Skill Level 6/7	Head of..., Senior Vice President, Director in Title etc...
	Management Operational	Skill Level 6/7	Head of..., Senior Vice President, Director in Title etc...
Technical / Professional	Technical	Skill Level 6/7	Engineers, Naval Architect...
	Professional	Skill Level 7/8	Lawyers, Doctors, Senior Consultant, Senior Auditor etc...
Corporate Services	Corporate Services Human Resources (HR)	Skill Level 6/7	Advisor, Partner etc...
	Corporate Services Information Technology (IT)	Skill Level 5/6	Helpdesk Technician, Software, Hardware etc...
	Corporate Services Finance	Skill Level 5/6	Accountant, Bookkeeper, General Ledger Clerk etc...
	Corporate Services Legal	Skill Level 7/8	General Counsel, Legal Advisor, Paralegal etc...
	Corporate Services General	Skill Level 4/5	Office Manager, Facilities Manger etc...
	Corporate Services Administration	Skill Level 2/3	PA, Secretary, Executive Assistant etc...
HSEQ	Health & Safety	Skill Level 5	Advisor, Partner etc...
	Quality	Skill Level 5	Advisor, Partner etc...
	Environmental	Skill Level 5	Advisor, Partner etc...
People Development	People Development & Skills	Skill Level 5	Trainer, Teacher etc...
	Graduate	Skill Level 5	Various
	Trainee	Skill Level 3	Various
	Apprentice	Skill Level 3	Various
Commercial	Sales	Skill Level 5	Sales Manager, BD Manager, Sales Executive etc...
	Marketing	Skill Level 5	Marketing Executive, Marketing Manager etc...
	Commercial	Skill Level 5	Commercial Executive, Commercial Manger etc...
	Procurement	Skill Level 5	Buyer, Procurement Officer
Operatives	Senior	Skill Level 6/7	Supervisor, Shift Manager, Foreman, Chargehand, Electrical SAP etc... Senior Electrical Tech, Senior Electronic Tech, Captain, Skipper, Mooring Master etc... OIM, DPO, SSL (Section Stability Leader), Pilot, Diving Supervisor, Survey Party Chief etc...
	Skilled	Skill Level 5/6	Welder, Plater, Pipefitter, Turbine Technician, Statutory Inspector, Electrical Supervisor, Level 7 Electrical Technician... Electrical Tech, Electrician, Electronic Tech, Hydraulic Tech, 1st Officer, DPO, Marine Engineer etc... SSL, Navigator, Senior Crew, Diver, ROV Pilot, Surveyor etc...
	Semi-Skilled	Skill Level 4/5	Forklift Driver, Driver, Crane Driver, Scaffolder, Rigger, Painter, Cable Joiner, CRO, Crane Operator, HLO, Diver/Tech, Subsea Engineer etc...
	Manual	Skill Level 3/4	Labourer, Groundworker, Quayside Operative, Cable puller, Mate, Deckhand, Able Seafarer, Roustabout, Groundcrew, Loading Crew, Deck Crew etc...

Table 1 - Common Taxonomy of Offshore Energy Roles

The jobs group model also highlights the indicative skill level applied to each individual job role. For the purposes of this report all skills levels are aligned to the Regulated Qualification Framework, covering England, Wales, and Northern Ireland. The Scottish Qualification and Curriculum Framework is set out in comparison below.

Framework	RQF / CQFW Level England, Wales, & Northern Ireland	SQCF Level Scotland	Example Awards
Secondary / Further Education	Level 1	4	GCSE grade D-G BTEC at level 1 OCR Nationals Functional Skills at level 1
	Level 2	5	GCSE grade A* - C NVQ Level 2 BTEC at Level 2 Functional Skills at level 2
	Level 3	6	AS/A Level NVQ Level 3 BTEC at Level 3 OCR Nationals
Framework for Higher Education Qualifications	Level 4	7 - 8	Certificate of Higher Education BTEC Diploma and Advanced Diploma at Level 4 City & Guild Licentiate Higher National Certificate (HNC) Diploma in Teaching in the Life Long Learning Sector (DTLLS) Level 4 NVQ
	Level 4&5 Combined		Senior Command, Leadership & Management Courses
	Level 5	Foundation Degree Diploma of Higher Education BTEC Diploma and Advanced Diploma at Level 5 Higher National Diploma (HND) Individual University Modules at Level 2** (e.g., through Open University)	
	Level 6	9 - 10	UK Bachelor's degree
	Level 7	11	UK Master's Degree Postgraduate Certificate 7 Enhanced Diploma
	Level 8	12	Doctorates

Table 2 - UK Skills Level Framework

2.3 Future Casting the Data

The final cut-off date for the survey results was set at the end of February 2022, the data was then assembled and cleaned, and the size of the sample assessed. Some **9,916** individual job records which were received from **97** companies, these were locked in.

This was felt to be a strong return, building on the 85 companies that submitted data in 2021.

This survey data set was then uplifted to make it representative of the entire UK wide offshore wind sector [rather than just the 97 companies that responded]. This involved creating a comprehensive list of companies in the sector (approx. 360) sorting them into small, medium, and large categories and then extrapolating the data from the 97 companies across the 360 companies.

This process provided us with a new fully representative data set made up of **31,082** individual jobs records or "Today's Workforce"

Once the "Today's Workforce" number was established, it was used as the 2021 baseline of skills in the industry and modelled out to 2030. Essentially it was increased year on year in line with the forecast year on year growth in the UK.

To do this it was agreed not to simply use year on year increases in GW generation as the denominator for the forecast due to the quite 'lumpy' nature of that growth forecast, instead it was decided to build a more granular and smoother financial growth model which takes project by project calendarised spend split into DEVEX, MANEX, CAPEX and OPEX as its basis.

For the first time, manufacturing expenditure (MANEX) has been added to bring focus to the manufacturing requirements for turbines, foundations, cables, substations, and their component supply chains. This is particularly relevant with UK government's plans to stimulate manufacturing, for example, through its Freeports policy and Green Freeports in Scotland.

Project forecasts were used from the Renewable UK's Energy Pulse database with annual spend calendarised to produce a year-on-year total spend across the UK offshore wind industry, with the year-on-year percentage changes in the spend where then applied to the baseline of skills.

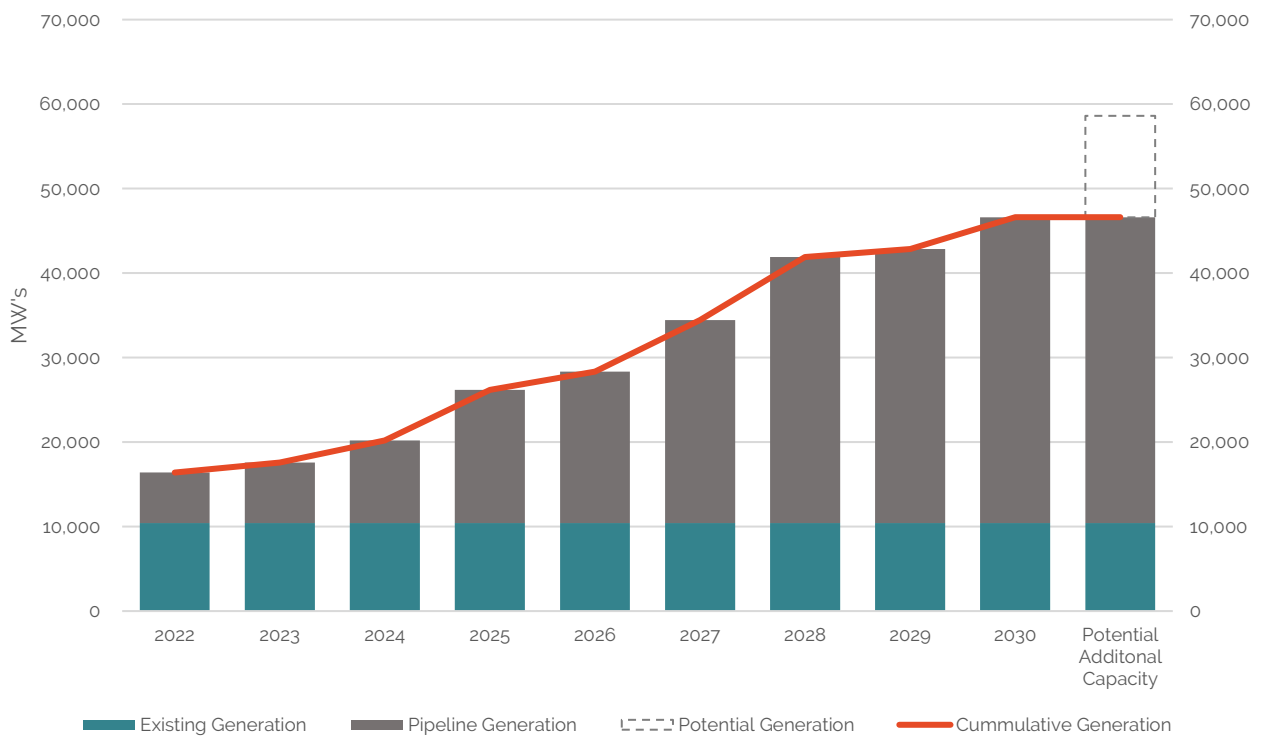


Figure 1 - UK Offshore Wind Annual Generation Forecast. (Source: Renewable UK Energy Pulse, March 2022)

Figure 1 shows the forecast offshore wind annual growth by MW capacity based upon the current pipeline, highlighting the cumulative installed capacity, including the recent Scotwind awards.

For the purposes of this report, we have assumed that all projects in the current pipeline and potential will proceed. Based on the current pipeline of projects, this could reach **47GW by end 2030**. Rising to 59GW by end of 2030 if the potential projects are also delivered

Figure 2 below shows the forecast annual spend, based on the offshore wind project pipeline and the potential. Between 2022 and 2030, the industry could see as much as **£154.8** billion invested in new project capacity.

This gives an average annual spend of **17.2bn**. This is significantly higher than report last year, which showed an average annual spend of £10.1 billion.

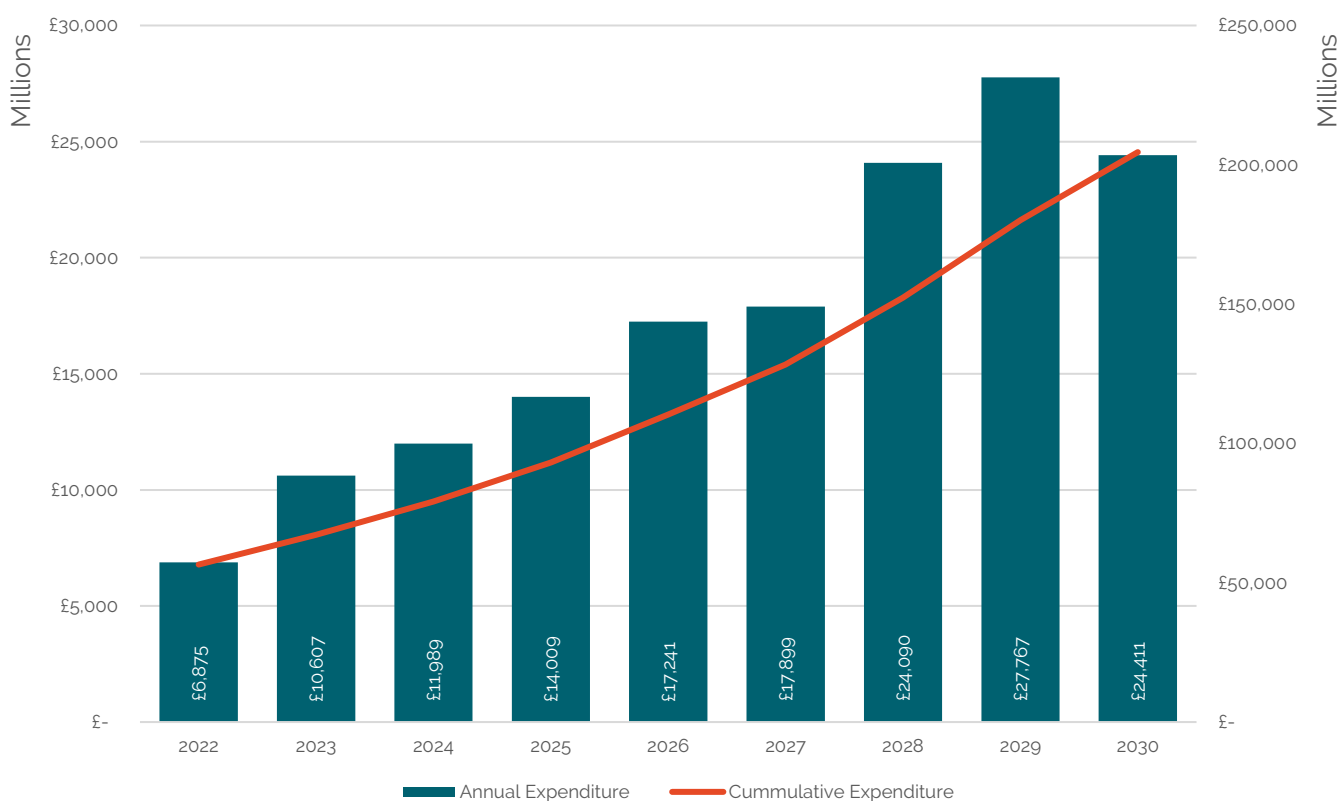


Figure 2 - UK Offshore Wind Annual Spend

Tailored spend profiles were used for fixed and for floating wind projects to reflect the different timings and amounts of spend, with an assumed annual increase in O&M costs set at 2.5% throughout both models. The key difference is in MANEX and CAPEX costs, where it is assumed offshore construction methods for fixed wind projects, using the same broad techniques of manufacturing in numerous facilities with complex logistics, using a marshalling yard for deployment of components for assembly offshore, typically defined as CAPEX costs.

However, the opposite is assumed for future floating wind projects, where all manufacturing and construction is done onshore, on a quayside, or within a sheltered port/harbour environment. The floating foundation will have its turbine(s) mounted, potentially like current onshore wind turbine erection methods, with the finished product being towed offshore into its destination prior to

being anchored. This has the potential to reduce CAPEX costs through greater use of onshore and port facilities, as opposed to offshore construction and the use of heavy lift vessels.

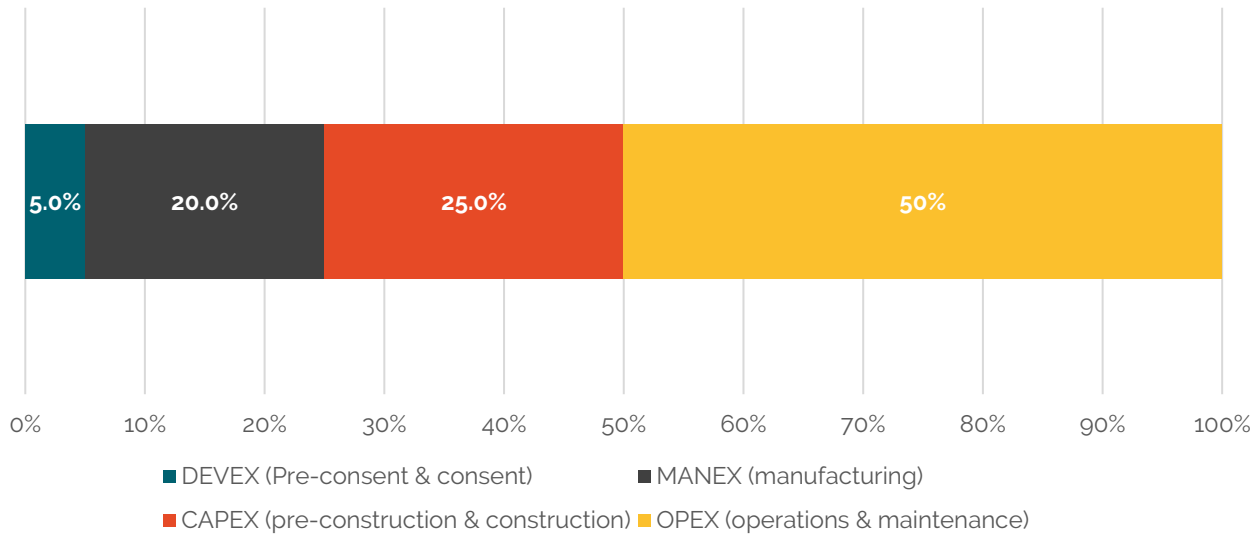


Figure 3 - Fixed-bottom Offshore Wind Project Lifetime Expenditure Split

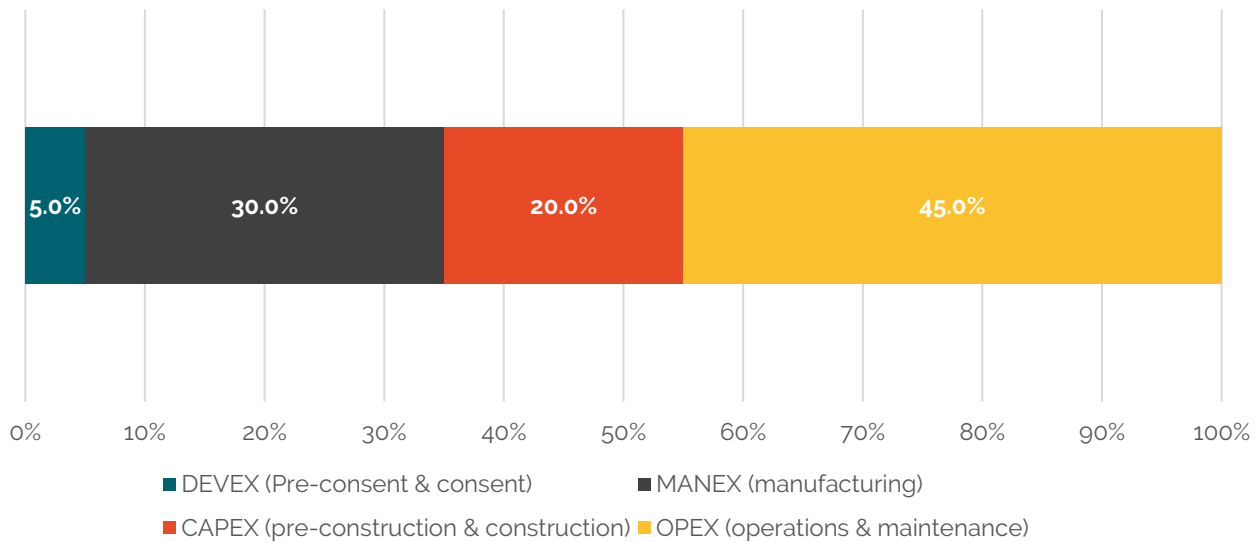


Figure 4 - Floating Offshore Wind Project Lifetime Expenditure Split

Figures 5 and 6 overleaf illustrate how these percentages have been applied over a 30-year lifetime of an offshore wind project, including consenting and development e.g., post-license award.

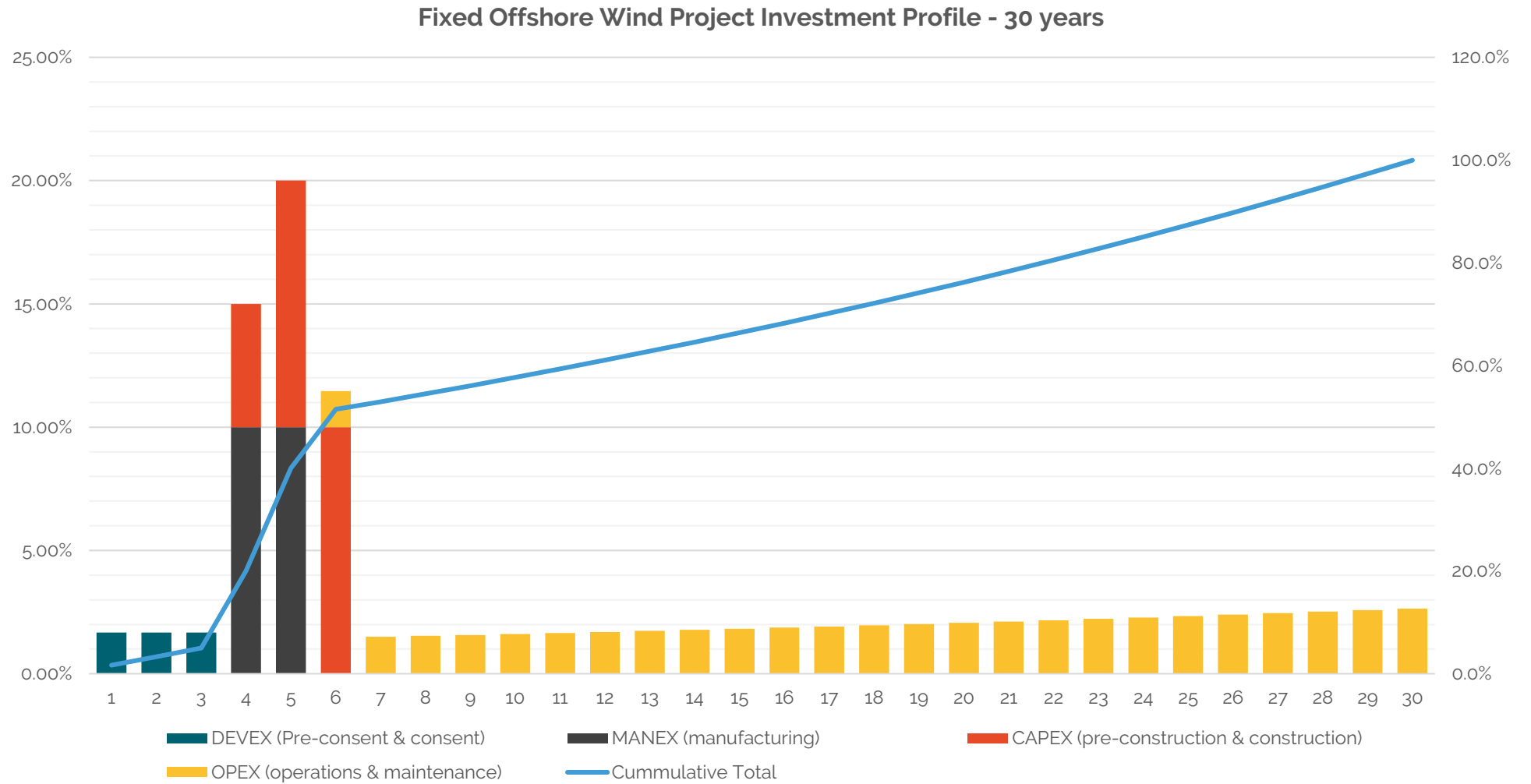


Figure 5 - Fixed Wind Project Spends Annual Phasing

Floating Offshore Wind Project Investment Profile - 30 years

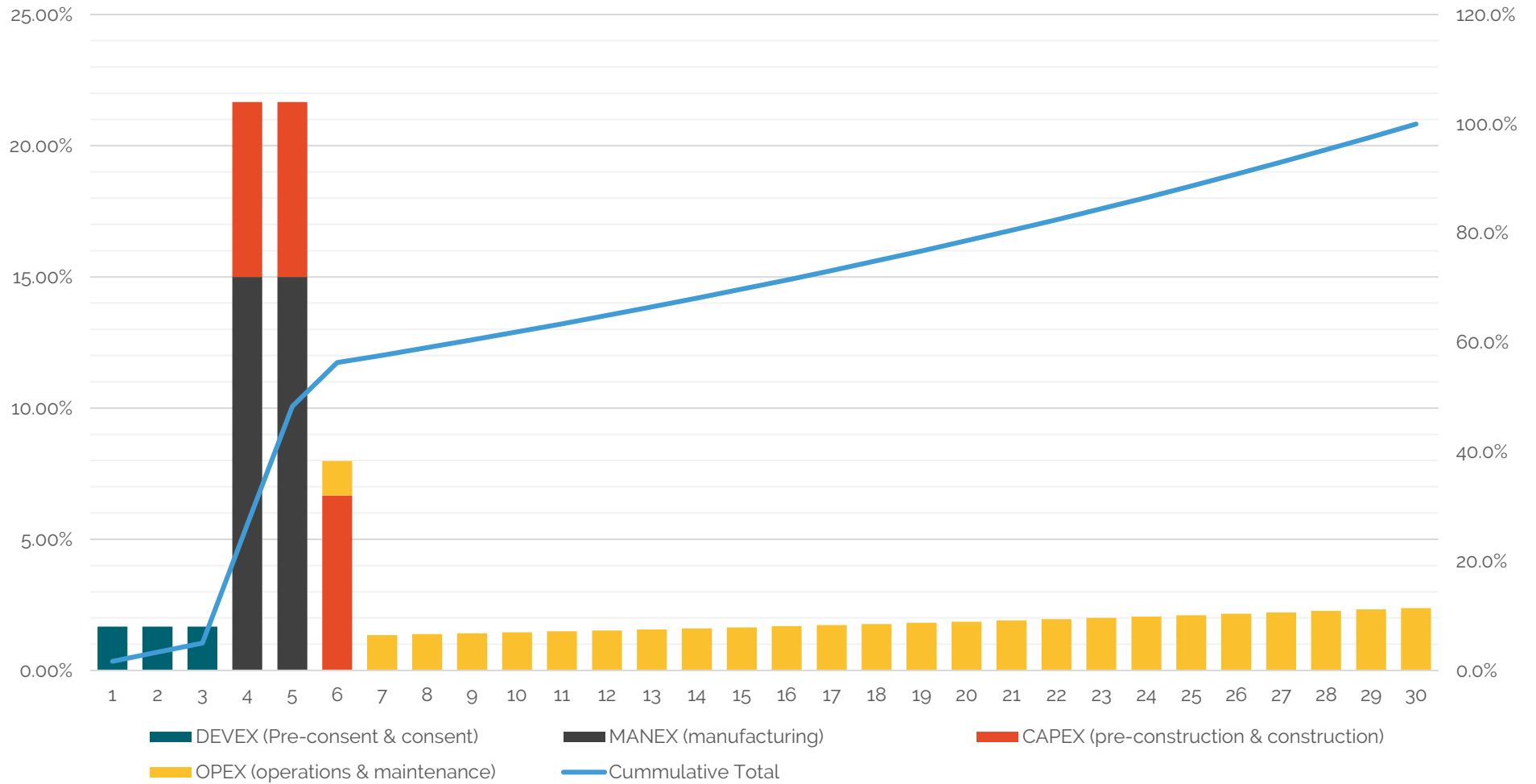


Figure 6 - Floating Wind Project Spends Annual Phasing

2.4 Direct vs Indirect Jobs

The final survey data was analysed together with a review of some statistics from the office for national statistics (ONS) and a Direct to Indirect ratio of 58% to 42%, was found.

Applying this same ratio to our final "Today's Workforce" figures gave us **19,571** direct jobs, an increase 22.4% on the 15,205 direct jobs reported in March 2021, and an additional **11,491** indirect jobs, an 5.2% increase on the 10,888 indirect reported last year.

2.5 Productivity and Technology Improvements

For future casting people and skills numbers to be credible and therefore useful to the industry, any model used needs to take into consideration annual improvements in both:

- **Industry productivity** – the gains made as the industry gets better at designing, constructing, and operating offshore wind farms
- **Technology improvements** – the gains made as better technology improves such things as wind turbine power curve outputs and size, foundation and cable installation times and mean time addressing issues involving critical components.

In understanding the annual factors to apply to the future cast data to reflect these two critical factors, this report considered many published articles, work carried out by various technical organisations such as the ORE Catapult and the opinion of several experienced industry players.

The result was that the modelling underpinning this report uses:

- 0.75%** per annum (on a compound basis) as a reduction factor for Productivity; and
- 1.25%** per annum (on a compound basis) as a reduction factor for Technology Improvement.

0.75%						
The compound Year on Year effect on the future people and skills of Productivity & Efficiency increases						
2025	2026	2027	2028	2029	2030	
99.25%	98.51%	97.77%	97.03%	96.31%	95.58%	
1.25%						
The compound Year on Year effect on the future people and skills of Industry Technology improvements						
2025	2026	2027	2028	2029	2030	
98.75%	97.52%	96.30%	95.09%	93.90%	92.73%	
The combined [overall] compound effect on the future overall people & skills requirements						
2025	2026	2027	2028	2029	2030	
98.01%	96.02%	94.06%	92.13%	90.21%	88.31%	

Table 3 - Productivity and Technology Improvement Factors compound effect over the lifetime of a windfarm (applied upto and including 2030)

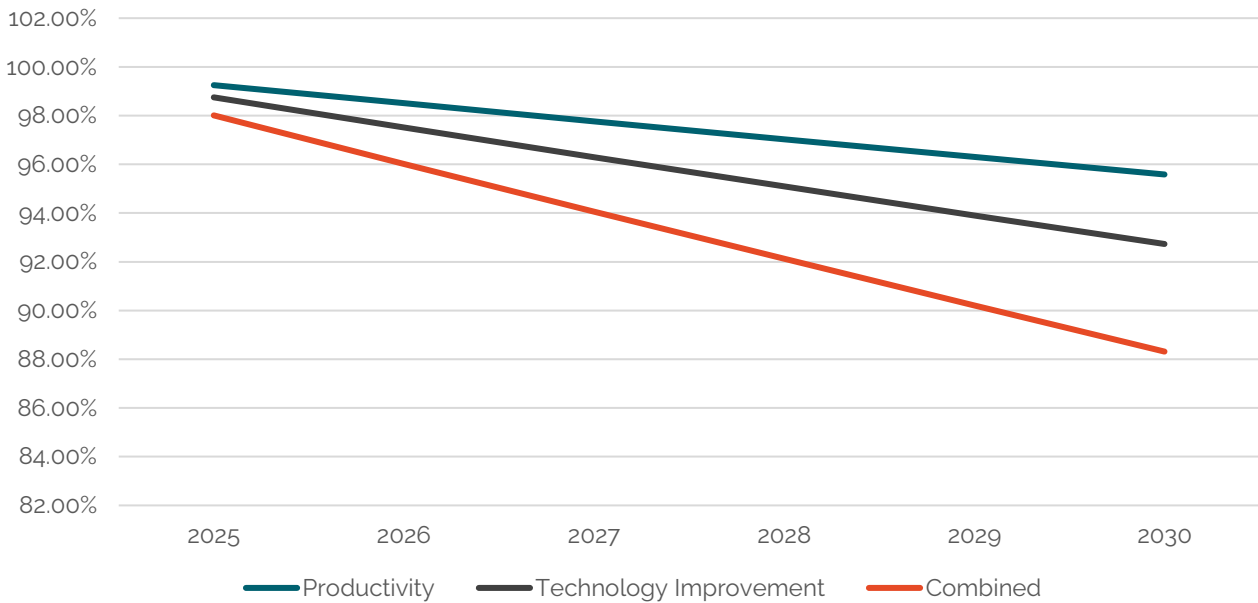


Figure 7 - Productivity & Technology Improvement Factors Applied over Time

The overall rates that this modelling creates aligns closely with several industry LCOE forecast reductions over the same period, this can be seen in the examples below taken from the International Renewable Energy Agencies projections on offshore wind cost reductions

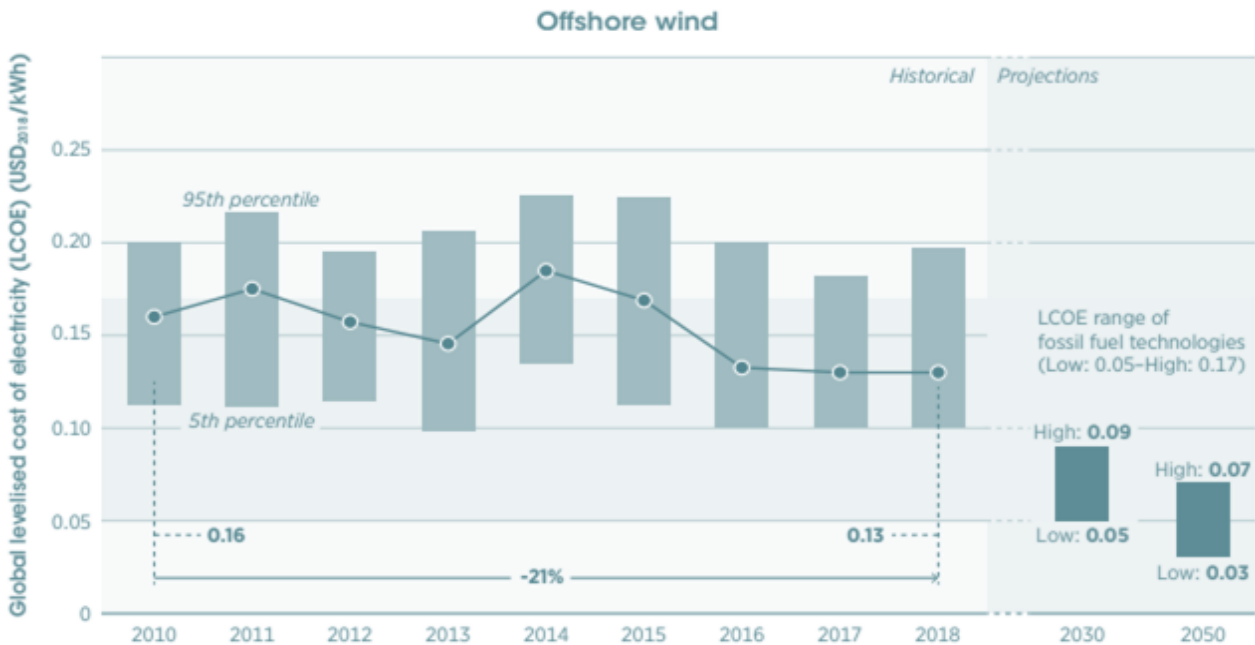


Figure 8 - Historical data based on IRENA (2019c) and future projections based on IRENA; s forthcoming report solar and wind cost reduction potential to 2030 in the G20 countries (IRENA, n.d.)



3 Today's Workforce – Survey Results

Based on the survey results of 97 companies with detailed data on 9,961 individual job roles across the sector, and applying our extrapolated results, we estimate the size of the UK offshore wind workforce to be **31,082 jobs**, a 16.1% increase on 26,093 jobs reported in March 2021.

Total Responses

97 Companies
Contributing Data

31,082 ↑ 16.1%
From 2020

9,961

Total UK Offshore Wind Workforce

(**4,971** Direct / **4,998** Indirect)
Employees Recorded

19,591 ↑ 22.4%
From 2020
Direct Jobs

11,491 ↑ 5.2%
From 2020
Indirect Jobs

Sample of 36% of total estimated current UK workforce

3.1 Age Profile

The age profile of the industry is diverse, ranging from 17 years to 72 years of age. The mean age is 40, which is down by one year compared to last year's results. 58 people (less than 0.5%) are identified as being over 65 years old and could retire in the next 5-10 years. Overall, based on the survey results, the sector appears to have a good balance across the age range.

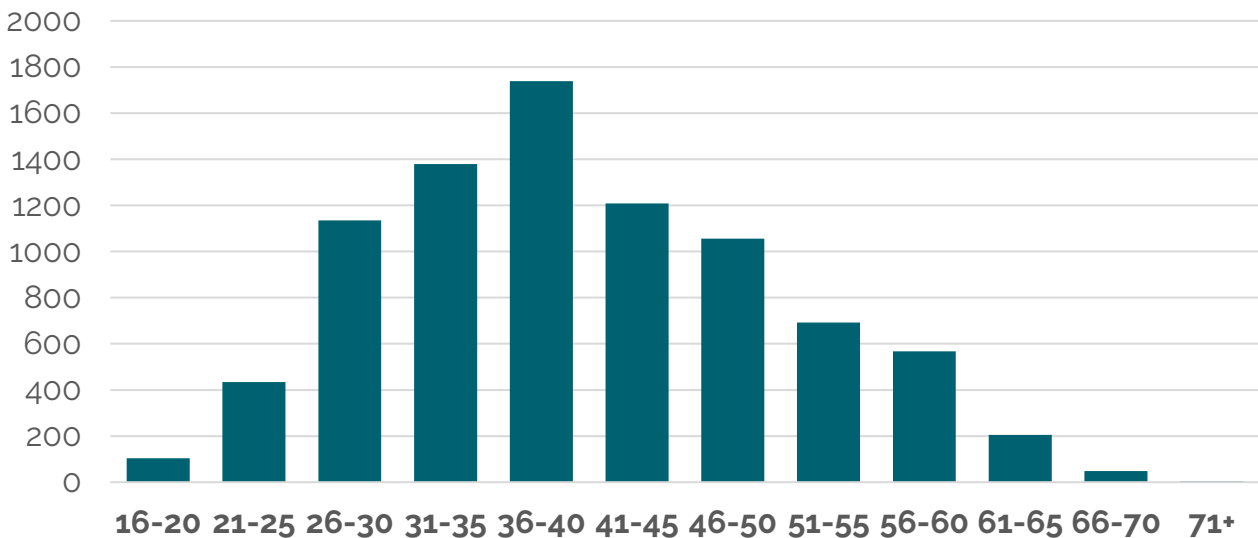


Figure 9 - UK Offshore Wind Workforce – Age Profile

3.2 Gender Balance

The survey data includes **1,883** women, representing **19.25%** compared to **7,685 (80%)** men. This represents a **1.25% increase** compared to last year's results. However, it should be noted that Gender was not provided for 396 (3%) of employees in the survey.

Gender Balance



Similarly on gender split by age, there is a good spread across all age ranges. For the first time, we can report 2 non-binary submissions, which highlights the positive messaging for inclusion and diversity, and the benefits of surveys such as this to highlight industry progress on gender.

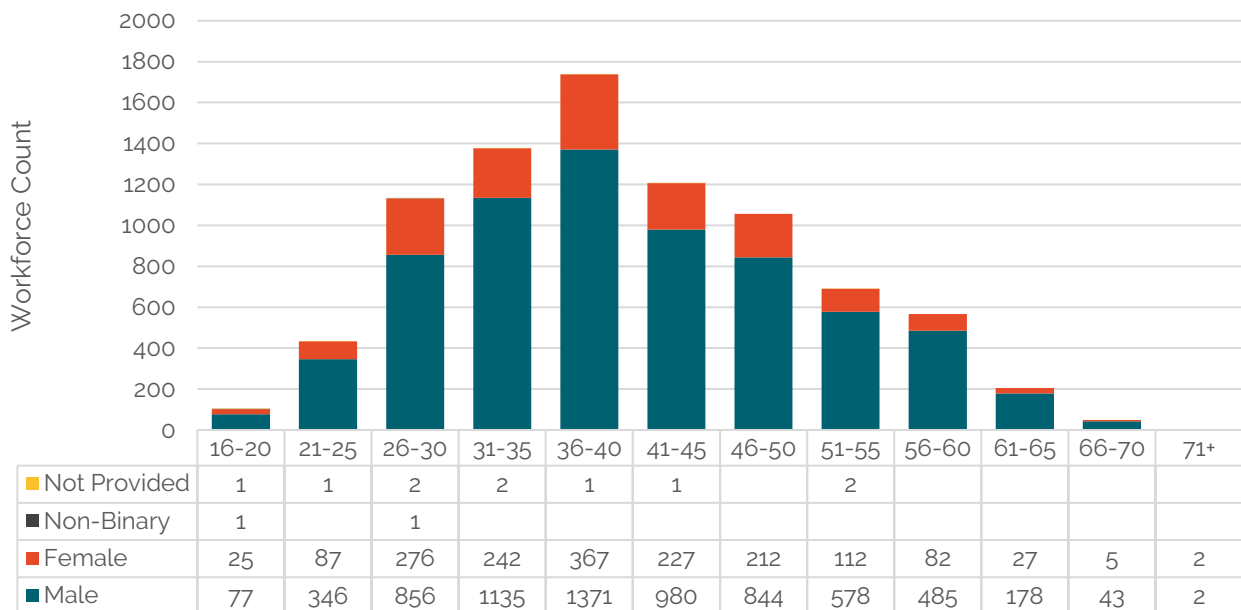


Figure 10 - UK Offshore Wind Workforce – Age Profile by Gender

When exploring the skills levels for women in the industry, they are typically at **levels 5-7** (Batchelor's Degree and Higher Education Diploma) across a broad range of roles. See

When comparing the total results, on Skill Level 2 we see 68% of the total being female, with 30% at Level 5 and 23% at Level 7.

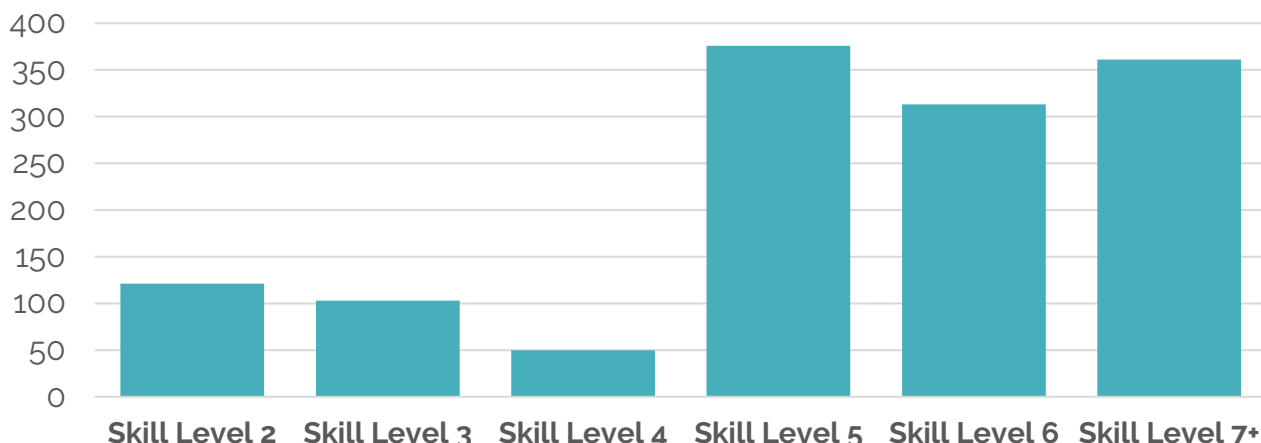


Figure 11 - UK Offshore Wind - Survey Results - Female Skill Levels

Based on the survey results, which represents a 36% sample of the estimated offshore wind workforce, women most frequently work in **corporate services** and **technical / professional roles** including:

- Operational Management
- Administration
- Finance

The breakdown of job role groups is shown below, with Sales/Commercial/Procurement being the third most common female job group.

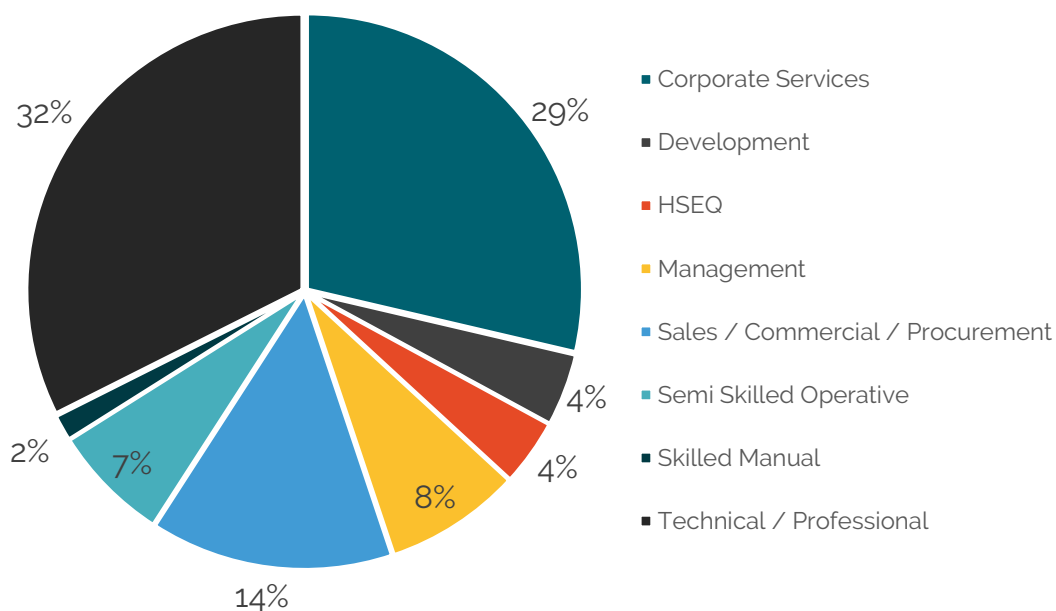


Figure 12 - Breakdown of female job role groups, based on the 2022 Survey Results

3.3 Ethnicity

Data on ethnicity of the UK offshore wind workforce has improved. Last year, around 25% of companies submitting returns provided ethnicity data. This year, this has increased to around 33% of companies reporting on ethnicity, however, with some clear way to go to improve further.

It is worth noting that it is a complex task to gathering the data, (i.e., GDPR hurdles) and there is a need for a full DE&I policy to be put in place to substantiate capturing the data in a way that is non anonymised. The need to share knowledge / best practice on the 'how' within and outside the sector on this topic is also essential.

Ethnicity	Survey Count
Black, African, Caribbean, or Black British	26
Asian or Asian British	64
Mixed or Multiple ethnic groups	23
Any other ethnic group	19
White	3,346
Not Provided	6,438

Table 4 - UK Offshore Wind Workforce - Ethnicity Data

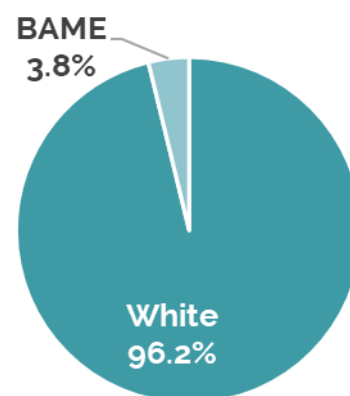


Figure 13 - Summary of ethnicity data received

Overall, progress on statistics from people from ethnic minority backgrounds appears limited, accounting for less than 5% of the survey results. This compares to 3% last year, and the actual count has increased from 87 people reported in March 2021 to 132 in this year's survey results.

When exploring the skills levels for ethnic minority groups in the industry, 60% of jobs reported are at **levels 5-7** (Batchelor's Degree and Higher Education Diploma) across a broad range of roles. Figure 14 shows the breakdown of skill levels reported for each ethnic group.

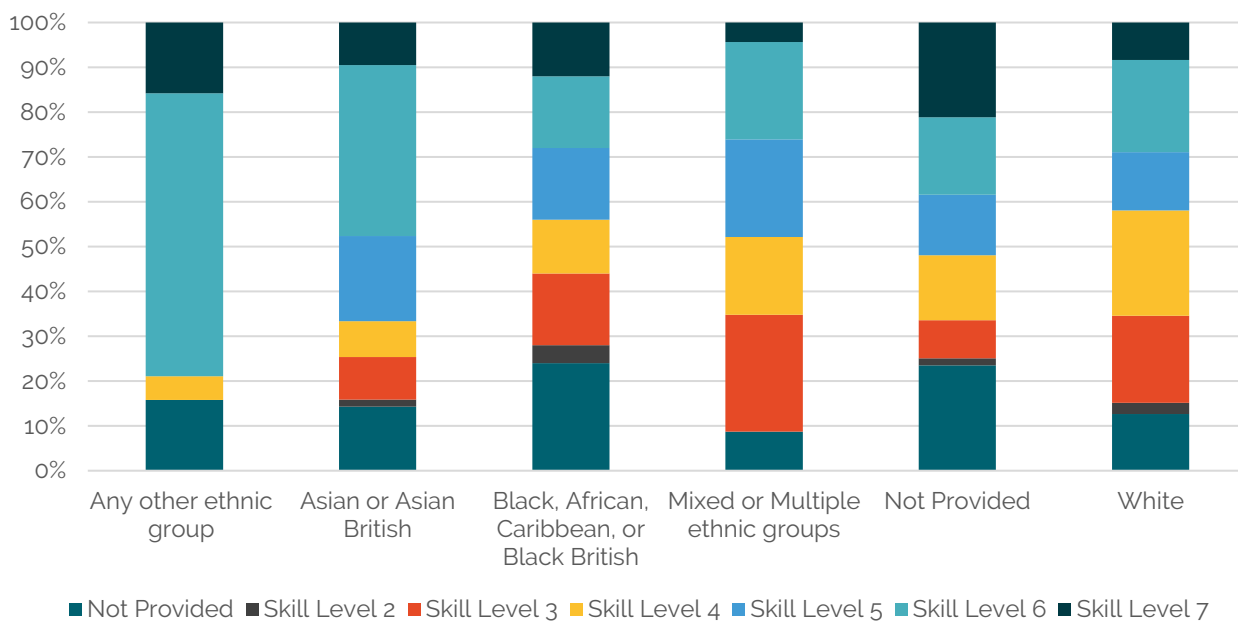


Figure 14 - Breakdown of ethnicity skill levels, based on the 2022 Survey Results

Based on the survey results people with ethnic minority background most commonly work in **corporate services** and **technical roles** including:

- Operational Management
- Procurement
- Finance

The figure below shows a detailed breakdown of job role groups based on the survey results, with semi-skilled operative being the third most common ethnicity job role group.

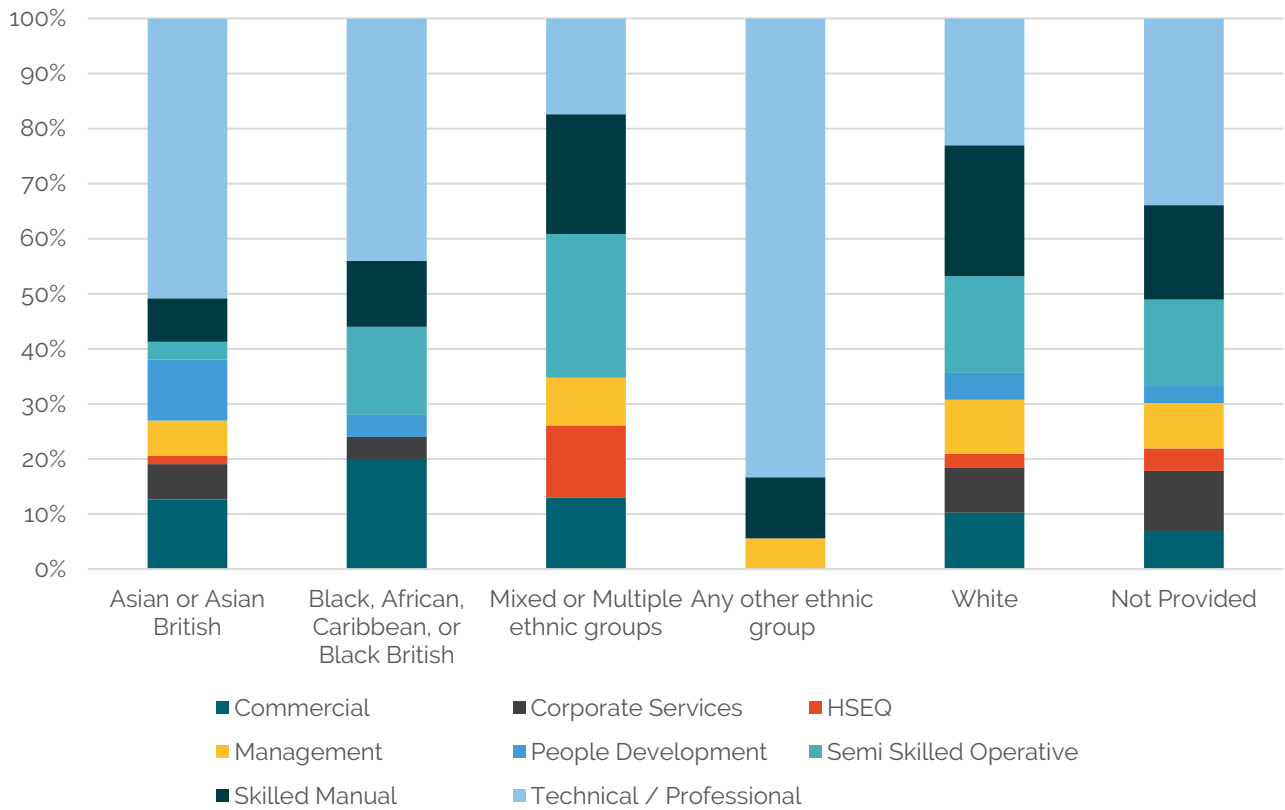


Figure 15 - Breakdown of ethnicity job role groups, based on the 2022 Survey Results

3.4 Job Roles and Skills Levels

Based on the survey results, Skilled, Technical and Professional job roles account for **65%** of responses. Leadership, Corporate and Operational Management roles account for **9%** of responses.

Figure 12 shows the breakdown of the workforce by job roles.

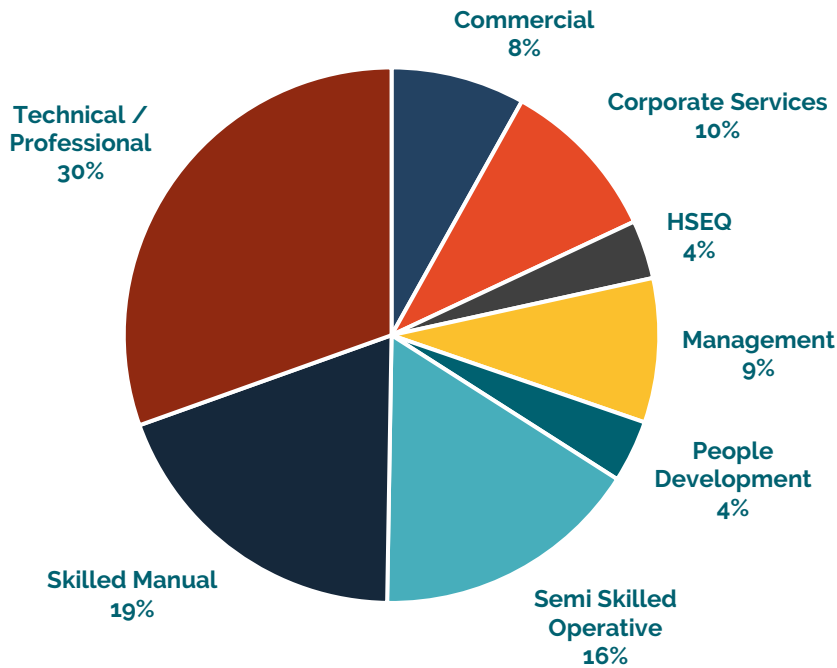


Figure 16 - Breakdown of UK Offshore Wind workforce by Job Role grouping

The data suggests a small increase of 3% in technical and professional roles, compared to last year's survey results, although a decrease of 8% in leadership and management roles.

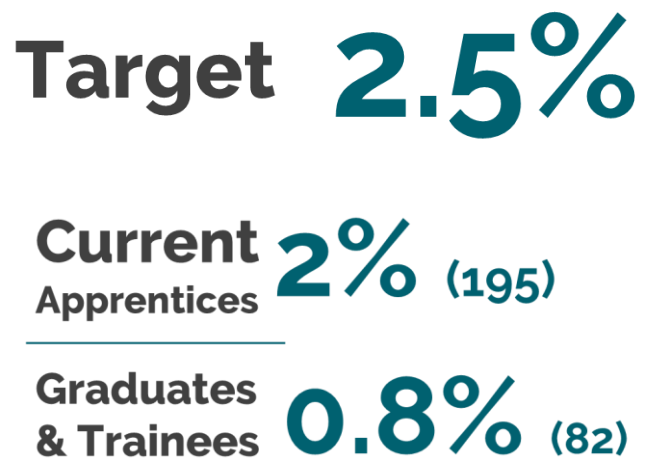
3.5 Skills Development

Developing the next generation of talent, in particular supporting apprenticeships is a key target of the Offshore Wind Sector Deal.

Through the Deal, the industry has agreed a target of 2.5% of the workforce to be recruited through apprenticeship programmes.

Based on the survey results, apprentices make up 2% of the workforce, an increase of 0.2% based on last year's results. Graduates and Trainees are down at 0.8% compared to 1.6% last year.

This may appear lower than anticipated, in part, due to impacts of the coronavirus on both industry and further education bodies with restrictions imposed during 2020 and 2021.



However, to maintain progress with a small increase is testament to the growth of the sector overall, but as the industry continues to grow there is a need for constant development of people at every level to make the 'gap' that is the Graduate entrance point.

3.6 Regional Breakdown

The map below represents the geographic spread of the survey results for the UK offshore wind workforce, based on actual data submitted for 9,961 jobs. Data returns included 1,400 responses with no location data.

Of data supplied, we can see Scotland has maintained around one third of the UK workforce, with a same overall geographical spread to last year's results. The map also highlights the Sector Deal Clusters, with east coast clusters have higher levels of employment based on proximity of the offshore projects.

Coastal communities such as Grimsby, Lowestoft, Aberdeen, and Canterbury are noted to have higher levels of relative employment. This is primarily due to the locations of key operations sites and port locations servicing offshore projects.

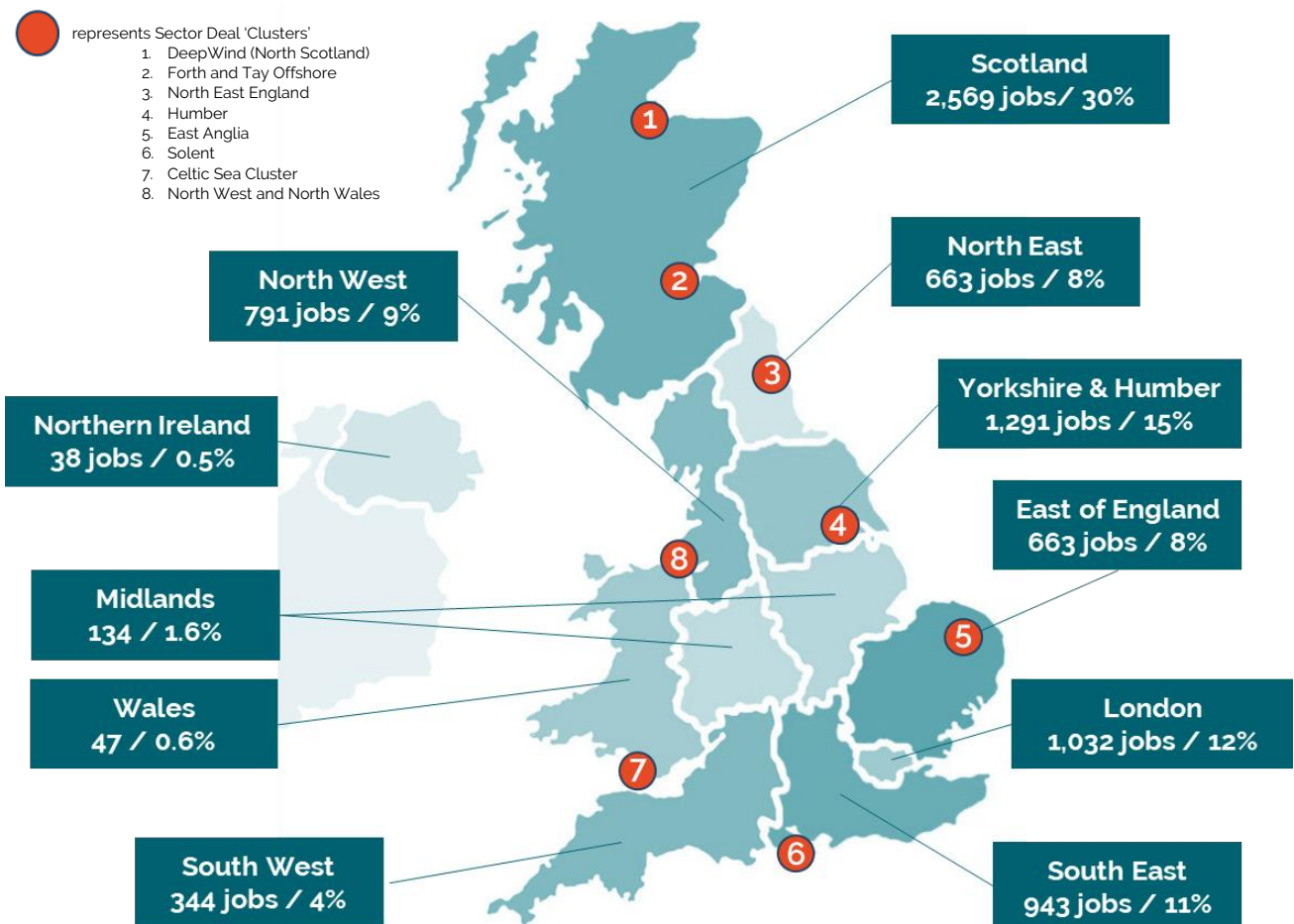


Figure 17 - Geographic spread of the offshore wind workforce, based on survey results.

3.7 Gender Balance by region

Overall, the gender balance at a regional level is broadly like last year results, with notable improvements in the Yorkshire and Humber region from 9% to 13% compared to last year's results, and Scotland from 20% to 24%.

Almost all regions noted improvements. Northern Ireland has increased from 3% last year to 76% gender balance in favour of women this year, however, the amount of data received was relatively small at a total sample of 38 roles so no firm conclusions should be drawn in terms of long-term trends.

The two non-binaries are in Scotland and East of England.

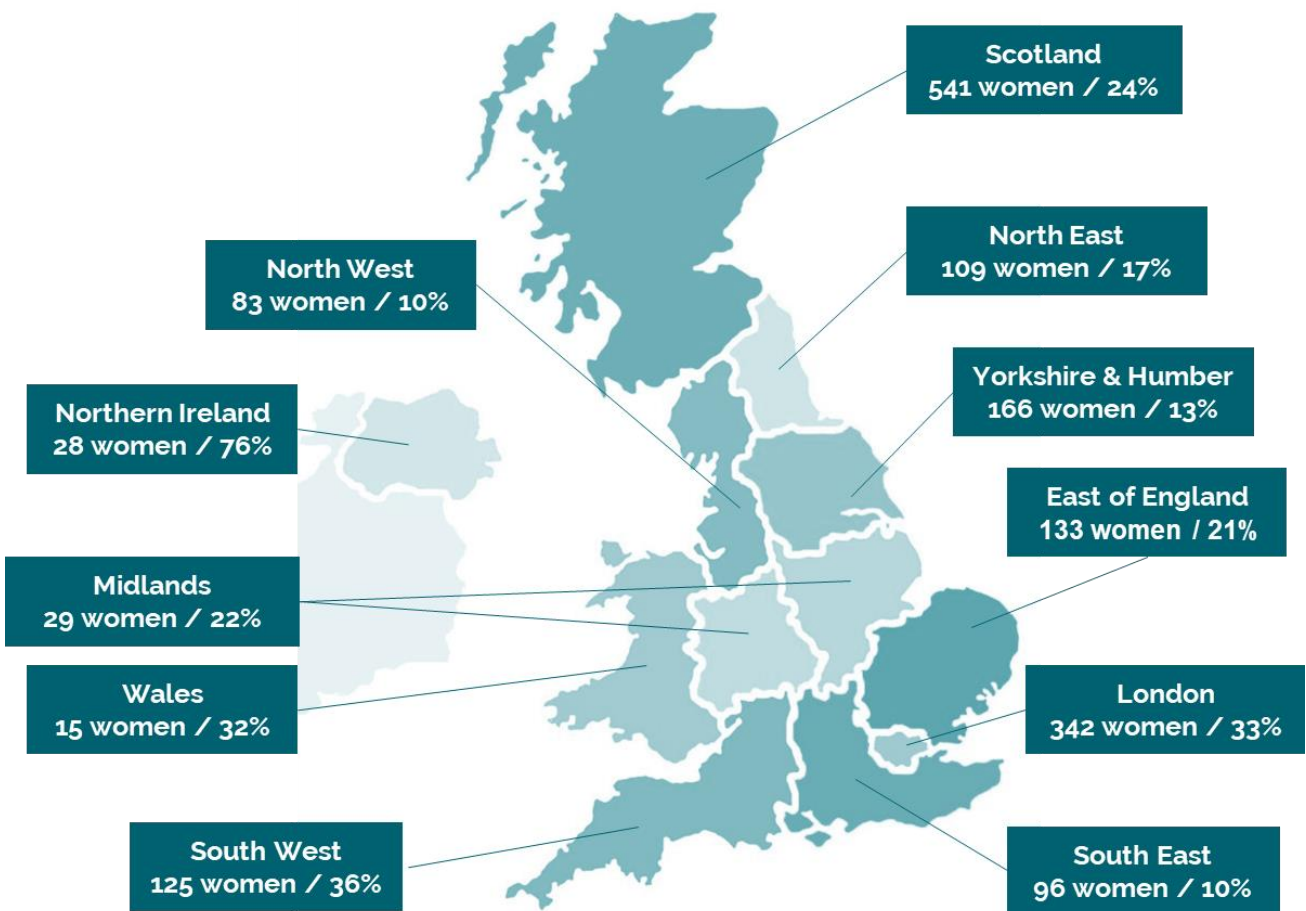


Figure 18 - Geographic spread of the **female** offshore wind workforce, based on survey results.

Region	Women		Men		Not Provided		Total
	Total	% of total	Total	% of total	Total	% of total	
East Midlands	5	29%	12	71%	0	0%	17
East of England	133	21%	507	79%	1	0%	641
London	342	33%	684	67%	0	0%	1026
North East	109	17%	528	83%	0	0%	637
North West	83	10%	708	90%	0	0%	791
Northern Ireland	28	76%	9	24%	0	0%	37
Scotland	541	24%	1,759	76%	1	0%	2301
South East	96	10%	843	90%	0	0%	939
South West	125	36%	219	64%	0	0%	344
Wales	15	32%	32	68%	0	0%	47
West Midlands	24	21%	93	79%	0	0%	117
Yorkshire & Humber	166	13%	1,125	87%	0	0%	1291

Table 5 - Geographic spread of the **female** offshore wind workforce, based on survey results.

3.8 Ethnicity

Ethnicity data at regional level is not analysed further at this stage. Only one-third of submissions received through the survey captured ethnicity data. Whilst this is an improvement on last year's survey results where only 25% of returns captured ethnicity, the sample is felt to be too small to draw any useful regional trends.

Instead, more work should be undertaken to work across industry and supply chain partners to improve data collection on ethnicity, and other, diversity categories to inform future activities.

In 2020, OWIC in partnership with the Scottish Offshore Wind Energy Council and The Equal Group, published its first **Best Practice Guide on Diversity and Inclusion**. This document is key in supporting businesses in the offshore wind sector to measure and address ethnic diversity and gender balance across their workforce.

A recent 2021 update has been published as in an interactive online format including examples of industry initiatives, which is [available here](#).



3.9 Job Roles and Skills Levels

When looking at the distribution of jobs role groups and skills levels within the UK regions, it becomes quite variable from region to region with most job roles in technical and professional disciplines, and with Corporate Services being the second overall highest job role group.

Management, including corporate leadership roles, are highest in London, accounting for corporate offices and support functions such as HR, finance, procurement etc.

The figure and table below show the full breakdown of survey results by job role group and region.

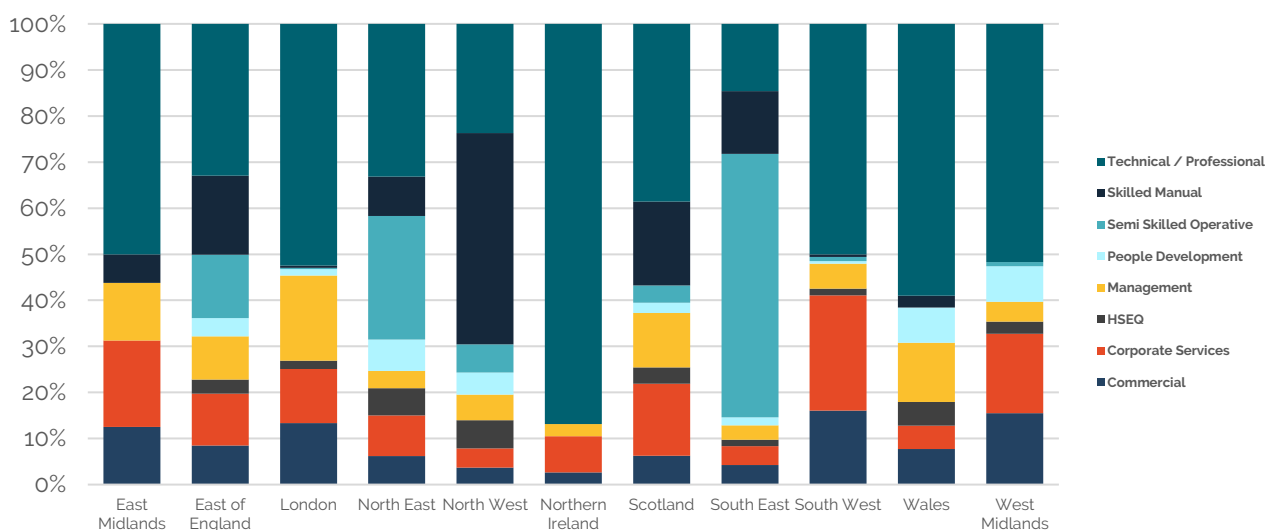


Figure 19 - Breakdown of Job Role groups by region

	Commercial	Corporate Services	HSEQ	Management	People Development	Semi Skilled Operative	Skilled Manual	Technical / Professional
East Midlands	2	3		2			1	8
East of England	47	62	17	52	22	76	95	182
London	135	119	18	187	14	3	5	531
North East	41	58	39	25	45	177	56	219
North West	29	33	48	44	38	48	362	187
Northern Ireland	1	3		1				33
Scotland	153	382	86	289	54	92	444	942
South East	39	38	13	29	16	530	126	135
South West	54	84	5	18	2	3	2	168
Wales	3	2	2	5	3		1	23
West Midlands	18	20	3	5	9	1		60
Yorkshire & Humber	58	45	30	60	85	563	227	219

Table 6 - Breakdown of Job Role groups by region

On skills levels, again the survey results give us a diverse range of skills, but typically higher levels at Levels 4 and above. Yorkshire & Humber, together with the North East, show the highest number of Level 3 skills, considering a more developed supply chain such as Ørsted's East Coast hub and Siemens Gamesa's blade manufacturing facilities.

The figure and table below show the full breakdown of survey results by skill level and region.

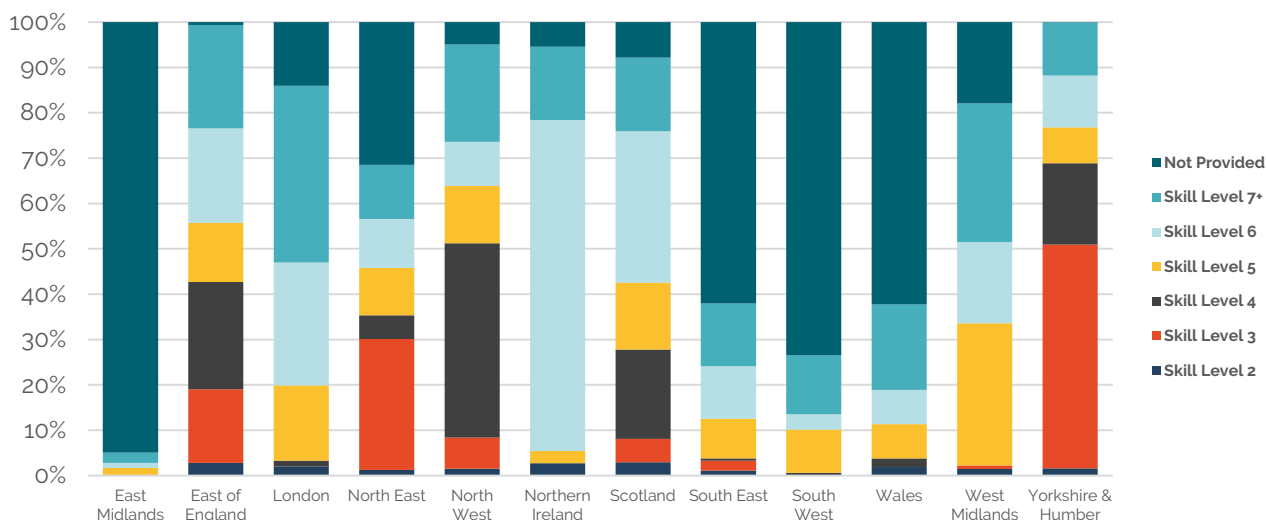


Figure 20 - Breakdown of Skills Levels by region

	Skill Level 2	Skill Level 3	Skill Level 4	Skill Level 5	Skill Level 6	Skill Level 7+	Not provided
East Midlands	nil	nil	nil	3	2	4	169
East of England	14	81	118	65	104	114	3
London	20	nil	13	164	268	386	139
North East	8	190	34	69	71	78	207
North West	11	48	302	89	69	151	35
Northern Ireland	1	nil	nil	1	27	6	2
Scotland	67	116	445	334	756	367	177
South East	6	12	3	48	64	76	342
South West	1	nil	5	95	34	129	731
Wales	1	nil	1	4	4	10	33
West Midlands	2	1	nil	42	24	41	24
Yorkshire & Humber	20	618	225	99	143	147	1

Table 7 - - Breakdown of Skills Levels by region

3.10 Skills Development

Skills development, developing apprenticeships, graduates, and trainees, is mixed across the regions. Graduates and trainee numbers have fallen this year, in part due to impacts of the coronavirus pandemic.

The regions with the highest numbers of apprentices are Yorkshire & Humber, North East & West, followed by the East of England. Some 60 apprentice roles did not provide postcode data with their submissions, so the real numbers at regional level could be slightly higher.

The figure and table below show the full breakdown of survey results for apprentices, graduates, and trainees.

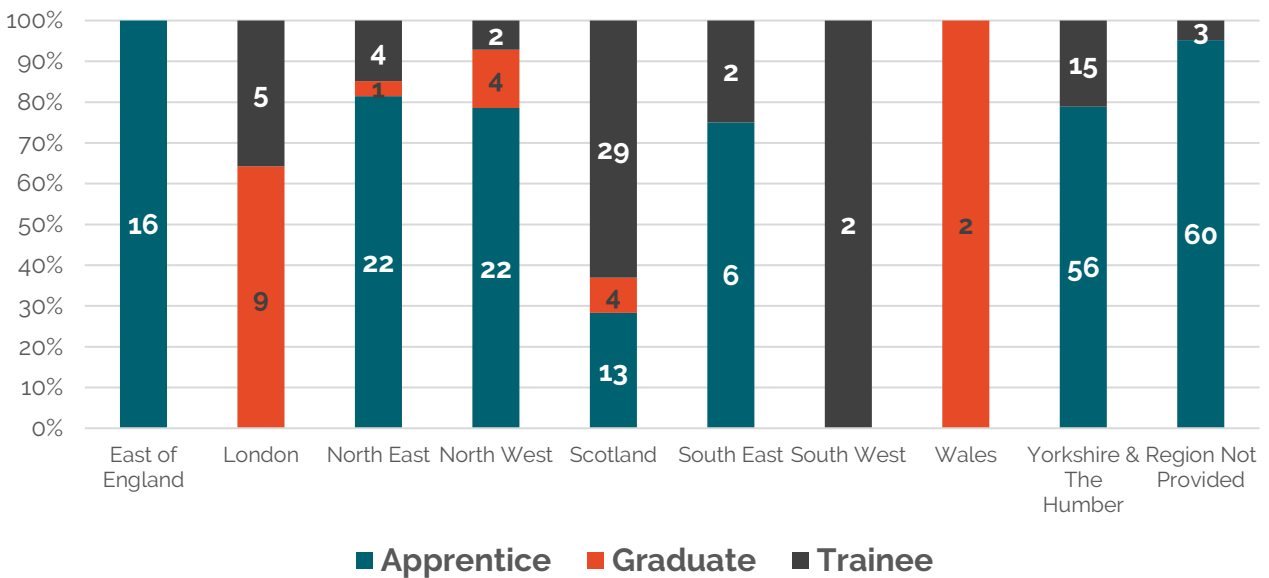


Figure 21 - Apprentice, Graduate & Trainees by UK Region

	East Midlands	East of England	London	North East	North West	Northern Ireland	Scotland	South East	South West	Wales	West Midlands	Yorkshire & Humber	Region Not Provided	Grand Total
Apprentice	No Data Available	16	nil	22	22	No Data Available	13	6	nil	nil	nil	56	60	195
Graduate		nil	9	1	4		4	nil	nil	2	nil	nil	nil	20
Trainee		nil	5	4	2		29	2	2	nil	nil	15	3	62
Grand Total		16	14	27	28		46	8	2	2	nil	71	63	277

Table 8 - Apprentice, Graduate & Trainees by UK Region

4 Future Workforce Forecasts

4.1 Investment Data

Drawing from **RenewableUK's Energy Pulse Database**, the jobs forecasting model uses extrapolated data and robust assumptions to forecast jobs growth and investment to 2030.

We forecast **potential investment of £154.8bn** covering the whole project lifecycle through DEVEX, MANEX (manufacturing) CAPEX, and OPEX across all UK offshore wind projects between 2022 and 2030. This gives an annual average investment of £17.2 billion compared to £10.1 billion as forecast in March 2021.

Assumptions include forecast floating wind projects, round 4 awards, and all recent ScotWind awards to the end-2030.

Shown below is the forecast investment profile to 2030, broken down by expenditure group.

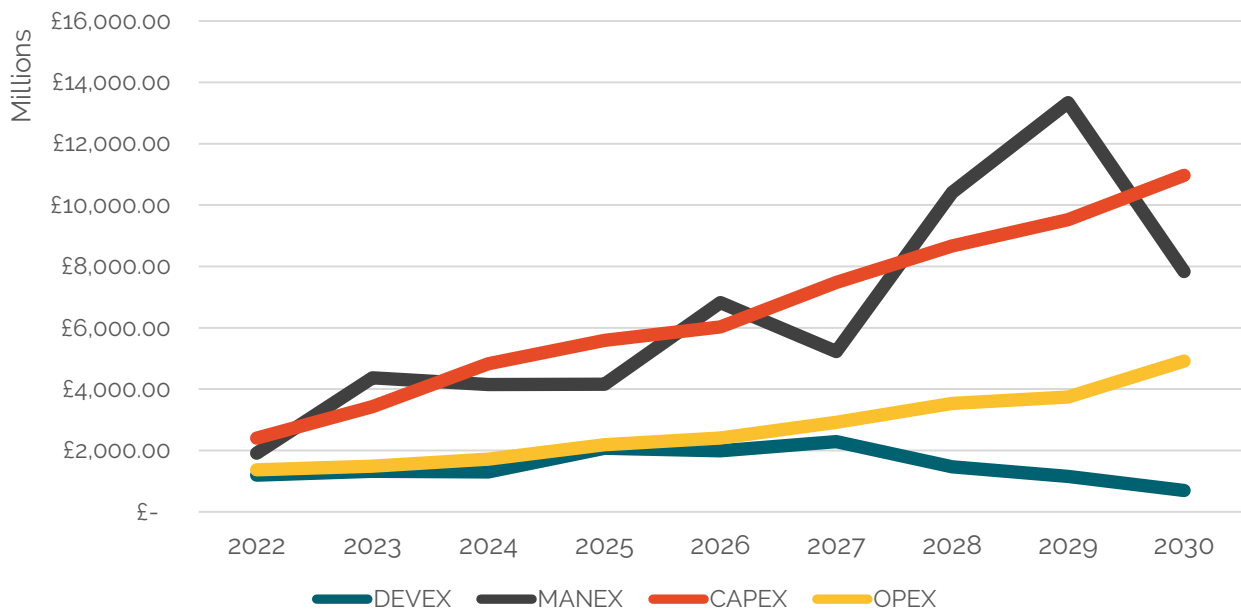


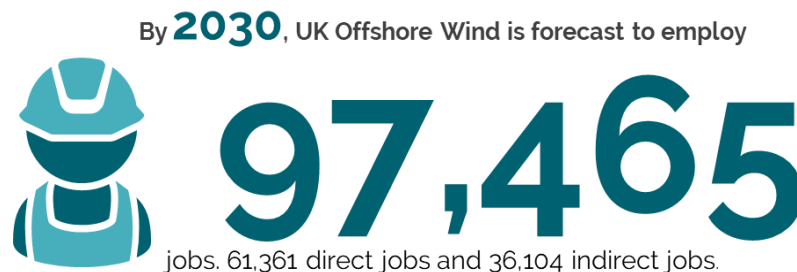
Figure 22 - UK Offshore Wind Investment Profile by Expenditure type

Whilst DEVEX starts to decline in 2027, this is likely to be temporary with greater development costs forecast post-2030 in line with ScotWind and future licensing rounds.

4.2 Jobs Forecasts

Figure 23 show the direct and indirect jobs forecast overlaid against forecast investment between 2022 and 2030.

Based on the investment data and future casting informed by the survey results, we estimate that by 2030 the industry is forecast to employ **97,465** people. 61,361 of those being direct and 36,104 being indirect.



We see that there is a pipeline for the industry to deliver up to **47GW** of installed capacity by 2030, significantly over-delivering on the Government's end of 2021 target of 40GW.

There is some further potential for the industry to deliver up to **59GW** and so delivering on the governments recently increased target of 50GW, but significant government intervention and investment would be required to achieve this.

Based on our forecast model, there is potential to deliver much greater levels of jobs, investment and installed capacity compared to current targets. The Offshore Wind Sector Deal's original target of 27,000 direct jobs by 2030 and 30GW of capacity were uplifted as part of the Government's Net Zero Strategy, proposing at least 60,000 new jobs (direct and indirect), and supporting 40GW of offshore wind projects, with at least 1GW of floating.

This forecast highlights that the industry could potentially deliver more than twice the original Deal's target on direct jobs. However, it is likely that not all projects will be fully commissioned or operational by 2030 as some projects are at an earlier stage of planning and consenting, albeit with ambitious development timelines.

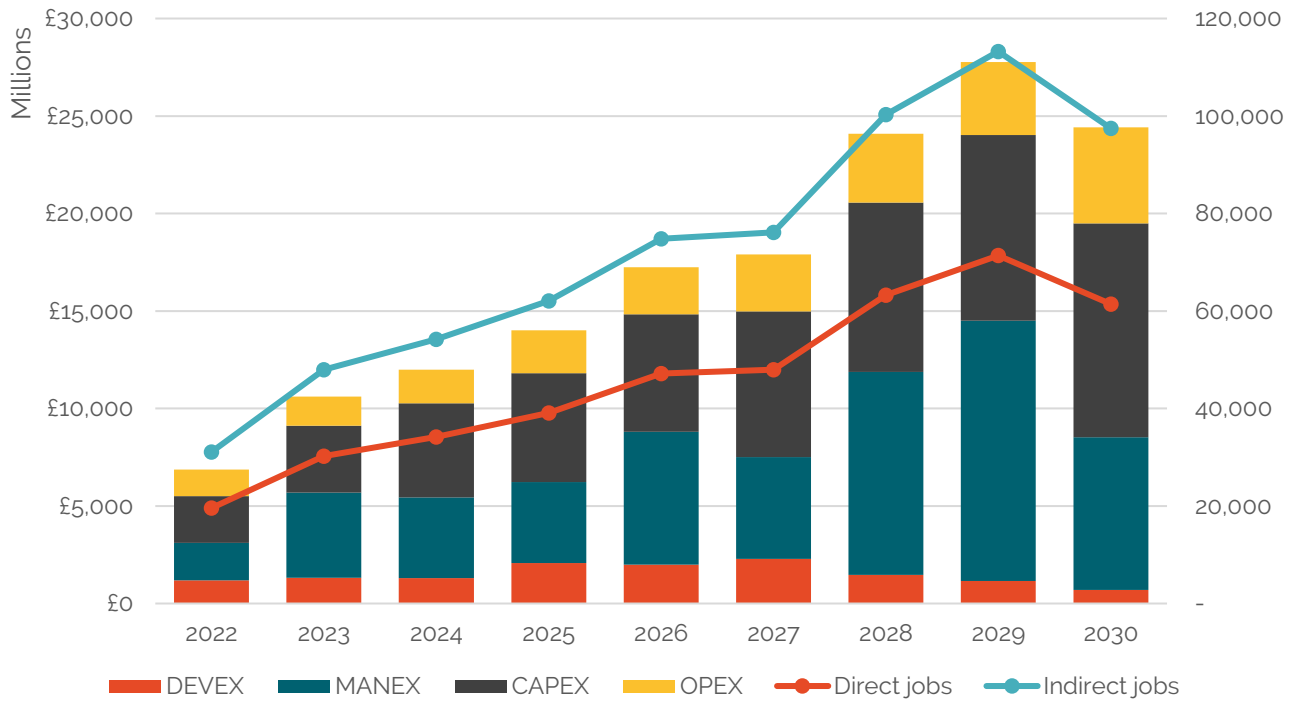


Figure 23 - UK Offshore Wind - Investment Profile with Direct/Indirect Jobs Forecast

Figure 24 over the page provides a more detailed breakdown of forecast jobs by job role, tracking year by year growth. In each model developed, there is a decline in jobs in 2030 compared to the previous 12 months. This is explained by the nature of the project phases where some investment and job creation will be expected in or around 2025 onwards for projects that will not necessarily be commissioned or operational by 2030. These include some Round 4 and ScotWind projects.

The impact of ScotWind is significant on jobs and investment across the sector with overlapping work phases across multiple projects. If we remove ScotWind from the forecast model, the industry peaks in 2026 at 70,838 and starts to see some decline during 2029 reaching 43,773 jobs in 2030. This gives us 27,558 direct jobs and 16,215 indirect, so still reaching the Sector Deal target.

This potential decrease is primarily down to the project development pipeline and phasing of activities. Whilst ScotWind projects may generate first power, or in some cases may see completion before 2030, it is likely that most projects will add to MW growth post-2030. Jobs growth, however, includes planning, consenting, manufacturing and construction activities which will create significant opportunities for new jobs prior to installation and generation.

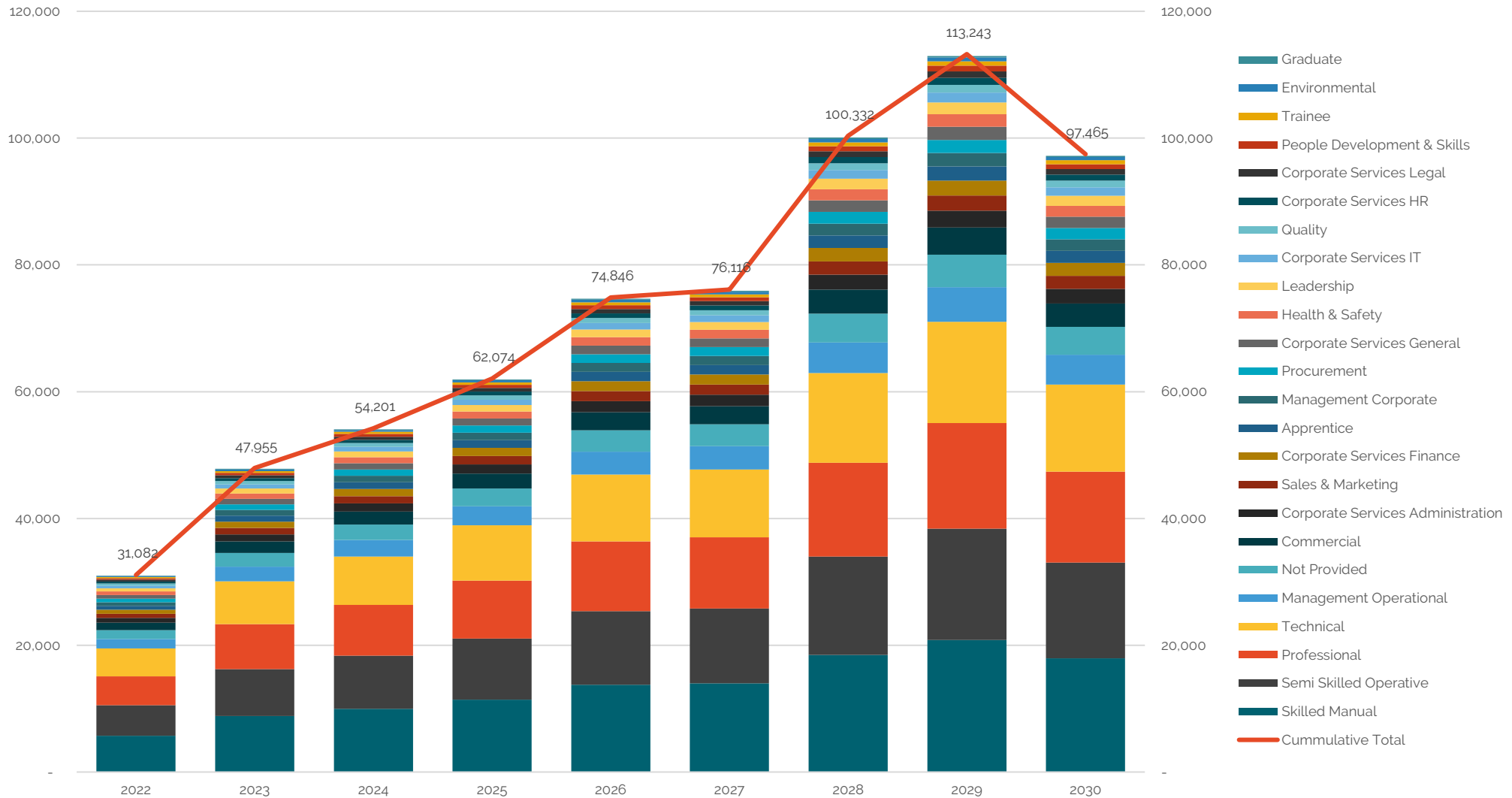


Figure 24 - Breakdown of UK offshore wind jobs by Job Role

4.3 Regional Breakdown

Every region across the UK is likely to investment and jobs growth related to future offshore wind. As the industry continues to mature in relation to fixed wind technologies and projects, and the emergence of floating projects, it is highly likely that UK regions will start to develop some specialisms around manufacturing, operations, and maintenance.

Figure 25 shows the forecast results broken down by region. We see the same overall percentage split as shown in the survey results, however, the increase in jobs growth is significant averaging over 1,000% growth at regional levels out to 2030.

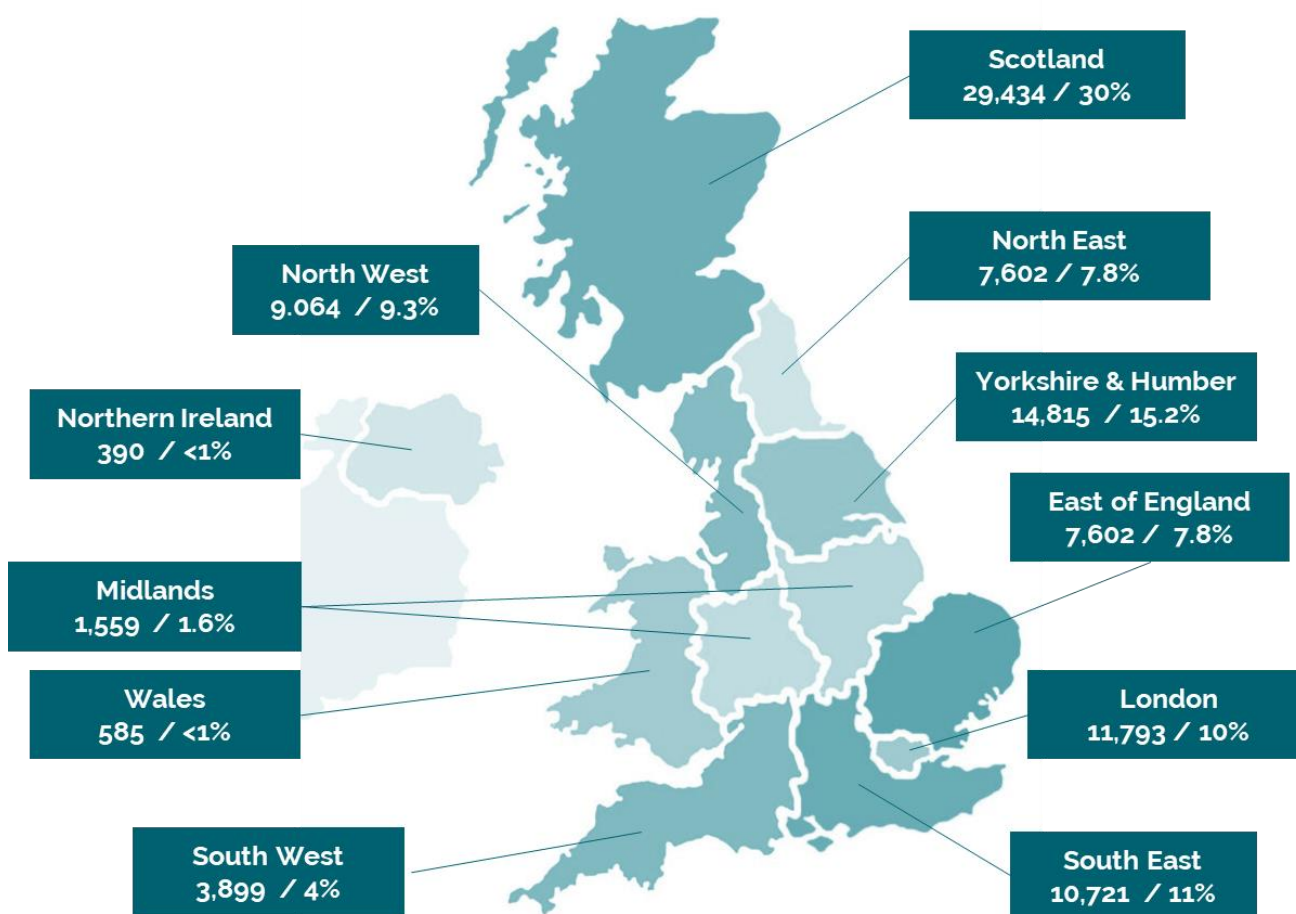


Figure 25 - Geographic spread of the forecast UK offshore wind workforce in 2030



5 Conclusions

Survey Results

In late 2020, OWIC and RUK carried out its first offshore wind people and skills intelligence survey and published the results, they showed an offshore wind workforce, estimated at the time to be **26,093** jobs made up of both direct and indirect people, following on from the success of its first intelligence survey and report, OWIC and RUK again commissioned Opergy and the National Skills Academy Rail to carry out a second iteration, this report is the result of this exercise.

In 2020, the survey returned **11,365** results from **85** companies, in 2021 the same statistics showed **9,961** results from **97** companies, on the face of it a reduction in the survey responses, however the number of organisations in the sector has grown considerably over the past 12 months and what the returns don't show are the numbers of organisations that did not provide a return, and we encourage those reading this report who did not provide a return to do so next year.

OWIC and RUK estimate that some **50%** of organisations provided returns in 2020, (**85** companies out of a total of **171** companies) and **34%** in 2021 (**97** companies out of a total of **282** companies), using these percentages of the total is at the heart of our extrapolations to today's workforce numbers and why they have gone up overall.

The 2021 OWIC offshore wind industry people & skills intelligence survey has proved to be another incredibly successful exercise with its results demonstrating again that the offshore wind sector in the UK remains robust and in growth mode.

The results have shown overall growth in the sector over the past 12 months, despite the ongoing pandemic, indicating the very robust nature of our industry, with job numbers growing from **26,093** in 2020 (of which **15,205** were direct and **10,888** indirect), to **31,082** in 2021 (of which **19,591** where direct and **11,491** indirect).

Delivering the Sector Deal Jobs Target

The overall growth highlighted above also now underpins the fact that the offshore wind industry will exceed its sector deal target of **27,000** direct employs by 2030 (this report forecasts **61,432** direct jobs in 2030).

Underpinning this growth, and the industry's ability to exceed the sector deal targets, is the inclusion and impact of the ScotWind licensing round which has provided the sector with a foundation that now offers future sustainable careers, and not only project-based roles well into the next two decades.

The ScotWind licensing round, whilst bringing significant growth and surety to the sector also provides a very timely reminder of the critical need to continue to prepare for the significant workforce growth the industry will see in the second half of this decade, with pressure expected to be put on the early planning, design and consenting roles needed to get this pipeline of projects onto the runway and into the air.

The forecast job numbers emanating from this second OWIC and RUK report have been subject to an annual year on year reduction to reflect the benefit the offshore wind industry is getting from both improvements in workforce productivity and efficiency and from the very real

technology gains being achieved across the industry from the OEM's, the component manufacturers and installers and the multiple supply chain companies that contribute to advancing the technology used in the sector and ultimately bringing down the L.C.O.E.

These improvements, applied at **0.75%** and **1.25%** respectively and compounded year on year, further reinforce the robust nature of the results of the people and skills intelligence survey and of this report, and are in line with other international industry organisations future improvement forecasts for the offshore wind sector.

Gender Balance

As well as the overall increase through 2020 and into 2021, we have seen the offshore wind industry increase the number of women employed as a percentage from **18%** in 2020 to **19.25%** in 2021, which although is positive does underline the significant ongoing effort that the sector needs to continue to be put into this critical area of change.

The offshore wind sector deal sets a challenging target for women in the industry at **33%** by 2030, at the current rate of growth (between 2020 and 2021) reaching this target will continue to be a challenge, but one that with the right investment and effort remains achievable.

Ethnicity

Similarly on ethnicity, where there is a clear improvement in reporting ethnicity data from **25%** in 2020 to **33%** in 2021, an area that the Sector Deal workstream has been focusing. However, the proportion of the workforce from ethnic minority backgrounds remains markedly below the original estimated baseline.

This suggests that further work is required to stimulate both data capture and future workforce reporting, but also much greater efforts around recruitment and attraction from individuals with various ethnic minority backgrounds, potentially identifying and showcasing positive role models from ethnic minority backgrounds in the sector, building on the existing Best Practice Guides.

Apprenticeships and Young People

The results of the survey highlight further positive news that the proportion of apprentices going through development roles in the sector has increased from **1.8%** in 2020 to **2.0%** in 2021.

Whilst the numbers of graduates and trainees has reduced by around half in real terms, from **1.4%** in 2020 to **0.8%** in 2021. This is largely due to the impacts of the coronavirus pandemic on education and the ability of business to support graduates and trainees in the workplace.

Further analysis should be developed, working with industry and education bodies, to understand what barriers may be in place to stimulate greater volumes of new apprenticeships, graduates, and traineeships, and what has changed over the past 24 months to help shape future activity, for example, could an apprenticeship recruitment campaign on behalf of the industry rather than each developer/operator managing their own programme with limited impact.

Increasing Jobs from Increasing Investment

The people, skills, and vocations survey and modelling that were carried out in support of this report has built a comprehensive picture of the investment landscape in the UK that underpins future job in the offshore sector, and as a result several interesting trends and points of note should be considered as part of any conclusions drawn:

1. This 2021 report contains the figures from both the substantial **AR4** and **ScotWind** licensing rounds and these have underpinned the growth reported, with the later of the two continuing and building on, the trend of growth created by the former.
2. The Scotwind licensing round includes a significantly increased amount of **floating wind** potential during the second half of the decade, and this stimulates considerable **planning, consenting** and **early engineering** requirements right through the rest of this decade and into the 2030's.
3. The annual level of **forecast investment** in the sector has grown from an average of **£10.1 billion** per year in 2020 to an average of **£17.2 billion** per year, clearly demonstrating the hugely increased investment appetite and confidence being targeted at the industry and a statistic that underpins and reassures the people, skills, and vocational growth forecasts within the report.
4. If all opportunities in the pipeline are built out (including a proportional amount of ScotWind) it could be possible to achieve **50GW+ by end 2030** but this will require significant government intervention.
5. The investment forecast which underpins the people, skills, and vocational forecasts in the model and in this report have been built with an **extra layer of granularity** compared to the first report in 2020, doing this has provided us with a much more **stable forecast** on which to build but also provided further **investment visibility**, the relationship with investment and jobs in the sector is direct and as such we can conclude:

DEVEX – Sees little growth in the years 2022, 2023, 2024 but then **quickly doubles in 2025-2027**. Jobs because of this are primarily organisational HQ based and so we can expect to see some growth in London, Manchester, Glasgow, and Aberdeen of highly skilled roles to support **consenting, planning** and **design** roles as well as within the **survey** community of oceanographers, hydrographers, geophysicists, and marine mammal observers as well as in **environmental impact** studies and in the **statutory consulting bodies**. See Figure 26 for forecast annual DEVEX.

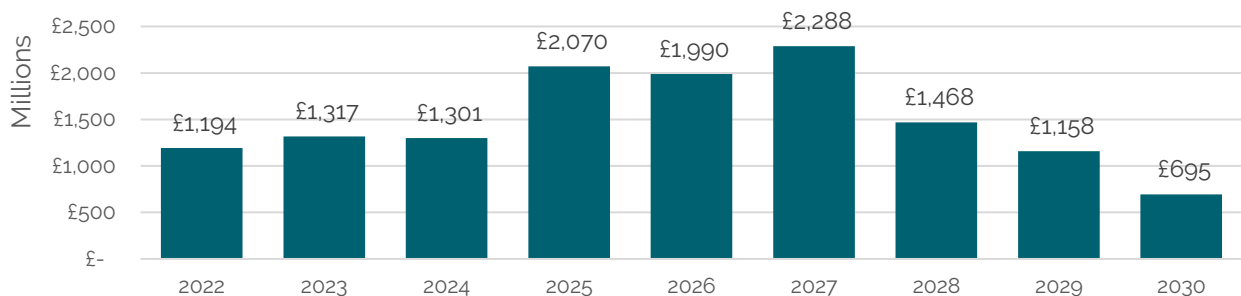


Figure 26 - Forecast Offshore Wind DEVEX 2022 to 2030

MANEX – Doubles in 2023 and growth continues to be substantial until peaks (under current plans) in 2029 – this suggests a need for **significant blue collar manufacturing roles** located around the Humber, Teesside, Inverness, and Aberdeen as well as across the manufacturing side of the supply chain with many roles such as welders, platers, production operatives, NDT inspectors, riggers, structural engineers. See Figure 27 for forecast annual MANEX.

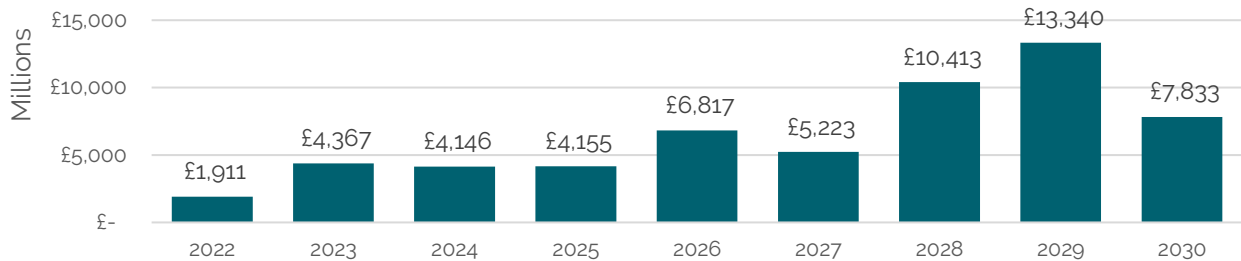


Figure 27 - Forecast Offshore Wind MANEX 2022 to 2030

CAPEX – Sees strong growth through the rest of the decade and when added to manufacturing, are the two areas that will create the **highest numbers of blue-collar jobs** out to the end of the decade. Many of these jobs will be mobile and located in the regions of East Anglia, the Humber, the North East, and East Coast Scotland. At peak around half of all the jobs in offshore wind will be blue collar in these two areas. This will see an increased demand for **marine** roles, **fabrication** and **construction** roles, **subsea** specialist roles and a high demand for **HV electrical** roles. See Figure 28 for forecast annual CAPEX.

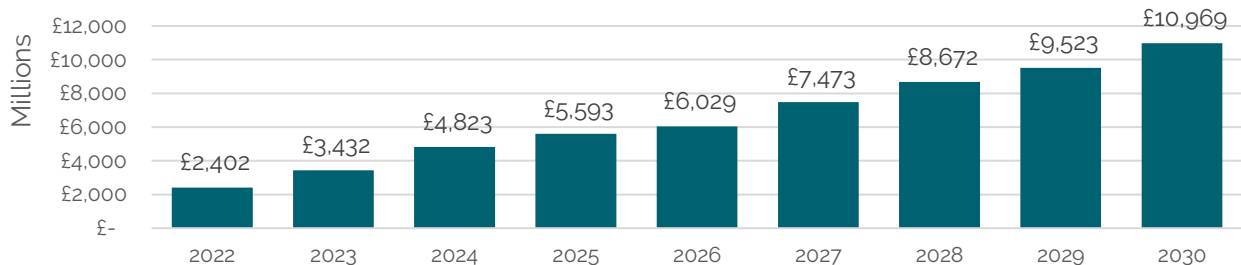


Figure 28 - Forecast Offshore Wind CAPEX 2022 to 2030

OPEX – Whilst still smaller overall, it continues to show steady growth out to the end of the decade, indeed it shows **five-fold growth** in that period and whilst there remain lower numbers of jobs funded by OPEX than by MANEX and CAPEX they are often **local Jobs** at (or from) the wind farm operational bases in coastal areas, roles such as operations controllers, marine controllers, offshore technicians, asset integrity teams, rope access & blade repair teams, and marine vessel crews (CTVs and SOVs). See Figure 29 for forecast annual OPEX.

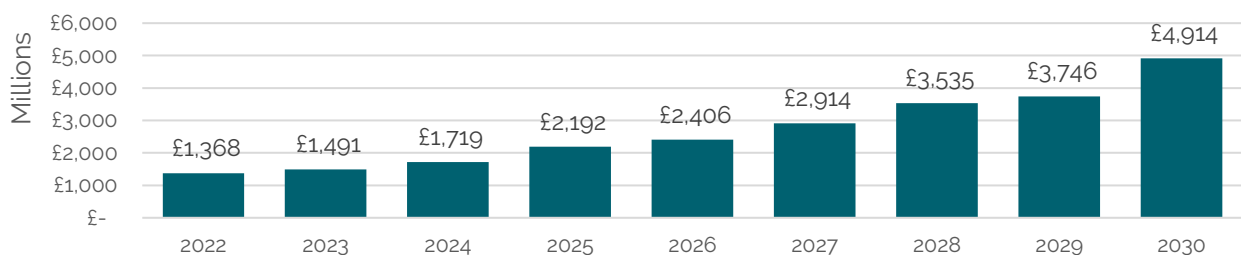


Figure 29 - Forecast Offshore Wind OPEX 2022 to 2030

6 Technical Appendices

- Appendix A – Survey Questions
- Appendix B – Responding Companies

Appendix A – Survey Questions

1. Organisation Name

The employing organisation's legal name.

2. Job Title / Description

The employee's contractual job title.

3. Job role group

To define the various entries, each job title will be related to one of the role groups in the common taxonomy which will be accessible on the spreadsheet template through drop down options:

4. Role-sub-groups

To sub-define the role groups further, each identified role group item will then be categorised into sub-groups based upon the mapping in the common taxonomy accessible on the spreadsheet template through drop down options tied to the Role Group:

5. Skill Level

Skill Levels will then be automatically allocated to each job title/role based upon the mapping in the table below accessible on the spreadsheet template through drop down options.

6. Age (previously date of birth)

The employee's age within 5-year ranges, from 15 to 100 years

7. Gender identity

The binary approach was acceptable in the last round of data gathering but the industry is keen to become more inclusive. Recognition of gender identity rather than just binary sex categorisation would contribute to this goal. Whilst many companies are not yet collecting data on gender identity the two categories of male and female are still included. The employee's gender identity categories as recognised by the Royal College of General Practitioners and used in the 2021 census in England and Wales.

- Male
- Female
- Gender Neutral
- Non-binary
- Gender Fluid
- Gender Queer
- Not provided/not available

8. Nationality

Nationality of employees (as shown on the employee's passport).

9. Ethnicity

The employees' ethnicity categories will continue to be:

- Mixed or Multiple ethnic groups – Including White and Black Caribbean, White and Black African, White, and Asian, Any other Mixed or Multiple ethnic background
- Asian or Asian British – including Indian, Pakistani, Bangladeshi, Chinese, Any other Asian background
- Black, African, Caribbean, or Black British – including African, Caribbean, Any other Black, African, or Caribbean background
- White – Including English, Welsh, Scottish, Northern Irish, or British, Irish, Gypsy or Irish Traveller, Any other White background
- Any other ethnic group

10. Work Phase

This category is available but was not used in the analysis of last survey results. It is proposed that employers are asked to provide this data for each Job Title rather than it being added retrospectively by NSAR or Opergy.

- Pre-construction
- Commissioning
- Construction
- Operations & maintenance
- Decommissioning
- All phases

11. Project type (previously Asset type)

It was agreed with developers and operators that, for those that have both on and offshore assets, it might be easier for them to complete if both were listed on the survey. In addition, there is 1GW target for floating wind to be delivered by 2030. It is proposed that an additional category should be added to ensure that the people working in floating wind are included in the survey as the investment plans data for floating wind is already included.

- Onshore & offshore wind
- Offshore fixed wind
- Offshore floating wind
- All wind
- All renewables

It will be assumed in the analysis that those working in offshore fixed, and floating are working 100% of their time in offshore wind. Answers for all other categories will assume that only part of their time is offshore wind and a figure attributed accordingly (to be agreed).

12. Employment status

This is a new category to increase the ability to capture the contractors in the workforce.

- Employee
- Contractor
- Agency

13. Development role

A dropdown for selection. Previously this was garnered by inclusion of key words in the Job Title or a tick box for Apprentices. As key entry routes into the industry, it is important to monitor them and so a dropdown will improve the accuracy of data collection.

- Apprentice
- T level (in England only)
- Graduate development programme
- Intern/trainee (over 6 months)

14. Full or Part time

- Full time
- Part time

15. Home location postcode [if living in the UK]

It is proposed that this category is added as, firstly, a significant proportion of the sector is mobile (estimated 60%) and secondly it is of more value to know where individuals live than the location of their office in understanding what proportion of the local population are benefiting from employment. It also considers marine, peripatetic, itinerant workers etc.

The standard UK postcode where employee lives in a 3- or 4-digit format XX01/, not applicable if outside the UK.

16. Employer Office Postcode [from which the employee works, if in UK]

The county in which the employer office from which the employee works is in a 3- or 4-digit format XX01/, not applicable if outside the UK

Appendix B – Responding Companies

- 4C Offshore
- ASCO UK Ltd
- East Coast College
- ECITB
- EDF Energy Renewables Limited
- EEEGR
- Equinor
- Global Energy Group
- Green Tech Investment Partners AS
- Inosys
- JDR Cable Systems
- MVOW Offshore Wind Blades UK (Vestas)
- Offshore Renewable Energy Catapult
- Opergy Group
- Orsted
- PWE Recruitment Group (People with Energy)
- Red Rock Power
- RenewableUK
- RIGOCAL Engineering Ltd
- RWE Renewables
- Scottish Power
- Seajacks
- Siemens Gamesa Renewable Energy
- SSE Renewables
- Taylor Hopkinson
- TECOSIM Simulation Ltd
- Tekmar Group
- University of Hull
- Van Oord Offshore Wind bv/MPI
- Vattenfall Wind Power
- Wellton Energy
- Windhoist
- 2H Offshore
- ACE AQUATEC
- Acteon Group limited
- Acteon Integration Services
- AIS (Servivex) - Advanced Industrial Solutions (Survitec)
- Aker Offshore Wind
- AKROCEAN
- Aquatic
- Armultra
- Aubin Ltd
- Aura
- BayWa r.e. UK
- Bilfinger UK Limited
- Black & Veatch (U.K.) Ltd.
- Caley Ocean Systems
- Celtic Sea Power
- David MacBrayne Limited
- DEFRA
- Donut International Limited
- EC20
- EnBW
- EPSRC Prosperity Partnership
- ESP
- Fern Communications Ltd
- Geostructural Systems
- GICON
- GICON GmbH
- GM Flow Measurement Limited
- Highlands & Islands Enterprise
- HKA
- Hydrogen East
- Hydrosphere UK Ltd
- INDUSTRIAS FERRI SA
- Intermoor
- Jan De Nul UK Ltd
- MB Airsystems
- MDB Marine
- Mission Renewable
- Natural England
- Natural Power Consultants
- Northern Lighthouse Board
- Ocean Phoenix International Ltd
- Ocean Winds
- OceanExpert Ltd
- Oil States Industries (UK) Ltd
- Osprey Group
- Pipeline Technique Limited
- Ponticelli UK
- Pulse Structural Monitoring
- Recycl8 Limited
- Reflex Marine
- Regency Oils Ltd
- Renewable Energy Systems (RES Group)
- Rigmar Group
- SAMS Enterprise
- Seatrek Marine
- Seatronics
- SIM Switchgear Aberdeen Limited
- UTEC Geomarine Limited
- UTEC NCS Survey Limited
- UTEC StarNet Geomatics Limited
- Venterra Group
- Vestas
- Waves Group Ltd (Mwaves + Cwaves)
- Weldex
- Windrad GmbH
- XceCo Ltd.

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