ECITB Workforce Census 2021

Regional

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This report was produced by the Engineering Construction Industry Training Board.

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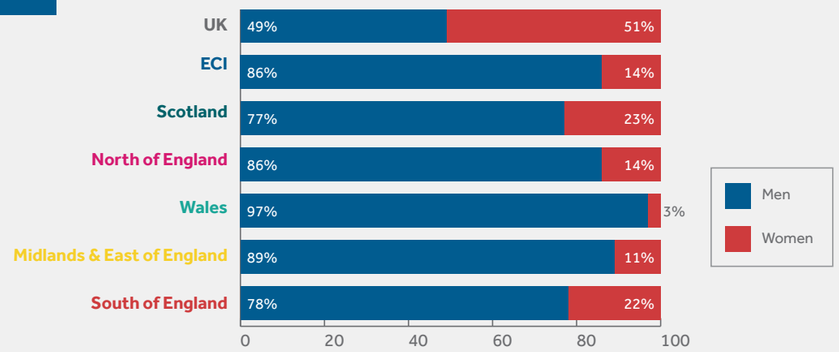
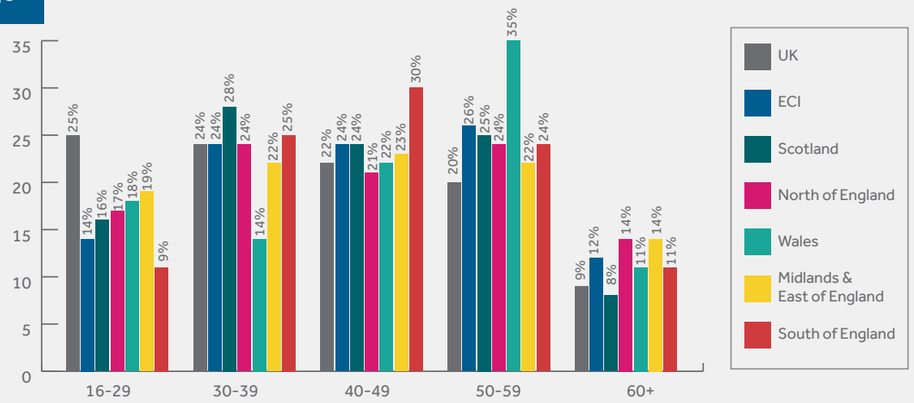
At a glance

Gender



Age



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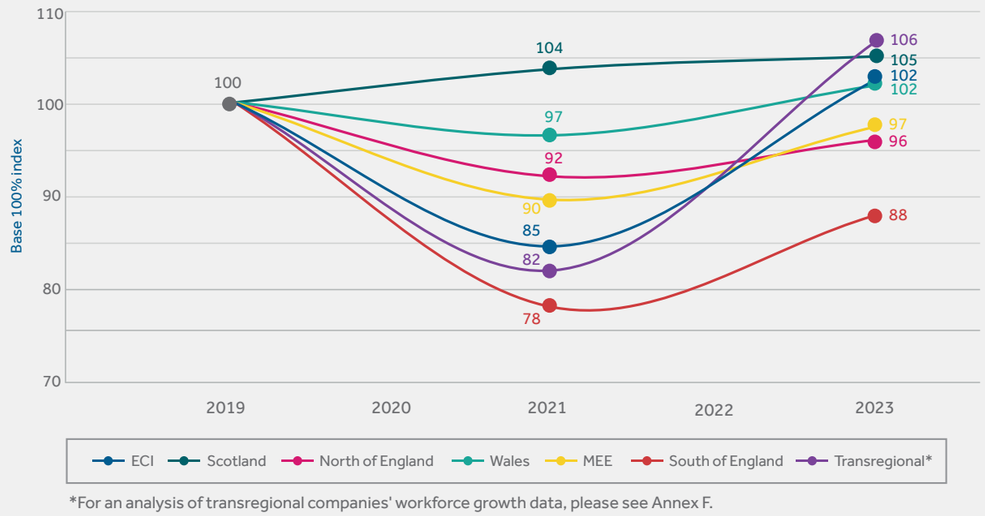
Workforce growth



*For an analysis of transregional companies' workforce growth data, please see Annex F.

Executive Summary

This report provides a regional breakdown of the engineering construction industry (ECI) in England, as well as data for Scotland and Wales. The overview report and the series of sectoral reports are available on the ECITB website[1]. The data collected between the 1st March and the 30th April 2021 is a snapshot of the industry revealing regional disparities during the Covid-19 pandemic. The geographical, sectoral, and occupational characteristics of the workforce, the impact of Covid-19, and the challenges surrounding recruitment and net-zero are presented throughout five regional sections. The Census data covers employers within the scope of the ECITB, and therefore does not capture the entire ECI workforce operating in each region.

Part of the ECI workforce is employed in trans-regional companies - firms with no dominant footprint in a particular region. In this report, sections about geographical and sectoral characteristics and occupational data cover responses from employers with a distinct regional base and trans-regional companies. Other sections are based on employers' answers to company-level questions, and as such, do not include trans-regional companies in the analyses.

Twenty-two percent of the ECI workforce is based in onshore Scotland, primarily in the central belt and near Aberdeen. A further 10% work offshore. Most of the onshore workforce undertake activities in the nuclear decommissioning and the oil and gas sectors (31% and 52% respectively), while the offshore labour force almost exclusively operates in the upstream oil and gas sector[2]. Scotland has the highest share of workers below 40 (44%), and the lowest share of workers above 60 (8%), suggesting the challenges of an ageing workforce are not as stark as in other regions of the UK. Scotland also shows the highest percentage of women, at 23%. Whilst positive when compared to the ECI overall, this still indicates that the industry needs to take further actions if it is to widen the pool of potential new entrants.

Northern England is home to 30% of the ECI workforce. More than half of the workforce is in the North West, with significant hotspots in Liverpool, Manchester and near Heysham. Fifty-one percent of Northern England's ECI workforce operates in the nuclear sector. A further 15% and 12% work in the oil and gas and chemicals sectors respectively. In regards to age then the percentage of workforce below 30 is larger than that of the ECI nationally. On the other hand, the over-60 workforce is also larger than in the wider ECI. Employers from this region expect relatively small workforce growth, with just a 4% increase in headcount anticipated from 2021 to 2023.

1 ECITB Workforce Census

2 Offshore wind is and will increasingly represent a major share of Scotland's offshore activities. Part of offshore wind projects are excluded from the census because some relevant companies are either out of ECITB scope or did not provide offshore wind data.

In Wales, where 2% of the ECI workforce is employed, workforce numbers have remained more stable than in other regions, on average, despite 67% of companies' experiencing impacts to their turnover during Covid. Companies in Wales are usually small to medium-sized enterprises typically working in the steel processing, downstream oil and gas, and food and drink manufacturing sectors. Nearly half of the workforce is above 50, which means there is a clear need to attract new employees in the coming years.

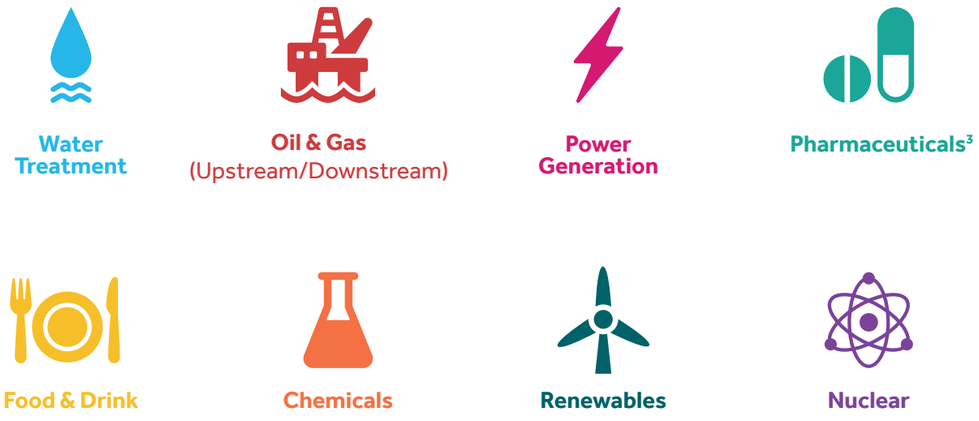
Eight percent of the industry workforce is employed in the Midlands and East of England. Similar to what is observed in Northern England, there is a relatively high proportion of the workforce aged below 30 (19%) and above 60 (14%). Furthermore, employers in the region expect a 3% decrease in workforce levels over the period 2019 to 2023. Most of the workforce is located between Birmingham, Leicester and Nottingham, and on the East Coast. In addition to the nuclear and the oil and gas sectors, a large share of the regional workforce is employed in the renewables, food and drink, and conventional power generation sectors. The Southern England ECI – which employs 24% of the industry – has been severely hit by the Covid-19 pandemic, with a 22% drop in headcount from 2019 to 2021. Employers in Southern England expect their workforce to be at 88% of its pre-pandemic level by 2023. Nearly one third of the workforce is between the ages 40 and 49, which means that the region benefits from a large and experienced workforce that is not expected to retire soon. Women represent 22% of the regional labour force, the second highest proportion after Scotland.

Introduction

The Engineering Construction Industry Training Board (ECITB) is the statutory skills body for the Engineering Construction Industry (ECI) in Great Britain. A non-departmental public body sponsored by the Department for Education (DfE) and accountable to Parliament, the ECITB works with employers, governments and many others to attract, develop and qualify personnel across a wide range of craft, technical and managerial disciplines in the industry.

Employers which are mainly engaged in engineering construction activities fall within the scope of the ECITB. If such 'in-scope' employers are over a certain size, they are required by law to pay an industrial training levy to the ECITB. However, all ECITB registered companies, regardless of size, are eligible to receive grants for training undertaken by their workers.

Engineering construction is a complex industry made up of a series of sectors and sub sectors (steel, cement and brick, etc) specialising in the processing, maintenance and decommissioning of heavy industry, including the following:



- Other (for example steel processing, fabrication).

[3] The pharmaceutical sector is not covered in this report due to the lack of data returned in the census.

In September 2021, the Engineering Construction Industry Training Board (ECITB) published its ECITB 2021 Workforce Census: An Overview of the Engineering Construction Industry. The Census asked engineering construction industry (ECI) employers to provide information about their workforce numbers, locations and roles. Data collected included demographic information and respondents were also asked for views on workforce growth, Net Zero and Covid-19.

A further series of reports focuses on the different sectors that make up the ECI, based on the data provided by companies operating in the oil and gas, nuclear, chemicals, renewables, conventional power generation, food and drink, and water treatment sectors. These reports are available on the ECITB website[4].

This regional report provides more detailed analysis of geographical disparities between Scotland, Northern England, Wales, Midlands & East of England, and Southern England. Smaller geographical divisions are analysed where data allow. Our analysis looks at key workforce characteristics, employer confidence and perceptions, and the external factors that affect the ECI. This report should be read in conjunction with the aforementioned industry overview.

A focus on individual regions in this report allows for comparison not only between the regions, but also with the ECI at Great Britain level. Regional analysis allows trend identification and whether they apply to some or all regions.

For more details regarding the methodology and how the data was collected, please refer to our main report: ECITB 2021 Workforce Census: An Overview of the Engineering Construction Industry.

Readers should note that the census was conducted with employers registered with the ECITB. It does not, therefore, reflect all employers working in the engineering construction industry. We are, however, confident that the analysis in our overview report is representative of industry.

Sample sizes for particular regions are significantly smaller than for the industry overall. Therefore, caution should be taken in making generalisations with regards to individual regions. Authors are, however, confident that the regional reports are indicative of each respective area.

The Census reports contain two strands of analyses. The first focused on occupational and on geographical data which is based on individual locations in which companies employ workers. This allows for precise characterisation of the workforce and provides a detailed breakdown of the workforce across the different sectors that make up the ECI. The second strand is based on data collected at company level, irrespective of individual locations. It provides insight on workforce demographics (age, ethnicity, gender), workforce growth expectations, vacancies, and Covid-19.

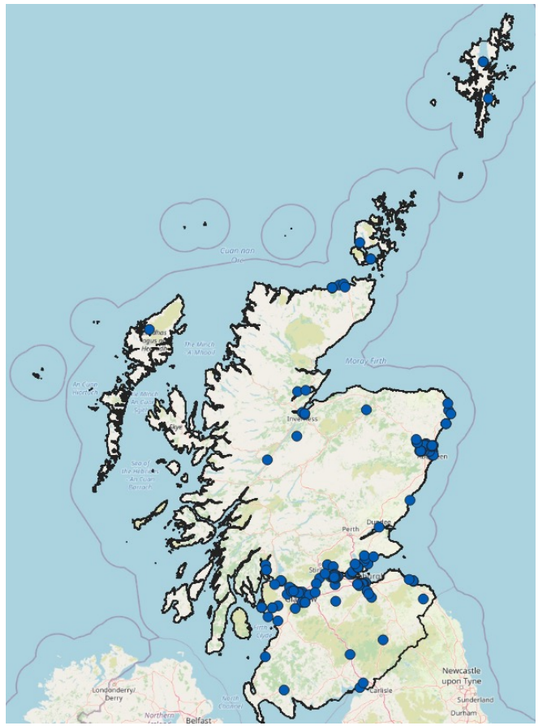
[4] www.ecitb.org.uk/blog/portfolio-items/ecitb-workforce-census-2021

Scotland

Geographical and sectoral characteristics

The onshore workforce in Scotland accounts for 22% of the engineering construction industry (ECI) workforce. Both in terms of geography and sectors, there is a clear division between the north and the south of the nation.

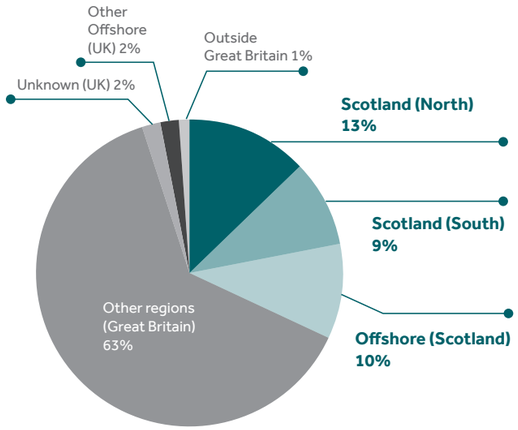
In addition, the offshore workforce employed by companies based in Scotland is estimated to represent a further 9.7% of the ECI workforce.



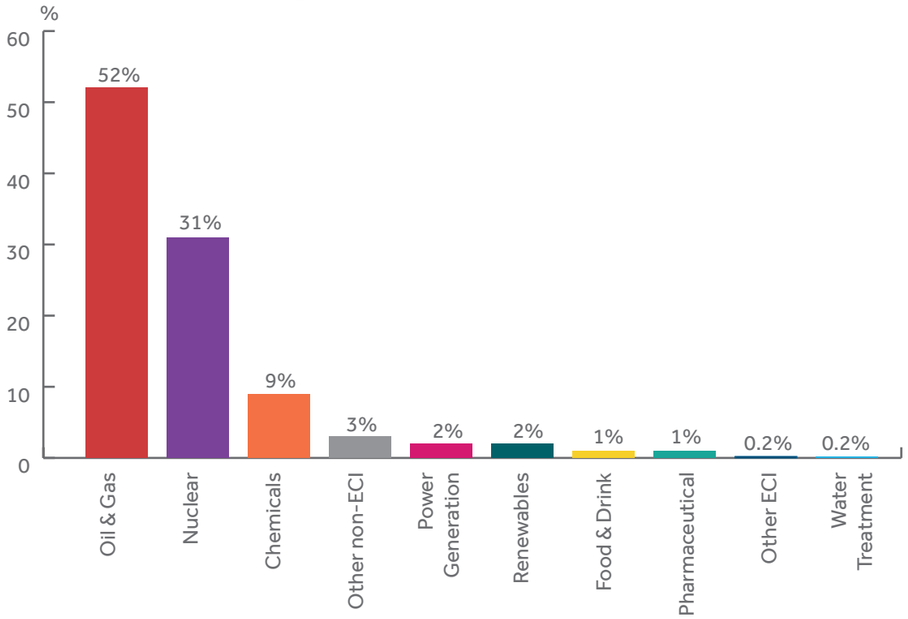
The data capture 9,980 individuals working across 198 onshore locations – either client sites, satellite sites or offices, displayed on the map – and 4,327 individuals offshore.

The entire offshore workforce registered in the database operates in the oil and gas sector. The oil and gas sector employs 52% of the Scottish onshore ECI workforce, while the nuclear sector and the chemicals sector employ 31% and 9% respectively. However, the profile of the ECI in the north of Scotland is different from that in the south.

ECI workforce distribution



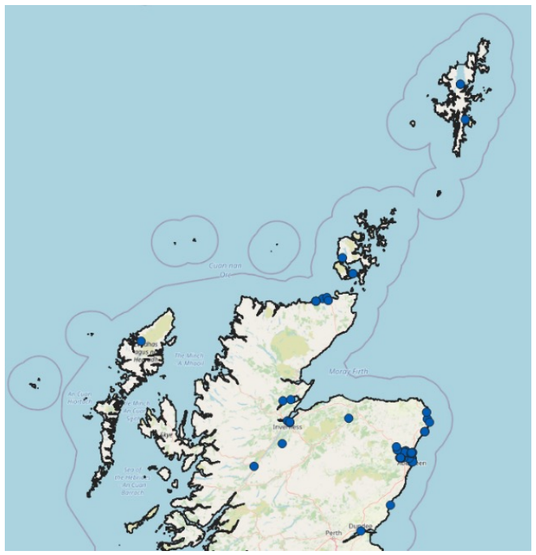
Onshore workforce distribution by sector in Scotland

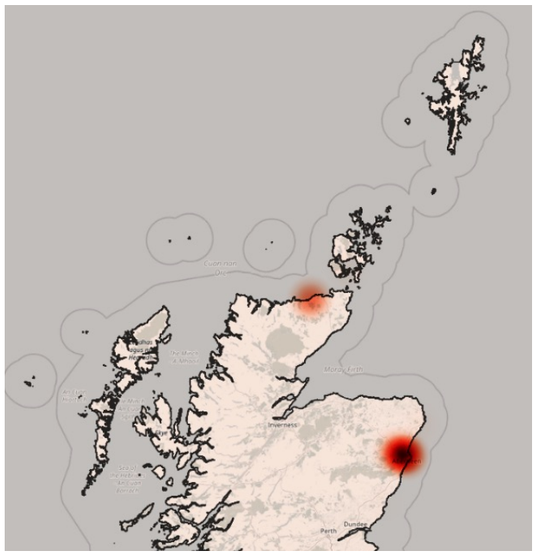


Percentages may not total 100 due to rounding.

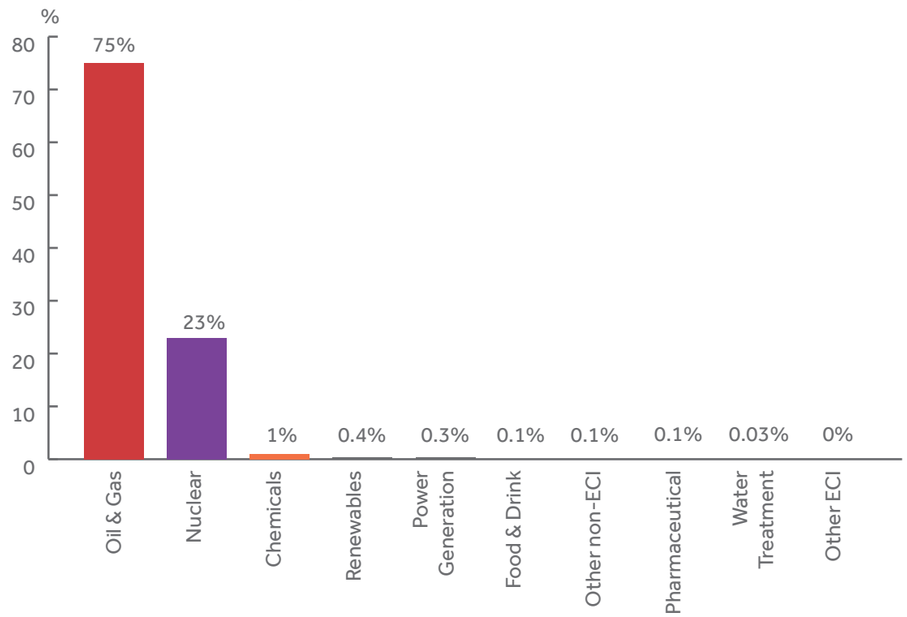
In the North of Scotland, we gathered data for 5,924 onshore workers across 83 locations in the north. The average number of workers per location is 71, with a median of 10. In the south, in which there are 4,056 workers across 115 locations, the average number of workers per location is 35 with a median of 10.

This suggests that sites tend to be larger in the north than in the south. The engineering construction industry in Scotland is highly concentrated in two sectors, namely upstream oil and gas and the nuclear sectors.



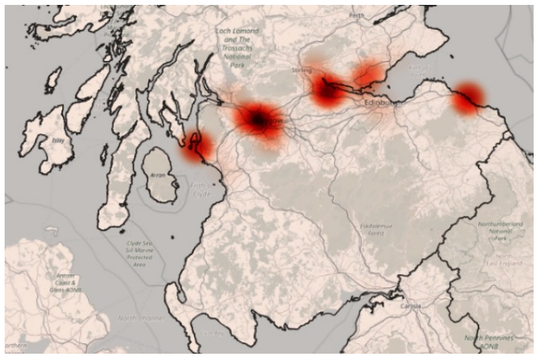


Onshore workforce distribution by sector in Scotland (North)



In the North, where 59% of the Scotland's onshore workforce is based, the oil and gas sector employs 75% of the onshore workforce, mainly in the Aberdeen area.

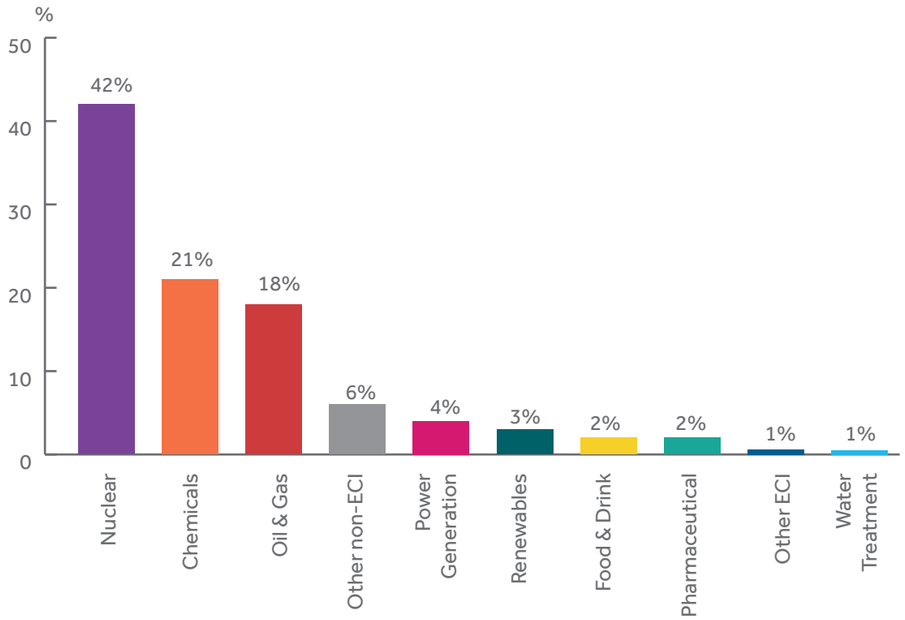
Twenty-three percent of the remaining workforce is primarily located in Dounreay and undertakes nuclear decommissioning activities.



Looking at the south, where 41% of the onshore Scottish workforce is based, the nuclear sector employs 42% of the local workforce. Nuclear sector activities mostly take place at Torness and Hunterston power stations, the latter having ceased operation on 14 January 2022.

With the exception of the aforementioned plants, most of the work takes place around the Firth of Forth and from Glasgow up to the mouth of the river Clyde.

Onshore workforce distribution by sector in Scotland (South)



Occupational Data

The Census registered 800 occupations, which have been consolidated for the purpose of the analysis[5]. Occupations were split into general categories which were made up of specific occupations. For instance, occupations such as welding, electrical fitting and pipefitting are grouped within the craft category.

The management and professional category includes both managerial roles (e.g. project management) and specialist roles (e.g. procurement specialists, document controllers). These numbers usually vary depending on the amount of work and the particular projects companies are involved in.

Occupational categories and most prevalent occupations in Scotland (onshore):

Category	Occupation	Count	%
Craft – 769 individuals	Scaffolders	201	26%
	Pipefitters	138	18%
	Electrical Fitters	89	12%
	TOTAL	**428**	**56%**
Technicians – 1227 individuals	Production or Process Operators	366	29%
	Field Service Technician	171	13%
	Design/ Draughtspersons	147	12%
	TOTAL	**684**	**54%**
Semi-skilled – 505 individuals	Decommissioning	199	39%
	Blaster / Painter	46	9%
	Labourers	41	8%
	TOTAL	**286**	**57%**
Supervisors – 372 individuals	General Foreman / Superintendent	64	17%
	Mechanical	28	8%
	Scaffolding	23	6%
	TOTAL	**115**	**31%**

Category	Occupation	Count	%
Engineers - 2,297 individuals	Mechanical Engineer	476	21%
	Electrical Engineer	179	8%
	Process Engineers	160	7%
	TOTAL	**815**	**35%**
Management and Professional - 2,915 individuals	Project Managers	529	18%
	Directors & Managers	513	18%
	Project Engineers	452	16%
	TOTAL	**1494**	**51%**
Support Staff - 1,502 individuals	Admin	399	27%
	Human Resources + Learning and Develop.	295	20%
	Finance	272	18%
	TOTAL	**966**	**64%**

[5] For a full list of all occupations in the ECI please see Annex B in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry. For a full list of all occupations including count referring only to Scotland with regional breakdown, please see Annex A in this report.

Occupational categories and most prevalent occupations in Scotland (offshore): [6]

Category	Occupation	Count	%
Craft - 950 individuals	Scaffolders	650	68%
	Riggers	173	18%
	Pipefitters	66	7%
	TOTAL	**889**	**94%**
Technicians - 1,647 individuals	Mechanical Maintenance	309	19%
	Instrument and Control	287	17%
	Rope Access Technician	268	16%
	TOTAL	**864**	**52%**
Semi-Skilled - 326 individuals	Deck Operator / Deck Crew	231	71%
	Blaster / Painter	54	17%
	General Mates	11	3%
	TOTAL	**296**	**91%**
Supervisors - 587 individuals	General Foreman / Superinten-dent	154	26%
	Unidentified Supervisors	115	20%
	Rope Access	106	18%
	TOTAL	**375**	**64%**
Engineers - 50 individuals	Thermal Insulation Engineers	14	28%
	Unidentified Engineers	14	28%
	Inspection / Integrity Engineers	12	24%
	TOTAL	**40**	**80%**
Management and Professional Workers - 180 individuals	Focal Point	56	31%
	Planners	35	19%
	Procurement Specialists	28	16%
	TOTAL	**119**	**66%**

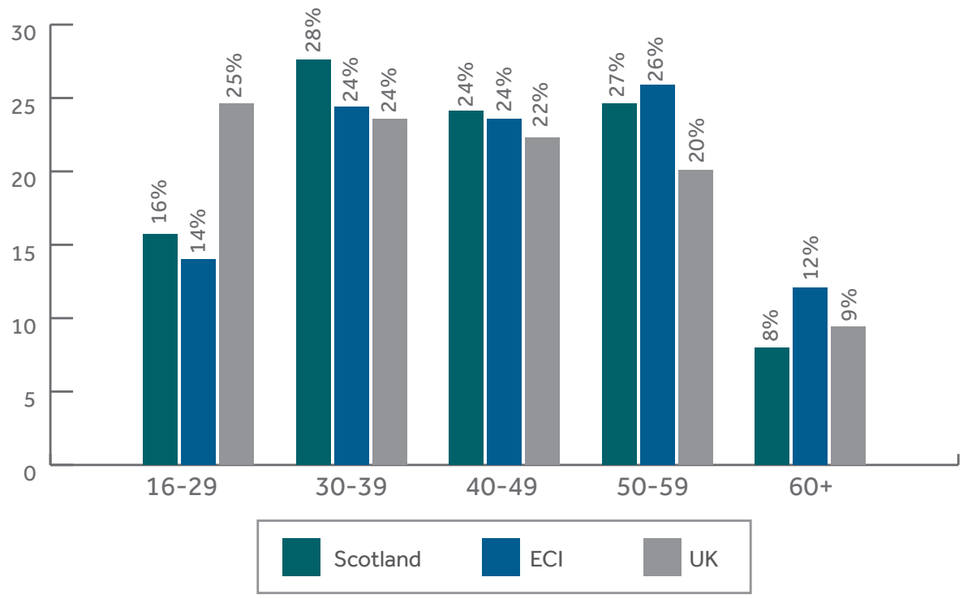
[6] Support staff are not included in this table because of the low offshore support staff numbers in the database. A further 572 workers are categorised as unidentified workers.

Demographics

This part of the report concentrates on companies employing more than 90% of their workforce in Scotland[7].

Companies that responded to questions about workforce demographics employ nearly 25% of the Scottish workforce collected in the database. The exact percentage of the workforce on which each result is based is explained throughout the text.

Age profile in Scotland compared to wider ECI and active UK population:
Based on 29.7% of Scotland's workforce.



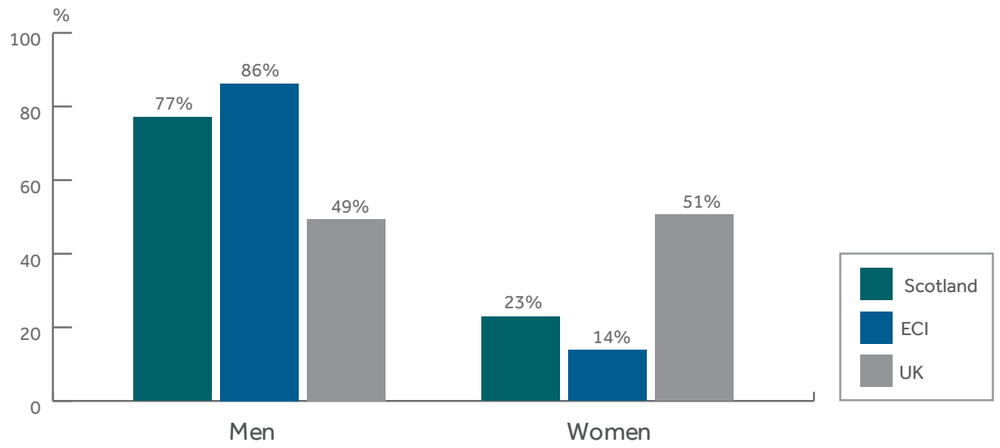
Percentages may not total 100 due to rounding.

Skills shortages are often cited as one of the main challenges the ECI will face due to its ageing workforce and to the increase in labour demand needed to decarbonise the UK economy. However, data from the ECITB census suggest that age distribution in Scotland fares better than most other regions in the UK.

Indeed, age distribution in the Scottish workforce is skewed towards the younger age groups when compared to the ECI in its entirety. Only 8% of the workforce is over 60, which is 1.4% lower than the active UK population average (9.4%). 43.3% of the Scottish workforce is below 40 years old, while this number drops to 38.4% in the wider ECI.

[7] Full details about the methodology can be found in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry.

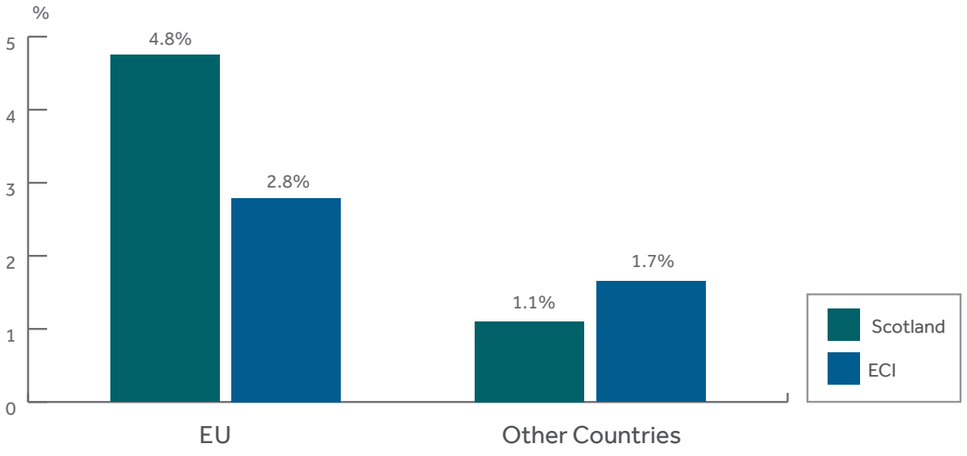
Gender profile in Scotland's ECI workforce compared to wider ECI and active UK population:
Based on 30.4% of Scotland's workforce.



The gender split of the Scottish workforce shows that 77% are men compared to 86% for the wider ECI.

Ethnicity:
Data provided on ethnicity from companies with more than 90% of their workforce based in Scotland represent only 3.84% of the nation's workforce. Thus, the data show that 96.7% of the workforce is White, but this number should be treated with caution considering its small sample size. At most, our returns indicate that ethnicity data is not widely collected in the Scottish ECI.

Nationality profile in Scotland: Based on 26.6% of Scotland's workforce.

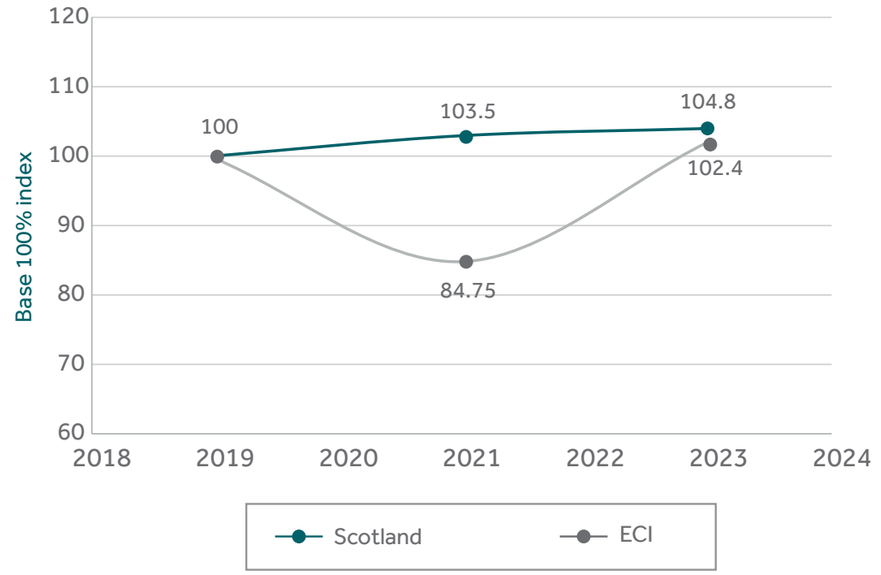


Workforce growth

This section describes employer workforce growth expectations. These results are not derived from an economic model, and so they are reflective of employers' perceptions about the future of their companies' headcount only. Using a base 100 index, the graph below equates the 2019 ECI workforce to 100, enabling a comparison between the situation in 2021, as well as to employer expectations for 2023.

This analysis focuses on companies mostly operating in Scotland. However, part of the ECI workforce is employed in companies with no dominant footprint in a particular region. Therefore, it is recommended to read the following workforce growth analysis in conjunction with the workforce growth analysis of transregional companies which can be found in Annex F.

Employer workforce growth expectations: Based on 28.8% of Scotland's workforce.



Scotland is the only region in Great Britain that reported an increase in headcount between 2019 and 2021 (+3.5%). The other main observation of note is that the growth expectation that follows is relatively low, with a cautious 1.26% increase between 2021 and 2023. However, these results suggest that the Scottish headcount was not impacted by the Covid-19 crisis on average, but closer inspection of the data shows a more complex picture.

Several large companies, representing 14% of the Scottish workforce, recorded increases in headcount over the pandemic. A few SMEs with more than 100 employees faced a similar increase. Conversely, a significant number of companies, usually smaller, experienced decreases in workforce numbers.

Hiring difficulties

This section looks at hiring difficulties and hard to fill vacancies. Out of the 18 companies employing more than 90% of their workforce in Scotland, 7 reported difficulties hiring employees (39%). The difficulties faced by companies based in Scotland seem less severe when compared to the overall ECI. Businesses struggle to fill vacancies accounting for the equivalent of 0.93% of their actual workforce in Scotland, versus 2.5% at Great Britain level.

Reasons why employers face hiring difficulties: Based on 11.7% of Scotland's workforce.

Reason	% of employers	
	Scotland	ECI
Location	71%	22%
Salary or career progression offered by companies are under expectations	43%	16%
Lack of candidates	29%	16%
Candidates don't have the necessary experience	14%	18%
Competition among companies to attract employees	14%	10%
Candidates don't have the necessary qualifications	0%	47%
There is a lack of awareness about the ECI among the youth	0%	3%
The occupation is niche	0%	10%

There are three main differences between Scotland and the whole ECI. Location is seen as the biggest obstacle in attracting new employees. Moreover, 43% of employers feel the salary and career progression offered by companies are below expectations. On a brighter note, no employers linked their difficulties with the fact that candidates do not have the necessary qualifications. Although this does not mean qualifications are never an issue in the region.

How employers usually fill vacancies: Based on 32.5% of Scotland's workforce.

Items	% of employers	
	Scotland	ECI
Word of mouth	56%	57%
Recruitment website / social media	56%	38%
Agencies	50%	62%
Own website	28%	12%
Advertising	28%	35%
Own company / agency / team	22%	11%
Local colleges	11%	4%
Former workers / train workers	11%	11%
Headhunting	0%	5%
From Gov / local authority schemes	0%	2%

Because of the smaller sample size for Scotland, it cannot be concluded that ways of filling vacancies in the region significantly differ from those used in the wider ECI. Nonetheless, it can be noted that companies in Scotland make a greater use of recruitment websites, social media, and their own website on average. As per the table below, hard to fill vacancies are mostly for engineers (54%) and management and professional (35%) roles.

Across occupational categories, hard to fill vacancies are distributed as follows: Based on 32.4% of Scotland's workforce.

Category	Scotland	ECI
Engineers	54%	50%
Management and Professional	35%	19%
Craft	8%	20%
Supervisors	3%	0.4%
Technicians	0%	8%
Support	0%	2%
Semi-skilled	0%	0.6%

Net Zero

Companies in Scotland are mostly operating in the oil and gas and nuclear sectors (83% of the workforce). Both sectors will play a major role in the net zero transition. The table below shows the technologies identified as opportunities by companies in Scotland.

Companies focusing on the sector they are already established in and not seeking to diversify are excluded from the results. For instance, a company mainly working in the nuclear sector identifying the nuclear sector as its prime opportunity would not be included. This is done to identify opportunities around transition.

Distribution of the workforce for each technology at each level of priority: Based on 15.3% of Scotland's workforce.

Rank	Biofuels	CCS	Geothermal	Hydro power	Hydrogen	Nuclear	Solar	Wave & Tidal	Wind
1	13%	45%	0%	0%	8%	0%	0%	1%	28%
2	0%	8%	0%	0%	41%	0%	0%	0%	42%
3	32%	2%	26%	0%	0%	23%	0%	1%	0%
4	39%	0%	0%	1%	0%	0%	44%	0%	0%
5	0%	26%	13%	9%	32%	1%	0%	2%	0%
6	0%	3%	32%	39%	10%	0%	0%	0%	0%
7	0%	0%	10%	0%	0%	57%	0%	0%	13%
8	1%	9%	0%	32%	0%	0%	26%	13%	0%
9	16%	6%	19%	19%	9%	19%	31%	83%	17%

Percentages may not total 100 due to rounding.

Companies who expect to see Biofuels having the greatest increase (1st) in terms of share of their business represent 13% of the respondents' workforce.

Carbon Capture and Storage (CCS), hydrogen and wind power are seen as having significant growth potential for companies in Scotland. 49 - 70% of respondent companies rank the aforementioned technologies in first and second place.

This is not surprising since greater integration between the oil and gas sector and offshore wind is key to energy transition. The sector is also exploring CCS and hydrogen technologies. Biofuels is also well placed, although not usually ranked as a top priority.

Covid-19

The Scottish ECI went through the Covid-19 pandemic without facing as high a degree of furlough, delays or downturn in work, or negative impact on turnover, compared to the ECI at Great Britain level. While the percentage of companies making redundancies is similar in Scotland and in Great Britain (28% and 29%), only 3% of employers in Scotland reported a smaller workforce for other reasons (such as delaying hiring or employees leaving the company). Similarly, only 3% lower productivity. This is consistent with the results from the analysis of workforce growth expectations, which saw companies in Scotland increasing their headcount from 2019 to 2021 (+3.5%). However, these are perception questions, which means that an employer might have faced redundancies without considering that it was a major event for its company.

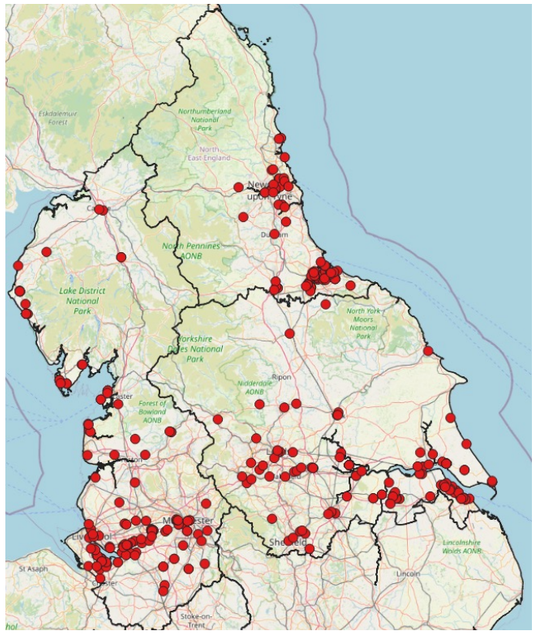
How has Covid 19 affected your business?
Based on 32% of Scotland's workforce.

Items	% of employers	
	Scotland	ECI
Furlough	45%	69%
Redundancies	28%	29%
Change in working pattern, working from home	16%	17%
Turnover decreased	13%	26%
Delays and downturn in work	10%	30%
Reduced training	6%	2%
Lower productivity	3%	12%
Increased hours	3%	2%
Smaller workforce (no hiring or people leaving)	3%	14%
Reduced hours	0%	2%
Increased training	0%	4%

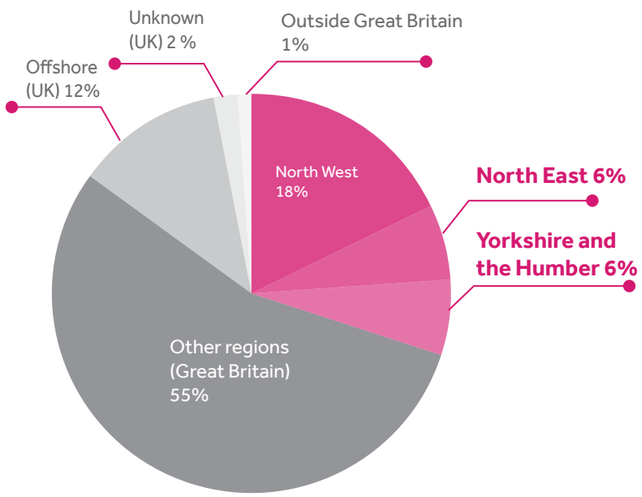
North of England

Geographical and sectoral characteristics

The North of England represents 30% of the in-scope engineering construction industry (ECI) workforce. This report analyses northern England either as a whole or by focusing three sub-areas namely North West, North East, and Yorkshire and the Humber.



ECI workforce distribution

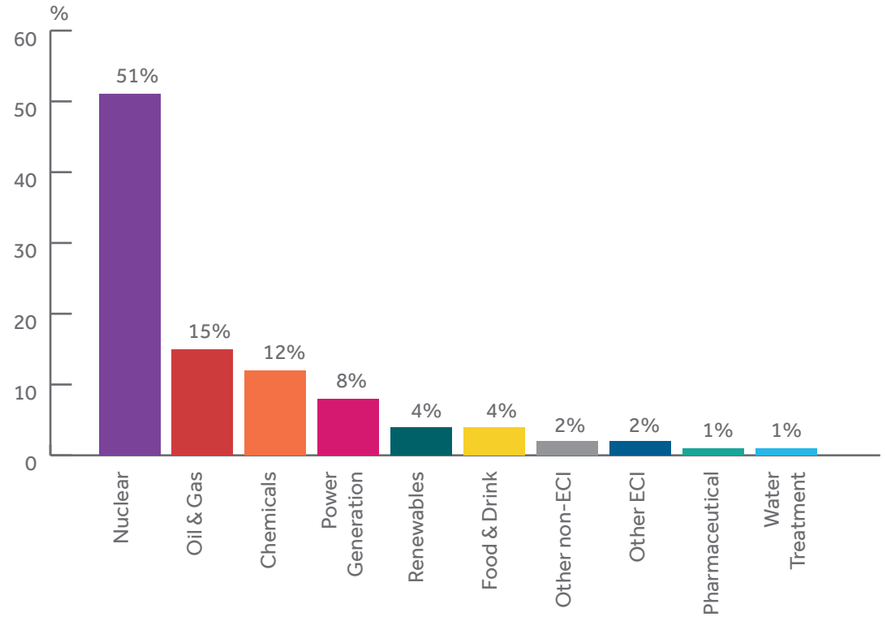


The majority of the workforce in-scope to the ECITB is located in the North West, and more specifically in the southern part of this region.

The data detail 400 locations and 13,398 individuals.

The nuclear sector employs 51% of the workforce in the North and is the principal sector in the North West and North East. The Yorkshire and the Humber ECI is dominated by the oil and gas sector (38%) and the chemicals sector (20%).

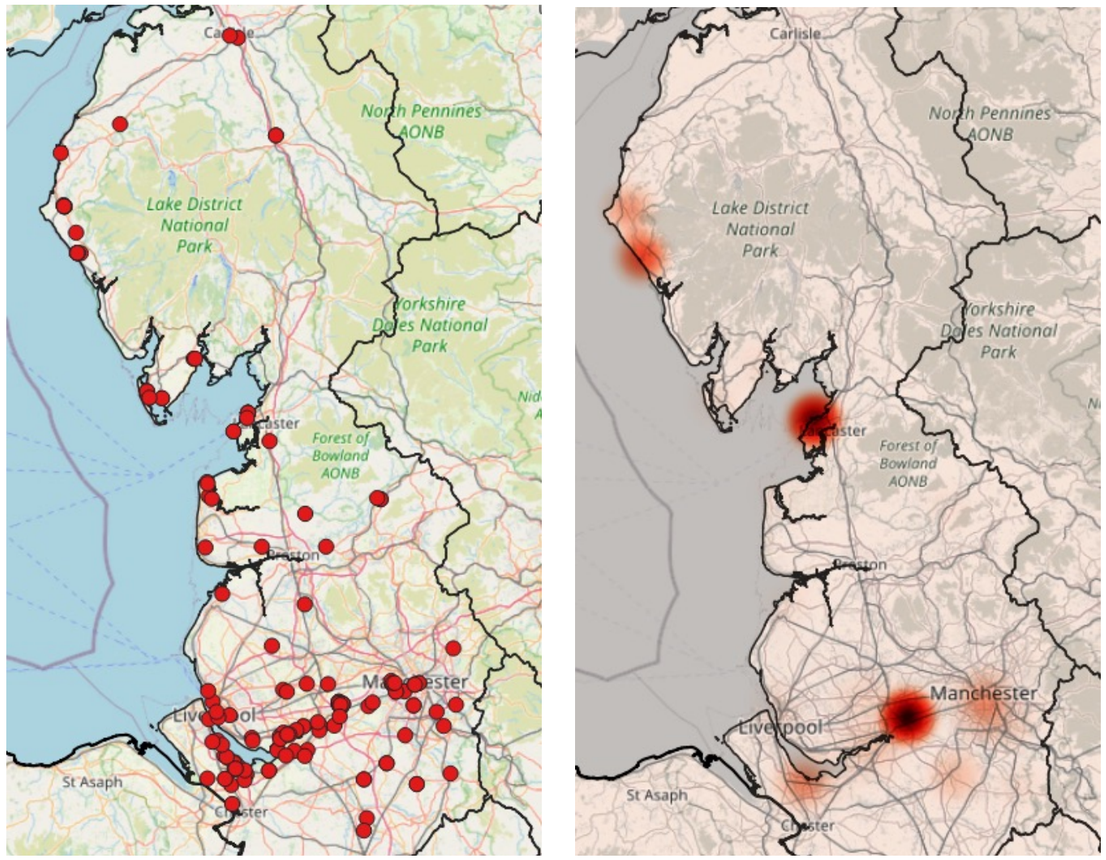
Workforce distribution by sector in the North of England



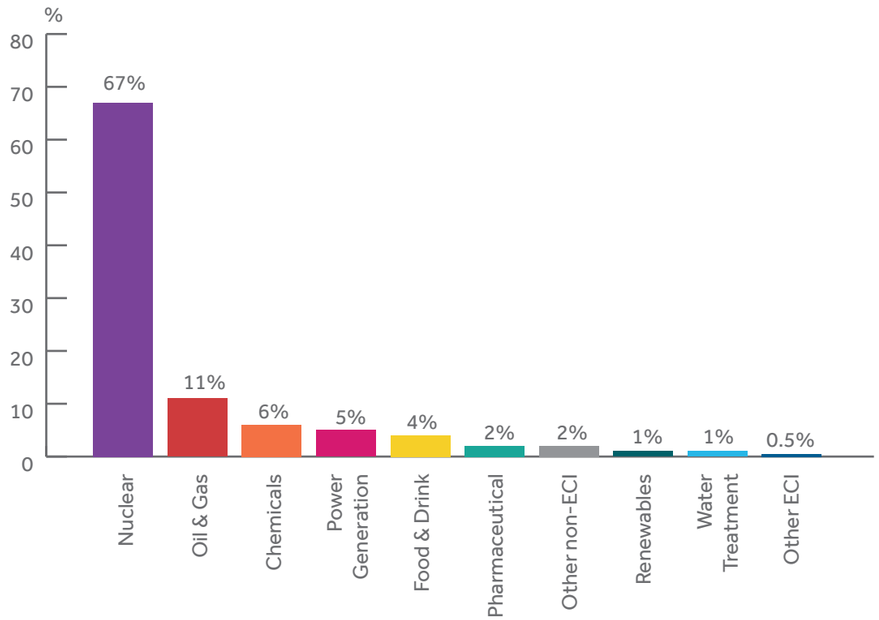
The North West census data contains information for 7,980 workers across 158 locations. In the North East, there are 2,772 workers and 87 locations. The Yorkshire and the Humber closely follows with 2,646 individuals in 155 locations. Sites and offices tend to have a higher workforce density in the North West, with 51 individuals per location, while this number drops to 32 for the North East and 17 for Yorkshire and the Humber. The median fluctuates between 6 and 8 workers per site in each of these regions.

In the North West, 67% of the workforce operates in the nuclear sector. The second largest sector is oil and gas, with 11% of the workforce. Nuclear sector sites and offices can be found in the Warrington area, and near the Heysham and Sellafield nuclear power stations. The workforce undertakes decommissioning activities at Sellafield, and operation and maintenance work at Heysham.

Location and hotspots of the onshore ECI workforce in the North West:



Workforce distribution by sector in North West

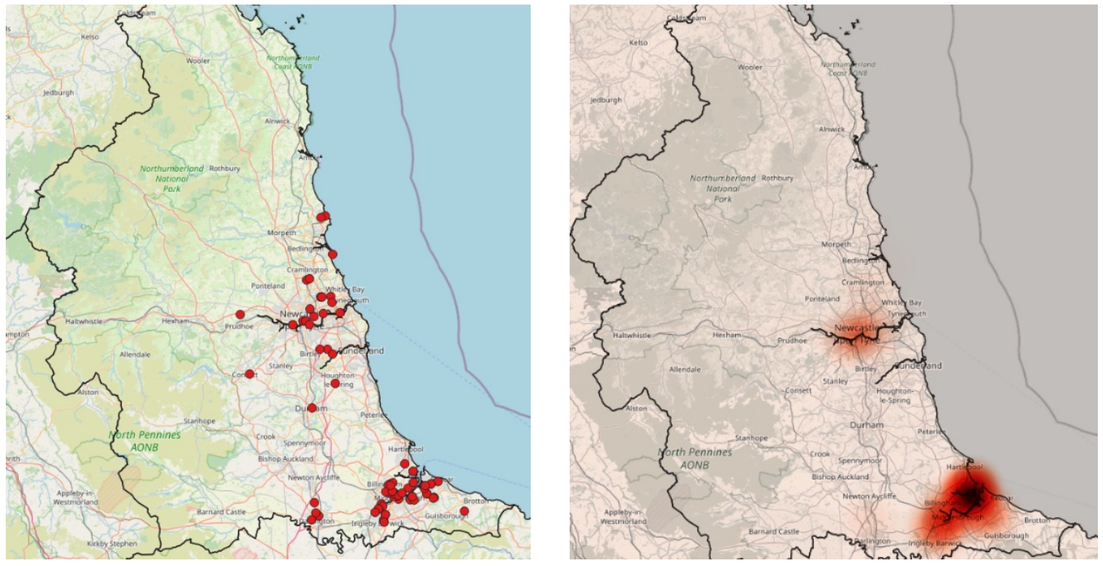


Percentages may not total 100 due to rounding.

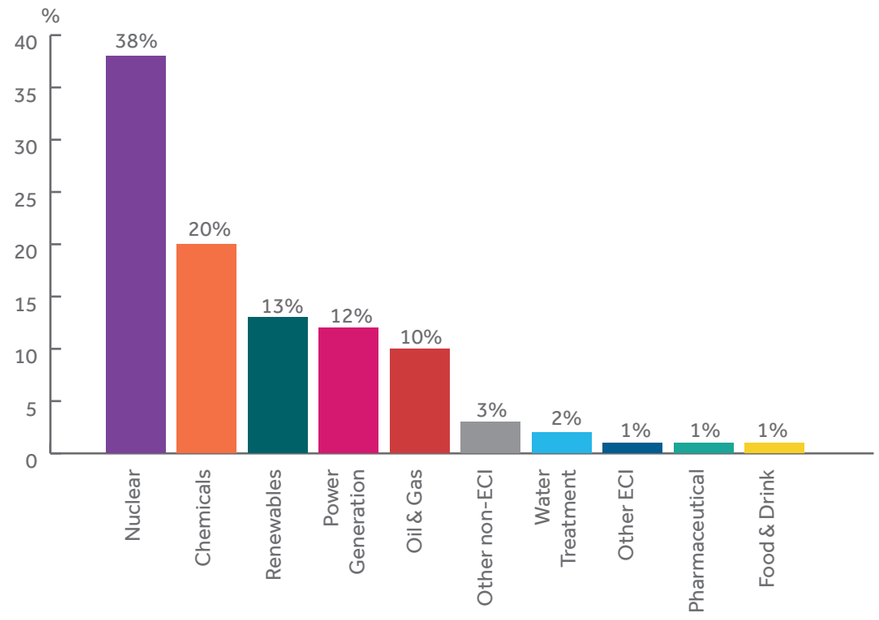
In the North East, workforce activity is highly condensed around Middlesbrough and the Teesside industrial cluster. The other main hotspot is Newcastle-upon-Tyne and mostly consists of offices.

Although the nuclear sector dominates in this region (38% of the workforce), the chemicals sector is well represented at 20% of the workforce. Compared to the wider ECI, there is a higher proportion of workers involved in the renewables sector (13%), closely followed by the conventional power generation sector (12%).

Location and hotspots of the onshore ECI workforce in the North East:



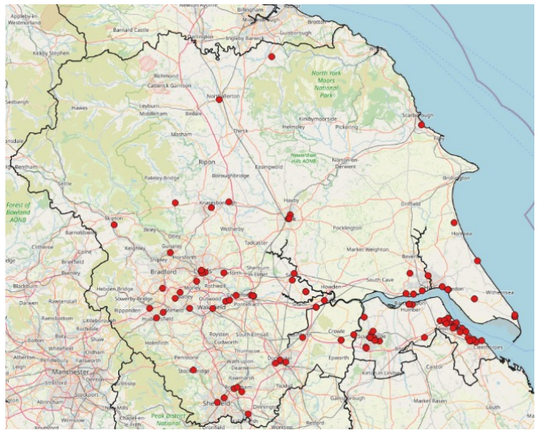
Workforce distribution by sector in North East

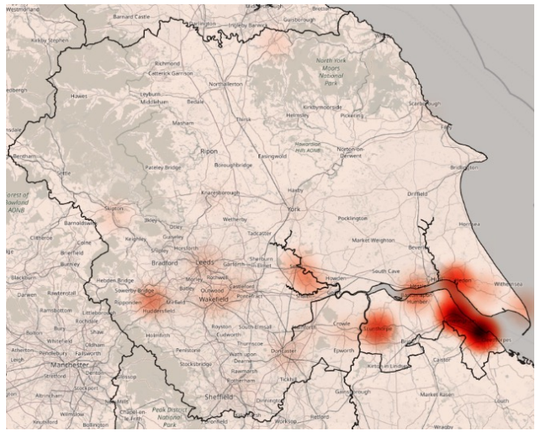


Percentages may not total 100 due to rounding.

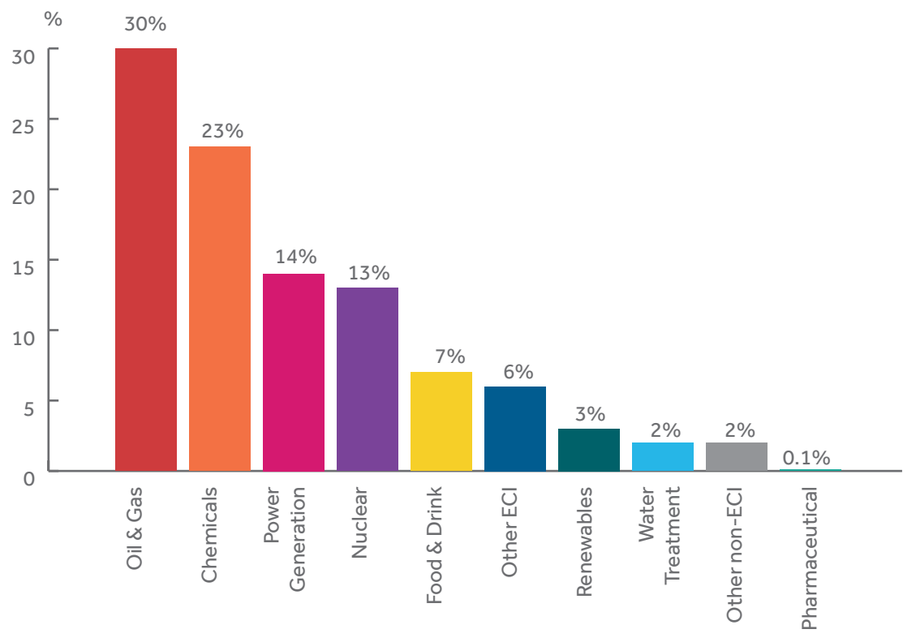
The ECI in Yorkshire and the Humber has very different characteristics. The oil and gas and the chemicals sector (14%) are more dominant here, representing 30% and 23% of the workforce respectively. In this region, nuclear represents the 4th largest sector (13% of the workforce only), closely following the conventional power generation sector. Compared to the wider ECI, there is a high proportion of the workforce involved in the food and drink sector in the Yorkshire and the Humber (7%). According to our data, there is little ECI activity in the north of this region, with the bulk of activity concentrated along the Humber estuary.

Location and hotspots of the onshore ECI workforce in the Yorkshire and the Humber:





Workforce distribution by sector in Yorkshire and the Humber



Occupational Data

The Census registered 800 occupations, which have been consolidated for the purpose of the analysis[8]. Occupations were split into general categories which were made up of specific occupations. For instance, occupations such as welding, electrical fitting and pipefitting are grouped within the craft category. The management and professional category includes both managerial roles (e.g. project management) and specialists roles (e.g. procurement specialists, document controllers). These numbers usually vary depending on the amount of work and on the particular projects companies are involved in.

Craft disciplines represent 34% of the Yorkshire & Humber workforce whereas this category represents 17% and 9% of the workforce in the North East and the North West respectively. The 34%, mainly mechanical fitters, platers and pipefitters are primarily located in Hull and Grimsby. Engineers account for 30% of the workforce in the North West and the North East. Typically they operate around Heysham and Warrington and Newcastle and Middlesbrough.

Occupational categories and most prevalent occupations in Northern England:

Category	Occupation	Count	%
Craft - 2,072 individuals	Pipefitters	342	17%
	Electrical Fitters	276	13%
	Scaffolders	252	12%
	TOTAL	**870**	**42%**
Technicians - 1,646 individuals	Production or Process Operators	804	49%
	Design/ Draughtspersons	320	19%
	Safety Technicians	107	7%
	TOTAL	**1231**	**75%**
Semi-skilled - 654 individuals	Labourers	172	26%
	General Mates	123	19%
	Blaster / Painter	71	11%
	TOTAL	**366**	**56%**
Supervisors - 695 individuals	Mechanical	174	25%
	General Foreman / Superintendent	108	16%
	Electrical	106	15%
	TOTAL	**388**	**56%**

Category	Occupation	Count	%
Engineers - 3,352 individuals	Mechanical Engineer	723	22%
	Environmental Engineer	388	12%
	Electrical Engineer	332	10%
	TOTAL	**1443**	**43%**
Management and Professional - 3,279 individuals	Directors & Managers	566	17%
	Project Managers	544	17%
	Project Engineers	254	8%
	TOTAL	**1364**	**42%**
Support Staff - 1,170 individuals	Admin	363	31%
	Health and Safety	211	18%
	Finance	211	18%
	TOTAL	**785**	**67%**

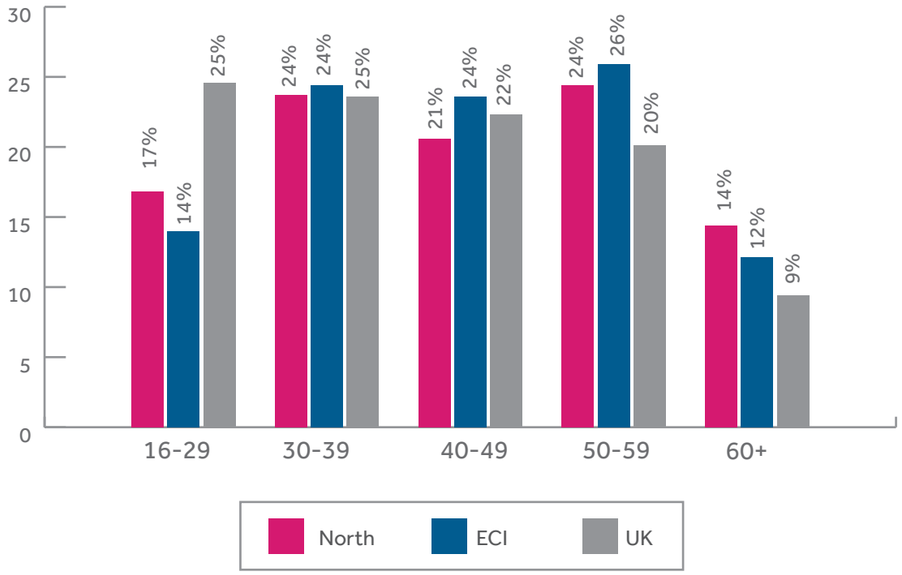
[8] For a full list of all occupations in the ECI please see Annex B in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry. For a full list of all occupations including count referring only to Northern England with regional breakdown, please see Annex B in this report.

Demographics

The analysis of the characteristics of the workforce is based on a subsample of 30 companies employing at least 90% of their workforce in the North of England.

Companies that responded to our questions about workforce demographics typically represent nearly 18% of the North of England onshore workforce collected in the database. The exact percentage of the workforce on which each result is based on is noted throughout the text.

Age profile in the North of England compared to wider ECI and active UK population:
Based on 18.3% of Northern England's workforce.

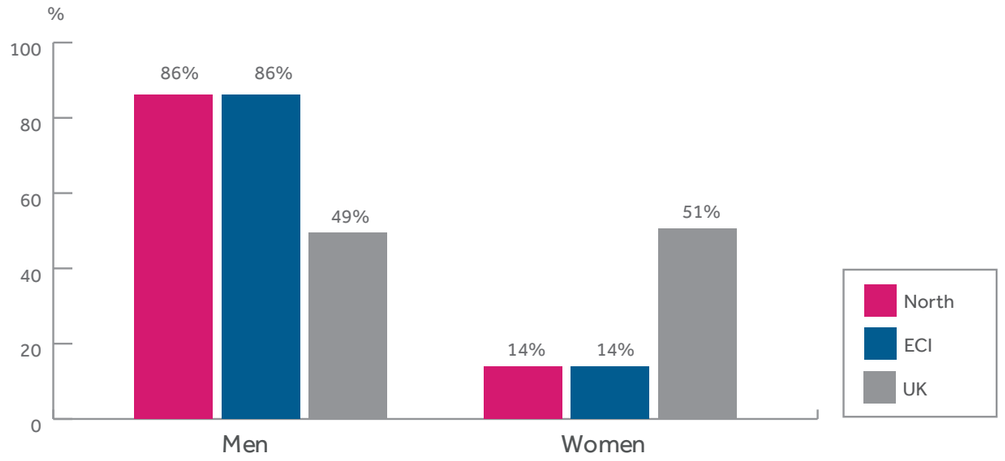


Percentages may not total 100 due to rounding.

The northern workforce has younger workers than the wider ECI on average, with 16.8% of workers below the age of 30 against 14%.

This is encouraging given that 14.4% of the workforce is above 60, higher than the 12.1% at Great Britain level.

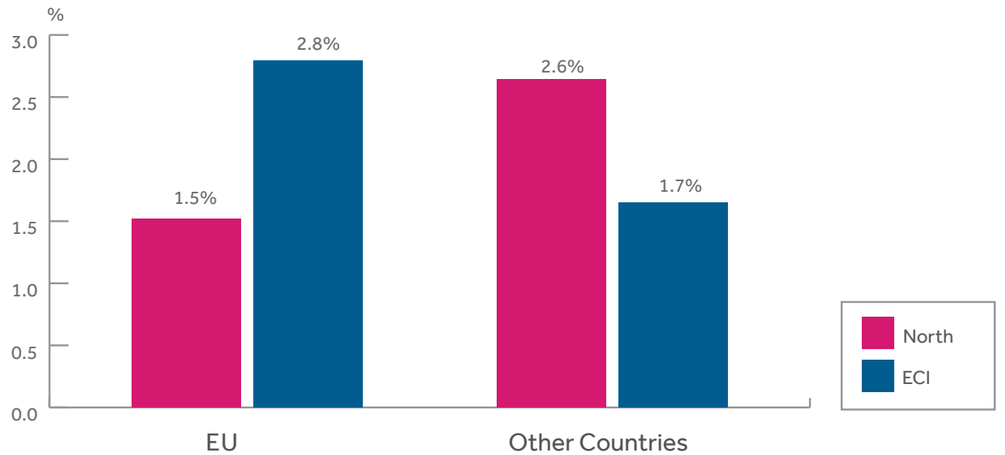
Gender profile in Northern England compared to wider ECI and active UK population:
Based on 18.2% of Northern England's workforce.



The gender split in Northern England mirrors that of the wider ECI, with 13.8% of the workforce being women.

Ethnicity:
Data on ethnicity represent 12.7% of Northern England workforce, and shows that 95% of the workforce is White, in line with Great Britain level.

Nationality profile in Northern England: Based on 10.5% of Northern England's workforce.



Regarding nationalities, the figures in the North of England are the opposite of those seen in the wider ECI. The Northern ECI draws more on non-EU countries than on EU countries, with only 1.5% of the workforce being from the latter.

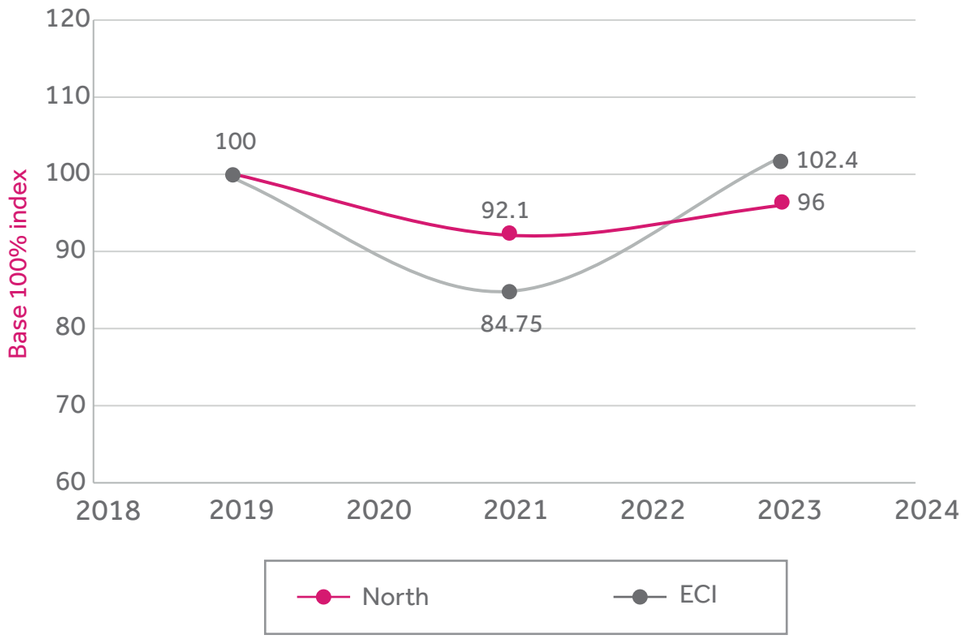
This is half the percentage for the ECI as a whole. The low response rate to the question of Nationality (10.5%) means the results should be treated with caution.

Workforce growth

The results for workforce growth are reflective of supply chain employers' perceptions about the future of their companies' headcount only. Using a base 100 index, the graph below equates the 2019 ECI workforce to 100, enabling a comparison between the workforce growth in 2021, as well as to employer expectations for 2023.

This analysis focuses on companies mostly operating in North of England. However, part of the ECI workforce is employed in companies with no dominant footprint in a particular region. Therefore, it is recommended to read the following workforce growth analysis in conjunction with the workforce growth analysis of transregional companies which can be found in Annex F.

Employer workforce growth expectations: Based on 13.7% of Northern England's workforce.



Although the reduction in headcount faced by the ECI in the North of England between 2019 and 2021 is half that of the ECI at Great Britain level (8% drop compared to 15%), employers in this region do not expect to recover to pre-pandemic levels in 2023. This should not be taken as inevitable since these are expectations only, but this certainly reveals a pessimism around the economic environment.

This seems true for companies operating in the oil and gas and chemicals sectors, irrespective of business sizes. Moreover, it may be that part of this pessimism is due to the high proportion of workers nearing retirement (14.4% above 60).

Hiring difficulties

This section, looking at hiring difficulties reflects responses from 32 companies employing more than 90% of their workforce in the North of England. Out of the 32 firms, 16 reported difficulties hiring employees (50%). This percentage is comparable to that of the wider ECI. Further analysis found that the Northern ECI struggles to fill vacancies the equivalent of 3.5% of its actual workforce. At Great Britain level, this number drops to 2.5%.

Reasons why employers face hiring difficulties: Based on 11.7% of Northern England's workforce.

Reason	% of employers	
	North	ECI
Candidates do not have the necessary qualifications	44%	47%
Location	31%	22%
Salary or career progression offered by companies are under expectations	19%	16%
Candidates do not have the necessary experience	19%	18%
Lack of candidates	13%	16%
The occupation is niche	6%	10%
Competition among companies to attract employees	6%	10%
There is a lack of awareness about the ECI among the youth	0%	3%

Thirty-one percents of companies in the North of England reported that the location was a significant obstacle to hiring. This is a higher proportion than in the wider ECI (22%). Apart from that, the characteristics of the North do not significantly differ from those at Great Britain level.

How employers usually fill vacancies: Based on 18.8% of Northern England's workforce.

Items	% of employers	
	North	ECI
Agencies	71%	62%
Word of mouth	65%	57%
Advertising	19%	35%
Recruitment website / social media	19%	38%
Own company / agency / team	6%	12%
Former workers / train workers	6%	11%
Local colleges	3%	4%
Own website	3%	11%
Headhunting	0%	5%
From Gov / local authority schemes	0%	2%

There are only small differences between the northern and the wider eci in the ways in which vacancies are filled. Worthy of note is the higher proportion of northern companies using agencies (71% against 62%), and the smaller proportion resorting to advertising (19% against 35%) recruitment websites or social media (19% against 38%). The table below shows that hard to fill vacancies are primarily for engineering roles, similar to the overall industry (41%). However, there is a larger share of management and professional (M&P) occupations (30%) than can be found across the overall census.

Accross occupational categories, hard to fill vacancies are distributed as follows: Based on 18.9% of the North of England's workforce.

Category	North	ECI
Engineers	41%	50%

M&P	30%	19%
Craft	23%	20%
Technicians	4%	8%
Supervisors	2%	0%
Support	0%	2%
Semi-skilled	0%	1%

Net Zero

The table below shows the technologies identified as opportunities by companies operating in the North of England. Companies responding within the sector in which they are already established are excluded from the results.

For instance, a company mainly working in the nuclear sector identifying the nuclear sector as its prime opportunity would not be included.

Distribution of the workforce for each technology at each level of priority:
Based on 15.7% of Northern England's workforce.

Rank	Biofuels	CCS	Geothermal	Hydro power	Hydrogen	Nuclear	Solar	Wave & Tidal	Wind
1	60%	25%	0%	0%	11%	17%	0%	0%	42%
2	22%	10%	5%	0%	17%	0%	7%	0%	0%
3	0%	9%	0%	0%	22%	1%	0%	0%	12%
4	7%	17%	0%	5%	0%	0%	8%	1%	1%
5	0%	12%	16%	13%	4%	17%	12%	24%	5%
6	0%	1%	0%	5%	1%	3%	17%	5%	1%
7	0%	3%	16%	34%	3%	3%	21%	10%	3%
8	0%	5%	1%	0%	5%	0%	0%	17%	3%
9	11%	18%	62%	43%	37%	59%	35%	42%	33%

Percentages may not total 100 due to rounding.

Companies who expect to see Biofuels having the greatest increase (1st) in terms of share of their business represent 60% of the respondents' workforce.

Biofuels was ranked in first and second by 82% of Northern businesses in terms of growth potential. Carbon Capture and Storage, hydrogen and wind power also are well placed, with companies employing between 44% and 54% of the workforce ranking these technologies in their top three. This is not surprising given the prominence of the two Industrial Clusters for decarbonisation, the East Coast Cluster and the North West Cluster.

Similarly there are two offshore wind clusters in the North East and the Humber.

Covid-19

Consistent with the workforce growth analysis, companies from the North of England suffered fewer redundancies than the wider industry average (19% against 29%). Although the difference is less pronounced, fewer companies in the North reported a reduced turnover (19% against 26%) or a lower productivity rate (6% against 12%). Additionally, only 6% of respondents reported a workforce reduction due to delayed hiring or employees leaving the company (6% against 14%).

How has Covid 19 affected your business?
Based on 17.4% of Northern England's workforce.

Items	% of employers	
	North	ECI
Furlough	71%	69%
Delays and downturn in work	32%	30%
Redundancies	19%	29%
Turnover decreased	19%	26%
Change in working pattern, WFH	16%	17%
Lower productivity	6%	12%
Increase training	6%	4%
Smaller workforce (no hiring or people leaving)	6%	14%
Reduced training	3%	2%
Increased hours	0%	2%
Reduced hours	0%	2%

Wales

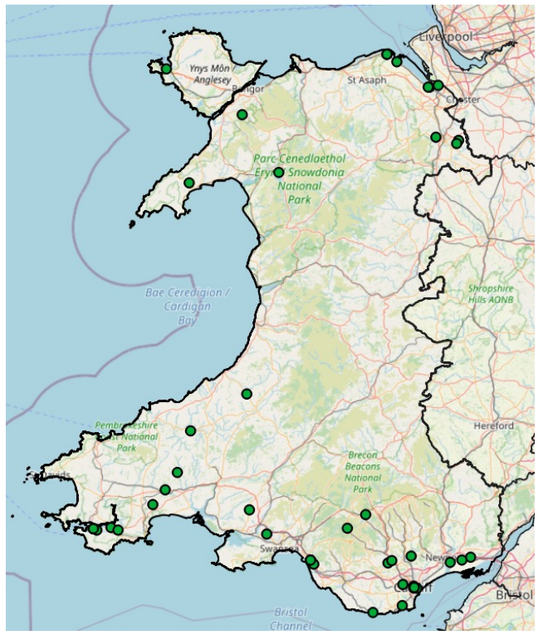
Geographical and sectoral characteristics

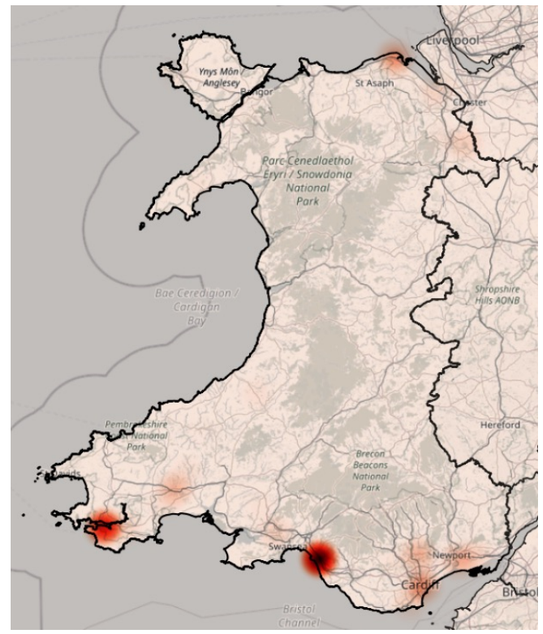
The workforce in Wales represents 2% of the engineering construction industry (ECI). Unlike other parts of this report, this does not contain a Welsh regional breakdown due to the low number of workers in the census data return. Data was provided for 680 workers across 47 Welsh locations.

The majority of the ECI workforce in Wales is deployed in steel mills, paper mills and cement manufacturing sectors. According to our database, these sectors employ nearly 39% of the workforce, with a clear dominance of Port Talbot steelworks.

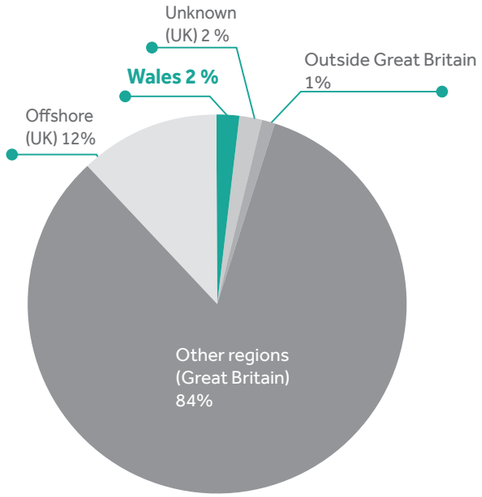
24% of the workforce is deployed on downstream oil & gas (24%), followed by the food and drink sector at 14%. It must be noted that the decommissioning work undertaken at Wylfa and Trawsfynydd nuclear power stations has not been captured by the census returns, and therefore is not reflected in the results from this report.

Sites and offices are mostly located in South Wales, with hotspots around Port Talbot, Pembroke, and to a lesser extent Cardiff and Newport.

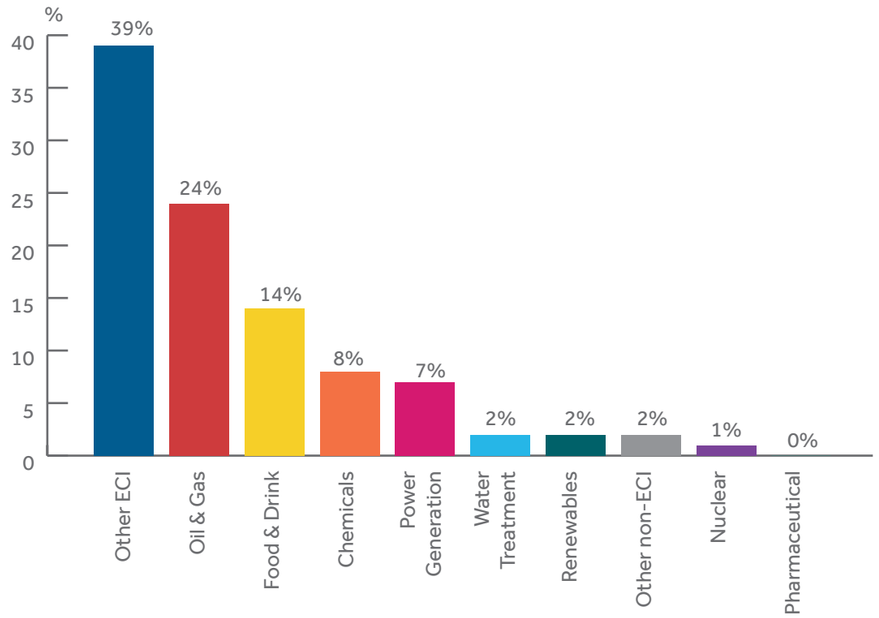




ECI workforce distribution



Workforce distribution by sector in Wales



Percentages may not total 100 due to rounding.

Occupational Data

The Census registered 800 occupations, which have been consolidated for the purpose of the analysis[9]. Occupations were split into general categories which were made up of specific occupations. For instance, occupations such as welding, electrical fitting and pipefitting are grouped within the craft category. The management and professional category includes both managerial roles (e.g. project management) and specialists roles (e.g. procurement specialists, document controllers).

These numbers usually vary depending on the amount of work and on the specificities of the projects companies are involved in. Due to the lack of data, the engineering category is missing from the table below. Moreover, some categories cannot include more than one or two occupation for similar reasons.

Occupational categories and most prevalent occupations in Wales:

Category	Occupation	Count	%
Craft - 341 individuals	Mechanical Fitters	132	39%
	Electrical Fitters	55	16%
	Pipefitters	32	9%
	TOTAL	**219**	**64%**
Technicians - 50 individuals	Instrument and Control	13	26%
	Production or Process Operators	12	24%
	TOTAL	**25**	**50%**
Semi-skilled - 57 individuals	Welding	15	26%
	TOTAL	**15**	**26%**

Category	Occupation	Count	%
Supervisors - 81 individuals	Mechanical	24	30%
	Welding	12	15%
	Electrical	11	14%
	TOTAL	**47**	**58%**
Management and Professional - 87 individuals	Directors & Managers	14	16%
	Project Managers	14	16%
	Project Engineers	13	15%
	TOTAL	**41**	**47%**
Support Staff - 36 individuals	Admin	14	39%
	Finance	10	28%
	TOTAL	**24**	**67%**

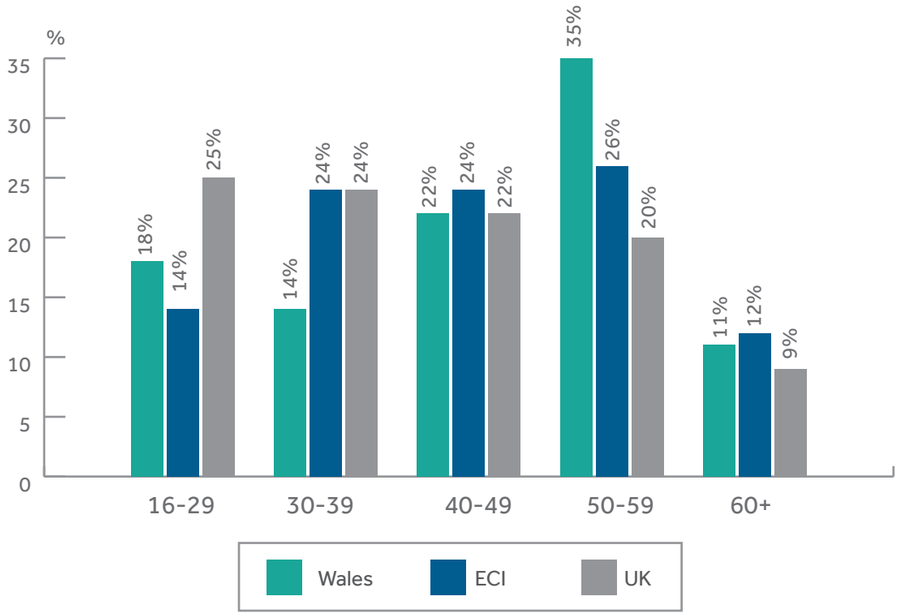
[9] For a full list of all occupations in the ECI please see Annex B in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry. For a full list of all occupations including count referring to Wales, please see Annex C in this report.

Demographics

Due to the limited number of respondents in Wales, the results presented below are based on six companies with more than 90% of their workforce operating in the country.

Although this number is low, these companies still represent nearly half of the registered workforce from this area. However, these results and the comments that follow should be considered with caution.

Age profile in Wales compared to wider ECI and active UK population:
Based on 51% of Wales' workforce.

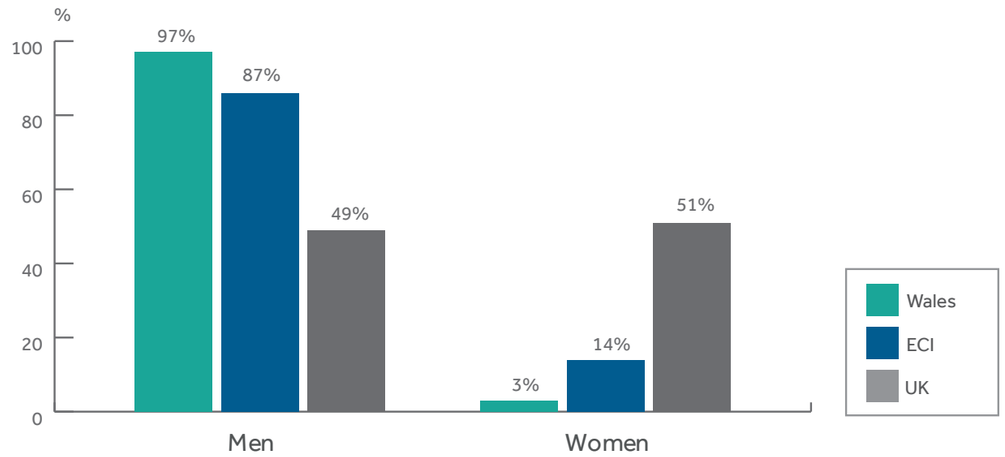


Percentages may not total 100 due to rounding.

With 35% of the workforce between 50 and 59 years old, there is a clear need to attract new entrants in the near future. The other major difference between Wales and the ECI at Great Britain level is the exceptionally low proportion of individuals between 30 and 39 (14% against 25% in Great Britain).

Younger workers are well represented, with those under 30 years old making up 18% of the country's workforce, compared to 14% in the wider ECI.

Age profile in Wales compared to wider ECI and active UK population:
Based on 51% of Wales' workforce.



Percentages may not total 100 due to rounding.

According to the data, 96.6% of the ECI workforce in Wales are men. Although this is higher than average GB levels, it is likely due to the fact that Wales has the highest proportion of craft occupations among the workforce[10] (50%), where women are significantly underrepresented, even more so than technical and managerial roles.

Ethnicity:
Based on 51% of Wales' workforce, 99.8% of the workforce in Wales is White, according to census data.

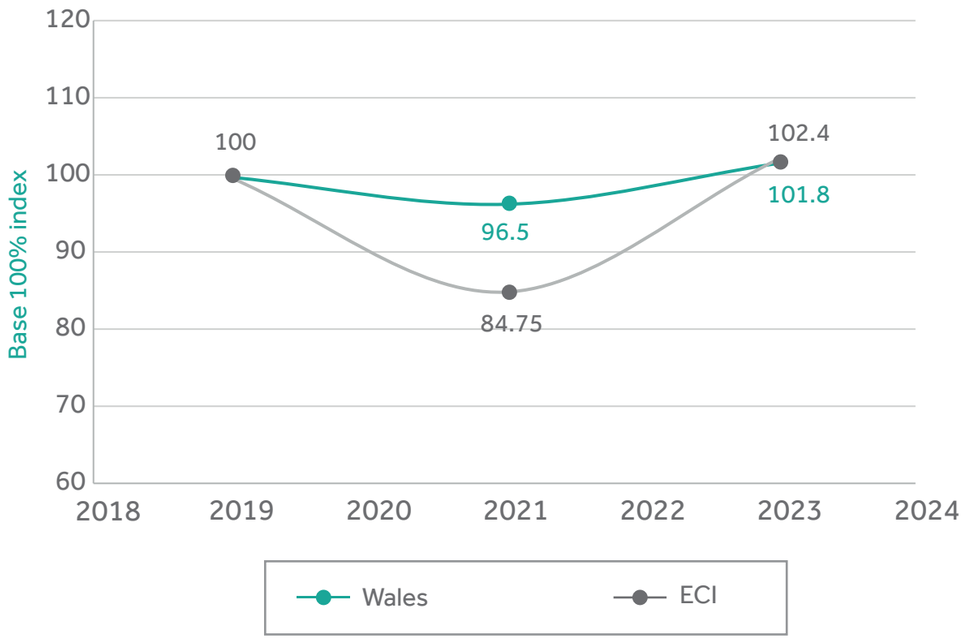
[10] See Annex C: Workforce distribution per occupational category.

Workforce growth

This section decribes employer workforce growth expectations. The results are reflective of employers' perceptions about the future of their companies' workforce size only. Thus, they are not derived from an economic model. Moreover, growth potential is mainly dictated by the clients for which the ECI companies covered in the Census data work for.
Using a base 100 index, the graph below equates the 2019 ECI workforce to 100, enabling a comparison with the situation in 2021, as well as to employer expectations for 2023.

This analysis focuses on companies mostly operating in Wales. However, part of the ECI workforce is employed where there is dominant footprint in a particular region. Therefore, it is recommended to read the following workforce growth analysis in conjunction with the workforce growth analysis of transregional companies which can be found in Annex F.

Employer workforce growth expectations: Based on 51% of Wales' workforce.



The engineering construction industry in Wales faced a 3.5% decrease in headcount between 2019 and 2021. This is substantially smaller than the decrease across the ECI overall.

Employers' workforce projections are in line with those of the ECI at Great Britain level, with the workforce expected to bounce back to pre-pandemic levels in 2023. The region's trend and projection are much more stable than that of the overall ECI.

Hiring difficulties

Due to the lack of data, hiring difficulties cannot be quantified. However, employers mentioned difficulties in filling vacancies such as instrument technicians, project engineers, pipefitters, and welding trades.

Covid-19

Among employers with more than 90% of their workforce in Wales, two thirds reported a negative impact on turnover because of the Covid-19 pandemic. This is far greater than the 26% figure found at Great Britain level. Although the database is limited and these are perceptions only, this result is still indicative of regional difficulties. Workforce growth data suggest that workforce turnover did not translate into lower workforce numbers in Wales when compared to other regions. The high percentage of companies that reported having used furlough (83%) is likely to have reduced the causality between a lower turnover and decreased workforce numbers. One third also stated a reduction in training, while the percentage drops to 2% in the wider ECI.
The last major difference is that no Welsh employers mentioned delays and downturn in work when discussing Covid-19 impact on their businesses.

How has Covid 19 affected your business?
Based on 51% of Wales' workforce.

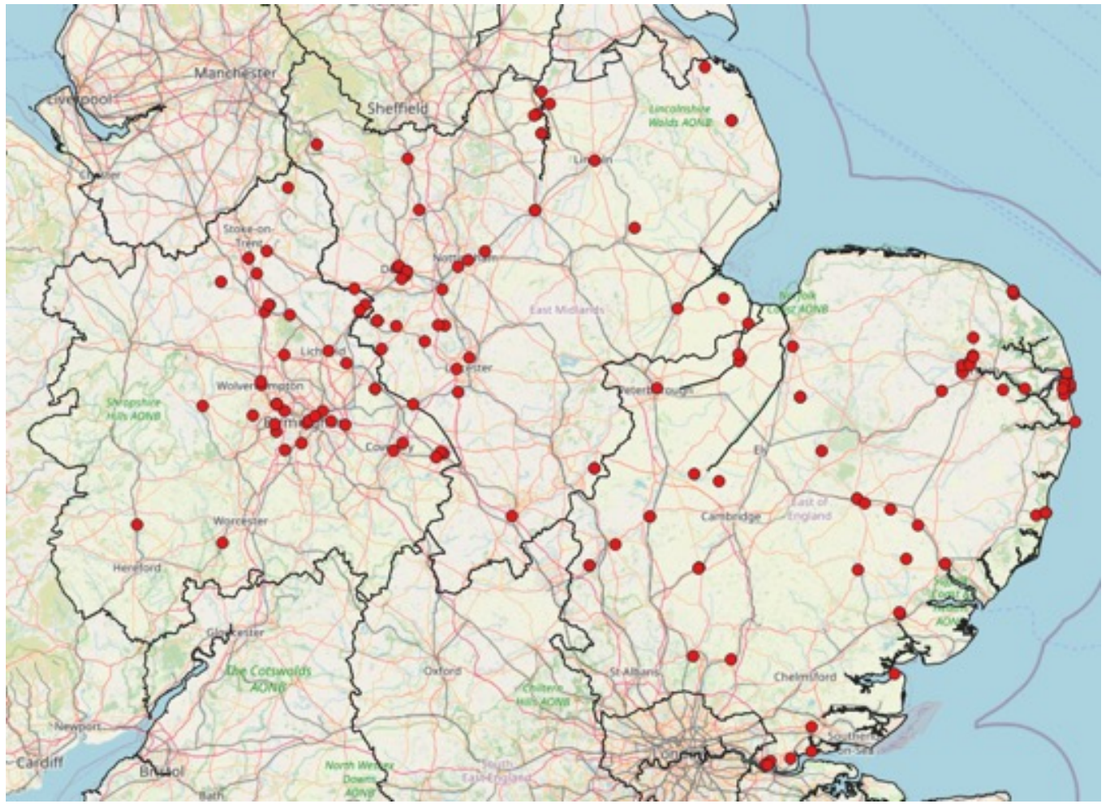
Items	% of employers	
	Wales	ECI
Furlough	83%	69%
Turnover decreased	67%	26%
Redundancies	33%	29%
Reduced training	33%	2%
Lower productivity	17%	12%
Smaller workforce (no hiring or people leaving)	17%	14%
Change in working pattern, WFH	0%	17%
Increased hours	0%	2%
Reduced hours	0%	2%
Increase training	0%	4%
Delays and downturn in work	0%	30%

Midlands and East of England

Geographical and sectoral characteristics

The Midlands and the East of England employ 8% of the engineering construction industry (ECI) workforce. This report analyses West Midlands, East Midlands, and East of England both as a group and separately depending on data availability.

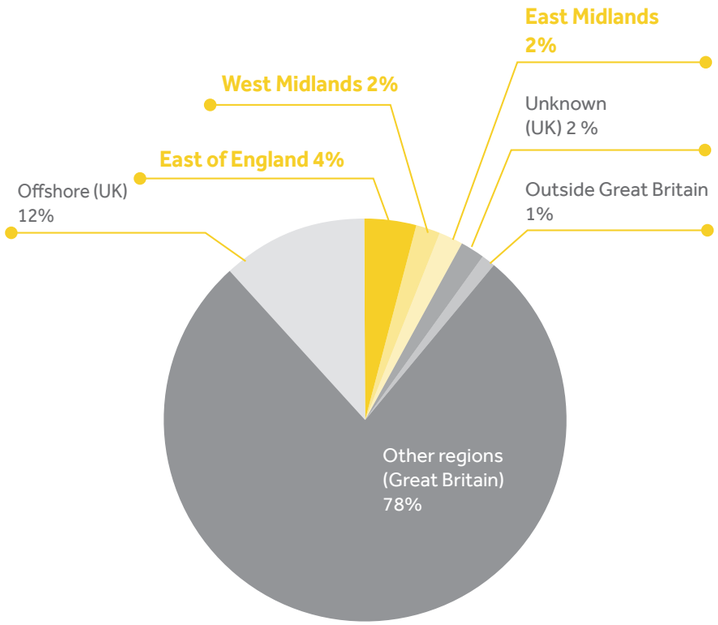
In the Midlands, the activity is mostly centralised in the Derby, Leicester, Birmingham triangle. In the East of England, most of the workforce is found along the coast, especially near Sizewell power station and Great Yarmouth.



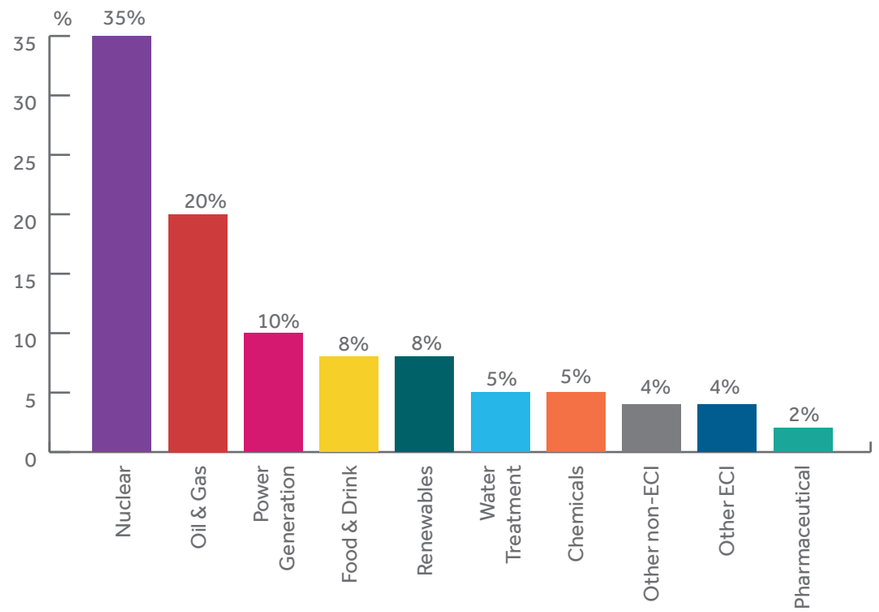
Responses covered 165 locations and 3,342 workers. The nuclear sector employs 35% of the workforce from Midlands and the East, followed by the upstream oil and gas sector at 20%.

The food and drink sector is key here when compared to other regions. Eight percent of the workforce is engaged in this sector, against only 2% at Great Britain level.

ECI workforce distributions



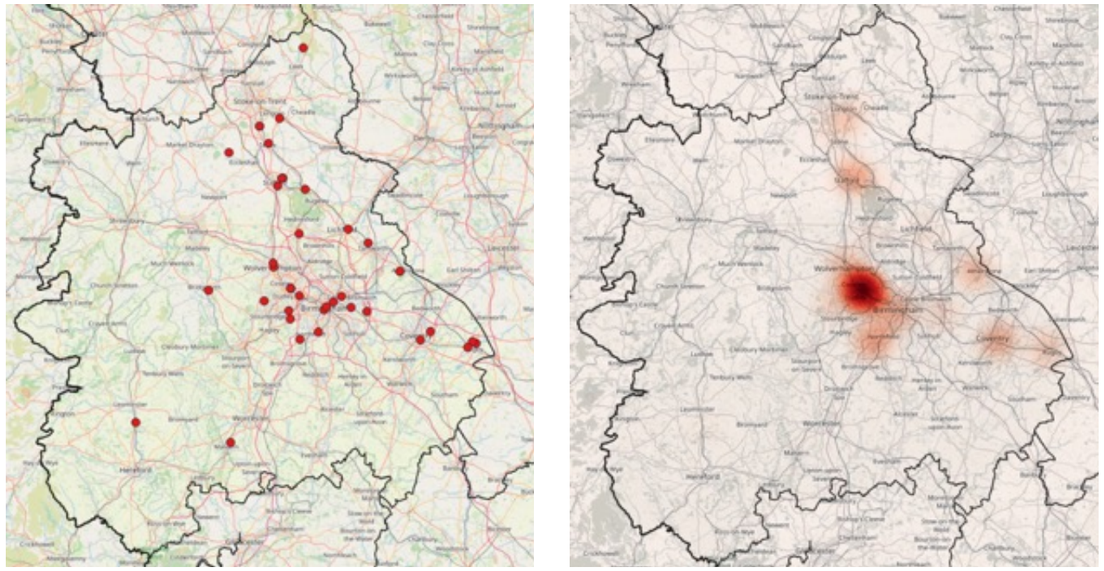
Workforce distribution by sector in Midlands and East of England



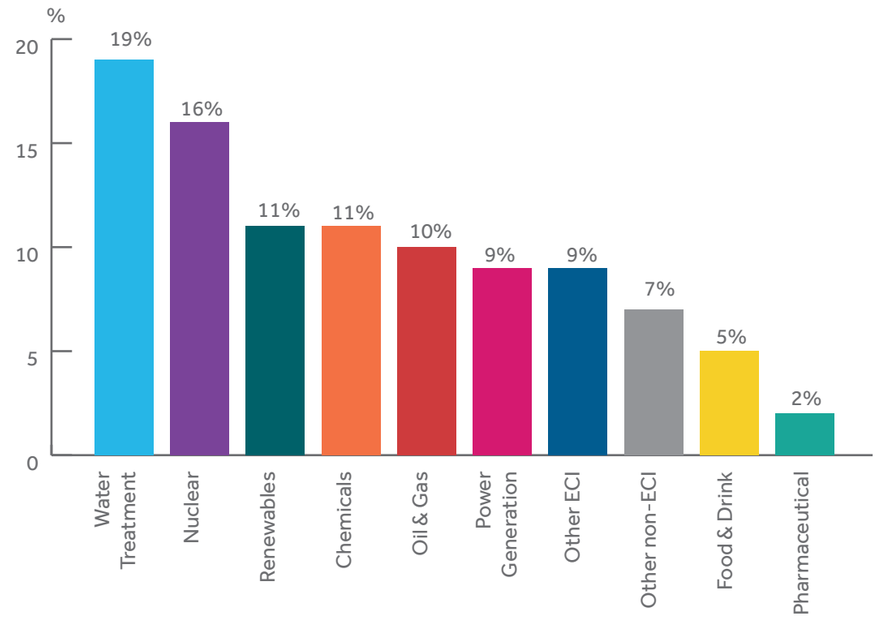
Percentages may not total 100 due to rounding.

In the West Midlands, the database contains information about 785 individuals across 44 locations. The main hotspot is Birmingham, with Rugby and Stoke-on-Trent also significant. Nineteen percent of the workforce operates in the water treatment sector according to the data.

This is significant considering water treatment employs 1% of the ECI workforce at Great Britain level. Sixteen percent of the workforce is involved in the nuclear sector, but in office-based roles only. Renewables also play a key role in this region, with 11% of the workforce employed in this sector.



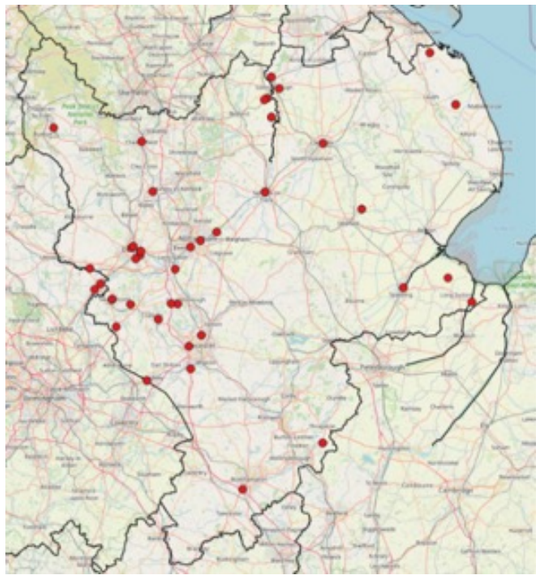
Workforce distribution by sector in West Midlands

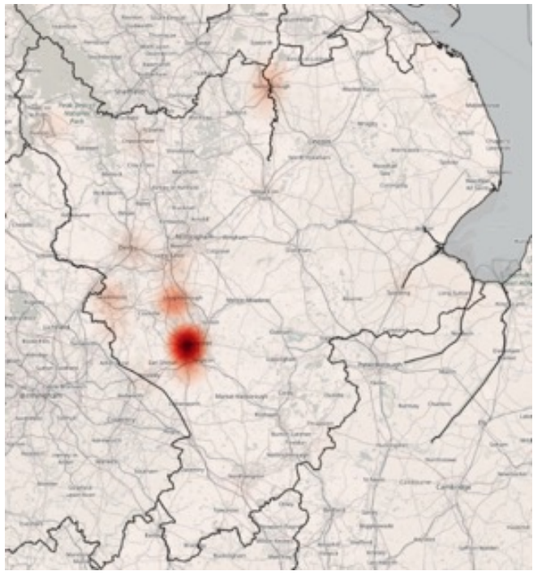


Percentages may not total 100 due to rounding.

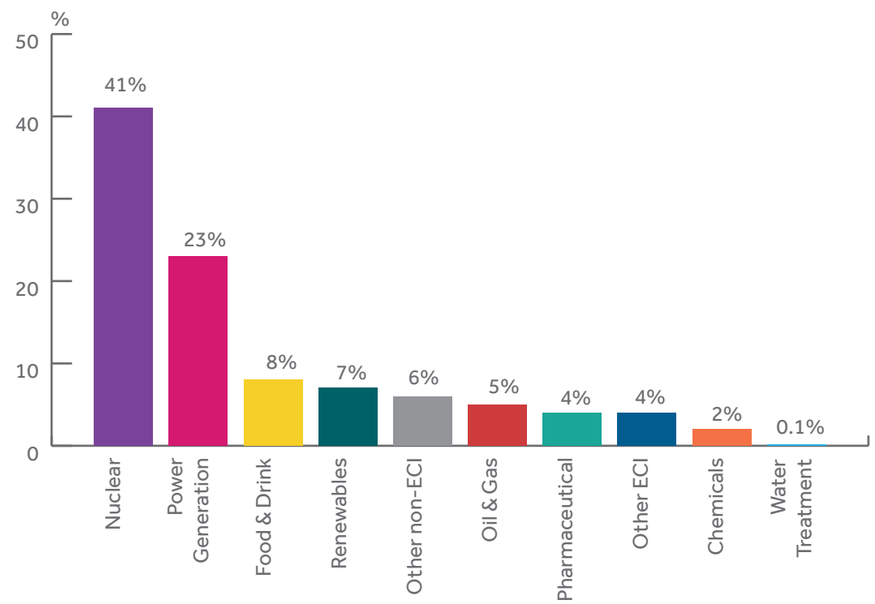
There are 867 individuals working across 48 locations in the East Midlands database. Companies in Leicester and its surrounding area employ nearly half of the regional ECI workforce, but there is also a notable hotspot in Gainsborough.

The largest sector is nuclear (41% of the workforce). The second largest is the conventional power generation sector at 23%, significantly above food and drink that comes next at 8%.





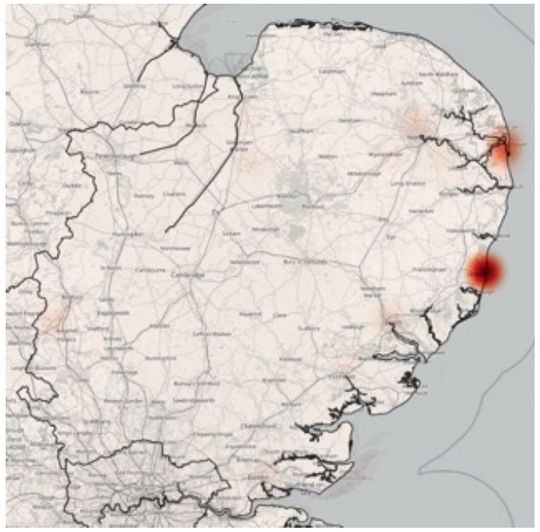
Workforce distribution by sector in East Midlands



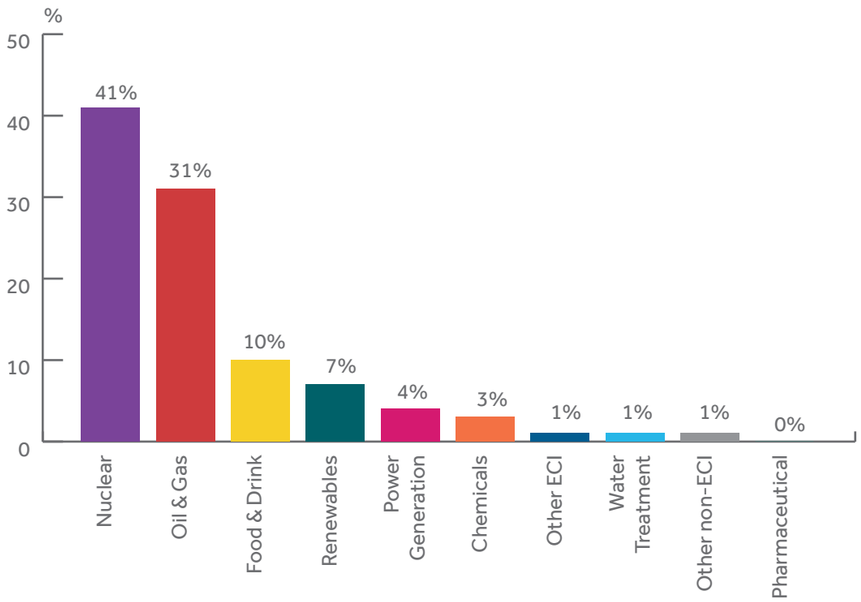
Percentages may not total 100 due to rounding.

The database for East of England gathered intelligence on 1,690 individuals and 73 locations. The ECI in this region shares some common traits with that in East Midlands. The nuclear (41%) and the oil and gas (31%) sectors are the first and second largest sectors in the region in terms of workforce numbers, followed by the food and drink sectors (10%).

Geographically, the main hotspots are at the Sizewell power station and at Great Yarmouth. There is a particularly widespread coverage of small sites and offices across the East of England.



Workforce distribution by sector in East of England



Percentages may not total 100 due to rounding.

Occupational Data

The Census registered 800 occupations, which have been consolidated for the purpose of the analysis[11]. Occupations were split into general categories which were made up of specific occupations. For instance, occupations such as steel erecting, electrical fitting and pipefitting are grouped within the craft category. The management and professional category includes both managerial roles (e.g. project management) and specialists roles (e.g. procurement specialists, document controllers). These numbers usually vary depending on the amount of work and on the particular projects companies are involved in. The management and professional workers represent the main occupational category in the three regions (33% in West Midlands, 28% in East Midlands, and 25% in the East). In the East of England, 21% of the workforce are engineers, and a further 20% are technicians. However, the proportion of technicians in the Midlands is much lower. In these regions, the second and third largest categories are engineers and craftspeople (18% and 15% in the West, and 17% and 21% in the East, respectively).

Occupational categories and most prevalent occupations in the Midlands and East of England:

Category	Occupation	Count	%
Craft - 433 individuals	Pipefitters	88	20%
	Mechanical Fitters	63	15%
	Steel Erectors	56	13%
	TOTAL	**207**	**48%**
Technicians - 471 individuals	Production or Process Operators	189	40%
	Design/ Draughtpersons	44	9%
	Field Service Technician	43	9%
	TOTAL	**276**	**59%**
Semi-skilled - 189 individuals	Welding	31	16%
	General Mates	30	16%
	Slinger/Banksman/ Rigger	25	13%
	TOTAL	**86**	**46%**
Supervisors - 241 individuals	Mechanical	70	29%
	Appointed Person	24	10%
	General Foreman / Superintendent	20	8%
	TOTAL	**114**	**47%**

Category	Occupation	Count	%
Engineers - 634 individuals	Mechanical Engineer	223	35%
	Electrical Engineer	62	10%
	Instrument and Control	53	8%
	TOTAL	**338**	**53%**
Management and Professional - 903 individuals	Directors & Managers	215	24%
	Project Engineers	122	14%
	Project Managers	113	13%
	TOTAL	**450**	**50%**
Support Staff - 402 individuals	Admin	122	30%
	Finance	112	28%
	Health and Safety	56	14%
	TOTAL	**290**	**72%**

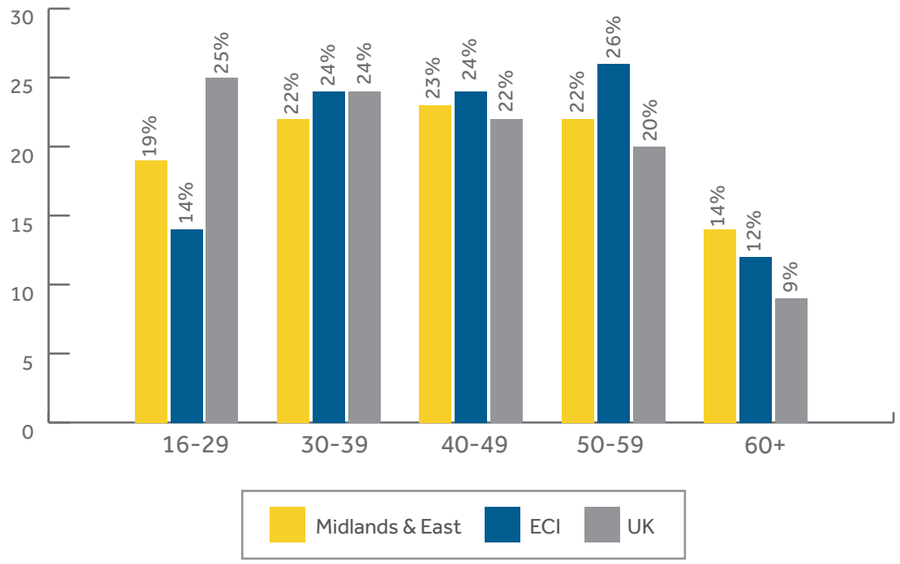
[11] For a full list of all occupations in the ECI please see Annex B in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry. For a full list of all occupations including count referring only to the Midlands and the East of England, please see Annex D in this report.

Demographics

This analysis is based on a subsample of 15 companies employing more than 90% of their workforce in the relevant regions. The 15 companies are all small and medium enterprises, each employing less than 250 workers.

Companies from this subsample also replied to our questions about demographics and represent 15% to 19% of the workforce from the region. The exact percentage of the workforce on which each result is based is noted throughout the text.

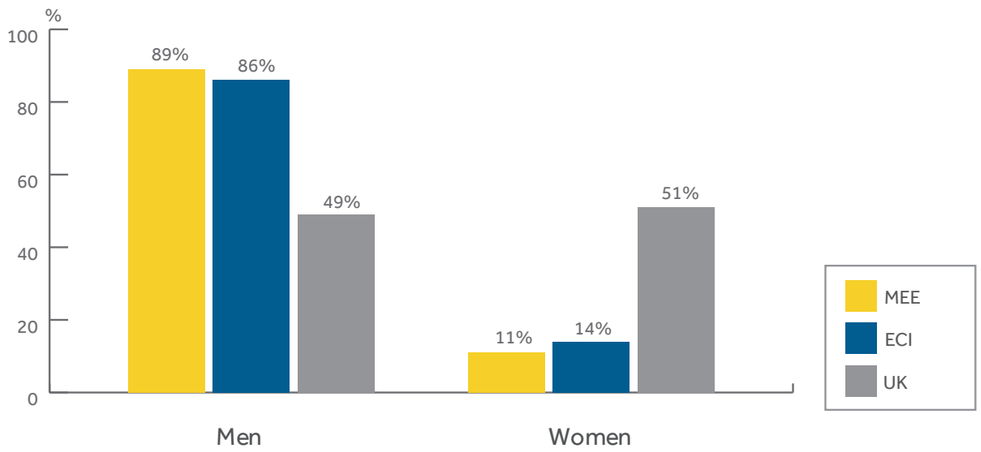
Age profile in the Midlands and the East of England compared to wider ECI and active UK population: Based on 19.2% of the Midlands and the East of England workforce.



The ECI workforce in the Midlands and East England region is younger than that of the wider ECI. 19% of employees are under 30, compared to 14% for the ECI.

The number of workers aged between 50 - 59 (22%) should help to mitigate the short term labour shortages which could be presented by the 14% that are above 60.

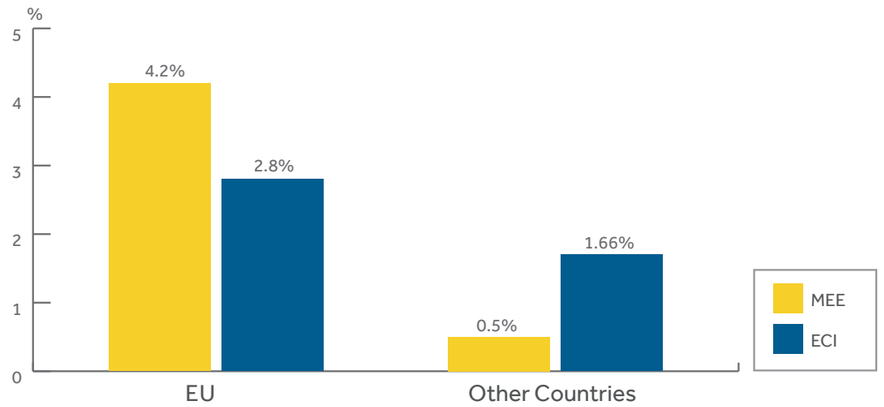
Gender profile in Midlands and East of England compared to wider ECI and active UK population: Based on 18.2% of the MEE's workforce.



The percentage of women in the regional ECI is 2.6 points lower than that of the wider ECI.

Ethnicity:
Data on ethnicity represent 12.7% of the Midlands and East workforce, and show that 92.1% of the workforce is White. This 4% difference between the ECI at Great Britain level shows that the three regions' workforce are slightly more diverse in terms of ethnic background.

Nationality profile in MEE: Based on 15.5% of MEE's workforce.



According to the data, the Midlands and East England workforce does rely on a non-British workforce more than in the wider ECI (4.8% of the Midlands and East workforce is from outside the UK, versus 4.4% at Great Britain level).

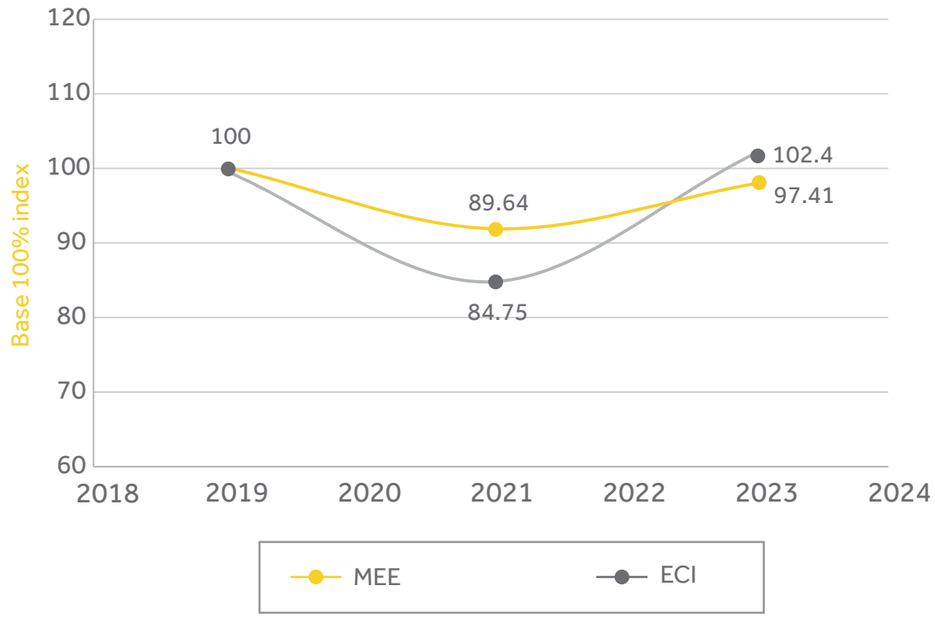
The international workforce is mostly recruited from EU nationals (4.2% out of the 4.8%).

Workforce growth

This section describes employers' workforce growth expectations for 2023 and the fluctuations in headcount between 2019 and 2021. These results are not derived from an economic model, and so are reflective of employers' perceptions about the future of their companies' headcount only. Using a base 100 index, the graph below equates the 2019 ECI workforce to 100, enabling a comparison with the situation in 2021, as well as to employer expectations for 2023.

This analysis focuses on companies mostly operating in the Midlands and East of England. However, part of the ECI workforce is employed in companies with no dominant footprint in a particular region. Therefore, it is recommended to read the following workforce growth analysis in conjunction with the workforce growth analysis of transregional companies which can be found in Annex F.

Employer workforce growth expectations: Based on 16.1% of MEE's workforce.



The regional workforce in the Midlands and East of England reduced by 10.36% between 2019 and 2021. This is less than is observed for the entire ECI. However, employers in both regions do not expect their workforce numbers to recover to pre-pandemic levels by 2023. Between 2019 and 2023, employers expect their workforce to reduce by 2.6%.

Individual responses from employers, suggests there is no clear growth pattern. Some companies maintained a stable number of employees, while others either experienced an increase (up to 20%) or a dramatic decrease (down to 50%).

Hiring difficulties

This section looks at hiring difficulties and hard to fill vacancies. Out of the 15 SME companies employing more than 90% of their workforce in the Midlands and East of England, nine reported difficulties in hiring employees (64%). Hard to fill vacancies account for the equivalent of 7.1% of their actual workforce in these regions, versus 2.5% at Great Britain level. This is a particularly worrying percentage that highlights the difficulties faced by smaller employers. This result may partly explain why workforce projections are lower in these regions.

Reasons why employers face hiring difficulties: Based on 12.9% of MEE's workforce.

Reason	% of employers	
	Midlands and East	ECI
Candidates do not have the necessary qualifications	56%	47%
Lack of candidates	22%	16%
Salary or career progression offered by companies are under expectations	11%	16%
Candidates do not have the necessary experience	11%	18%
The occupation is niche	11%	10%
Competition among companies to attract employees	0%	10%
Location	0%	22%
There is a lack of awareness about the ECI among the youth	0%	3%

The reasons given by employers in the three areas generally reflect those of the wider ECI. The main difference is that no employer cited their location as a major obstacle. Lack of necessary qualifications is still the main reason why employers face difficulties in hiring employees (56%).

How employers usually fill vacancies: Based on 19.2% of MEE's workforce.

Items	% of employers	
	Midlands and East	ECI
Agencies	80%	62%
Recruitment website / social media	47%	38%
Word of mouth	33%	57%
Advertising	33%	35%
Own website	13%	11%
Former workers / train workers	13%	11%
Local colleges	7%	4%
Headhunting	0%	5%
From Gov / local authority schemes	0%	2%
Own company / agency / team	0%	12%

The order of preference in recruitment methods in Midlands and East of England is comparable to that of the ECI at Great Britain level. The main difference is that word of mouth comes in third position at 33% in the Midlands and East while more than half of employers cited this approach in the wider industry. Of note is the greater use of agencies in the three areas (80% against 62%). Most of the hard to fill vacancies are for craft roles (83%). This varies to wider ECI, where most vacancies are for engineers (50%).

Across occupational categories, hard to fill vacancies are distributed as follows: Based on 12.9% of MEE's workforce.

Category	Midlands and East	ECI
Craft	83%	20%
Engineers	9%	50%
Technicians	5%	8%
M&P	3%	19%
Support	0%	2%
Semi-skilled	0%	0.60%
Supervisors	0%	0.40%

Net Zero

The table below shows the technologies identified as opportunities by companies in the Midlands and the East of England. Companies focusing on the sector in which they are already established are excluded from the results.

For example, a company mainly working in the nuclear sector identifying the nuclear sector as its prime opportunity would not be included.

Distribution of the workforce for each technology at each level of priority: Based on 14% of MEE's workforce.

Rank	Biofuels	CCS	Geothermal	Hydro	Hydrogen	Nuclear	Solar	Wave and Tidal	Wind
1	29%	18%	0%	0%	10%	32%	0%	0%	0%
2	0%	0%	0%	0%	24%	28%	0%	0%	18%
3	0%	18%	0%	17%	18%	0%	0%	0%	28%
4	0%	0%	18%	0%	0%	0%	10%	17%	0%
5	17%	0%	0%	18%	0%	0%	0%	10%	0%
6	0%	27%	0%	0%	18%	0%	0%	0%	0%
7	10%	0%	17%	0%	0%	0%	18%	0%	0%
8	0%	0%	0%	10%	0%	0%	0%	18%	17%
9	45%	38%	65%	55%	30%	41%	72%	55%	37%

Percentages may not total 100 due to rounding.

Companies who expect to see Biofuels having the greatest increase (1st) in terms of share of their business represent 29% of the respondents' workforce.

Respondents identified the nuclear, biofuels, hydrogen, wind, and carbon capture and storage technologies as areas of interest for their businesses. This is a common trend in almost all regions in Great Britain. Nuclear was ranked first and second by 60% percent of the respondent workforce. The main difference with other regions is that the percentages at the ninth position are fairly high, which suggests the companies from the Midlands and East of England are less likely to invest in these technologies. Thus, their workforce is less likely to be moving towards activities related to the aforementioned technologies.

Covid-19

More companies in the Midlands and East of England region reported their workforce turnover being negatively impacted as a result of the pandemic than the Great Britain average. That is the case for 40% of employers, compared to 26% in the wider ECI. Though it is important to note that these are employers' perceptions only. However, this relatively high percentage is indicative of the difficulties faced by companies in these areas. Another major difference in comparison to the wider ECI is that 27% of companies in the region reduced the levels of training provided to their workforce, compared to 2% at Great Britain level. Twenty-seven percent saw their workforce decrease for reasons other than redundancy. Some employers stated that their older workforce chose to retire at this moment. Other feedback from employers mentioned the difficulty in replacing leavers.

How has Covid 19 affected your business?
Based on Midlands and East of England's workforce.

Items	% of employers	
	Midlands and East	ECI
Furlough	60%	69%
Turnover decreased	40%	26%
Redundancies	33%	29%
Reduced training	27%	2%
Smaller workforce (no hiring or people leaving)	27%	14%
Delays and downturn in work	13%	30%
Change in working pattern, WFH	7%	17%
Lower productivity	7%	12%
Increase training	7%	4%
Increased hours	0%	2%
Reduced hours	0%	2%

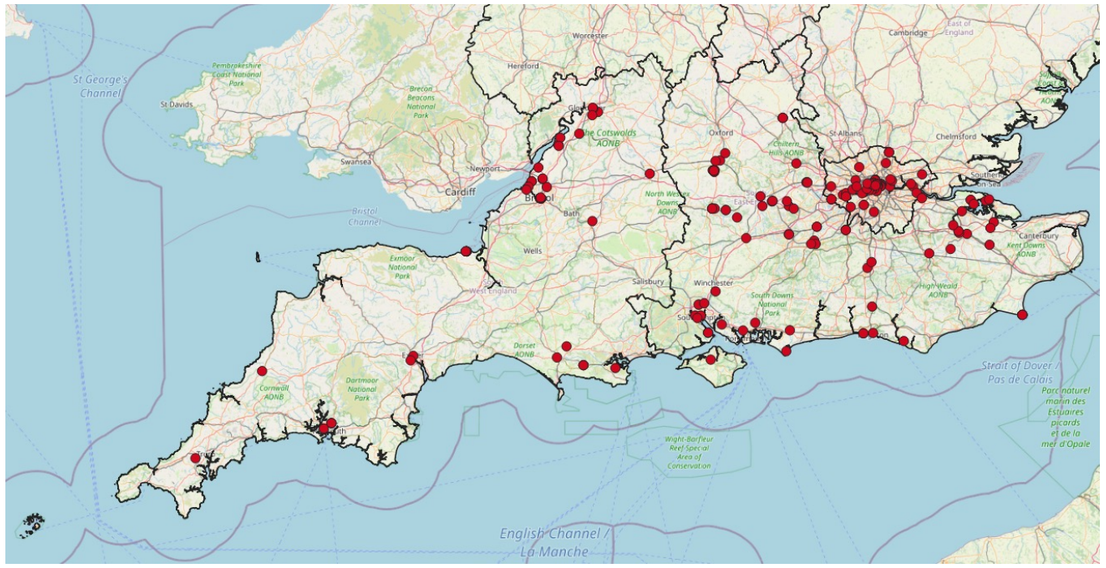
South of England

Geographical and sectoral characteristics

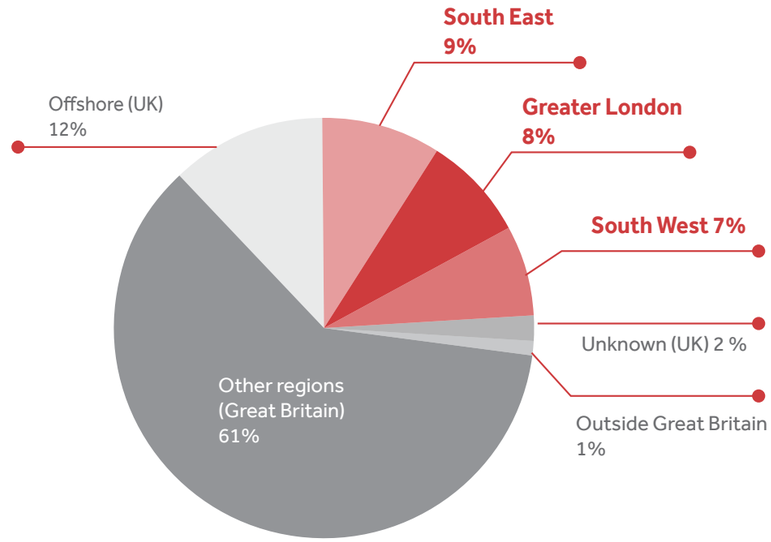
In this report, Southern England is defined as the South West, the South East, and Greater London[13]. Southern England employs 24% of the engineering construction industry workforce (ECI).

The data covers 10,855 workers across 205 locations.

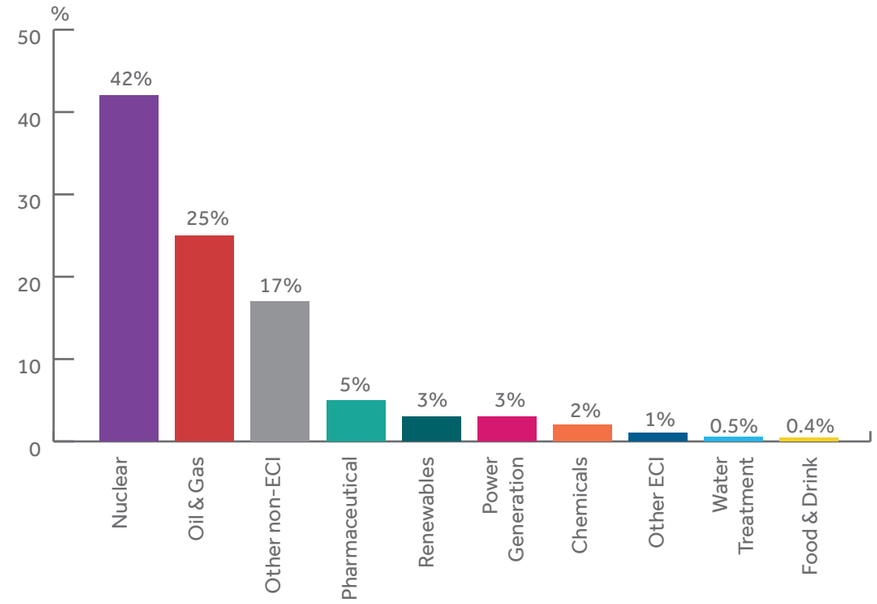
There are 3,280 workers across 53 locations in the South West, 4,206 workers across 90 locations in the South East, and finally 3,369 workers across 62 locations in Greater London. The nuclear sector employs 42% of the ECI onshore workforce in the South[14], followed by the oil and gas sector at 25%.



ECI workforce distributions



ECI workforce distributions in South of England



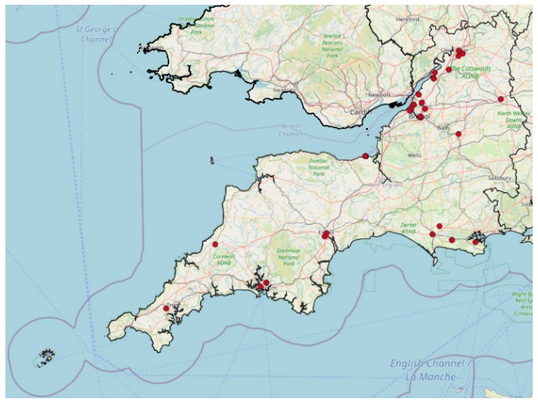
Percentages may not total 100 due to rounding.

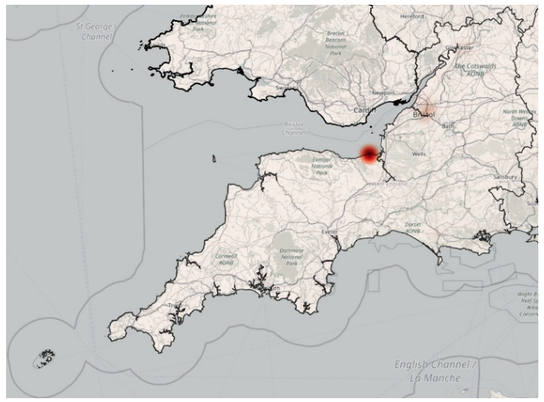
[13] In other contexts, Southern England includes the East of England. The analysis of this region can be found in part 4 of this report: Midlands and East of England.

[14] For more information on the offshore workforce, see ECITB Workforce Census 2021: Oil & Gas.

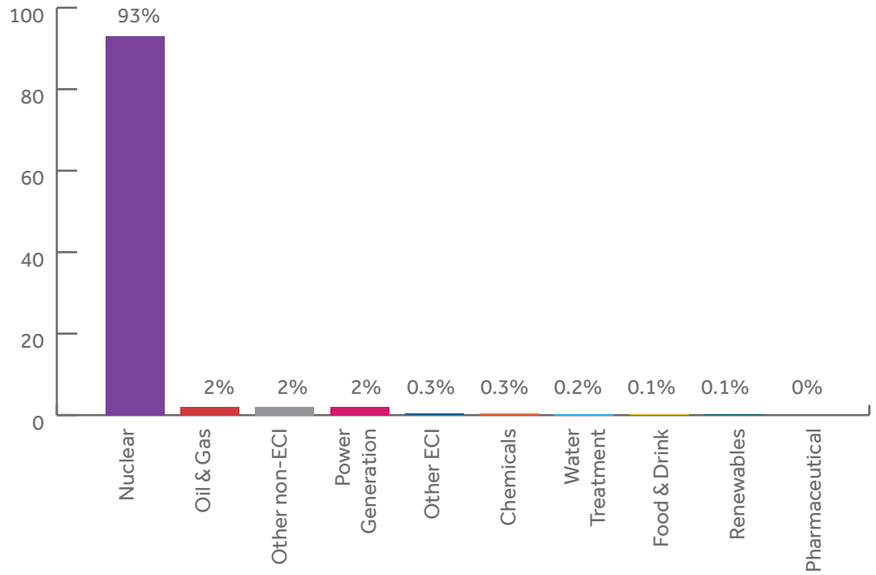
In the South West, the majority of the workforce operates in the nuclear sector (93%).

The concentration of labour is primarily located at Hinkley Point C nuclear power station, with offices in Gloucester and Bristol.



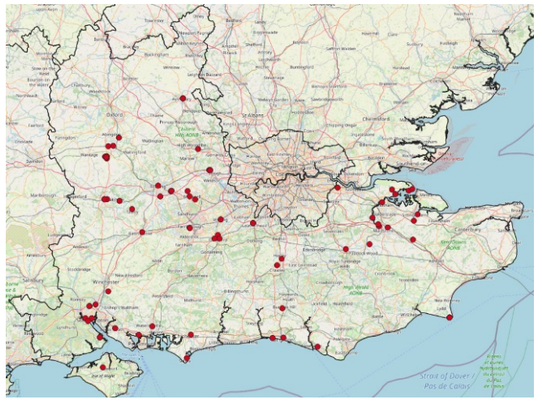


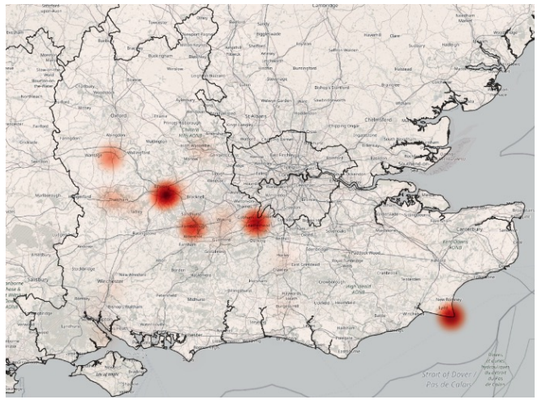
Workforce distribution by sector in the South West



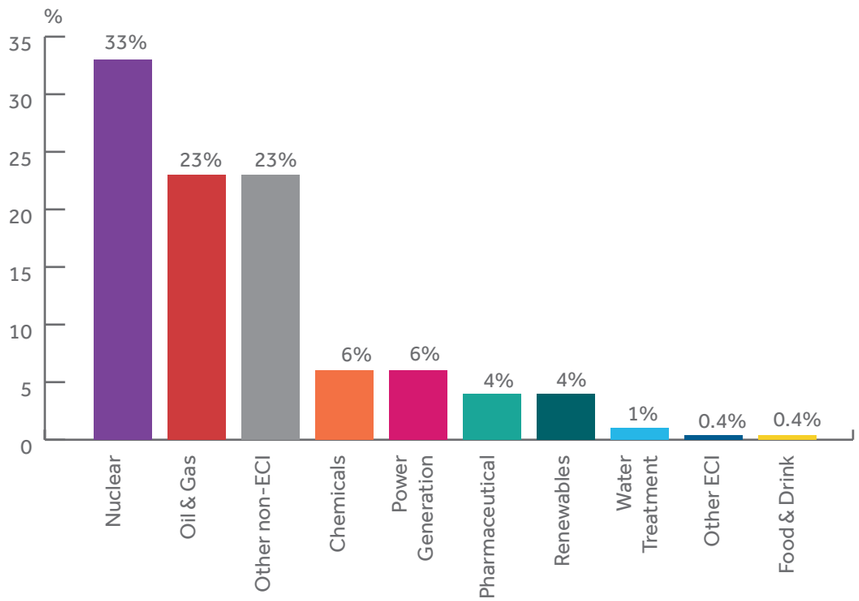
The nuclear sector is the largest sector in the South East (33%) too, but the oil and gas sector also plays a key role and employs 23% of the regional workforce. The main hotspots can be found at the Dungeness nuclear power station (currently being decommissioned), and from Leatherhead to Reading. Other areas are home to many smaller sized sites and offices, such as Southampton.

Some businesses also operate in other non-ECI sectors such as the construction of buildings. Non-ECI works account for 17% of the Southern England ECI labour force.





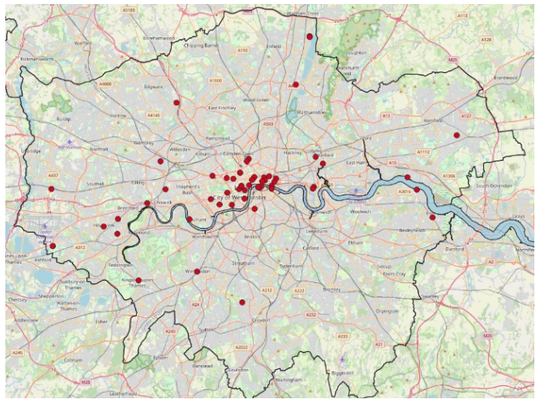
Workforce distribution by sector in the South East

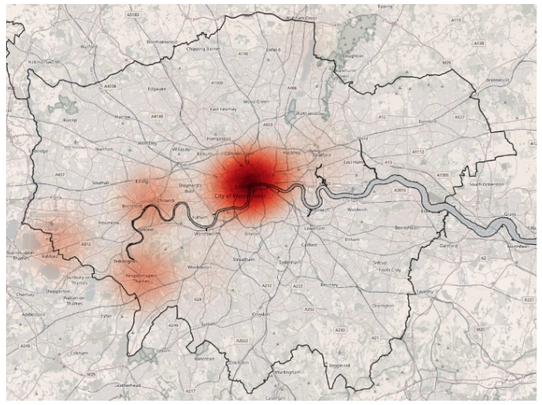


Percentages may not total 100 due to rounding.

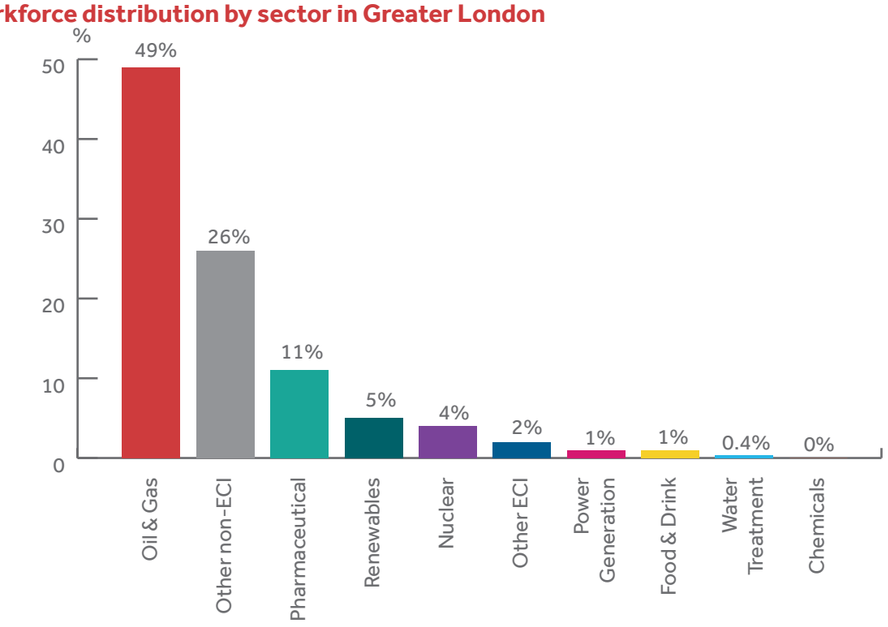
Large companies in the oil and gas sector employ 49% of the region's workforce.

Twenty-six percent of the workforce operates in non-ECI sectors, such as house building or the health care sector. The pharmaceuticals sector comes third, at 11%.





Workforce distribution by sector in Greater London



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Occupational Data

The Census registered 800 occupations, which have been consolidated for the purpose of the analysis[15]. Occupations were split into general categories which were made up of specific occupations. For instance, occupations such as welding, electrical fitting and pipefitting are grouped within the craft category.

The management and professional category includes both managerial roles (e.g. project management) and specialists roles (e.g. procurement specialists, document controllers). These numbers usually vary depending on the amount of work and on the specifics of the projects companies are involved in.

Occupational categories and most prevalent occupations in Southern England:

Category	Occupation	Count	%
Craft - 795 individuals	Electrical Fitters	152	19%
	Mechanical Fitters	129	16%
	Pipefitters	122	15%
	TOTAL	**403**	**51%**
Technicians - 796 individuals	Production or Process Operators	355	45%
	Design/ Draughtspersons	148	19%
	Safety Technicians	81	10%
	TOTAL	**584**	**73%**
Semi-skilled - 276 individuals	Electrical	34	14%
	Blaster / Painter	22	9%
	Welding	20	8%
	TOTAL	**76**	**32%**
Supervisors - 287 individuals	Mechanical	59	21%
	General Foreman / Superintendent	44	15%
	Lifting (Rigging/ Erecting)	20	7%
	TOTAL	**123**	**43%**

Category	Occupation	Count	%
Engineers - 3,750 individuals	Mechanical Engineer	696	19%
	Process Engineers	624	17%
	Civil & Structural	316	8%
	TOTAL	**1636**	**44%**
Management and Professional - 3,466 individuals	Project Managers	560	16%
	Directors & Managers	508	15%
	Procurement Specialists	360	10%
	TOTAL	**1428**	**41%**
Support Staff - 1,249 individuals	Admin	401	32%
	Finance	250	20%
	Human Resources + Learning and Develop.	214	17%
	TOTAL	**865**	**69%**

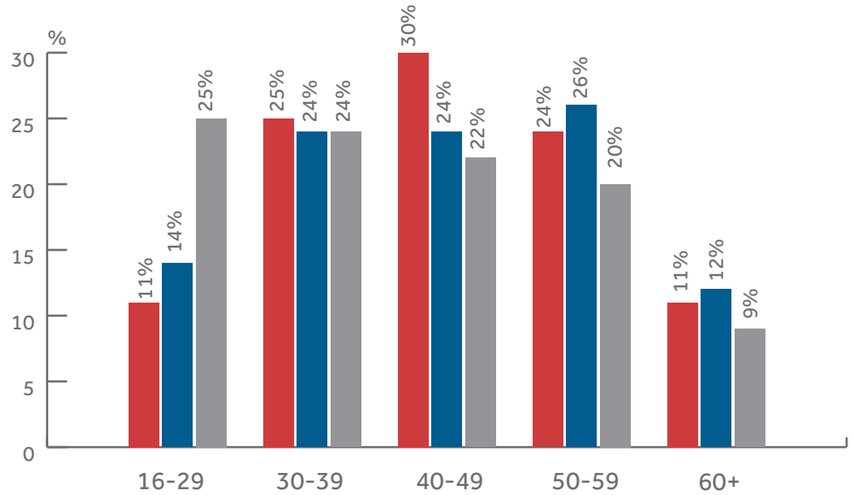
[15] For a full list of all occupations in the ECI please see Annex B in our main report ECITB 2021 Workforce Census: Overview of the Engineering Construction Industry. For a full list of all occupations including count referring only to Southern England with regional breakdown, please see Annex E in this report.

Demographics

The analysis of the characteristics of the labour force is based on a subsample of 14 companies employing at least 90% of their workforce in Southern England.

Companies representing 25% of the onshore workforce responded to the workforce demographic questions.

Age profile in Southern England compared to wider ECI and active UK population:
Based on 34.6% of Southern England's workforce.

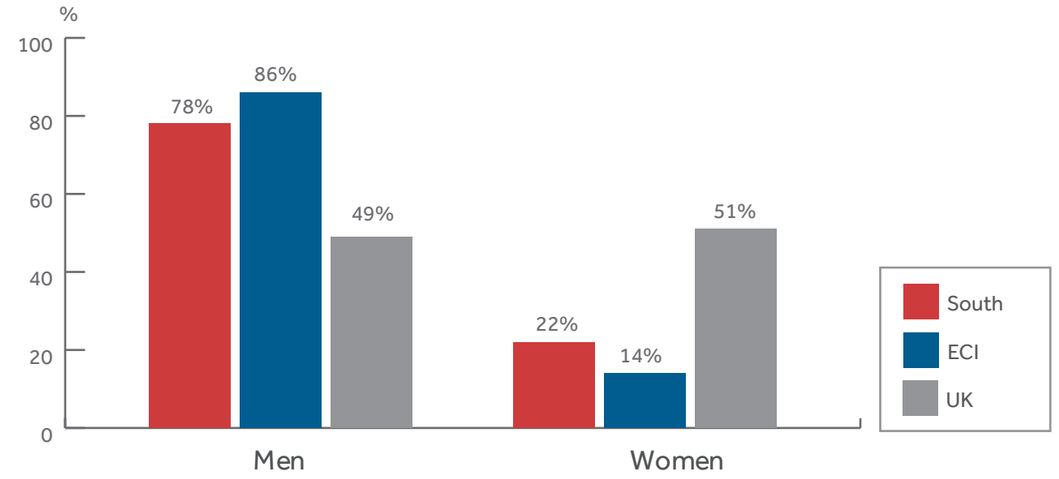


Percentages may not total 100 due to rounding.

The largest age group in Southern England is workers from 40 to 49 years old (30% of the workforce). Thirty-five percent of the work force is aged 50 and over, while this number increases to 38% at Great Britain level.

This suggests that skills shortages due to an aging workforce are not as significant a challenge in the short-term in Southern England when compared to the ECI overall. On the other hand, only 10.8% of employees are under 30. That is a 3.2 percent difference between the wider ECI.

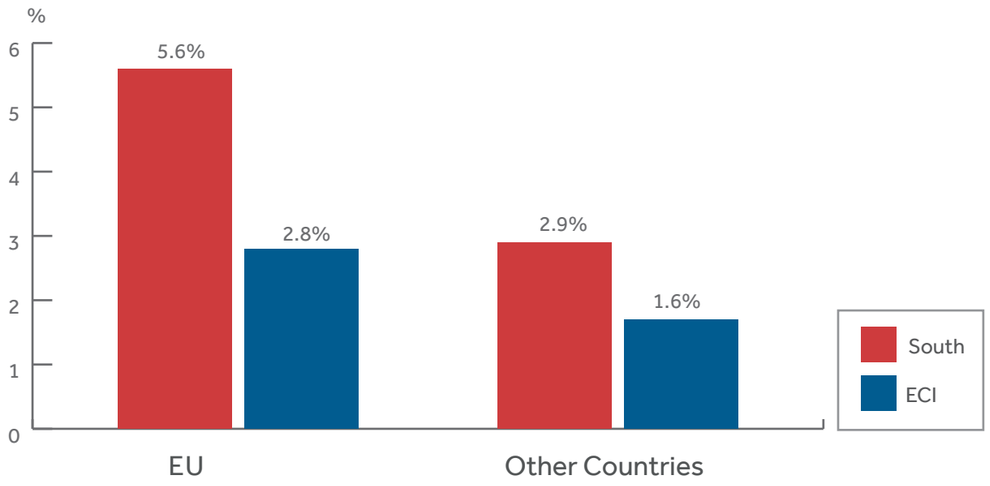
Gender profile in Southern England compared to wider ECI and active UK population:
Based on 29.3% of Southern England's workforce.



The percentage of women in the Southern England ECI is higher than Great Britain level (22% against 14%). The site-based workforce is often made up of a higher percentage of men.

Ethnicity:
Data on ethnicity is available for 5% of the Southern England workforce only. Thus, the data show that 92% of the workforce is White, but this number should be treated with caution considering its small coverage. At best, this suggests that the workforce in these regions is more ethnically diverse than that observed in the wider ECI (a 4 percent difference). Most of this data comes from companies mostly engaged in the South East, meaning that data collection of ethnicity is not widespread in the Greater London and South West ECI.

Nationality profile in Southern England: Based on 21.9% of Southern England workforce.



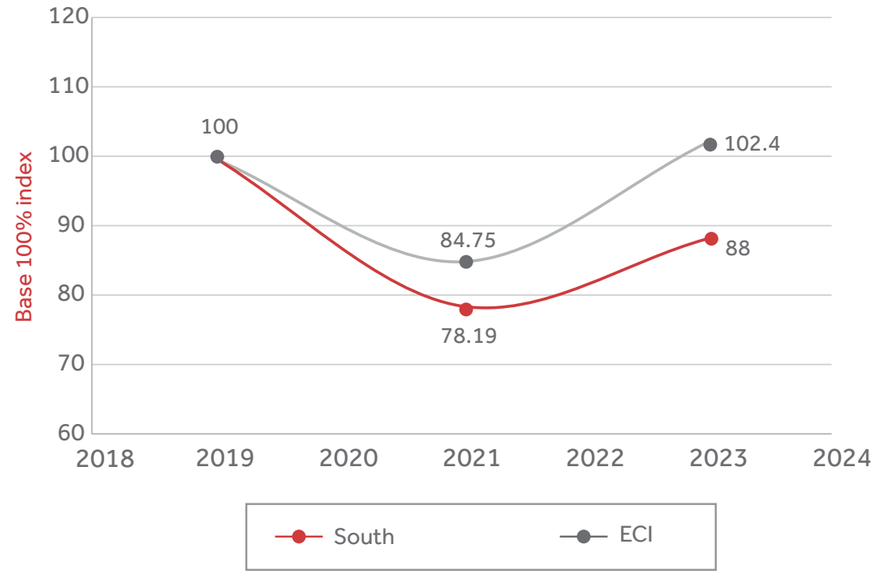
Greater London is the region with the largest proportion of non-UK population in the UK[16]. Thus, it comes as no surprise that the percentage of both EU and non-EU workers is higher in Southern England than in the wider ECI.

Workforce growth

The results about workforce growth expectations are not derived from an economic model, and so they are reflective of employers' perceptions about the future of their companies' headcount only. Using a base 100 index, the graph below equates the 2019 ECI workforce to 100, enabling a comparison with the situation in 2021, as well as to employer expectations for 2023.

This analysis focuses on companies mostly operating in Southern England. However, part of the ECI workforce is employed in companies with no dominant footprint in a particular region. Therefore, it is recommended to read the following workforce growth analysis in conjunction with the workforce growth analysis of transregional companies which can be found in Annex F.

Employer workforce growth expectations: Based on 29.5% of Southern England's workforce.



Workforce numbers in Southern England were severely impacted by the pandemic, with a drop of nearly 22% between 2019 and 2021. It is particularly concerning to note that employers from these regions expect workforce levels to be 12% lower than pre-pandemic levels by 2023. However, a closer look at the database reveals that companies have different expectations depending on where they are based and on the sectors they are operate in.

For instance, some companies in the South East faced significant workforce reductions between 2019 and 2021. These companies expect their workforce numbers to stagnate or increase slightly by 2023. Companies operating in the oil and gas and chemicals sector faced difficulties, in relation to the 2021 reduction in oil price.

[16] Population of the UK by country of birth and nationality - Office for National Statistics (ons.gov.uk)

Hiring difficulties

This section looks at hiring difficulties and hard to fill vacancies. Out of the 14 companies employing more than 90% of their workforce in Southern England, eight reported difficulties hiring employees (57%). Hard to fill vacancies account for the equivalent of 2.24% of the workforce in Southern England, a percentage similar to that in the wider ECI (2.5%).

Reasons why employers face hiring difficulties: Based on 20.5% of Southern England's workforce.

Reason	% of employers	
	South	ECI
Candidates do not have the necessary qualifications	83%	47%
Candidates do not have the necessary experience	33%	18%
Salary or career progression offered by companies are under expectations	17%	16%
Niche market	17%	10%
Lack of candidates	0%	16%
Competition among companies to attract employees	0%	10%
Location	0%	22%
There is a lack of awareness about the ECI among the youth	0%	3%

Employers almost unanimously reported the lack of qualifications in applicant as a major difficulty (83%) in recruitment. One third also cited the lack of experience. According to the data, no employer identified the lack of candidates or the employer location as being a significant obstacle.

How employers usually fill vacancies: Based on 34.6% of Southern England's workforce.

Item	% of employers	
	South	ECI
Agencies	71%	62%
Word of mouth	50%	57%
Recruitment website / social media	43%	38%
Advertising	36%	35%
Headhunting	29%	5%
Own company / agency / team	29%	12%
Former workers / train workers	21%	11%
Own website	14%	11%
Local colleges	0%	4%
From Gov / local authority schemes	0%	2%

Companies in the South of England make a greater use of headhunting, to find new employees (29% in the South compared to 5% at Great Britain level). At 29% recruitment organisations are more prolific in the South of England. The table below shows that 41% of hard to fill vacancies are for engineering roles. The main differences between the wider ECI is that the regional ECI is mainly looking for technicians, management and professionals, and support staff roles.

Accross occupational categories, hard to fill vacancies are distributed as follows: Based on 24.2% of Southern England's workforce.

Category	South	ECI
Engineers	41.22%	50.00%
Management and professionals	26.11%	19.40%
Technicians	17.12%	8.30%
Support	8.01%	1.60%
Craft	7.53%	19.60%
Semi-skilled	0.00%	0.60%
Supervisors	0.00%	0.40%

Net Zero

Companies in the South of England are mostly operating in the oil and gas and nuclear sectors (67% of the workforce). Both sectors will play a major role in the net zero transition. The table below shows the technologies identified as opportunities by companies in Southern England.

Companies focusing on the sector they are already established in are excluded from the results. For instance, a company mainly working in the nuclear sector identifying the nuclear sector as its prime opportunity would not be included.

Distribution of the workforce for each technology at each level of priority: Based on 33.6% of Southern England's workforce.

Rank	Biofuels	CCS	Geothermal	Hydro	Hydrogen	Nuclear	Solar	Wave and Tidal	Wind
1	0%	39%	0%	0%	36%	1%	0%	0%	24%
2	25%	35%	0%	0%	29%	0%	0%	0%	0%
3	41%	0%	1%	0%	10%	0%	15%	0%	21%
4	5%	0%	15%	0%	0%	18%	0%	0%	43%
5	0%	9%	0%	0%	0%	0%	53%	0%	8%
6	10%	0%	0%	41%	0%	0%	0%	0%	0%
7	0%	0%	41%	0%	0%	0%	0%	10%	0%
8	0%	0%	10%	10%	0%	34%	0%	8%	0%
9	18%	17%	32%	49%	26%	48%	31%	82%	4%

Percentages may not total 100 due to rounding.

Companies who expect to see hydrogen having the greatest increase (1st) in terms of share of their business represent 36% of the respondents' workforce.

Companies operating in Southern England seem not to consider the nuclear industry as an area of opportunity. However, they express a strong interest in the hydrogen and carbon capture and storage (CCS) technologies. Companies who ranked these technologies in the first, second and third place represent nearly 75% of the respondents' workforce. Biofuels and wind technologies are also well placed.

Covid-19

A significant number of companies based in Southern England faced delays during the Covid-19 crisis (57% against 30% for the wider ECI). There was a 36% reduction in training and a 29% reduction in productivity. 29% of companies based in Southern England did not renew existing contracts or were forced to make redundancies as a result of the pandemic. On a brighter note, only 14% of employers reported a significant decrease in turnover, compared to 26% for the wider ECI.

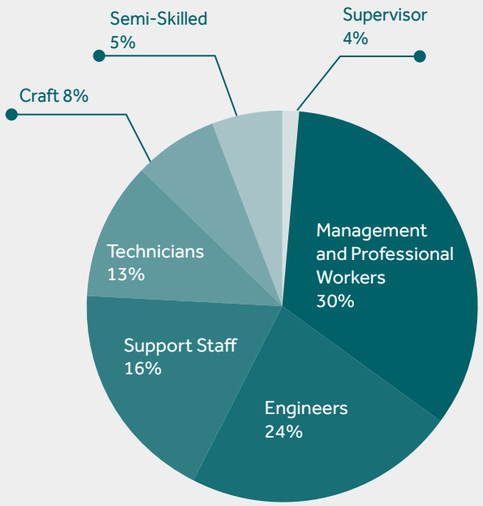
How has Covid 19 affected your business?
Based on 34.6% of Southern England's workforce.

Items	% of employers	
	South	ECI
Furlough	64%	69%
Delays and downturn in work	57%	30%
Reduced training	36%	2%
Change in working pattern, WFH	29%	17%
Lower productivity	29%	12%
Smaller workforce (no hiring or people leaving)	29%	14%
Redundancies	21%	29%
Turnover decreased	14%	26%
Increased hours	14%	2%
Reduced hours	7%	2%
Increase training	0%	4%

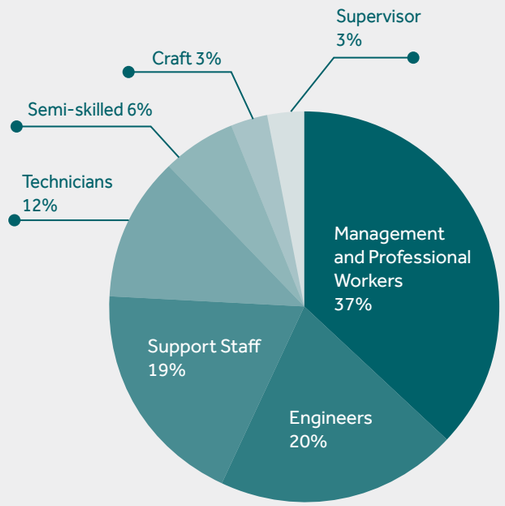
Annex A: Scotland

Workforce distribution per occupational category:

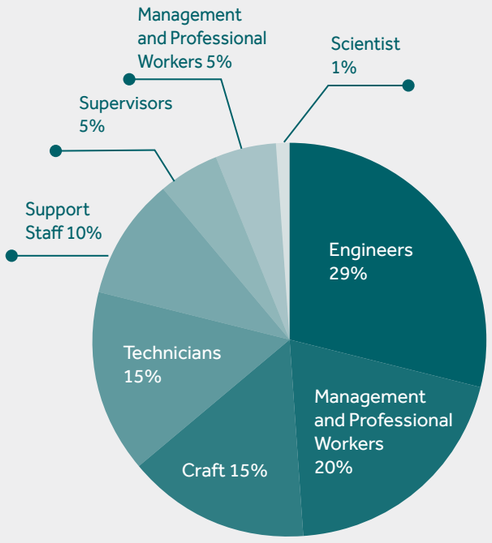
Scotland



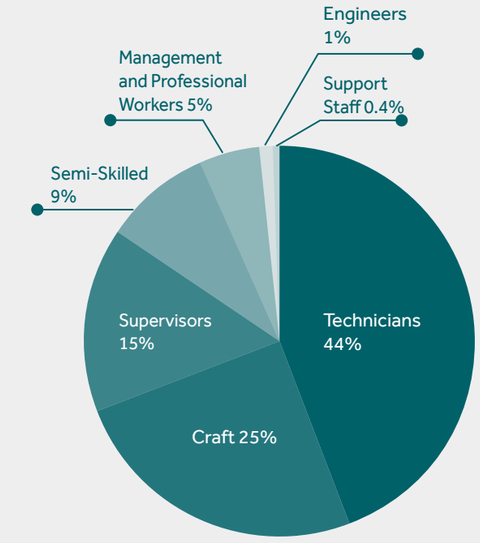
Scotland (North)



Scotland (South)



Scotland (offshore)



List of occupations and count from Scotland

Occupations with less than 10 workers are omitted.

- Craft – 769 individuals

Craft Occupation	Count		
	North	South	TOTAL
Scaffolders	32	169	201
Pipefitters	22	116	138
Electrical Fitters	13	76	89
Mechanical Fitters	18	65	83
Pipe Welders	-	35	35
Riggers	15	23	38
Platers	-	22	22
Steel Erectors	-	23	23
Thermal Insulation (laggers)	-	11	11
Instrument Pipefitters	-	-	-
Safety Advisers	-	-	-
Instrument and Control	-	-	-
High Integrity Welders	-	-	-
Plate Welders	-	-	-
Tray Fitters	-	-	-
Fabricators	-	-	-
Joiner	-	-	-
Unidentified Craft	37	42	79

- Technicians – 1,277 individuals

Technicians Occupation	Count		
	North	South	TOTAL
Production or Process Operators	16	350	366
Field Service Technician	132	39	171
Design/Draughtspersons	119	28	147
Mechanical Maintenance	86	-	86
Instrument and Control	56	30	86
Electrical Maintenance	66	-	66
Safety Technicians	-	60	60
Non-Destructive Testing	26	30	56
ROV Technician / Pilot	56	-	56
Rope Access Technician	17	-	17
Subsea Technicians	23	-	23
Project Controls	22	-	22
Inspector	19	-	19
Surveyors	-	-	-
Winders	-	-	-
Commissioning Technicians	-	-	-
Decommissioning	-	-	-
Metering Technicians	-	-	-
General Technicians	-	-	-
Heat Treatment Technician	-	-	-
Turbine Technicians	-	-	-
Valve Technicians	-	-	-
Wind Turbine Technicians	-	-	-
Unidentified Technicians	26	28	54

- Semi-skilled – 505 individuals

Semi-Skilled Occupation	Count		
	North	South	TOTAL
Decommissioning	199	-	199
Blaster / Painter	10	36	46
Labourers	-	41	41
Welding	13	23	36
General Mates	18	16	34
Storeman	18	-	18
Electrical	-	19	22
Steel Erector	-	-	13
Mechanical fitting	-	-	11
Joiner	10	-	10
Bricklayers	-	-	-
Deck Operator / Deck Crew	-	-	-
Crane Operators	-	-	-
Thermal Insulation Operative	-	-	-
Expeditors / Shipping	-	-	-
Non-Destructive Testing Operative	-	-	-
Pipefitting	-	-	-
Slinger/Banksman/ Rigger	-	-	-
Unidentified Semi-Skilled	21	22	43

- Supervisors – 372 individuals

Supervisor Occupation	Count		
	North	South	TOTAL
General Foreman / Superintendent	34	30	64
Mechanical	11	17	28
Scaffolding	-	23	23
Electrical	-	21	21
Welding	-	18	18
Radiation Protection / Health Physics	18	-	18
Lifting (Rigging/Erecting)	-	16	16
Thermal Insulation (Lagging)	-	13	13
Pipefitters	-	10	10
Appointed Person	-	-	-
LOLER / Lifting Focal Point	-	-	-
Rope Access	-	-	-
Instrumentation	-	-	-
Production	-	-	-
Riggers	-	-	-
Cleaning	-	-	-
Maintenance	-	-	-
Painter	-	-	-
Platers	-	-	-
Unidentified Supervisors	62	51	113

- Engineers – 2,297 individuals

Engineers Occupation	Count		
	North	South	TOTAL
Mechanical Engineer	107	369	476
Electrical Engineer	75	104	179
Process Engineers	80	80	160
Subsea Engineer	155	-	155
Civil & Structural	31	107	138
Instrument and Control	57	80	137
Pipeline Engineer	92	27	119
Design Engineer	65	43	108
Thermal Insulation Engineers	-	82	82
Chemical Engineer	29	33	62
IT / Telecom / Cybersecurity	48	-	48
Field Engineers	-	40	40
Safety Engineers	19	13	32
Technical Safety Engineer	29	-	29
Commissioning Engineer	19	10	29
Nuclear Safety Case Engineer	13	-	13
Welding (Metallurgist) Engineer	-	-	13
Nuclear Engineers	-	-	10
Inspection / Integrity Engineers	-	-	-
Renewables Engineers	-	-	-
Non-Destructive Testing	-	-	-
HVAC Engineers	-	-	-
Digitalisation Engineer	-	-	-
Maintenance Engineers	-	-	-
Mining Engineers	-	-	-
Unidentified Engineers	292	137	429

- Management and Professional workers – 2,915 individuals

Management and Professional Workers Occupation	Count		
	North	South	TOTAL
Project Managers	378	151	529
Directors & Managers	412	101	513
Project Engineers	344	108	452
Commercial Support	163	42	205
Safety, Health, Environment and Quality	154	27	181
Procurement Specialists	116	52	168
Project Controllers	79	79	158
Planners	127	31	158
Document Controllers	72	22	94
Quality Control / QA staff	45	40	85
Cost Engineer / Quantity Surveyor	41	26	67
Site Managers	25	32	57
Construction Manager	16	16	32
Estimators	13	12	25
Analysts	10	-	10
Consultants	12	-	12
Business Development	11	-	11
Logistics	10	-	10
Area Manager	-	-	-
Focal Point	-	-	-
Installation Managers (OIM)	-	-	-
Operations	-	-	-
Unidentified Management and Professional	75	43	118

- Scientists – 23 individuals

Scientists Occupation	Count		
	North	South	TOTAL
Physicists	-	18	18
Chemists	-	-	-
Geologist	-	-	-

- Support Staff – 1,502 individuals

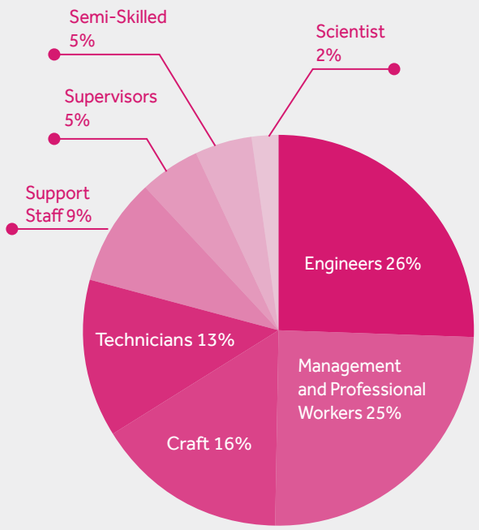
Engineers Occupation	Count		
	North	South	TOTAL
Admin	320	79	399
Human Resources + Learning and Develop.	223	72	295
Finance	203	69	272
Health and Safety	110	104	214
Marketing	28	16	44
IT / Telecom / Cybersecurity	18	-	18
Communications	-	14	14
Legal	17	-	17
Competence Assessors / Supervisors	14	-	14
Unidentified Support Staff	164	43	207

320 other unidentified workers (238 in the North, 82 in the South).

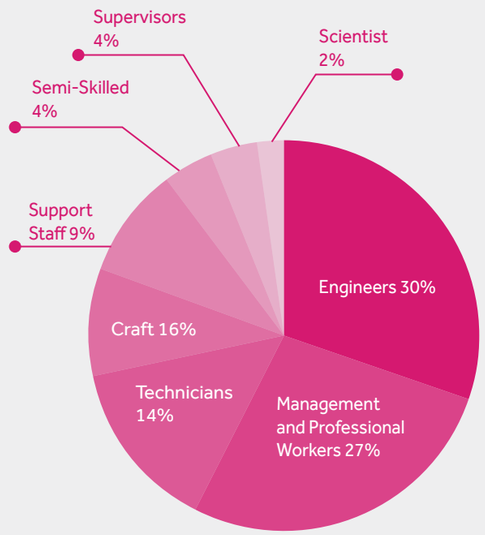
Annex B: North of England

Workforce distribution per occupational category:

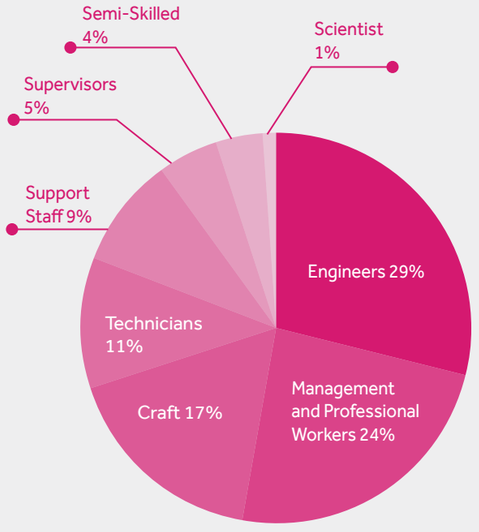
North of England



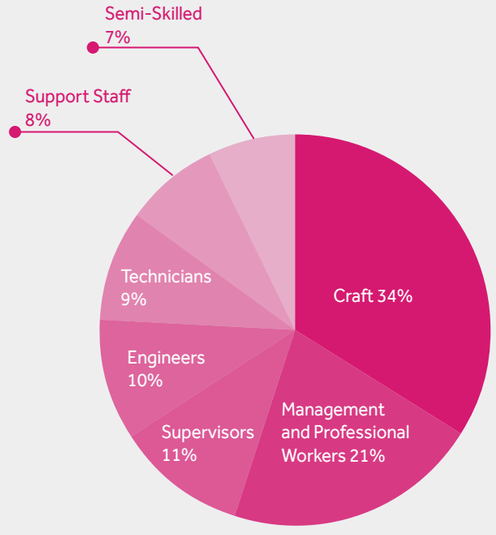
North West



North East



Yorkshire and the Humber



List of occupations and count from North of England

Occupations with less than 10 workers are omitted.

- Craft – 2,072 individuals

Craft Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Pipefitters	128	82	132	342
Electrical Fitters	76	112	88	276
Scaffolders	125	62	65	252
Mechanical Fitters	36	27	160	223
Platers	34	41	144	219
Pipe Welders	56	32	63	151
Riggers	39	27	77	143
Steel Erectors	29	19	20	68
Plate Welders	-	10	32	47
Instrument and Control	33	-	-	34
Joiner	31	-	-	31
High Integrity Welders	-	-	15	20
Safety Advisers	-	-	-	16
Thermal Insulation Technicians	-	-	-	13
Instrument Pipefitters	-	-	-	-
Wirers	-	-	-	-
Duct	-	-	-	-
Plumber	-	-	-	-
Sheet Metal Worker	-	-	-	-
Fencer	-	-	-	-
Panel	-	-	-	-
Floor layers	-	-	-	-
Unidentified Craft	115	11	77	203

- Technicians – 1,646 individuals

Technicians Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Production or Process Operators	537	163	104	804
Design/Draughtspersons	216	25	79	320
Safety Technicians	76	31	-	107
Commissioning Technicians	62	-	-	64
Electrical Maintenance	34	17	11	62
Field Service Technician	55	-	-	56
Instrument and Control	18	-	-	31
Non-Destructive Testing	-	14	13	29
General Technicians	27	-	-	28
Heat Treatment Technician	25	-	-	25
Mechanical Maintenance	-	-	10	21
Rope Access Technician	15	-	-	17
Construction	-	-	-	-
Project Controls	-	-	-	-
Radioactive Waste	-	-	-	-
ROV Technician / Pilot	-	-	-	-
Inspector	-	-	-	-
Turbine Technicians	-	-	-	-
RPI	-	-	-	-
Wind Turbine Technicians	-	-	-	-
Civil Technicians	-	-	-	-
Surveyors	-	-	-	-
Winders	-	-	-	-
Decommissioning	-	-	-	-
Logistics	-	-	-	-
Unidentified Technicians	18	-	-	27

- Semi-skilled – 654 individuals

Semi-Skilled Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Labourers	100	27	45	172
General Mates	57	23	43	123
Blaster / Painter	51	-	15	71
Storeman	24	15	32	71
Welding	27	11	11	49
Electrical	11	-	22	40
Mechanical fitting	18	-	-	25
Steel Erector	20	-	-	21
Plating	-	-	-	-
Pipefitting	-	-	-	-
Thermal Insulation Operative	-	-	-	-
Bricklayers	-	-	-	-
Slinger/Banksman/Rigger	-	-	-	-
Expeditors / Shipping	-	-	-	-
Unidentified Semi-Skilled	24	14	-	41

- Supervisors – 695 individuals

Supervisors Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Mechanical	42	16	116	174
General Foreman / Superintendent	48	17	43	108
Electrical	46	26	34	106
Scaffolding	20	-	-	32
Lifting (Rigging/Erecting)	14	-	10	30
Appointed Person	19	-	-	28
Welding	-	-	13	25
Radiation Protection / Health Physics	13	-	-	13
Thermal Insulation (Lagging)	-	-	-	-
Riggers	-	-	-	-
Field Service	-	-	-	-
LOLER / Lifting Focal Point	-	-	-	-
Painter	-	-	-	-
Pipefitters	-	-	-	-
Production	-	-	-	-
Cables	-	-	-	-
Joiner	-	-	-	-
Demolition	-	-	-	-
Inspection	-	-	-	-
Instrumentation	-	-	-	-
Sheet Metal Supervisor	-	-	-	-
Stress & Test Supervisors	-	-	-	-
Wirers	-	-	-	-
Unidentified Supervisors	62	19	47	128

- Engineers – 3,352 individuals

Engineers Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Mechanical Engineer	526	164	33	723
Environmental Engineer	383	-	-	388
Electrical Engineer	184	86	62	332
Instrument and Control	208	99	17	324
Design Engineer	149	64	33	246
Process Engineers	162	53	26	241
Nuclear Engineers	151	-	-	156
Pipeline Engineer	55	43	15	113
Civil & Structural	60	15	-	83
Chemical Engineer	58	13	-	72
Safety Engineers	66	-	-	72
IT / Telecom / Cybersecurity	53	-	-	68
Thermal Insulation Engineers	39	10	10	59
Nuclear Safety Case Engineer	49	-	-	51
Commissioning Engineer	20	-	-	35
Materials Engineers	27	-	-	28
Field Engineers	-	21	-	23
Welding (Metallurgist) Engineer	-	-	12	20
Stress & Test Engineers	15	-	-	15
Non-Destructive Testing	12	-	-	12
Technologist	-	-	-	-
Fault Analysis Engineer	-	-	-	-
Compliance Engineers	-	-	-	-
Technical Safety Engineer	-	-	-	-
Building Services Engineer	-	-	-	-
Gas Engineers	-	-	-	-
Improvement Engineers	-	-	-	-
Maintenance Engineers	-	-	-	-
Mining Engineers	-	-	-	-
Demolition Engineers	-	-	-	-
Digitalisation Engineer	-	-	-	-
Distributed control system Engineers	-	-	-	-
HVAC Engineers	-	-	-	-
Packing Engineers	-	-	-	-
Remote and Robotic Engineer	-	-	-	-
Unidentified Engineers	109	126	20	255

- Management and Professional workers – 3,279 individuals

Management and Professional Workers Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Directors & Managers	360	88	118	566
Project Managers	365	107	72	544
Project Engineers	143	65	46	254
Quality Control / QA staff	135	42	44	221
Commercial Support	134	35	38	207
Project Controllers	134	35	16	185
Planners	108	39	30	177
Procurement Specialists	105	26	33	164
Consultants	128	-	-	138
Safety, Health, Environment and Quality	86	17	30	133
Cost Engineer / Quantity Surveyor	100	10	18	128
Document Controllers	85	16	-	108
Site Managers	54	20	29	103
Estimators	56	18	17	91
Construction Manager	48	13	22	83
Analysts	35	-	-	37
Area Manager	-	-	-	21
Business Development	-	-	-	-
Focal Point	-	-	-	-
Risk Assessment	-	-	-	-
Industrial Relation Manager (OIM)	-	-	-	-
Logistics	-	-	-	-
Product Managers	-	-	-	-
Installation Managers (OIM)	-	-	-	-
Operations	-	-	-	-
Technical Specialists	-	-	-	-
Unidentified M&P	25	50	11	86

- Scientists – 197 individuals

Scientists Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Physicists	114	-	-	123
Technical Assistant	36	-	-	39
Chemists	18	-	-	21
Technologist	-	-	-	-
Environmental Scientists	-	-	-	-
Geologist	-	-	-	-
Unidentified Scientists	-	-	-	-

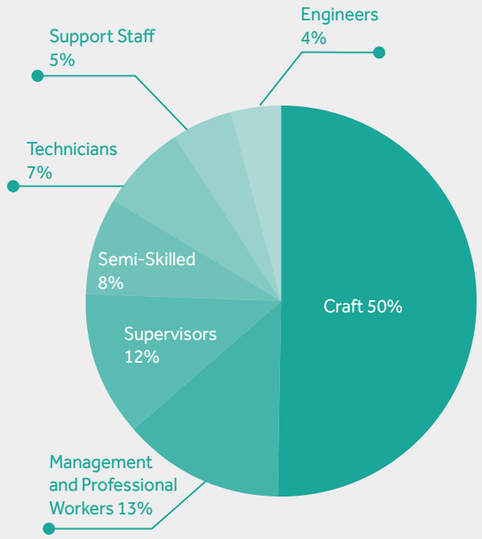
- Support Staff – 1,170 individuals

Support Staff Occupation	Count			
	North West	North East	Yorkshire and the Humber	TOTAL
Admin	205	73	85	363
Health and Safety	149	51	11	211
Finance	119	38	54	211
Human Resources + Learning and Development	113	18	26	157
Communications	19	12	-	32
Canteen Workers and Cleaners	25	-	-	30
Marketing	17	-	-	26
Competence Assessors / Supervisors	-	-	-	16
Legal	11	-	-	14
Authors	-	-	-	-
Facilities	-	-	-	-
Unidentified Support Staff	57	35	10	102

334 other unidentified workers (86 in the North West, 233 in the North East, and 15 in the Yorkshire and the Humber).

Annex C: Wales

Workforce distribution per occupational category:



List of occupations and count from Wales

Occupations with less than 10 workers are omitted

- Craft – 341 individuals

Occupation	Count
Mechanical Fitters	132
Electrical Fitters	55
Pipefitters	32
Pipe Welders	30
Plate Welders	26
Riggers	25
Platers	14
Steel Erectors	13
Safety Advisers	-
Sheet Metal Worker	-
Instrument Pipefitters	-
Unidentified Craft	-
High Integrity Welders	-
Plate Welders	-
Tray Fitters	-
Fabricators	-
Joiner	-
Unidentified Craft	37

- Technicians – 50 individuals

Occupation	Count
Instrument and Control	13
Production or Process Operators	12
Design/Draughtspersons	-
Electrical Maintenance	-
Mechanical Maintenance	-
Commissioning Technicians	-
Metering Technicians	-
Turbine Technicians	-
Unidentified Technicians	-
Unidentified Craft	37

- Semi-skilled – 57 individuals

Occupation	Count
Welding	15
Electrical	-
General Mates	-
Mechanical fitting	-
Labourers	-
Slinger/Banksman/ Rigger	-
Pipefitting	-
Plating	-
Storeman	-
Unidentified Semi-Skilled	12

- Supervisors – 81 individuals

Occupation	Count
Mechanical	24
Welding	12
Electrical	11
Appointed Person	-
General Foreman / Superintendent	-
Instrumentation	-
Production	-
Lifting (Rigging/Erecting)	-
Sheet Metal Supervisor	-
Unidentified Supervisors	-

- Engineers – 24 individuals

Occupation	Count
Civil & Structural	-
Instrument and Control	-
Design Engineer	-
IT / Telecom / Cybersecurity	-
Electrical Engineer	-
Pipeline Engineer	-
Remote and Robotic Engineer	-
Commissioning Engineer	-
Process Engineers	-

- Engineers – 24 individuals

Occupation	Count
Civil & Structural	-
Instrument and Control	-
Design Engineer	-
IT / Telecom / Cybersecurity	-
Electrical Engineer	-
Pipeline Engineer	-
Remote and Robotic Engineer	-
Commissioning Engineer	-
Process Engineers	-

- Management and Professional Workers – 87 individuals

Occupation	Count
Directors & Managers	14
Project Managers	14
Project Engineers	13
Site Managers	10
Planners	-
Safety, Health, Environment and Quality	-
Document Controllers	-
Estimators	-
Procurement Specialists	-
Quality Control / QA staff	-
Area Manager	-
Commercial Support	-
Construction Manager	-
Unidentified M&P	-

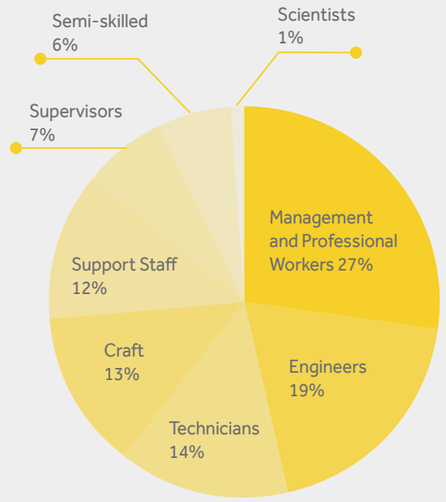
- Support Staff – 36 individuals

Occupation	Count
Admin	14
Finance	10
Health and Safety	-
Human Resources + Learning and Develop.	-
Marketing	-
Unidentified Support Staff	-

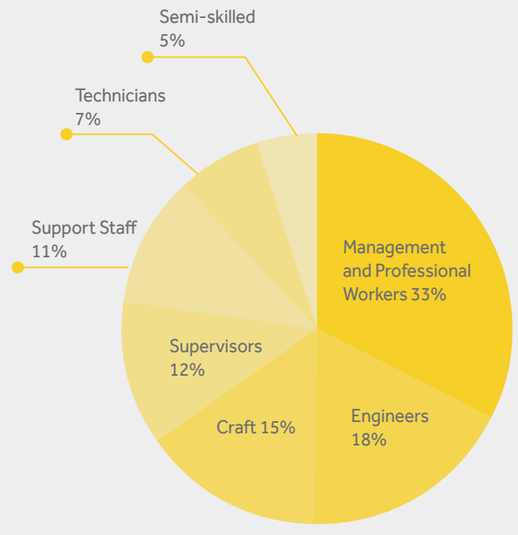
Annex D: Midlands and East of England

Workforce distribution per occupational category:

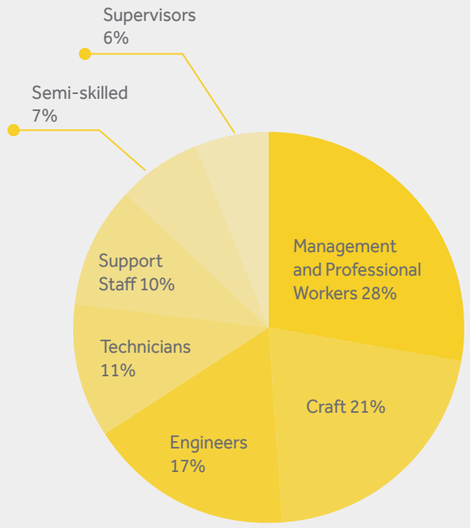
Midlands & East



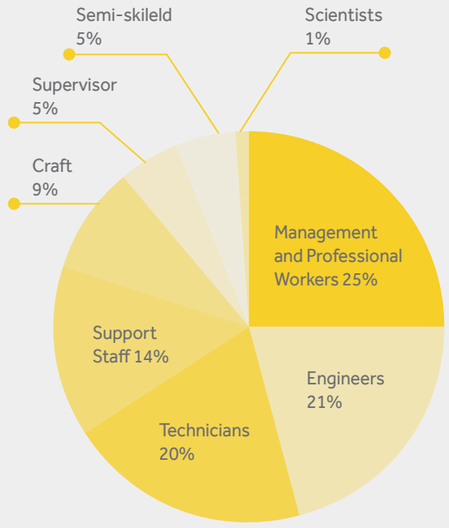
West Midlands



East Midlands



East of England



List of occupations and counts from the Midlands and East of England

Occupations with less than 10 workers are omitted.

- Craft – 433 individuals

Craft Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Pipefitters	60	12	16	88
Mechanical Fitters	-	36	27	63
Steel Erectors	23	33	-	56
Pipe Welders	20	18	13	51
Electrical Fitters	-	-	12	12
Platers		-	10	10
Riggers	-	-	-	18
Sheet Metal Worker	-	14	-	14
Wirers	-	12	-	12
High Integrity Welders	-	-	-	12
Plate Welders	-	-	-	-
Safety Advisers	-	-	-	-
Thermal Insulation	-	-	-	-
Unidentified Craft	-	19	16	35
Unidentified Semi-Skilled	24	14	-	41

- Technicians – 471 individuals

Technicians Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Production or Process Operators	175	-	14	189
Design/Draughtspersons	-	30	14	44
Field Service Technician	43	-	-	43
Mechanical Maintenance	23	18	-	41
Instrument and Control	-	25	-	32
Turbine Technicians	25	-	-	25
Safety Technicians	27	-	-	27
Electrical Maintenance	10	-	-	10
Winders	-	-	-	-
Non-Destructive Testing	-	-	-	-
Commissioning Technicians	-	-	-	-
Waste	-	-	-	-
Wind Turbine Technicians	-	-	-	-
Unidentified Technicians	-	-	-	-

- Semi-skilled – 189 individuals

Semi-skilled Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Welding	20	11	-	31
General Mates	10	11	-	30
Slinger/Banksman/Rigger	11	-	-	25
Mechanical fitting	12	-	-	19
Storeman	-	-	-	16
Electrical	-	-	-	13
Labourers	-	-	-	11
Blaster / Painter	-	-	-	-
Pipefitting	-	-	-	-
Crane Operators	-	-	-	-
Plating	-	-	-	-
Steel Erector	-	-	-	-
Unidentified Semi-Skilled	-	-	15	15

- Supervisors – 189 individuals

Supervisors Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Mechanical	14	-	56	70
Appointed Person	24	-	-	24
General Foreman / Superintendent	10	10	-	20
Electrical	-	12	-	12
Lifting (Rigging/Erecting)	-	-	-	-
Welding	-	-	-	-
Rope Access	-	-	-	-
Sheet Metal Supervisor	-	-	-	-
Instrumentation	-	-	-	-
Scaffolding	-	-	-	-
Pipefitters	-	-	-	-
Thermal Insulation (Lagging)	-	-	-	-
Unidentified Supervisors	22	-	16	38

- Engineers – 634 individuals

Engineers Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Mechanical Engineer	157	49	17	223
Electrical Engineer	33	17	12	62
Instrument and Control	25	28	-	53
Design Engineer	29	-	18	47
Process Engineers	-	16	24	40
Commissioning Engineer	14	-	-	14
IT / Telecom / Cybersecurity	-	-	-	15
Nuclear Safety Case Engineer	-	-	-	-
Chemical Engineer	-	-	-	-
Stress & Test Engineers	-	-	-	-
Civil & Structural	-	-	-	-
Field Engineers	-	-	-	-
Welding (Metallurgist) Engineer	-	-	-	-
Nuclear Engineers	-	-	-	-
Pipeline Engineer	-	-	-	-
Improvement Engineers	-	-	-	-
Inspection / Integrity Engineers	-	-	-	-
Non-Destructive Testing	-	-	-	-
Building Services Engineer	-	-	-	-
Environmental Engineer	-	-	-	-
Unidentified Engineers	55	-	36	91

- Management and Professional workers – 903 individuals

Management and Professional Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Directors & Managers	110	41	64	215
Project Engineers	68	27	27	122
Project Managers	55	21	37	113
Procurement Specialists	27	21	28	76
Quality Control / QA staff	21	18	11	50
Safety, Health, Environment and Quality	26	20	-	46
Operations	-	37	-	37
Commercial Support	16	-	12	28
Planners	15	12	-	27
Site Managers	-	-	15	15
Estimators	-	-	-	17
Project Controllers	14	-	-	14
Cost Engineer / Quantity Surveyor	-	-	-	14
Document Controllers	-	-	-	11
Construction Manager	-	-	-	10
Consultants	-	-	-	10
Installation Managers (OIM)	-	-	-	-
Product Managers	-	-	-	-
Analysts	-	-	-	-
Area Manager	-	-	-	-
Business Development	-	-	-	-
Data Controllers	-	-	-	-
Focal Point	-	-	-	-
Industrial Relation Manager (OIM)	-	-	-	-
Unidentified M&P	18	-	-	18

- Management and Professional workers – 903 individuals

Scientists Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Chemists	12	-	-	12
Physicists	10	-	-	10

- Support Staff – 402 individuals

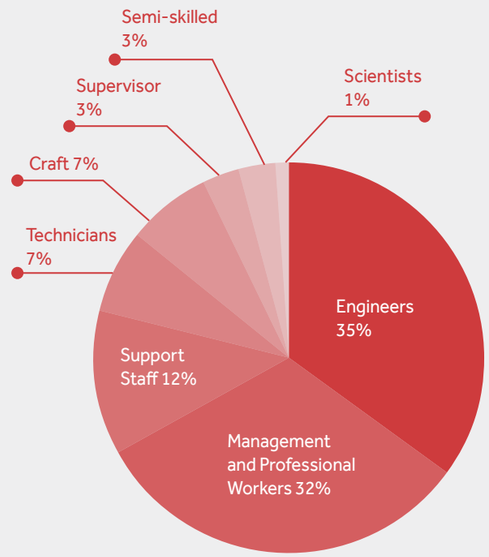
Support Staff Occupation	Count			
	East of England	East Midlands	West Midlands	TOTAL
Admin	69	22	31	122
Finance	40	33	39	112
Health and Safety	56	-	-	56
Human Resources + Learning and Development	23	16	13	52
Unidentified Support Staff	27	-	-	27
Communications	12	-	-	12
Legal	-	-	-	-
Marketing	-	-	-	-
Canteen Workers and Cleaners	-	-	-	-
Competence Assessors / Supervisors	-	-	-	-
IT / Telecom / Cybersecurity	-	-	-	-

47 other unidentified workers (22 in the East of England, 21 in East Midlands, and none in West Midlands).

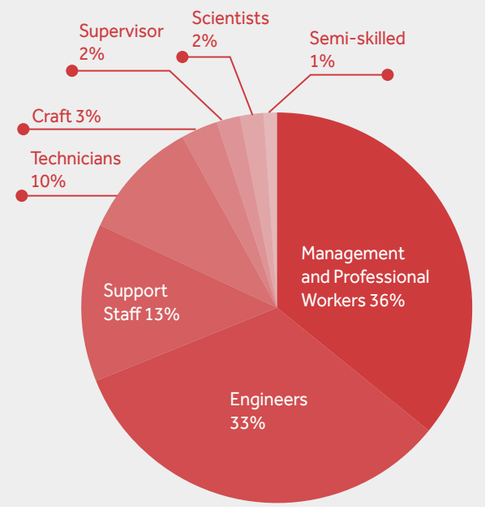
Annex E: South of England

Workforce distribution per occupational category:

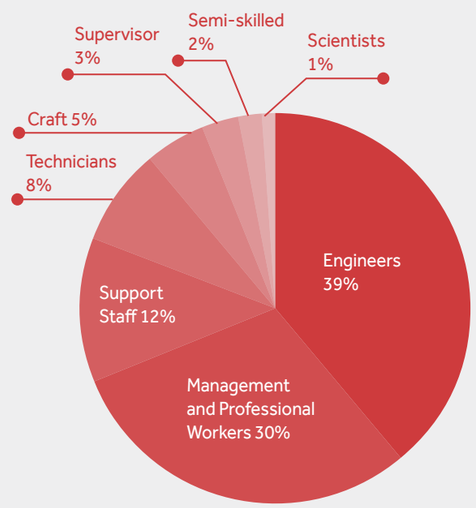
South West, South East & Greater London



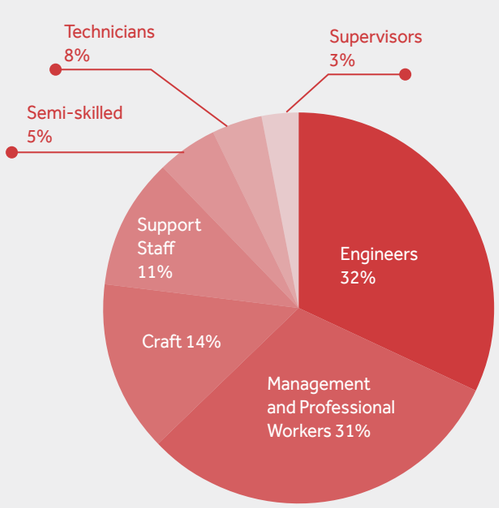
South West



South East



Greater London



List of occupations and count from Southern England

Occupations with less than 10 workers are omitted.

- Craft – 795 individuals

Craft Occupation	Count			
	South West	South East	Greater London	TOTAL
Electrical Fitters	-	30	122	152
Mechanical Fitters	37	36	56	129
Pipefitters	16	42	64	122
Steel Erectors	10	14	33	57
Plumber	-	-	47	47
Duct	-	-	38	38
Scaffolders	-	32	-	32
Thermal Insulation	-	-	28	28
Plate Welders	-	-	24	24
Pipe Welders	-	-	-	19
Riggers	-	-	-	18
Platers	-	-	13	13
Safety Advisers	-	-	12	12
Sheet Metal Worker	-	-	-	-
Flue Installers	-	-	-	-
Instrument and Control	-	-	-	-
Diver (welding/MJI/inspection)	-	-	-	-
Wirers	-	-	-	-
Unidentified Craft	-	28	-	28

- Technicians – 796 individuals

Technicians Occupation	Count			
	South West	South East	Greater London	TOTAL
Production or Process Operators	182	173	-	355
Design/Draughtspersons	49	18	81	148
Safety Technicians	37	34	10	81
Field Service Technician	-	34	-	34
Radioactive Waste	-	28	-	28
Instrument and Control	-	-	21	21
Mechanical Maintenance	-	16	-	16
Electrical Maintenance	-	-	-	14
Project Controls	-	-	-	14
Commissioning Technicians	-	-	-	11
RPI	-	-	-	-
Turbine Technicians	-	-	-	-
Fire Alarm	-	-	-	-
Non-Destructive Testing	-	-	-	-
Logistics	-	-	-	-
Metering Technicians	-	-	-	-
Waste	-	-	-	-
Unidentified Technicians	31	-	-	31

- Semi-skilled – 237 individuals

Semi-Skilled Occupation	Count			
	South West	South East	Greater London	TOTAL
Electrical	-	-	34	34
Blaster / Painter	-	-	22	22
Welding	-	-	-	20
Labourers	-	-	20	20
Thermal Insulation Operative	-	-	17	17
Mechanical fitting	-	-	14	14
General Mates	-	-	14	14
Storeman	-	-	-	12
Pipefitting	-	-	11	11
Decommissioning	-	-	-	11
Plating	-	-	-	-
Slinger/Banksman/Rigger	-	-	-	-
Expeditors / Shipping	-	-	-	-
Steel Erector	-	-	-	-
Unidentified Semi-Skilled	-	-	-	18

- Supervisors – 287 individuals

Supervisors Occupation	Count			
	South West	South East	Greater London	TOTAL
Mechanical	-	34	25	59
General Foreman / Superintendent	-	16	28	44
Lifting (Rigging/Erecting)	-	-	-	20
Welding	-	-	-	17
Electrical	-	-	13	13
Appointed Person	-	-	11	11
Scaffolding	-	-	-	-
Decommissioning	-	-	-	-
Duct	-	-	-	-
Instrumentation	-	-	-	-
Thermal Insulation	-	-	-	-
Sheet Metal Supervisor	-	-	-	-
Field Service	-	-	-	-
Logistics	-	-	-	-
Painter	-	-	-	-
Pipefitters	-	-	-	-
Unidentified Supervisors	-	39	-	39

- Engineers – 3,750 individuals

Engineers Occupation	Count			
	South West	South East	Greater London	TOTAL
Mechanical Engineer	170	425	101	696
Process Engineers	17	333	274	624
Civil & Structural	269	20	27	316
Electrical Engineer	29	162	58	249
Commissioning Engineer	191	17	-	208
Design Engineer	94	67	45	206
Instrument and Control	52	87	66	205
IT / Telecom / Cybersecurity	38	63	52	153
Pipeline Engineer	-	64	83	147
Safety Engineers	23	32	18	73
Environmental Engineer	-	17	43	60
Welding (Metallurgist) Engineer	-	-	54	54
Nuclear Safety Case Engineer	42	11	-	53
Subsea Engineer	-	13	27	40
Technical Safety Engineer	-	13	24	37
Chemical Engineer	-	12	12	24
Nuclear Engineers	20	-	-	20
Technologist	-	15	-	15
Materials Engineers	15	-	-	15
Field Engineers	-	-	-	10
Thermal Insulation Engineers	-	-	-	-
Remote and Robotic Engineer	-	-	-	-
Renewables Engineers	-	-	-	-
Stress & Test Engineers	-	-	-	-
Riser Engineers	-	-	-	-
Cables Engineer	-	-	-	-
Completion Engineers	-	-	-	-
Configuration Engineers	-	-	-	-
Digitalisation Engineer	-	-	-	-
Fire Alarm	-	-	-	-
Geotechnical Engineers	-	-	-	-
HVAC Engineers	-	-	-	-
Unidentified Engineers	49	266	159	474

- Management and Professional workers – 3,467 individuals

Management and Professional Occupation	Count			
	South West	South East	Greater London	TOTAL
Project Managers	219	200	141	560
Directors & Managers	64	190	254	508
Procurement Specialists	155	124	81	360
Project Engineers	29	152	130	311
Construction Manager	208	31	36	275
Project Controllers	90	95	56	241
Quality Control / QA staff	113	51	33	197
Cost Engineer / Quantity Surveyor	90	44	43	177
Commercial Support	18	75	47	140
Planners	31	57	34	122
Document Controllers	-	76	32	108
Estimators	-	38	23	61
Consultants	25	30	-	55
Safety, Health, Environment and Quality	-	22	31	53
Site Managers	15	23	14	52
Logistics	22	-	-	22
Analysts	-	-	13	13
Business Development	-	13	-	13
Area Manager	-	-	-	12
Installation Managers (OIM)	-	-	-	-
Operations	-	-	-	-
Industrial Relation Manager (OIM)	-	-	-	-
Risk Assessment	-	-	-	-
Unidentified M&P	55	25	59	139

- Scientists – 107 individuals

Management and Professional Occupation	Count			
	South West	South East	Greater London	TOTAL
Physicists	68	-	-	68
Geologist	-	-	-	10
Chemists	-	-	-	-
Health Physics	-	-	-	-
Technical Assistant	-	-	-	-
Environmental Scientists	-	-	-	-
Mathematicians	-	-	-	-
Technologist	-	-	-	-

- Support Staff – 1,249 individuals

Support Staff Occupation	Count			
	South West	South East	Greater London	TOTAL
Admin	132	161	108	401
Finance	49	113	88	250
Human Resources + Learning and Develop.	78	72	64	214
Health and Safety	119	58	23	200
Legal	-	-	23	23
Marketing	-	16	-	16
Communications	-	-	-	12
IT / Telecom / Cybersecurity	-	10	-	10
Canteen Workers and Cleaners	-	-	-	-
Trade Controls	-	-	-	-
Translators	-	-	-	-
Unidentified Support Staff	13	36	47	96

168 other unidentified (88 in the South West, 50 in the South East, and 30 in Greater London).

Annex F: Transregional companies

In this report, the analyses of the regional workforce growth data is based on a series of subsamples derived from the ECITB Census database. Companies employing more than 90% of their workforce in a specific region are grouped together to form the subsample of that region. For instance, a company employing 95% of its workforce in Northern England is part of the subsample used in the analysis of Northern England's workforce growth data. The aim is to isolate regional workforce growth trends and to reduce the bias caused by transregional companies since workforce growth data was collected at company level.

Transregional companies are defined as companies with no dominant presence in a particular region, and whose activities significantly extend across different regions in Great Britain. Transregional companies that replied to our questions about workforce growth represent one third of the entire engineering construction industry workforce captured in the survey.

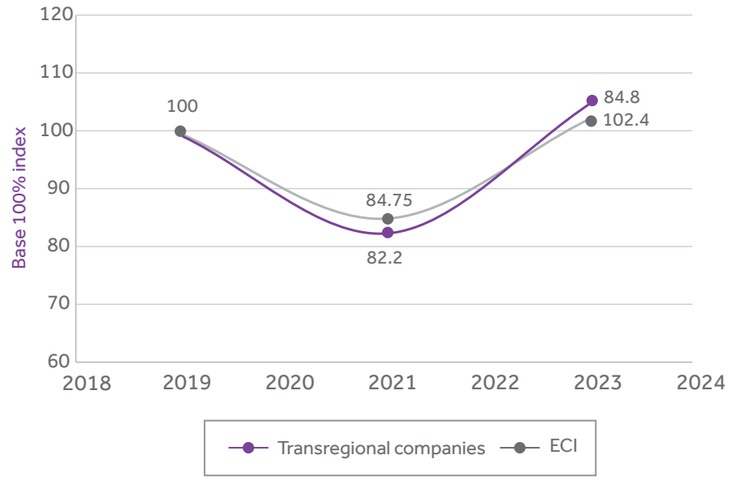
The table below shows that this transregional subsample differs from the combined total of the five regional subsamples in terms of workforce geographical spread. Forty-three percent of the workforce from the transregional subsample is based in the North of England, whereas this percentage drops to 19% in the combined regional subsamples. In other words, the impact of a decrease in the transregional workforce numbers is likely to have a greater impact on the North of England's ECI than on any other region. However, transregional companies data cannot be linked to individual regions with certainty. Hence, in order to get a comprehensive picture of workforce growth data in a specific region, it is advisable to read this annex in conjunction with a region's workforce growth section.

Workforce distribution of companies that provided workforce growth data:

Region	Transregional subsample	Regional subsamples	All subsamples
Scotland	22%	30%	25%
North	43%	19%	33%
Wales	1%	4%	2%
Midlands & East of England	8%	6%	7%
South	21%	38%	28%
Outside Great Britain	0.5%	0%	< 0.5%
Unknown (UK)	0.5%	0%	< 0.5%
Offshore (UK)	4%	4%	4%

The analysis of transregional companies' workforce growth reveals that numbers dropped by 17.8% from 2019 to 2021. However, these companies also expect to grow beyond pre-Covid levels by 6.4% in 2023, compared to a 2.4% increase expected by the entire pool of ECI companies.

Transregional employers workforce growth expectations:

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