June 2025

Wind Industry Skills Intelligence Report

Offshore Wind Industry Council

RenewableUK

Foreword

Two years on from our last report, like the industry itself, this forecast has matured to cover the onshore as well as the offshore wind sector, recognising the similarity in jobs and skills between each and a reliance on a workforce that serves both industries or moves seamlessly between them as supply chain companies diversify and careers evolve.

Our approach has adapted too to ensure our future forecasts are based on historic data from industry on the actual numbers of people employed or contracted to deliver UK projects to date. Our regional data is more robust and reliable, providing project level data and allowing analysis of job roles and shortage occupations.

So today we can state that some 55,000 individuals work across both the onshore and offshore wind sectors in total. Of these, close to 40,000 support the offshore wind sector, up from 32,000 in 2023.

There's the potential for wind energy to continue to deliver on an already-significant skills and jobs dividend for the United Kingdom as part of the country's transition to clean energy. To meet minimum Government targets, 75,000 workers will be needed by 2030 in offshore wind and some 19,000 in onshore wind. At the more ambitious end of Government plans, over 94,000 workers could be required for offshore wind to deliver 52GW by 2030, bolstered by an additional 10,000 jobs should the UK maximise supply chain growth through an effective industrial strategy, as outlined in the Industrial Growth Plan.

The social and economic benefits of renewable energy can only be secured with the right framework in place. A stable policy environment, certainty on costs and a guaranteed future pipeline is critical to enabling investment in projects – and therefore investment in skills.

Developer, operator and supply chain confidence to plan, finance, construct and operate clean power projects triggers creation of the high quality jobs our sector offers, and the growth of sustainable anchor industries in coastal and rural communities that have too often missed out on opportunities for growth.

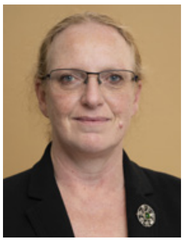
With these foundational elements in place industry, working jointly with national and regional government and education providers, can and will invest in workforce development, create training courses and infrastructure, support individuals to move into work or switch sectors, and inspire more school, college and university leavers to start their hugely rewarding career in clean power.

To this end, not only does this report forecast the workforce required to deliver on the UK's clean power ambition but it also sets out key measures necessary to attract, recruit and retain those people in our sector. Having set out our industry vision for offshore wind our people and skills work now needs to deliver for the onshore wind pipeline too. We need to focus unrelentingly on those occupations most in demand and difficult to fill, to find new and innovative ways to train these skills and competencies, whether through regional skills hubs, new apprenticeship pathways, modular courses, or the fast track retraining of those working in other sectors.

As we set about this work towards 2030 and beyond, we do so in the knowledge that on skills — as with the wider renewables landscape — partnership between industry, government and communities is critical to success.

A thriving wind sector not only helps the UK achieve its clean power mission, but also meet national priorities on economic growth and breaking down barriers to opportunity. It secures an economic and social benefit to communities and has the power to transform individuals' careers, skills and job opportunities.

This is a mission which industry is committed to delivering and that in partnership we are confident we can realise.



Jane Cooper
Deputy CEO and Director of Offshore Wind, RenewableUK

Executive Summary

The Government's Clean Power Action Plan (CPAP) sets out high ambition to herald a new era of clean energy independence. That means 43-50 GW of offshore wind and between 27-29 GW of onshore wind by 2030. Current trends indicate would suggest a likely capacity of 39GW by 2030. However this skills assessment also provides workforce assessments for a mid-range value of 47GW and a highly ambitious scenario at the upper range of 52GW by 2030 for offshore wind only. For onshore wind, the current trend is to install 27GW capacity by 2030. This report looks at all three of those offshore wind scenarios, combined with a capacity of 27GW of onshore wind.

The report presents a comprehensive analysis of the current and future workforce landscape within the UK wind energy sector, with a focus on both offshore and onshore components. It draws on data relating to 12,323 individual job records, collected from 20 companies, and extrapolates this to estimate a total industry workforce of 55,071 in 2025.

Overall this marks a 71% increase from 2023, as it does now include data on the onshore wind sector. For the offshore wind sector alone, there is an increase from 32,257 in 2023 to an estimated workforce of 39,898 today – an increase of 23.7%, driven by a more robust data collection process and sectoral growth.

The report forecasts workforce requirements through to 2062 using project data from RenewableUK's EnergyPulse database. Three scenarios of different power outputs for offshore wind only have been modelled to assess labour demand under varying project timelines. Under the baseline scenario 0f 39GW for offshore wind, workforce demand peaks at over 74,000 in 2030, with the 52GW scenario requiring nearly 95,000 workers, highlighting the scale of the challenge ahead. The power output for onshore wind is currently forecast to be 27GW by 2030, and no other scenarios have been modelled for this. A skills gap analysis reveals a growing shortfall, particularly in offshore roles, with a projected gap of nearly 38,000 workers by 2030 under the baseline 39GW for offshore and 27GW for onshore scenario. The gap is even more pronounced under larger power output requirements, up to a projected gap of 57,000 workers under the 52GW for offshore and 27GW for onshore scenario. The report also identifies specific job roles with the largest deficits and highlights opportunities to retrain surplus workers in adjacent roles.

A detailed breakdown of job roles identifies Wind Turbine Technicians as the most in-demand occupation, with significant needs also projected for HV cable specialists, installation engineers, fabrication specialists, planning officers and technical managers. Regional analysis shows the highest workforce concentrations in coastal and Scottish regions.

The labour supply analysis evaluates the UK's capacity to meet this demand, focusing on STEM education trends at GCSE, A-Level, and university levels. While enrolment in STEM subjects shows a generally positive trend, particularly in engineering and computing, further efforts are needed to align educational output with industry needs. Analysis of Office of National Statistics (ONS) Standard Occupational Classification (SOC) codes shows the targets set by the UK Wind Sector will place significant pressure on the existing workforce as well as new entrants to deliver the planned GW power outputs.

To meet the sector's ambitious targets, the report underscores the urgent need for strategic workforce planning, investment in training and upskilling, and enhanced engagement with the UK's education pipeline.

55,071
Total Wind Sector Workforce 2025

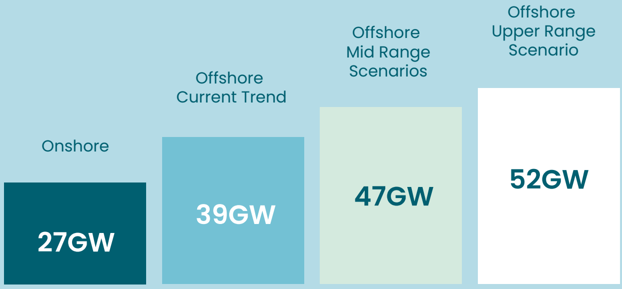
Offshore Workforce 39,898

Onshore Workforce 15,173

Offshore Wind Workforce 2023: 32,257 → Offshore Wind Workforce 2025: 39,898

23.68% increase from 2023

Wind Sector Outputs by 2030



Workforce Projections 2026–30

	39GW	47GW	52GW		27GW
Peak Offshore Workforce Demand	74,065	75,126	94,564	Peak Onshore Workforce Demand	18,969
Peak Offshore Skills Gap	34,167	35,228	54,666	Peak Onshore Skills Gap	3,796

2023 Survey → **2025 Survey**

20.6% Female → 21.9% Female

6.3% increase from 2023

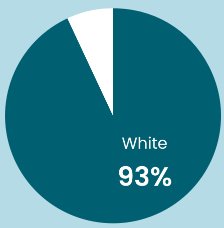
79.4% Male → 78.1% Male

1.3% decrease from 2023

Offshore Workforce

22% Female | 78% Male

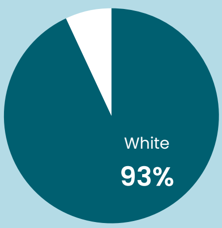
Ethnic Background 7%



Onshore Workforce

20% Female | 80% Male

Ethnic Background 7%



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Introduction

This fourth edition of the UK Offshore Wind Workforce Report is jointly published by the Offshore Wind Industry Council (OWIC) and RenewableUK. It presents a comprehensive analysis of the current workforce within the UK wind energy sector and outlines the projected workforce requirements necessary to achieve the UK Government's Clean power Action Plan 2030 targets for offshore 43-50GW of offshore wind and 27-29GW of onshore wind by 2030.

For the first time, this edition incorporates data from the onshore wind sector, providing a holistic overview of the UK's wind energy workforce. While the combined data contributes to the overall workforce figures, it is also disaggregated to highlight the distinct characteristics and demographic profiles of the offshore and onshore sub-sectors.

A workforce survey to inform this assessment, undertaken by NSAR and RenewableUK in early 2025, received 12,323 individual responses from 20 participating companies—an increase of over 21% compared to the 10,150 responses collected in the third edition of the survey.

The 2025 modelling approach represents a significant departure from previous methodologies. It adopts a fundamentally 'bottom-up' framework, estimating workforce requirements based on the proportion of specific occupations needed to perform defined activities for a typical 1GW offshore wind farm. For the onshore wind sector, workforce estimates have been derived and extrapolated from the Climate XChange (CXC) report published in April 2024.[1] The purpose of the CXC report was to deliver on a commitment in the Scottish Onshore Wind Sector Deal (SOWSD) to "publish a paper identifying the range of skills needed by industry to deliver our 2030 target" and to inform the enhancement of skills and training provision to meet future sector needs.

Both the offshore and onshore workforce models have been integrated into a newly developed by NSAR called the Skills Intelligence Model (SIM). This tool enables more detailed analysis of current workforce demographics and future capacity requirements, facilitating the identification of potential workforce surpluses or deficits.

1 Mapping the current and future workforce and skills requirements in Scotland's onshore wind industry

Current Workforce Analysis (Offshore and Onshore)

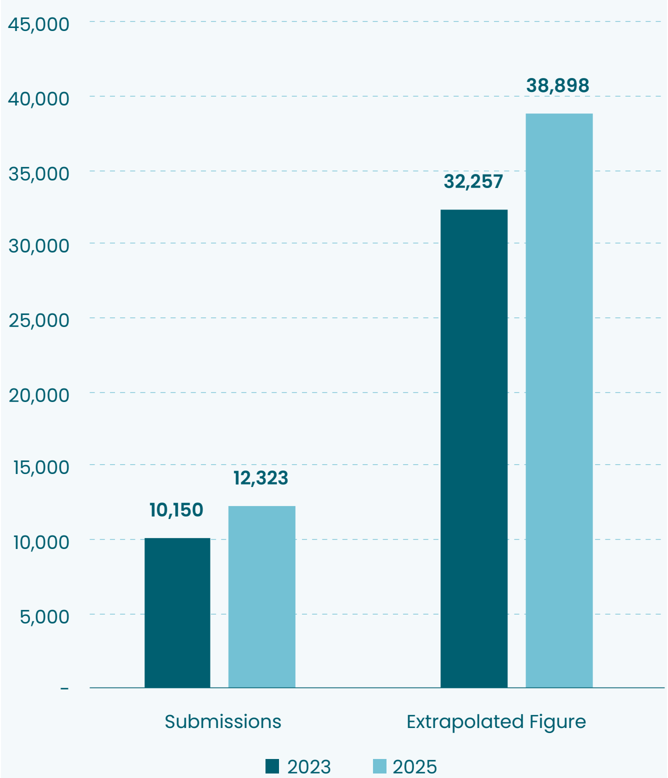
Overview

In January 2025, RenewableUK issued an industry-wide call through multiple channels, inviting organisations operating within the UK wind sector — both offshore and onshore — to contribute their detailed workforce data. As highlighted above, this year's report placed renewed emphasis on capturing data from both sub-sectors to develop a more comprehensive understanding of the national wind energy workforce.

As outlined earlier, the 2025 workforce survey received 12,323 individual job records from 20 participating companies. These records were extrapolated to provide a more representative estimate of the total UK wind industry workforce, resulting in a projected figure of 55,071 employees — comprising 39,898 in the offshore sector and 15,173 in the onshore sector.

Overall this marks an increase from 2023, as it does now include data on the onshore wind sector. For the offshore wind sector, we see an increase from 32,257 in 2023 to an estimated 39,898 today — an increase of 23.7%, driven by a more robust data collection process and sectoral growth

Figure 1 — Overall number of Offshore wind workers 2023-2025 comparison



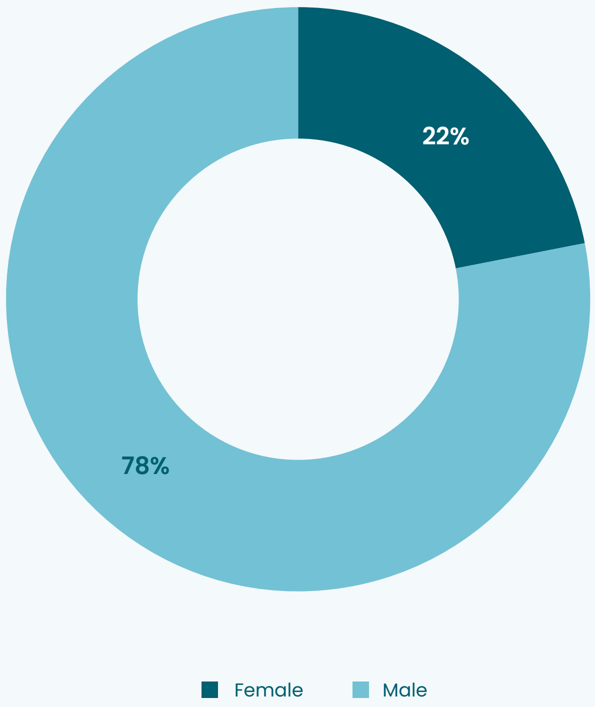
Gender

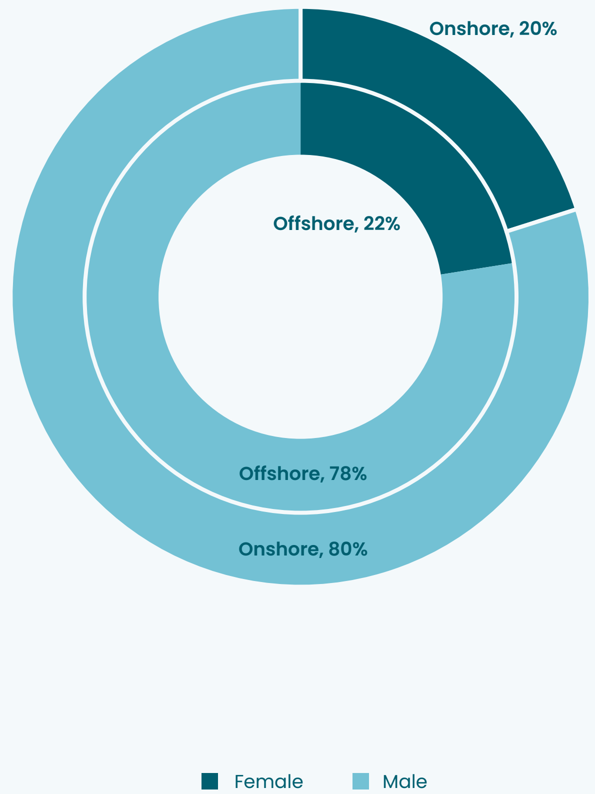
The gender composition of the workforce remains predominantly male, with a current split of approximately 78.1% male and 21.9% female among respondents who disclosed their gender. This reflects a continued upward trend in female representation, rising from 19.25% in 2022 to 20.55% in 2023, and now 21.9% in 2025.

While this trajectory is encouraging, it assumes a linear growth pattern. The offshore wind sector has set a target of 33% female representation, which, at the current rate, is projected to be achieved by 2032. Accelerating this progress — particularly through increased representation of women in senior and technical roles — could help reach this offshore wind target sooner.[2]

> **The offshore wind sector has set a target of 33% female representation."**

Figure 2 — Gender Split for both sectors combined, and then by Offshore and Onshore separately





2 https://www.gov.uk/government/publications/offshore-wind-sector-deal/offshore-wind-sector-deal

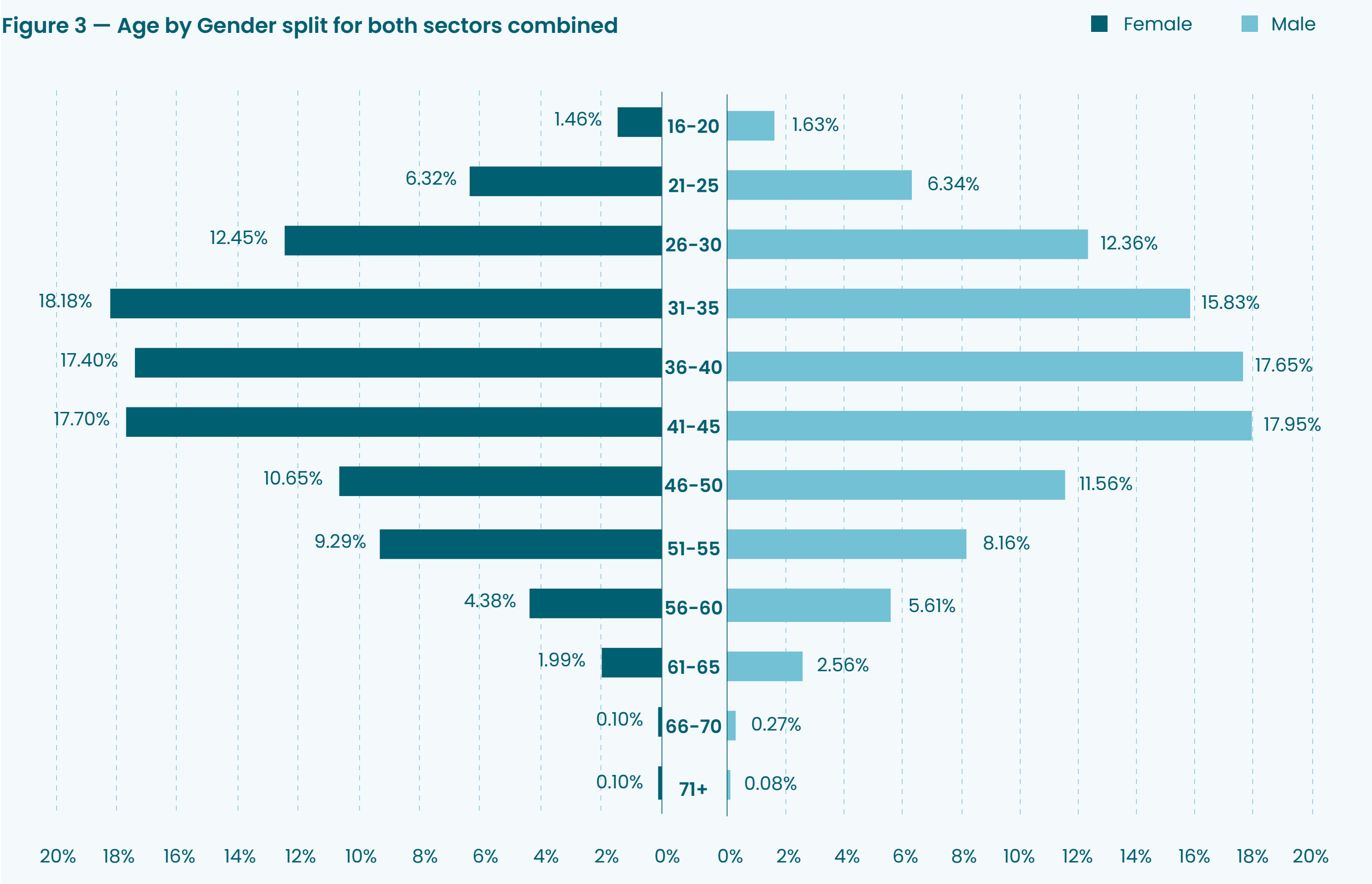
Age by Gender

When age is analysed by gender, the distribution across age bands is relatively consistent, despite the larger number of male respondents. The mean age is 39.4 for females and 39.8 for males.

The proportion of each gender at immediate risk of retirement (defined as age 66 and above) remains low: 0.19% for females and 0.35% for males. These figures rise slightly to 2.19% and 2.91%, respectively, when considering those who may retire within the next five years. While these numbers are modest, it is essential to prioritise knowledge transfer from these experienced professionals to ensure continuity.

> **It is essential to prioritise knowledge transfer from experienced professionals.**

Figure 3 — Age by Gender split for both sectors combined



Ethnicity

The 2025 survey reports that 7.2% of the workforce identifies as belonging to an Ethnic Minority Group (EMG) — a figure consistent with the Offshore wind report in 2023.[3] While this indicates that progress is plateauing improving ethnic diversity, it is important to acknowledge the complexities involved in collecting this data.

Ethnicity data is sensitive and subject to legal and regulatory constraints, including GDPR. Many organisations remain hesitant to provide this information, as it requires robust Equality, Diversity, and Inclusion (EDI) policies to ensure anonymity and relevance. Although the response rate for ethnicity data has improved—from 12% in 2023 to approximately 25% in 2025—it still lags significantly behind other demographics such as age and gender, which typically exceed 90%. Improving the collection and reporting of this data remains a key priority. The UK proportion of EMG for working age people is 19.3% by comparison.

Ethnicity data is sensitive and subject to legal and regulatory constraints, including GDPR.

3 OWIC Offshore Wind Skills Intelligence Report 2023

Figure 4 — Ethnicity — White and EMG proportion across the sector

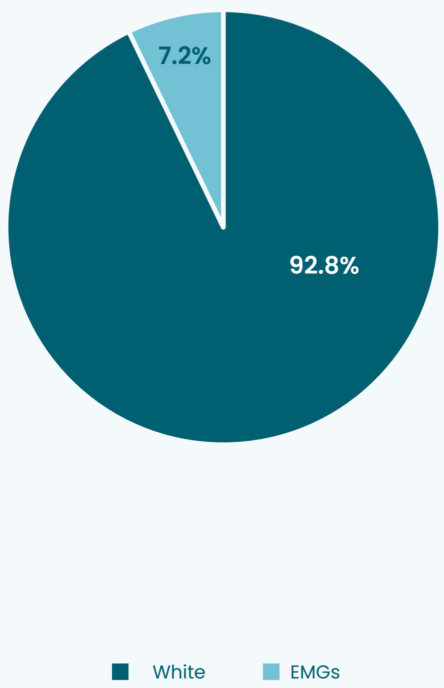
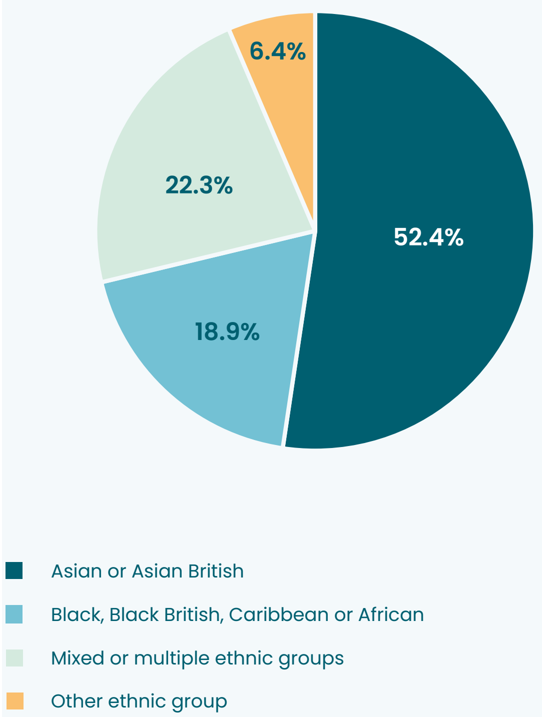


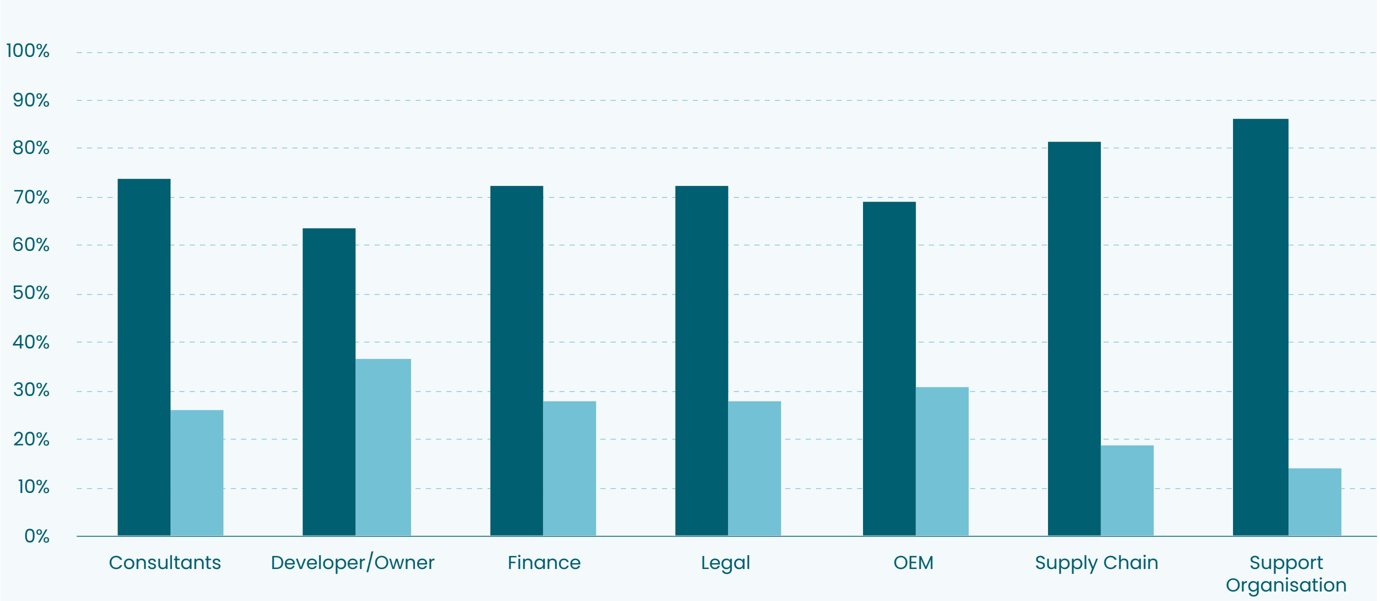
Figure 5 — Ethnicity – Split of EMG proportion across the sector



Sector Comparison and Company Types

A significant enhancement in this year's methodology was the inclusion of onshore workforce data, enabling a more comprehensive view of the UK wind industry. The extrapolated workforce figures indicate **39,898 employees in offshore** and **15,173 in onshore** roles.

Figure 6 — Company Type by Sector

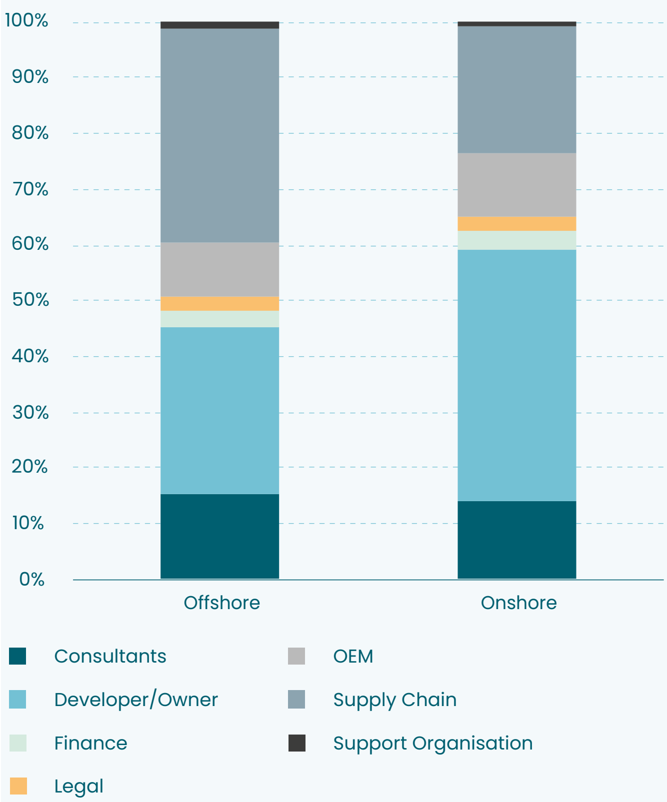


All 55,071 employees were categorised into one of seven company types. The most prevalent categories were Developer / Owner and Supply Chain, each accounting for approximately 34% of the total workforce. Sector-specific breakdowns reveal:

- **Offshore:** 38% in Supply Chain, 29.8% in Developer/Owner
- **Onshore:** 45.1% in Developer/Owner, 23% in Supply Chain, 14.2% in Consultancy

Other categories such as Finance, Legal, and Support Services were less represented, likely due to lower submission rates. Future surveys with broader participation may yield a more balanced sectoral representation.

Figure 7 — Sector by Company Type

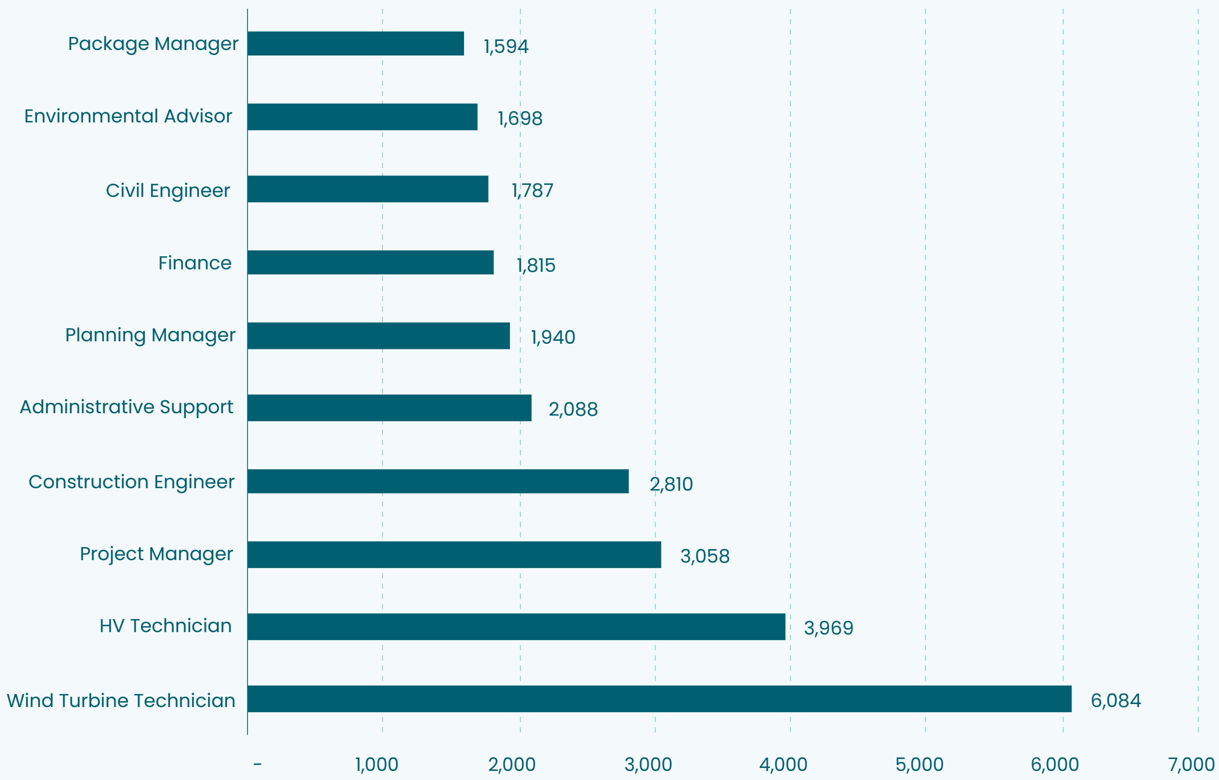


Job Roles

Analysis of the top 10 most common job roles reveals a strong presence of highly skilled technical and managerial positions, with wind turbine technicians comprising over 10% of the total workforce—by far the most represented role. This underscores the sector's demand for hands-on technical expertise in construction, installation, and operations and maintenance.

These insights, combined with future workforce projections, will inform strategic planning to ensure the sector can meet the demands of upcoming projects as outlined in the EnergyPulse database.

Figure 8 — Job Role Distribution - Top 10



Age Distribution

The age profile of the workforce offers valuable insights into its sustainability and future readiness. The age range has broadened slightly, with the youngest respondent aged 17 and the oldest aged 79. Despite this, the mean age has remained consistent at 40 for the third consecutive report.

This compares favourably against other sectors as can be seen in the chart below.

Notably, only 0.54% of the workforce are over the age of 65, indicating a minimal proportion at immediate risk of retirement. Conversely, 18.8% of the workforce are aged 30 or under, suggesting a strong pipeline of younger talent capable of supporting the sector's long-term growth.

Figure 9 — Average age of UK sectors

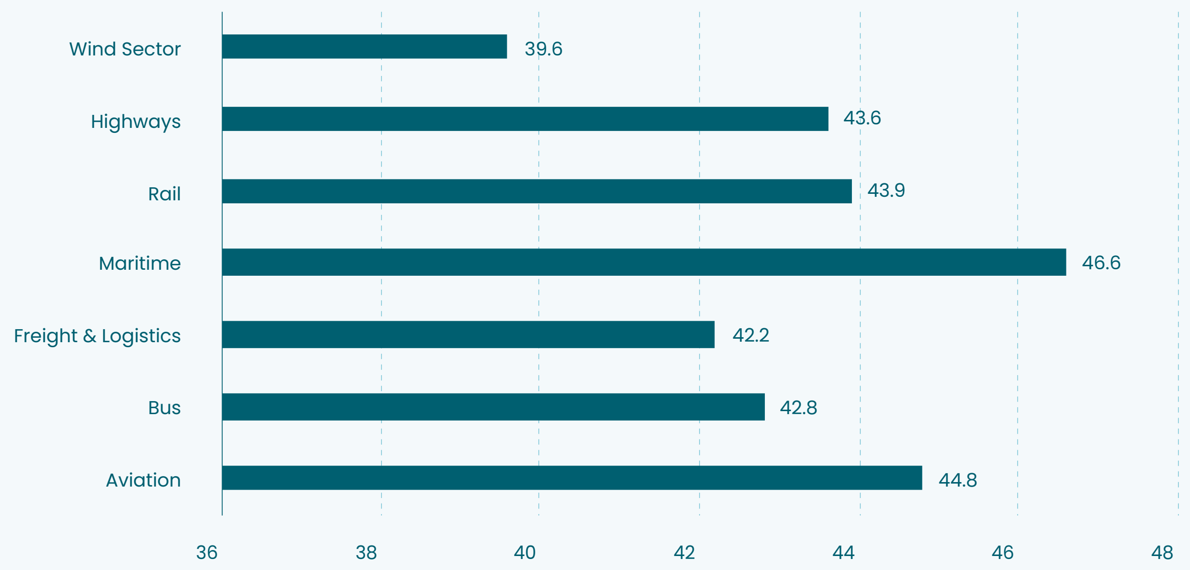
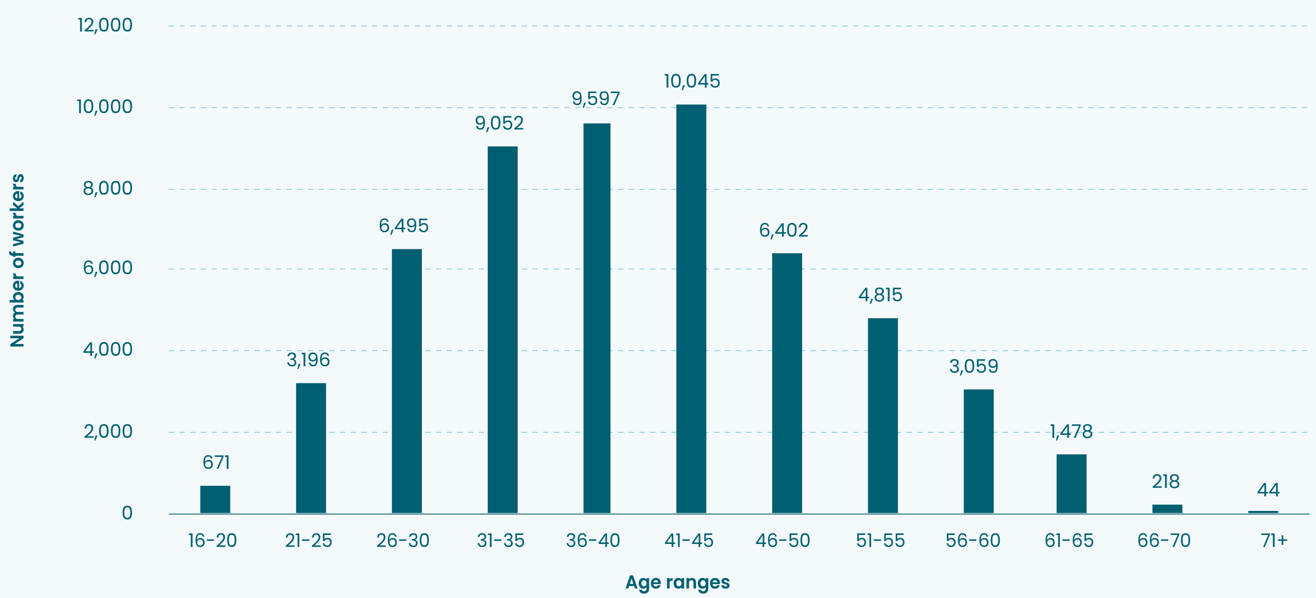


Figure 10 — Age Distribution for combined Offshore and Onshore Wind



The following two charts show the age distribution for Offshore and Onshore sectors by both numbers of workers and then by percentage of workforce in each age range.

Figure 11 — Age range distribution showing Offshore and Onshore Wind sectors by workforce numbers

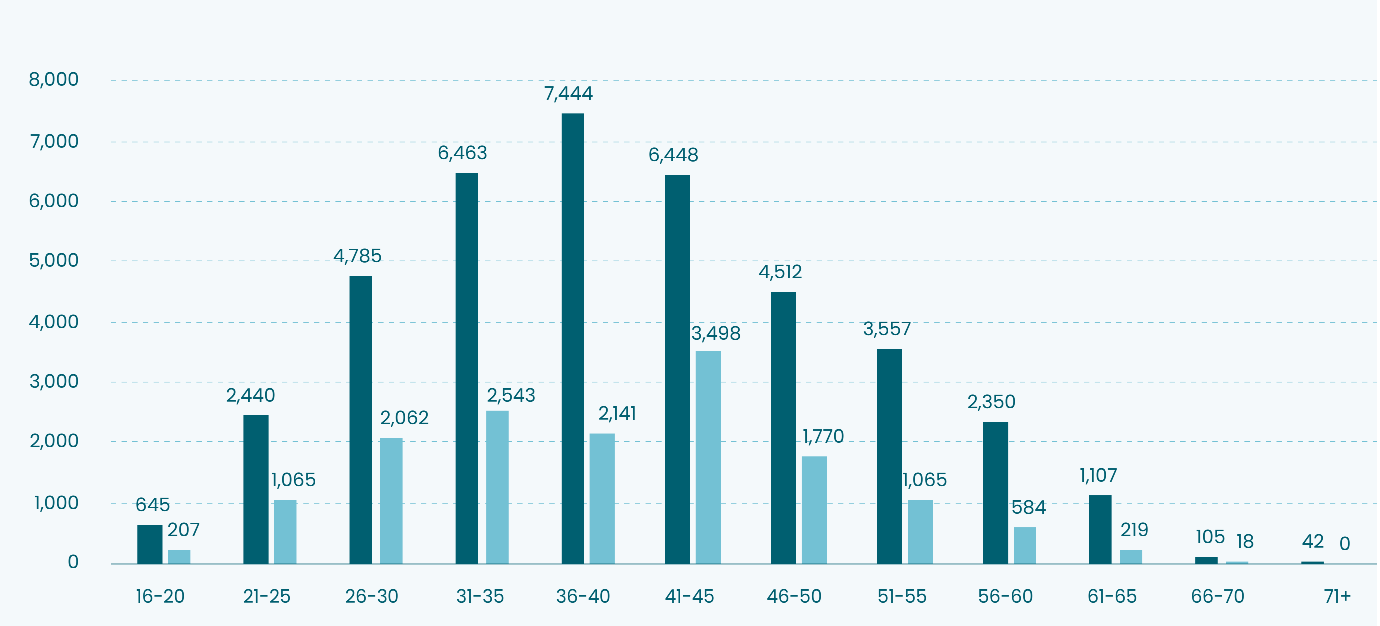
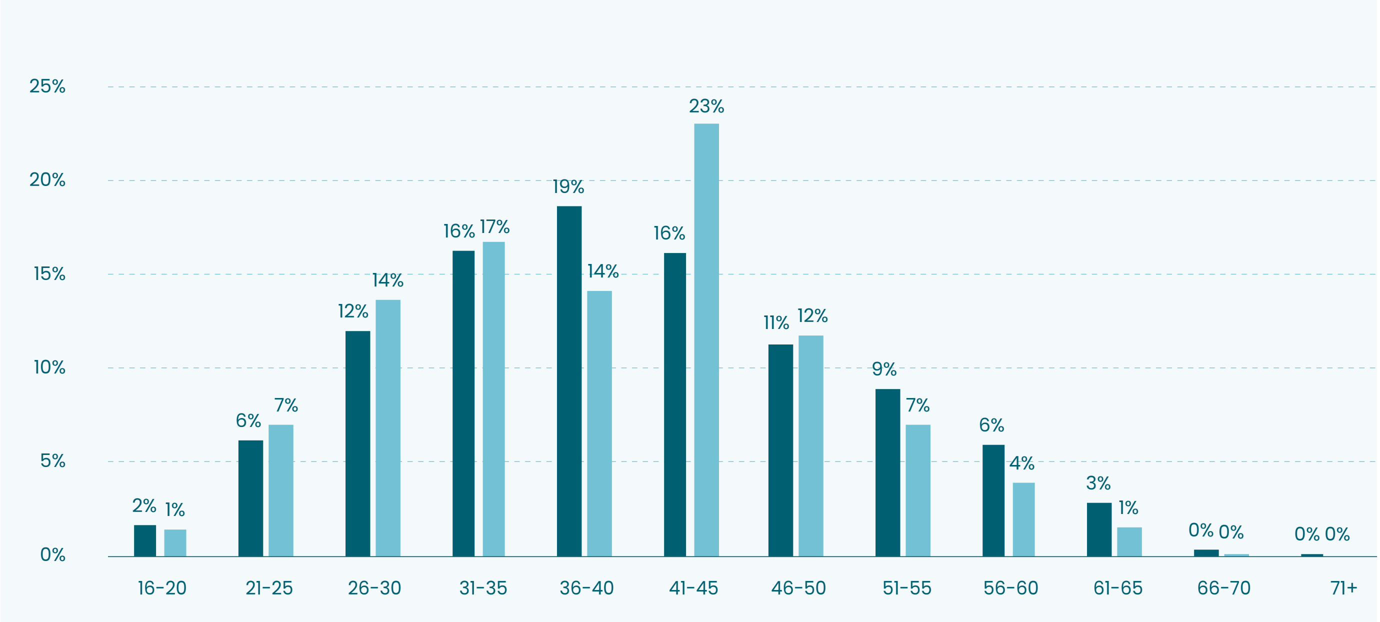


Figure 12 — Age range distribution showing Offshore and Onshore Wind sectors by percentages in age bands



Future Workforce Projections (Offshore and Onshore)

Overview

To forecast future workforce requirements, data from RenewableUK's EnergyPulse database—detailing current and planned wind energy projects—has been extracted and analysed. This dataset enables projections of workforce demand annually through to 2062, the current extent of available project data.

To account for varying project delivery timelines, three distinct construction cycle scenarios have been modelled:

- **Baseline Scenario:** targeting 39GW capacity for offshore wind and 27GW for onshore wind
- **Mid range Scenario:** targeting 47GW capacity for offshore wind and 27GW for onshore wind
- **Upper range Scenario:** targeting 52GW capacity for offshore wind and 27GW for onshore wind

These scenarios provide a range of insights into how workforce demand may evolve depending on the pace of project execution. It is important to note that projections become increasingly uncertain further into the future, as many projects remain unannounced or are subject to change.

Workforce Projections by Year

Under the baseline 39GW for offshore and 27GW for onshore scenario, workforce demand is projected to peak at just over **94,000 employees by 2030**, with approximately **74,000** of these in the offshore sector. Offshore workforce requirements are expected to grow steadily, increasing by over 20,000 between 2025 and 2030. In contrast, onshore workforce levels remain relatively stable over the same time period.

Under the 47GW for offshore and 27GW for onshore scenario, the overall trend mirrors the baseline scenario, though the peak workforce requirement rises slightly to 94,000 in 2030. Onshore workforce levels remain consistent with the baseline at just under 20,000.

Figure 13 — Future Workforce 2025-2030 (Baseline 39GW for offshore and 27GW for onshore)

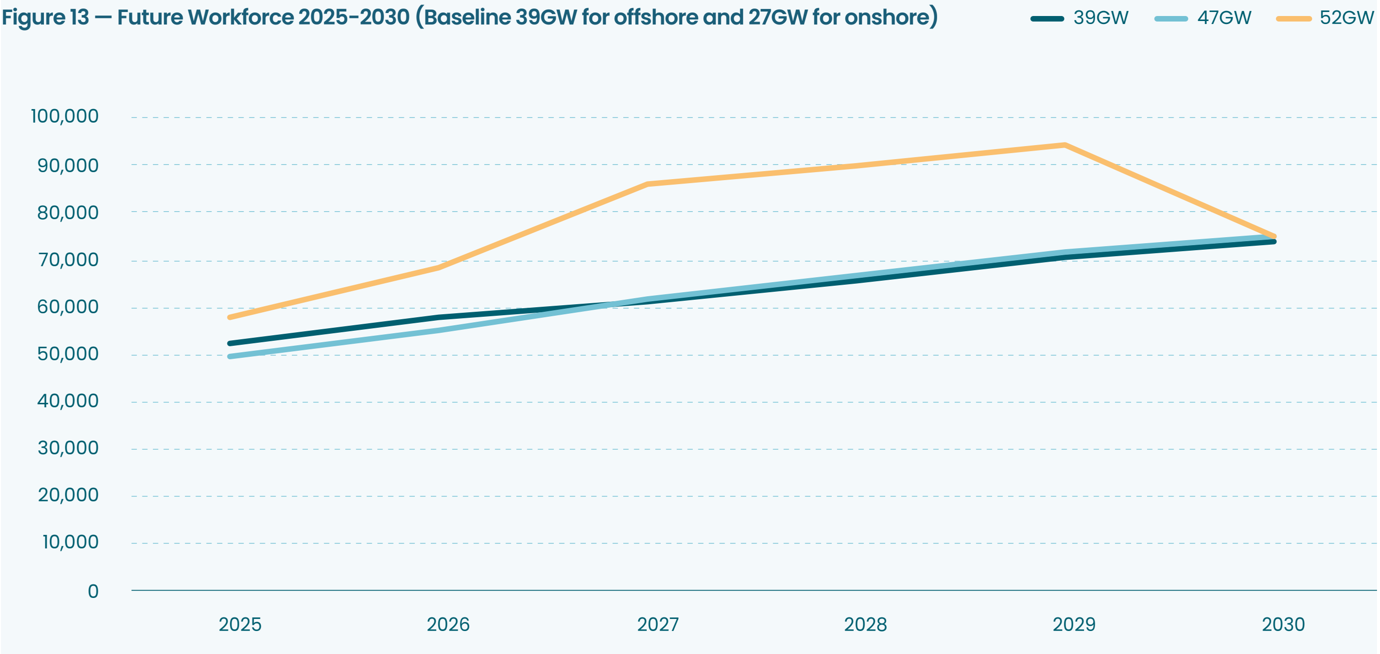
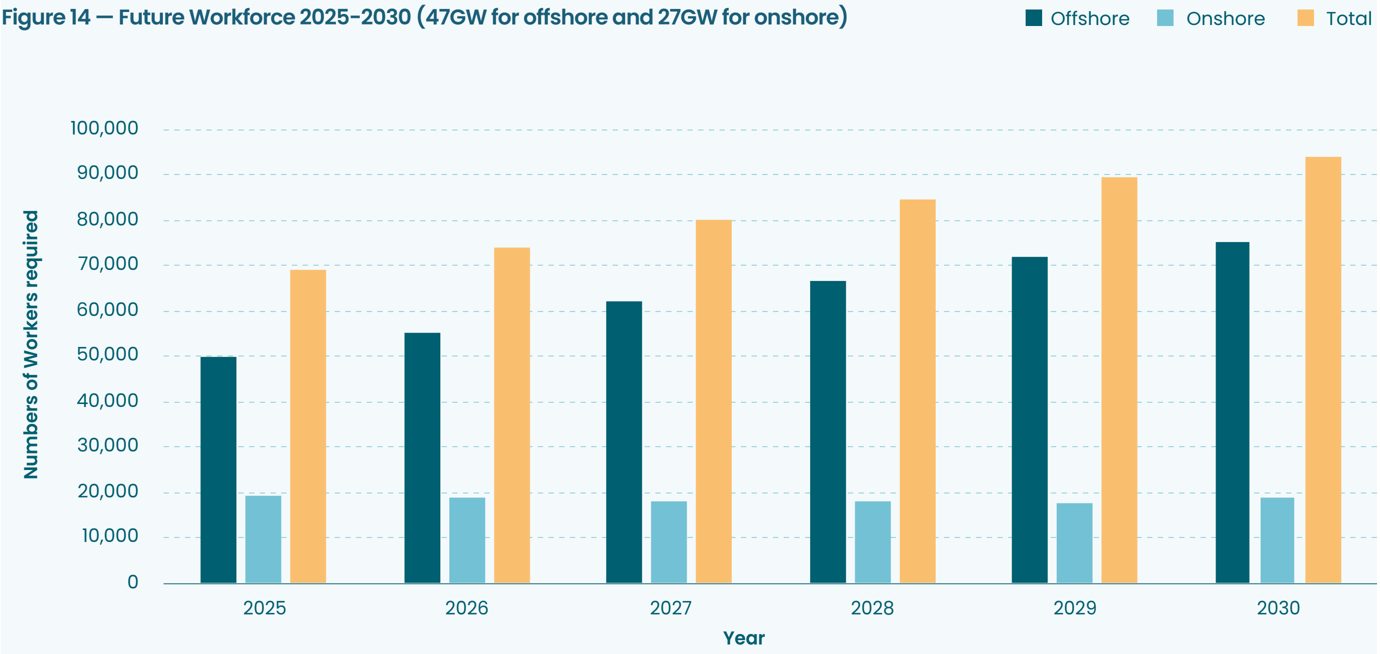


Figure 14 — Future Workforce 2025-2030 (47GW for offshore and 27GW for onshore)



Workforce Projections by Year (continued)

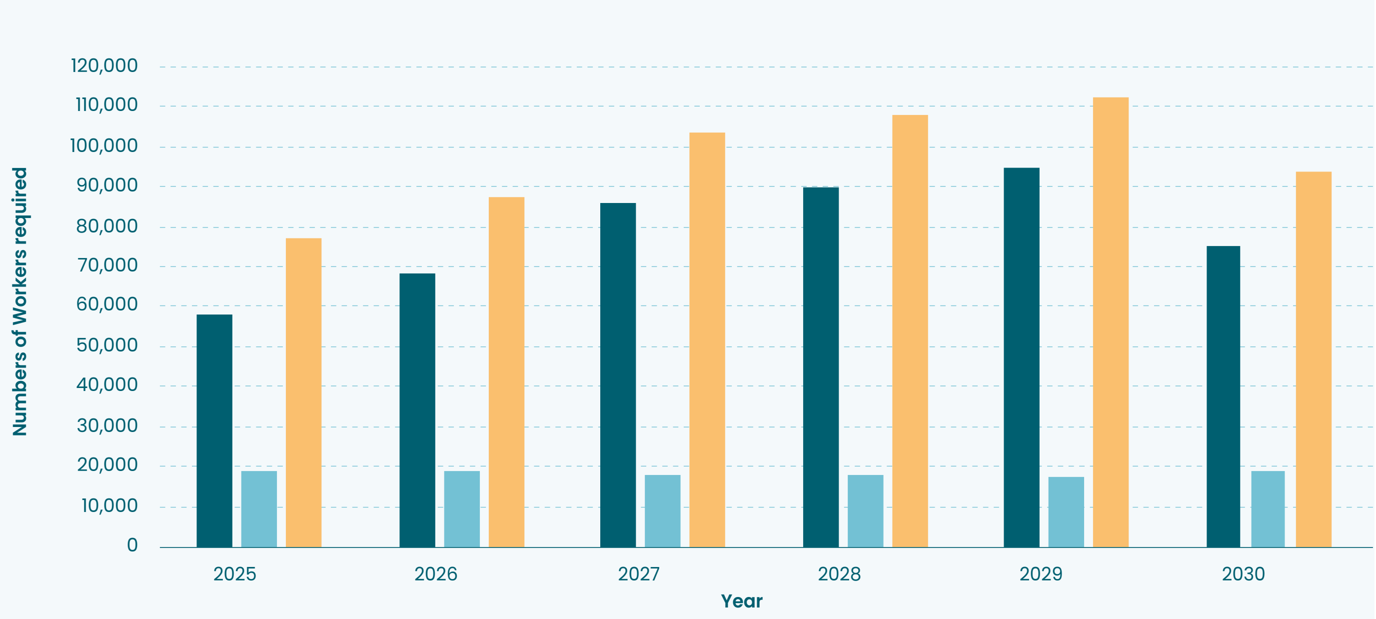
Finally the 52GW for offshore and 27GW for onshore scenario presents a more dramatic trajectory. Workforce demand surges to a peak of **112,000 overall**, representing a **104% increase** over the current workforce of 55,071. This scenario reflects the significant resource intensification required to accelerate project delivery. Even under the baseline scenario, a **69% increase** in workforce is required — still a substantial challenge for the sector.

This can also be done for 39GW and 47GW scenarios for offshore previously mentioned to emulate what would happen if projects in the pipeline were completed at a faster rate.

For the 47GW offshore scenario, we can see that the peaks of the graph follow the same trend as the 5-year cycle with a slightly higher peak of 94,000 in 2030. The onshore numbers replicate the 5-year cycle as well, not fluctuating from the 20,000 figure in 2025.

For the 52GW offshore scenario, with the need for a greater amount of workers over a shorter period of time, we see the numbers reflect this with a sharper increase followed by a steep drop off after 2029. The value peaks at just over 112,000; comparing this to the today's workforce value of 55,071, this implies that the sector requires a percentage increase of 104% for its workforce which would be a challenging ask.

Figure 15 — Future Workforce 2025-2030 (52GW for offshore and 27GW for onshore)



Workforce Projections by Job Roles

The workforce data has been categorised into **87 distinct job roles**, enabling detailed forecasting of occupational demand. The top 10 most in-demand roles over the next five years have been identified, with **2030** representing the peak year for workforce requirements.

Unsurprisingly, **Wind Turbine Technician** remains the most in-demand role, with projected demand exceeding **21,000 technicians in 2030**. This underscores the critical need for skilled technical personnel in field operations and maintenance.

Other high-demand roles include specialised engineering positions such as **Cable Engineers** and **Design Engineers**, as well as senior technical and managerial roles including **Electrical Managers** and **Design Managers**. The sector must prioritise both recruitment and upskilling initiatives to ensure these roles are adequately filled to support project delivery.

Unsurprisingly, Wind Turbine Technician remains the most in-demand role.

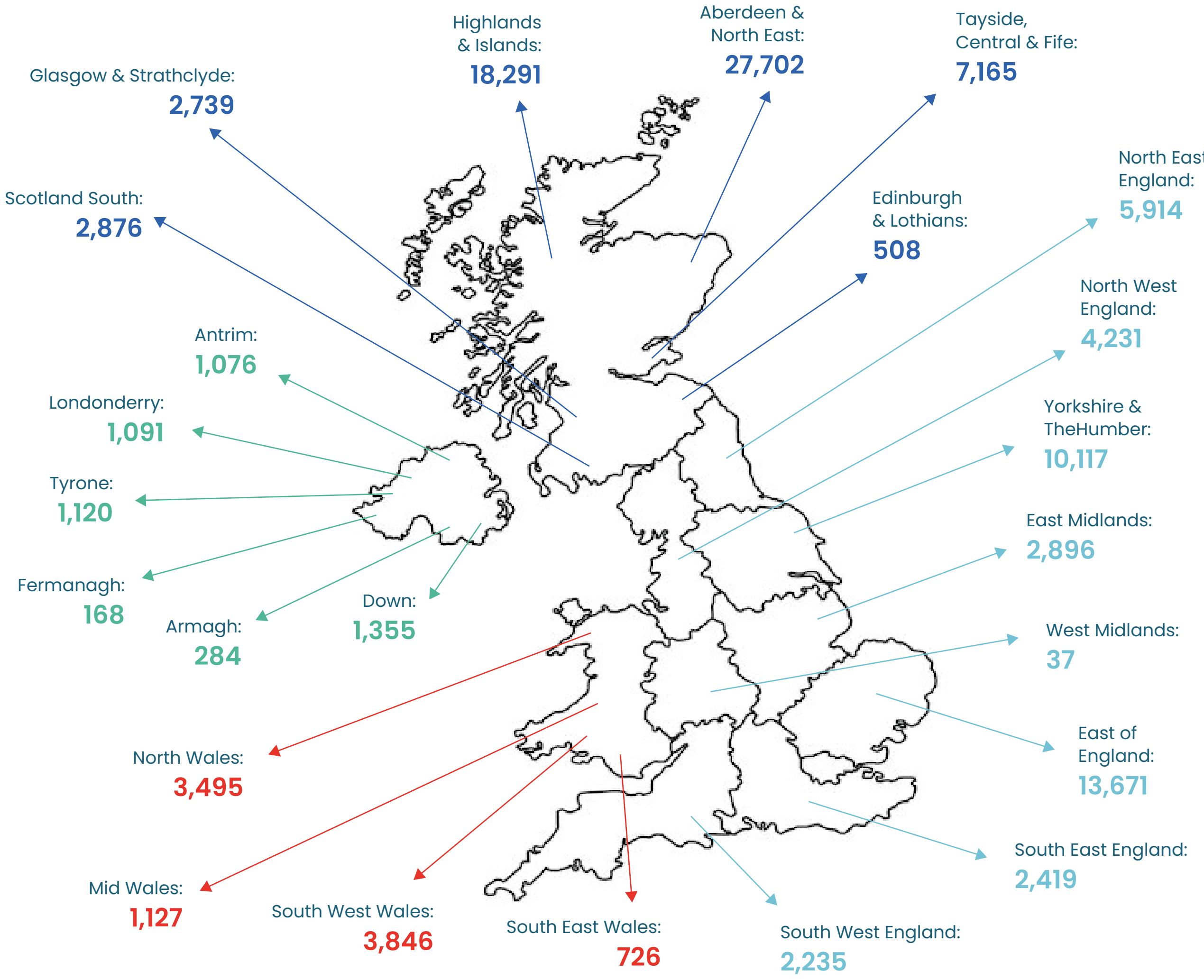
Figure 16 - Top 15 most populated job roles (2025-2030)

Job Role	2025	2026	2027	2028	2029	2030	Average
Wind Turbine Technician	14,102	15,130	16,362	17,970	19,655	21,074	17,382
Fabrication Engineer	4,988	5,490	5,893	6,657	7,515	8,121	6,444
Export Cable Engineer	4,509	4,961	5,396	6,243	7,212	7,916	6,040
Back Office Support	3,688	4,310	4,944	5,349	5,652	6,143	5,014
Commissioning Engineer	3,471	3,779	4,025	4,607	5,286	5,830	4,500
Electrical Manager	3,068	3,363	3,598	4,049	4,560	4,923	3,927
Installation Engineer	3,332	3,412	3,180	3,258	3,246	3,595	3,337
Design Manager	2,420	2,656	2,871	3,291	3,774	4,120	3,189
Design Engineer	2,337	2,568	2,774	3,177	3,639	3,969	3,077
Civils Contractor	2,415	2,313	1,968	2,061	2,033	2,574	2,227
HV Technician	1,216	1,319	1,426	1,615	1,825	1,981	1,564
Contract Manager	1,540	1,642	1,569	1,419	1,246	1,078	1,416
Environmental Advisor	1,591	1,524	1,462	1,300	1,154	927	1,326
Electrical Engineer	1,442	1,499	1,336	1,245	1,133	1,177	1,305
Package Manager	1,278	1,421	1,387	1,275	1,100	939	1,233

Regional Workforce Distribution

A regional analysis of projected workforce demand reveals a concentration of activity in coastal areas, consistent with the geographic distribution of offshore wind infrastructure. Over the next five years, two regions in Scotland are expected to require the highest peak number of workers, followed closely by the East of England, which trails with a peak of over 13,600 workers during the five year period from 2025 to 2030.

Figure 17 – UK Regions peak annual workforce demand for the 39GW Offshore and 27GW Onshore (2026-2030)



This regional insight is critical for informing local training, education, and infrastructure planning to ensure workforce availability aligns with project needs.

From a country perspective, the data looks like this:

Figure 18 - Countries with the highest average demand (2025-2030)

Country	2025	2026	2027	2028	2029	2030
England	37,665	37,215	35,586	32,429	28,191	23,716
Northern Ireland	3,608	4,427	4,330	3,268	3,765	4,252
Scotland	25,031	28,981	32,550	41,940	49,698	58,308
Wales	5,250	5,961	6,362	5,858	6,570	6,760
TOTALS	71,554	76,584	78,828	83,495	88,224	93,036

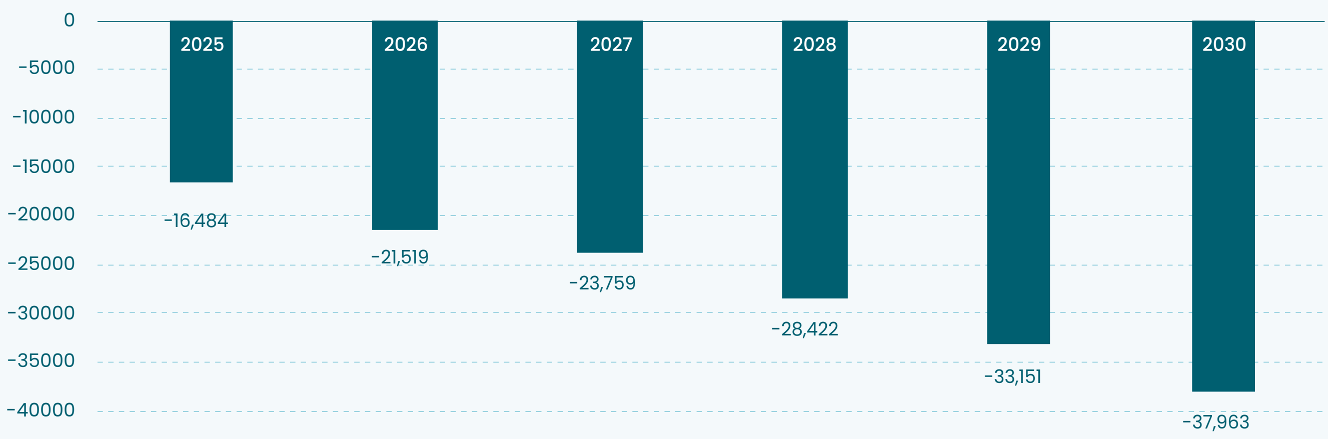
Skills Gaps Identification

By comparing the current workforce data with projected future requirements based on the national offshore and onshore wind project pipeline, this section identifies critical skills gaps that must be addressed over the next five years and beyond. These gaps represent areas where the existing labour force is insufficient to meet anticipated demand. Addressing them will require a combination of strategies, including targeted recruitment from adjacent sectors and the upskilling or retraining of the current workforce.

Gap by Year

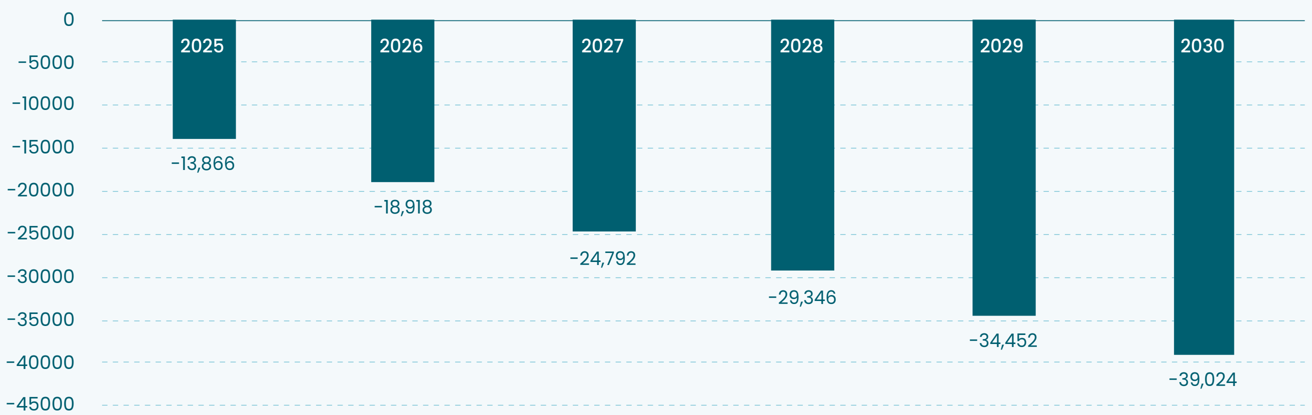
A year-on-year analysis reveals a steady increase in workforce demand from 2025, culminating in a peak shortfall of nearly 38,000 workers by 2030 (Offshore 34,000 Onshore 4,000) under the baseline scenario.

Figure 19 — Baseline scenario (Offshore 39GW, 27GW Onshore) showing the Deficit in Workers to 2030



Under the 47GW Offshore and 27 GW Onshore scenario, the demand curve steepens, indicating a more immediate need for labour. While the start and end points are similar to the 52GW scenario, this model shows a more consistent upward trend without the temporary dip observed in 2027–2028. The peak in 2030 is only marginally higher than in the base scenario, differing by approximately 1,000 workers.

Figure 20 — Offshore 47GW, 27GW Onshore scenario showing the Deficit in Workers to 2030

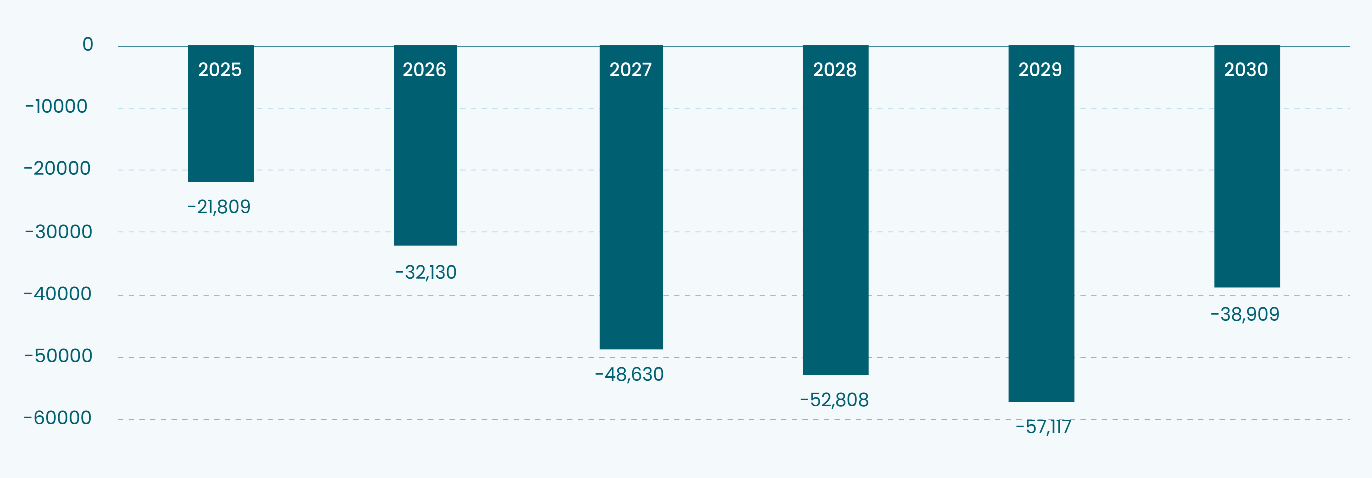


Gap by Year (Continued)

In contrast, the 52GW Offshore and 27GW Onshore scenario presents a significantly more demanding scenario. Workforce demand peaks at over 57,000 in 2029 (Offshore 54,500 Onshore 2,500), followed by a sharp decline to 38,000 in 2030—equivalent to the peak in the other scenarios. This model illustrates the considerable pressure that would be placed on the labour market should project timelines accelerate.

The year 2030 emerges as a critical inflection point. Without timely intervention to expand the workforce, the sector risks falling short of its delivery targets.

Figure 21 — Offshore 52GW, 27GW Onshore scenario showing the Deficit in Workers to 2030



Workforce Gap by Sector

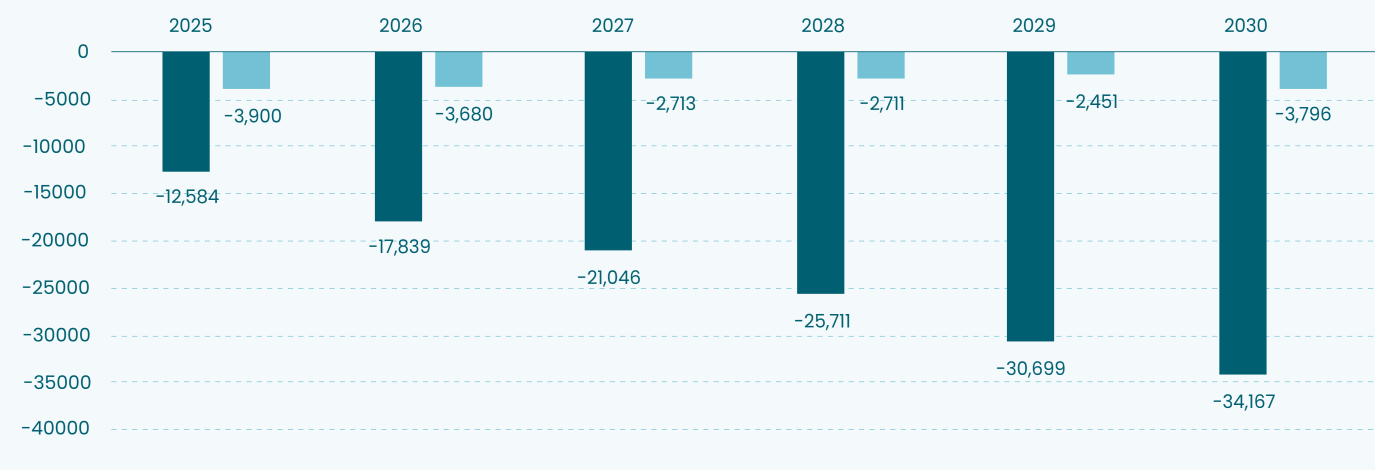
A sectoral breakdown of the projected workforce gap highlights differing trends between offshore and onshore wind.

- The offshore sector shows a consistent year-on-year increase in workforce shortfall, rising by approximately 21,000 between 2025 and 2030.
- The onshore sector, by contrast, exhibits a relatively stable gap over the same period. The highest shortfall occurs in 2025, followed by a slight dip and a modest recovery by 2030.

Current projections suggest close to 4,000 additional onshore wind jobs by 2030, increasing the total to just shy of 19,000. This figure may appear modest compared to other estimates — the modelling primarily captures direct employment, but it does not fully account for indirect employment, induced jobs or potential employment linked to future projects that are not yet included in the Energy Pulse database, particularly as the pipeline in England expands. As such, the figures may underrepresent the full employment potential. Additional enabling actions from the UK Government's Onshore Wind Strategy will also look to drive greater employment opportunities.

Additionally, the data indicates a transition over time, with a decline in demand in the pre-FID and construction phases towards 2030, offset by growth in O&M roles. As the UK strengthens its onshore wind supply chain and project pipeline, there is likely to be further upside in job creation.

Figure 22 — Baseline scenario, workforce deficits by sector

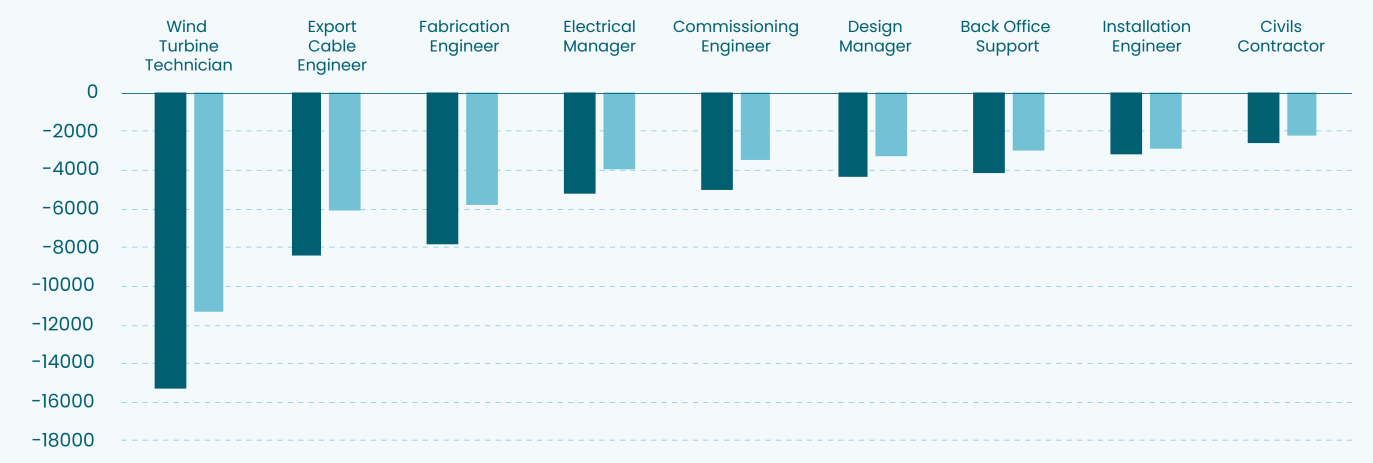


Gap by Job Role

A detailed analysis by job role reveals the specific occupations where the most significant deficits exist. This analysis considers both projected demand and current workforce availability to identify net shortages.

The top 10 roles with the highest deficits closely mirror those identified in the future workforce projections, reflecting persistent demand in key technical and managerial areas. Wind Turbine Technician remains the most in-demand role, with an average shortfall of over 11,000 technicians annually—despite a projected need of 17,300. The only change in the top 10 list is the inclusion of Civils Contractors, which replaces Design Engineers in terms of relative shortfall.

Figure 23 — Occupations with the highest deficit levels



Labour Supply Analysis

Overview

According to data from *EnergyPulse*, the successful delivery of all planned offshore and onshore wind projects by 2030, according to existing project tineline trends, would result in 39GW of offshore wind and 27GW of onshore wind capacity — an essential component of the UK's broader net-zero strategy. Achieving this — let alone more ambitious offshore wind capacity targets — will require a significant expansion of both physical infrastructure and a highly skilled workforce across the wind energy sector. With tens of thousands of new roles projected in the coming years, the success of this transition will depend heavily on the capacity of the UK labour market to respond with agility and resilience.

A robust and sustainable pipeline of skilled professionals — including engineers, technicians, project managers, and environmental specialists — will be critical to supporting the sector's growth. One of the primary strategies for meeting this demand involves engaging students at various educational stages, including GCSE, A-Level, and university leavers. Students pursuing STEM (Science, Technology, Engineering, and Mathematics) subjects are particularly important, as they are more likely to possess the foundational skills and interests aligned with roles in the wind energy industry.

Although many students at the lower levels of education will progress to higher qualifications before entering the workforce, monitoring trends in STEM subject enrolment provides valuable insight into the future availability of talent.

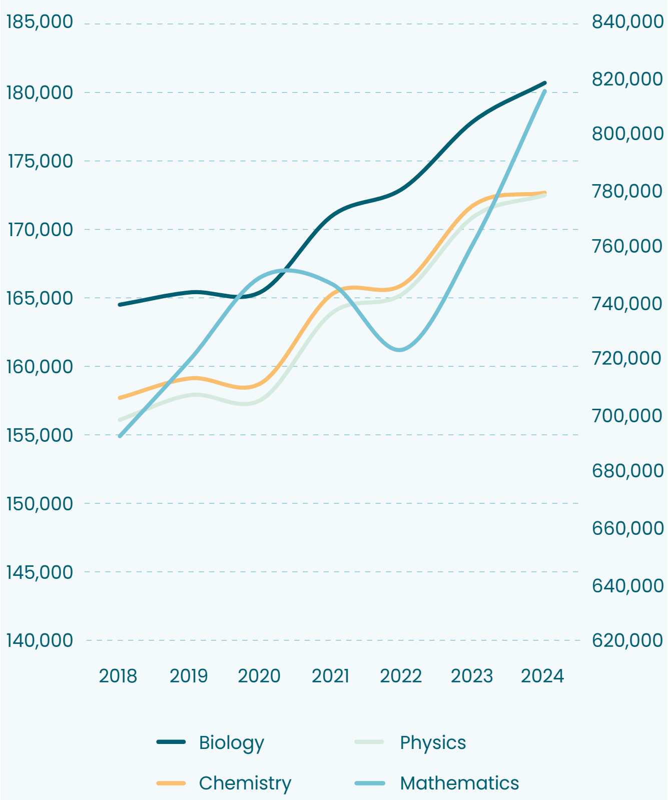
Finally it is important to look at trends in the most common Standard Occupational Classification (SOC) Codes relevant to the offshore and onshore wind sectors.

GCSE Leavers

Analysis of GCSE-level participation in STEM subjects from 2018 to 2024 reveals a generally positive upward trend, with the exception of a slight dip in Mathematics enrolment in 2022. This temporary decline is likely attributable to the disruptions caused by the COVID-19 pandemic, which significantly impacted educational delivery and student progression during that period. Since then, enrolment figures have recovered and continue to grow, which is an encouraging sign for the future workforce pipeline.

Science numbers are on the left axis and Mathematics numbers are on the right-hand axis.

Figure 24 — GCSE STEM subjects 2018 to 2024



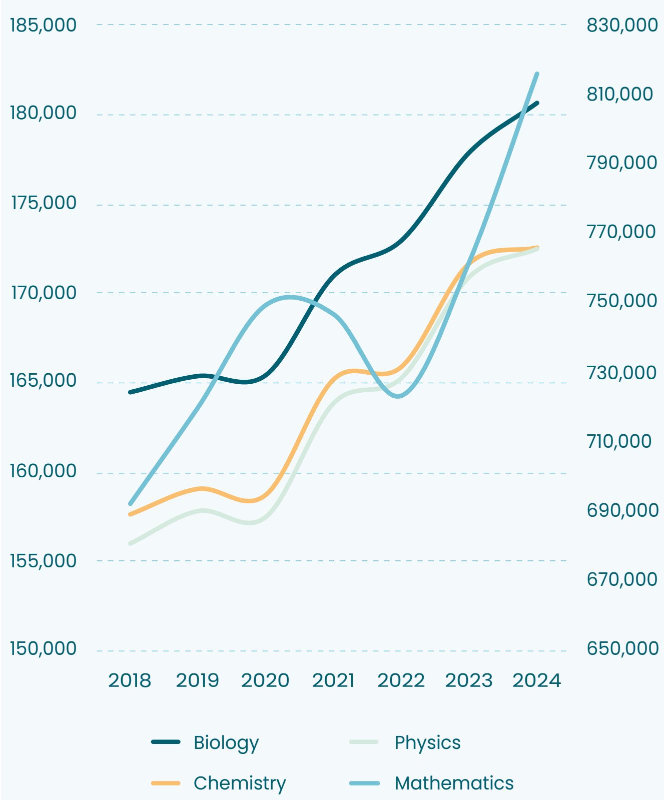
A-Level Leavers

At A-Level, Mathematics enrolment has shown more variability compared to the science subjects, though it experienced a notable increase to approximately 107,000 students in 2024. The three core science subjects have demonstrated steady year-on-year growth, with a minor decline in 2020 again likely linked to the pandemic.

It is important to note that A-Level participation is inherently lower than at GCSE level due to the smaller cohort size and the availability of alternative pathways such as BTECs and apprenticeships.

Science numbers are on the left axis and Mathematics numbers are on the right-hand axis.

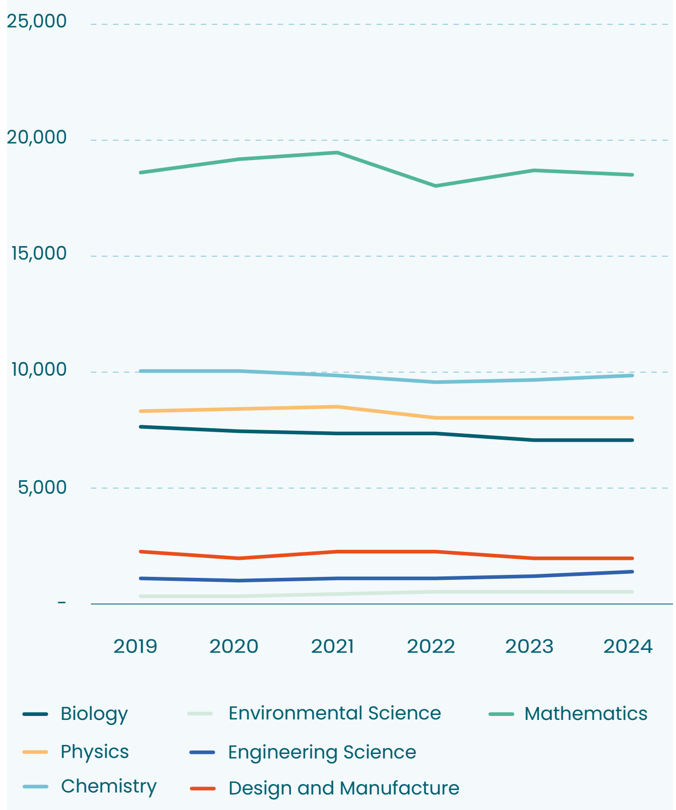
Figure 25 — A-Level STEM Subjects 2018-2024



Scottish Highers

For Scottish Highers, the numbers of enrolment do not vary too much across the 5 year timespan, with the biggest drop coming in 2022 where the amount of students taking Mathematics reduced by just over 1,000. Scottish Highers also include data on subjects not covered by A-Levels such as Environmental Science & Engineering Science, albeit with far less people taking them than the other STEM subjects.

Figure 26 — Scottish Highers Subjects 2019-2024

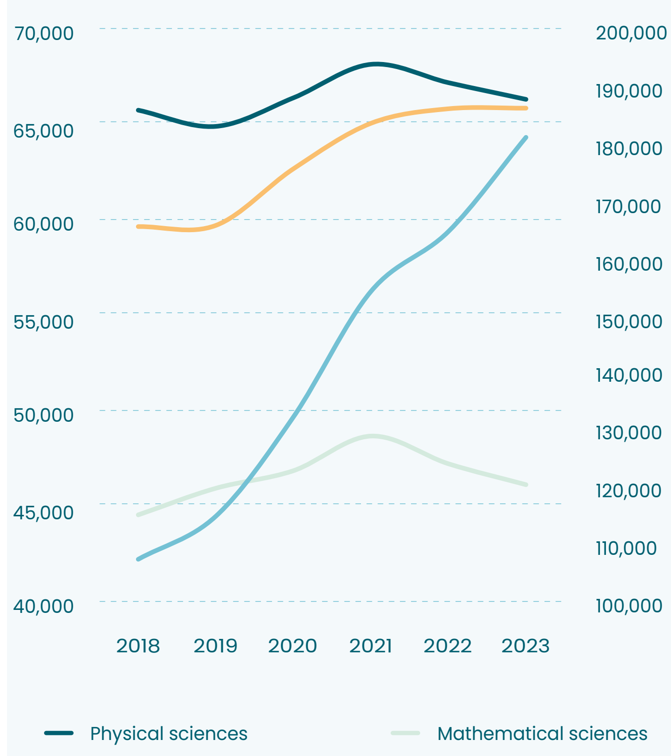


University Leavers

University-level data for STEM subjects is more limited than for GCSEs and A-Levels. However, available figures indicate a positive trend in enrolments for Computing and Engineering, while the core science subjects peaked in 2021 and have since experienced a slight decline. This decrease is relatively modest — ranging from 1,000 to 3,000 students — and overall participation has remained stable over the five-year period.

Science numbers are on the left axis and Engineering and Computing numbers are on the right-hand axis.

Figure 27 — University STEM Subjects 2018-2023



SOC Code analysis

The table below shows the job roles where demand is highest in the forecast analysis and their mapping to a particular SOC Code and Summary, together with the average required per annum over the 2025 to 2030 forecast.

Figure 28 – Job Roles and their SOC Code mapping

Job Role	SOC Code	SOC Code Summary	Average required pa.
Wind Turbine Technician	3113/02	Wind turbine technicians	17,382
Fabrication Engineer	5223/99	Metal working production and maintenance fitters n.e.c.	6,444
Export Cable Engineer	5241/03	Installation and maintenance electricians	6,040
Back Office Support	4159/01	Business administrators	5,014
Commissioning Engineer	3113/99	Engineering technicians n.e.c.	4,500
Electrical Manager	2123/99	Electrical engineers n.e.c.	3,927
Installation Engineer	5241/03	Installation and maintenance electricians	3,337
Design Manager	2122/03	Mechanical design engineers	3,189
Design Engineer	2122/03	Mechanical design engineers	3,077
Civils Contractor	8159/99	Construction operatives n.e.c.	2,227
HV Technician	3112/99	Electrical and electronics technicians n.e.c.	1,564
Contract Manager	2455/01	Construction project and contract managers	1,416
Environmental Advisor	2152/03	Environmental consultants	1,326
Electrical Engineer	2123/99	Electrical engineers n.e.c.	1,305
Package Manager	2455/01	Construction project and contract managers	1,233

The table below shows the number of workers in the UK allocated to the ONS SOC Codes in 2024, and the average annual number required by Offshore and Onshore Wind between 2025 and 2030. The final column indicates the proportion of the UK workforce required for the Wind sector for that particular SOC Code.

The analysis shows that there are likely to be significant demands across technologies on the number of Engineering Technicians, Electrical Engineers, Mechanical Design Engineers and Electrical / Electronics Technicians to meet the demand posed by the UK Wind sector.

Figure 29 – Job Roles and their SOC Code mapping

4 Digit SOC	SOC Description	No in 2024	Average annual number required by Wind sector	% age required by Wind
3113	Engineering technicians	77,400	21,882	28.3%
5241	Installation and maintenance electricians	190,900	9,377	4.9%
5223	Metal working production and maintenance fitters n.e.c.	186,700	6,444	3.5%
2122	Mechanical design engineers	94,100	6,266	6.7%
2123	Electrical engineers n.e.c.	50,600	5,232	10.3%
4159	Other administrative occupations n.e.c.	620,500	5,014	0.8%
2455	Construction project managers and related professionals	99,500	2,649	2.7%
8159	Construction operatives n.e.c.	90,900	2,227	2.5%
3112	Electrical and electronics technicians	23,200	1,564	6.7%
2152	Environmental consultants	70,500	1,326	1.9%

SIC Code analysis

The table opposite shows the change in specific sectors or industries over a five year period from 2019 to 2023. The most notable takeaway from the data is the significant reduction in the workforce in "Manufacture of engines and turbines", which does not include aircraft. Since 2019, a reduction of over 4,000 employees has seen the volume reduce by a dramatic 26%. Additionally, there have also been significant drops in "Distribution of electricity" (loss of 7,300 employees, 13.8%) and "Electrical installation" (loss of 17,400, 7.4%).

On the other hand, examples of areas where increases have been observed include "Transmission of electricity" (1,500 additional employees, 48.4%), "Trade of electricity" (2,700 employees, 31%), "Manufacture of electricity distribution and control apparatus" (1,600 employees, 12.3%), "Manufacture of electronic components" (1,600 employees, 11.5%), "Manufacture of other electronic and electric wires and cables" (800 employees, 10.8%) and "Manufacture of other fabricated metal products" (2,000 employees, 7.1%).

The conclusions that can be drawn from the evidence in the table opposite show that there are probably enough potential members of the workforce coming through the education system to meet future demand.

However, there will need to be a concerted industry effort to secure enough Electrical Engineers, Installation and Maintenance Technicians, Mechanical Design Engineers and Electrical and Electronics Technicians from either 'organic' means or via other sectors if power output targets are to be met.

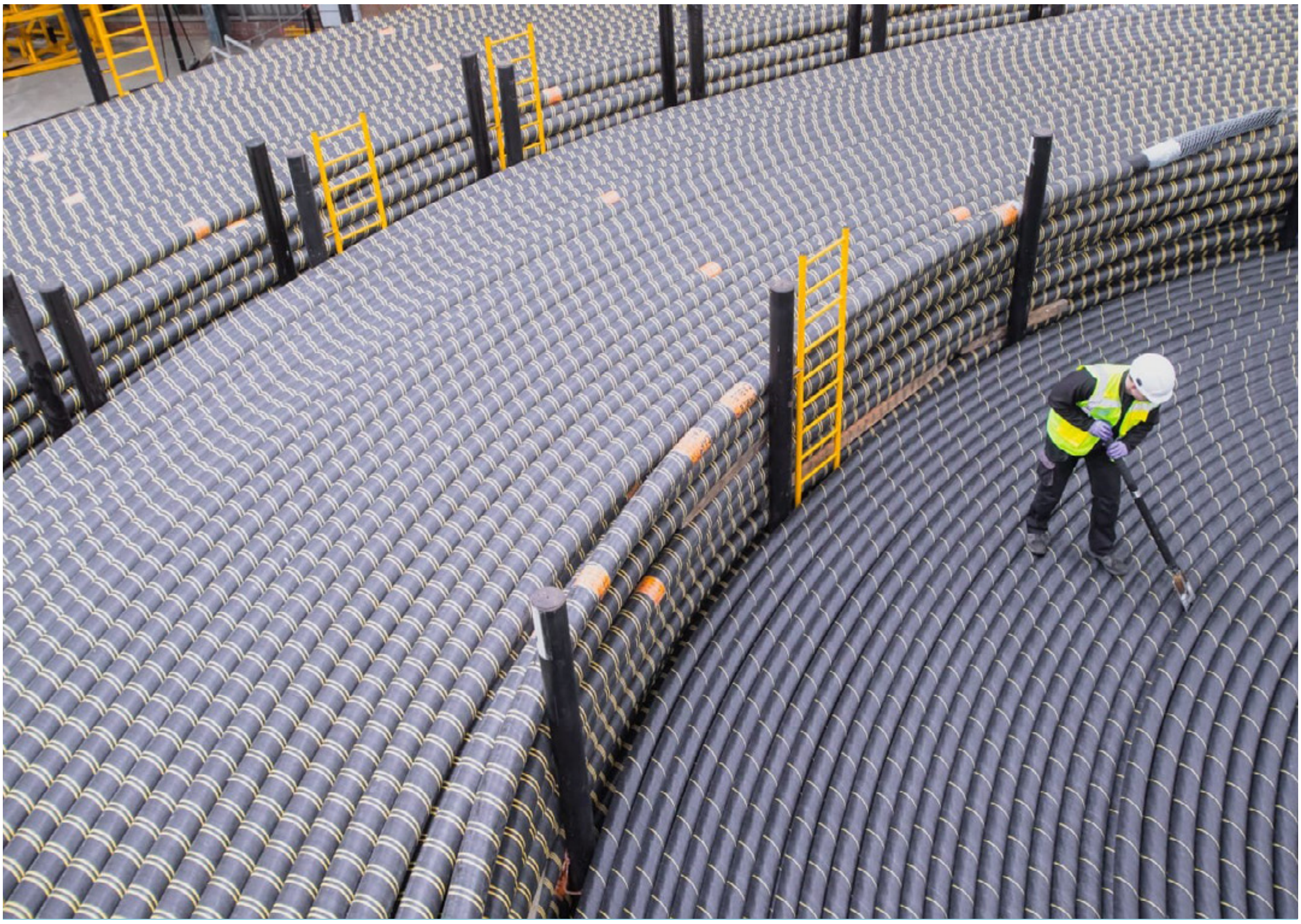


Figure 30 – Relevant SIC Code trends between 2019 and 2023

SIC Code	Name	2019	2020	2021	2022	2023	% Change
25110	Manufacture of metal structures and parts of structures	49,700	51,100	47,300	50,300	48,200	-3.0%
25990	Manufacture of other fabricated metal products n.e.c.	28,200	30,000	27,800	30,600	30,200	+7.1%
26110	Manufacture of electronic components	13,900	13,600	14,100	13,500	15,500	+11.5%
26120	Manufacture of loaded electronic boards	7,800	8,200	7,700	7,800	8,800	+12.8%
26511	Manufacture of electronic instruments and appliances for measuring; checking; testing; navigation and other purposes; except industrial process control equipment	44,200	41,900	41,300	41,800	50,600	+14.5%
26512	Manufacture of electronic industrial process control equipment	4,200	4,400	5,500	4,500	5,000	+19.0%
26513	Manufacture of non-electronic instruments and appliances for measuring; checking; testing; navigation and other purposes; except industrial process control equipment	3,300	3,500	3,600	3,300	4,500	+36.4%
26514	Manufacture of non-electronic industrial process control equipment	1,800	1,400	1,300	1,400	1,800	0
27110	Manufacture of electric motors; generators and transformers	10,500	10,800	9,200	9,100	11,100	+5.7%
27120	Manufacture of electricity distribution and control apparatus	13,000	14,800	12,500	13,500	14,600	+12.3%
27310	Manufacture of fibre optic cables	1,400	1,500	1,500	1,600	1,500	+7.1%
27320	Manufacture of other electronic and electric wires and cables	7,400	7,500	7,400	7,300	8,200	+10.8%
27330	Manufacture of wiring devices	3,200	3,400	3,000	3,000	2,700	-15.6%
27900	Manufacture of other electrical equipment	10,400	10,700	9,000	9,700	12,200	+17.3%
28110	Manufacture of engines and turbines; except aircraft; vehicle and cycle engines	16,100	16,300	13,200	15,900	11,900	-26.1%
28290	Manufacture of other general-purpose machinery n.e.c.	23,200	21,800	20,900	24,700	21,300	-8.2%
33140	Repair of electrical equipment	6,900	20,900	6,600	5,500	7,900	+14.5%
35110	Production of electricity	30,300	24,700	36,000	28,700	30,700	+1.3%
35120	Transmission of electricity	3,100	21,300	4,000	3,800	4,600	+48.4%
35130	Distribution of electricity	52,800	-8.2%	50,800	51,100	45,500	-13.8%
35140	Trade of electricity	8,700	6,400	8,600	8,100	11,400	+31.0%
35210	Manufacture of gas	700	6,600	900	400	300	-57.1%
42130	Construction of bridges and tunnels	700	5,500	900	900	1,200	+71.4%
42210	Construction of utility projects for fluids	5,000	7,900	4,200	5,300	5,800	+16.0%
42220	Construction of utility projects for electricity and telecommunications	13,700	+14.5%	8,600	8,500	10,900	-20.4%
42910	Construction of water projects	1,900	32,600	1,900	2,100	2,400	+26.3%
42990	Construction of other civil engineering projects n.e.c.	121,500	36,000	111,000	113,900	119,000	-2.1%
43210	Electrical installation	234,500	28,700	214,100	237,700	217,100	-7.4%
43290	Other construction installation	45,400	30,700	43,300	50,300	48,000	+5.7%
43999	Other specialised construction activities n.e.c.	82,200	+1.3%	84,300	73,300	85,000	+3.4%
77320	Renting and leasing of construction and civil engineering machinery and equipment	43,700	3,600	38,600	45,400	45,200	+3.4%

Recommendations

In order to meet the 2030 targets and deliver the Clean Power Action Plan targets of clean energy, much needs to be done, across industry collaboratively.

1. Create a Strategic Workforce Plan

- **Develop a national workforce strategy** tailored to the wind sector, incorporating both offshore and onshore needs that builds on and aligns with the anticipated clean power workforce strategy from the UK Government.
- **Scenario-based planning** should be adopted to prepare for different scenarios, particularly around acceleration of wind farm phases and a greater deployment of innovative technology, ensuring flexibility in workforce deployment.
- **Establish a central workforce data observatory** led by industry to continuously monitor labour supply, demand, and skills gaps.
- **Update projections annually** using real-time project and employment data to inform policy, recruitment and training needs.

2. Address the Skills Gap

- **Focus effort on critical occupations** — ensuring the industry tackles the skills and recruitment to the roles industry needs most and engaging with those training providers who will help us to do so.
- **Prioritise training for high-demand roles**, especially Wind Turbine Technicians, engineers, and technical managers.
- **Create fast-track retraining programs** for workers in adjacent industries (e.g., oil & gas, maritime, construction) to fill immediate gaps.
- **Establish regional training hubs** in coastal and Scottish regions where workforce demand is highest. Develop new vocational learning pathways where they do not currently exist.
- **Improve Attraction, Recruitment and Retention** by developing a compelling offer for the workforce, including through a step change in apprenticeships and attracting people from other industries.
- **Educate and Engage Young People** – to promote the offshore wind sector to the next generation.

3. Education and Talent Pipeline Development

- **Strengthen STEM education pathways** by:
  - Increasing funding and support for engineering and computing programs, through clear industry lobbying and greater collaboration between industry leadership and educational authorities.
  - Partnering with schools and universities to align curricula with industry needs.
- **Introduce wind energy modules** at secondary and tertiary education levels to raise awareness and interest early.

4. Industry-Education Collaboration

- **Create apprenticeship and internship programs** in collaboration with industry, particularly to develop pathways into shortage occupations.
- **Launch a national awareness campaign** to promote careers in wind energy, targeting underrepresented groups and regions.

5. Policy and Investment Support

- **Clear and ambitious targets** need to be set to provide clarity for industry to invest and act
- **Secure government incentives** for training providers and employers who invest in workforce development.
- **Encourage joint public and private investment** to fund long-term workforce initiatives and infrastructure.

Appendices

Appendix 1 – Methodology

In January 2025, the Offshore Wind Industry Council (OWIC) issued an industry-wide call through multiple channels, inviting organisations operating within the UK wind sector — both offshore and onshore — to contribute their detailed workforce data. As highlighted earlier, this year's report placed renewed emphasis on capturing data from both sub-sectors to develop a more comprehensive understanding of the national wind energy workforce.

In collaboration with a dedicated working group, significant efforts were made to encourage participation from larger companies, whose workforce data would have a proportionally greater impact on the overall analysis.

To enhance the quality and consistency of the data collected, the survey was structured with clearly defined "mandatory" and "optional" fields for the organisation to complete for each member of their workforce. Mandatory fields included:

- Job Role or occupation
- Gender
- Age or Date of Birth
- Work Location
- Ethnicity
- Sector (either Offshore or Onshore)

These were essential to ensure a high standard of data integrity. Optional fields were included to reduce the burden on respondents and increase participation rates. Additionally, companies were given the option to submit anonymised data exports directly from their HR systems, with data processing and extraction managed by NSAR.

A data log was maintained to track submissions, including the submitting organisation, submission date, and the number of employees represented. This tracking facilitated targeted follow-ups and enabled comparison with data submitted in the 2023 survey.

To estimate a workforce figure representative of the entire UK wind industry, extrapolation was applied to account for non-responding companies. Each non-responding organisation was assigned an estimated workforce size based on its classification within the RenewableUK (RUK) database:

Company Classification	Estimated No of Employees
Small Company	5
Small Company Plus	50
Medium Company	150
Large Company	300
Sponsor	1,000
Executive Member	1,000
Strategic Partner	1,000

To further enhance the 2025 survey, this year introduced the use of RenewableUK's EnergyPulse, an online database that catalogues all current and upcoming offshore and onshore wind projects. It includes key project details such as location, capacity (GW), number of turbines, and project timelines. EnergyPulse serves as a forward-looking investment roadmap for the sector, with visibility extending to projects scheduled through 2062. Each project is segmented into phases, with assumptions for both offshore and onshore developments detailed in **Appendix 2 – Assumptions**.

The two primary data inputs — the workforce survey and EnergyPulse — were integrated into a new Skills Intelligence Model (SIM) created by NSAR. This model enables detailed analysis of current workforce demographics (Today's Workforce) and facilitates forecasting of future workforce needs (Future Workforce) based on project pipeline data. By comparing current and projected workforce figures, the model identifies potential gaps (Gap Analysis), which can inform strategic workforce planning to ensure timely and efficient project delivery.

Appendix 2 – Assumptions

Offshore Wind Farm - Modelling Assumptions

1. Pre-Construction (Pre FID) Phase

- Notional "base" workforce generated from data provided by a developer.
- To reach this, we took the resource plan and mapped into the standard roles on the provided standard org chart.
- Roles identified as either flex or fixed roles
- Fixed roles stay with the same volume per project as identified within the base workforce
- 20% uplift in Engineering / Design roles for floating projects
- The notional workforce for each project in this phase is thus calculated:
- fixed roles remain at the same volumes regardless of project capacity,
- flex roles move up / down in the ratio between the capacity in the base workforce (900MW) and the capacity of the given project (so for example, for an 1,800MW farm, each flex role would have 2x as many as the base workforce)

2. Construction (FID) Phase

- Very similar process to Pre-FID followed – once again the base workforce is identified from developer figures.
- Base workforce established through data received
- Roles identified as either flex or fixed roles
- Fixed roles stay with the same volume per project as identified within the base workforce
- Flexing occurs proportionally based upon increase/ decrease in project capacity compared to that of the base workforce
- 20% uplift in Engineering / Design roles for floating projects
- Notional workforce for each project is thus calculated, and calculations follow the exact same logic as the pre-construction phase does in terms of ratio between the base workforce capacity and the given project capacity — in this case the base workforce is that of a 1,400MW project

3. Operational Phase

- The base workforce was reached through consultation with a Subject Matter Expert (SME)
- Fixed and flex roles identified
- The volume of employees for each project has been calculated using historic data, which suggests a correlation between capacity and employees
- A machine learning regression model was used to project this correlation
- The notional workforce for each project in this phase can be thus calculated
- Assumptions made re vessel teams which are:

Distance from shore	Near/Far	Employees to a vessel	MW per vessel
<50 km	Near	5	250
>50 km	Far	15	2000

- Other flex roles have been proportioned according to both the number of roles notionally remaining after the fixed and vessel workers have been added and the proportions of each in the pyramid (i.e. 24 of the 29 flex roles are Offshore Technicians, so roughly 83% of the remaining roles will be that).

Appendix 2 – Assumptions (continued)

Onshore Wind Farm - Modelling Assumptions

- Remove projects where the owner is 100% private/ landowner.
- Maintain ones where it is only part owned by private.
- Using the ClimateXChange report (CXC-Skills-requirements-in-Scotlands-onshore-industry-May-2024) numbers for each phase:
- Flexing to apply to construction phase, to all roles of >1 FTE in the report
- Roles of <=1 in the report same for each project
- Flex roles are flex in the ratio between the project's capacity and the 90 MW capacity generated from the notional workforce
- Example — notionally, a 90 MW farm has 50 FTE civils contractors. A 180 MW farm is 2x the size of the notional farm, therefore would have 180 FTE civils contractors

Phase	Offshore	Onshore
Pre-FID	4 years	5 years (1 year feasibility, 4 year development)
Construction	5 years (baseline), accelerated to 3 and 4 years as scenario planning	2 years
Operational	25 years	25 years

Scenario Planning Assumptions

- Scenario planning was only applied to Offshore projects
- This was done by varying the construction period applied within the modelling, as below:

Construction Period	Output by 2030 (GW)
5 years (baseline)	39
4 years	47
3 years	52

- All roles were flexed under the rule that the volume remains the same even if the period changes — for example, if 300 of a role were required over a five year construction period (60 per year), the assumption made would be that 300 of the same role would be required in all scenarios. Therefore, in the four year construction scenario, 75 would be required annually, and in the three year scenario, 100 would be required annually.
- Smoothing was also applied to each scenario in order to prevent the appearance of peaks that were not feasible. To do this, the figures for each year were calculated using a three year moving average.
- For example, the figure for 2030 was taken by the average of 2029, 2030 and 2031.

Supply Chain

- Using the scopes of the supply chain contractors for Dogger Bank (https://doggerbank.com/supply-chain/), we consulted with an SME as to the estimated volume of employees required to carry out the scope for a notional 1GW farm.
- Flexing was applied in the proportion in terms of output between the notional farm and each farm (ie. if 1,000 employees were required over five years to carry out some work for the 1GW farm, a 2GW farm would need 2,000 employees).
- In terms of acceleration in the given scenarios, we worked under the assumption that "the area under the curve remains the same" — if 600 people are required to carry out a scope, in a five year construction cycle, 120 are required annually, four year construction cycle requires 150 annually, three year construction cycle requires 200 annually. All result in the same output — 600 people over the construction period.

Public Sector Planning

- We were provided with some estimates for the volume of employees required in public sector planning ie. regulatory bodies, consultancies etc.
- These values were added with no flexing. They were divided up regionally in the proportion of total output (ie. if North East England had 10% of total power output of all offshore projects, 10% of employees would be placed there).

Installer/Maintainer

- We were provided data from on two farms close to the 1GW mark. Any roles of less than five employees were applied with the same volume to each project. The only role not to fit this criteria (Service Technician) was flexed in accordance with in terms of output between the notional farm and each farm.

The Effect of Efficiency Improvements

- The impact of increases in productivity and efficiency, as well as the future improvement of industry technologies have been considered as part of the modelling
- Research suggests that the combined overall effect on the workforce of these two factors is around 1.35% annually
- As a result, starting from 2026, a decrease in workforce volume of 1.35% has been applied to the workforce modelling figures

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