Cogent Skills
for science and technology

Hydrogen Skills Alliance

Funded by UK Government

AUGUST 2026

RESEARCH REPORT

HYDROGEN AND CARBON CAPTURE WORKFORCE READINESS

Cogent Skills
for science and technology

Contents

1. Strategic context 4
Purpose of the research 4
2. The Regional Workforce Resilience Index 5
Scope of the sectors covered 5
Defining the priority occupations and workforce domains 5
Operational workforce distribution and domain importance 5
Reflecting national recruitment difficulty 6
Interpreting the scores 7
The five pillars and their purpose 7
Methodological boundaries 8
How this report should be read 9
3. Regional and National Summaries 10
East Midlands 11
East of England 13
London 15
North East 17
North West 19
South East 21
South West 23
West Midlands 25
Yorkshire and the Humber 27
Northern Ireland 29
Scotland 31
Wales 33
4. Structural Workforce Risk 35
What the score captures and how to interpret it 35
Practical implications for delivery 35
5. Job Postings and Skills Transferability Analysis 37
Labour market demand signals 37
Skills similarity and transition potential 39
6. Strategic Implications for Policy and Delivery 40
What the evidence tells us 40
Lessons for policymakers 41

Working with the wider system 41
Using the data and dashboard 42
Keeping the evidence current 42
7. Appendices 43

1. Strategic context

The UK's ambitions for hydrogen and carbon capture usage and storage (CCUS) depend not only on capital investment and project delivery capability, but also on the availability of a workforce that can design, build, operate and maintain new assets safely and at pace. Across both value chains, delivery is workforce-intensive: projects require specialist functions from early-stage design, consenting and safety assurance, through construction and commissioning, and into long-term operations, maintenance and compliance. As a result, workforce readiness acts as a practical delivery constraint. Where labour supply is tight, projects may face higher costs, longer lead times, greater reliance on contractors and inward recruitment, or intensified competition with adjacent sectors and other infrastructure priorities.

Workforce readiness is also inherently place-based. Hydrogen and CCUS activity will concentrate around specific industrial assets, ports, supply chains and storage or transport infrastructure. By contrast, the workforce required to deliver those assets is unevenly distributed across the UK, reflecting long-standing differences in industrial structure, occupational mix and the scale and alignment of education and training pipelines. As a result, the workforce conditions supporting delivery are unlikely to be uniform. Some locations combine established industrial ecosystems with a deep technical labour pool and a strong platform for skills transfer. Others may have emerging capability but thinner labour markets, tighter recruitment conditions, or longer-term structural risks that could constrain sustained scale-up.

Purpose of the research

This report interprets findings from the Regional Workforce Resilience Index for hydrogen and CCUS to support policy and delivery planning. The Index provides a standardised UK-wide diagnostic of workforce capability, recruitment pressure, industrial context and longer-term workforce sustainability risks. Its purpose is to help DESNZ understand where delivery-critical pinch points and transition opportunities are most likely to sit, and to support targeted, preventative intervention alongside local delivery planning.

The report is designed to stand alone as an analytical document. An interactive dashboard has also been provided to DESNZ to support more granular interrogation of occupations and pillars as projects are commissioned or move through different delivery stages. The dashboard enables ongoing exploration of the evidence as circumstances change, while this report draws out and interprets the key cross-cutting insights for policy and delivery planning.

The Index can be used as a diagnostic tool to support the development of regional and national plans. However, it is not a guide to where investment should or should not occur. Deployment decisions reflect a wide set of considerations, including land availability, costs, planning consent, network access, storage potential, industrial clustering and wider infrastructure constraints. The Index is intended to support discussions about workforce intervention by clarifying where workforce conditions are likely to make mobilisation easier, where constraints may tighten delivery timelines, and where early action could reduce cost escalation or scheduling risk.

2. The Regional Workforce Resilience Index

Scope of the sectors covered

This analysis defines the hydrogen scope as production, transportation and storage, covering steam methane reforming (SMR), including CCUS-enabled SMR; electrolytic hydrogen production; pipeline and road-based distribution; and bulk storage solutions such as high-pressure tanks, salt caverns, solid storage and cryogenic systems.

The CCUS scope includes CO_2 capture, separation and compression; CO_2 transport via pipeline; and geological injection and storage.

This research treats hydrogen and CCUS as a single delivery workforce requirement. While the two technologies differ in their delivery models, they draw heavily on overlapping occupational groups and capabilities, particularly in engineering, construction, operations, maintenance, safety and regulatory functions. Grouping the two workforces together provides a clearer view of potential competition for shared labour pools and opportunities for cross-sector transitions, while still allowing role-specific differences to be explored through pillar- and occupation-level analysis.

Defining the priority occupations and workforce domains

The Index is built around a defined set of 39 priority occupations. This scope was developed through a systematic literature review of workforce research covering both hydrogen and CCUS. Sources were drawn from the UK and international literature, including the United States, Canada, Australia, France and South Africa. The review produced a long list of job roles across both value chains, which were deduplicated, translated into UK-relevant terminology, and mapped to 79 four-digit Standard Occupational Classification (SOC) codes.

The longer list included roles that may be present in some projects but are not common across all projects, are not typically required in large numbers, and/or are not considered delivery-critical across most of the anticipated hydrogen and CCUS activities. To ensure the analysis remains focused on the roles most likely to shape delivery outcomes, the list was refined to 39 occupations and grouped into six workforce domains.

This occupational scope is not intended to catalogue every job that might appear within hydrogen or CCUS projects. It provides a consistent, analytically meaningful set of occupations against which regional workforce capability can be assessed. The list should not be read as a complete inventory of all jobs associated with hydrogen or CCUS projects, nor as the staffing model for any single facility. It represents an indicative view of workforce need across multiple value-chain elements, technologies and project types.

Operational workforce distribution and domain importance

A key input to the Index is the assumed distribution of the workforce across the six domains used in the framework. Five of these domains describe the workforce required once assets are fully operational, while Construction is treated separately because its workforce requirement is front-loaded during the build phase rather than sustained during operations. Initial assumptions about the priority occupations and the proposed distribution across workforce domains were shared with industry through employer engagement activity delivered as part of this Accelerator project, alongside consultation with the Hydrogen Skills Alliance stakeholder community. Employers were asked to review both the placement of roles within domains and the relative proportions applied to each domain. The final occupational scope and domain distribution

used in this analysis reflect refinements made following that feedback, ensuring that the framework better aligns with how workforces are organised and deployed in practice.

In this model, Operations and Maintenance are treated as the primary delivery domains, including embedded engineers where they contribute directly to day-to-day operation and asset care (for example, process engineers within Operations and mechanical engineers within Maintenance). The Engineering domain is deliberately narrower and captures more specialist and system-level capability, such as subsurface assurance, pipeline and wells engineering, process safety and control systems architecture. The assumed operational workforce distribution used for this research is shown in Table 1.

Workforce Domain	Assumed distribution
Operations	40%
Maintenance	35%
Engineering	12%
Logistics	8%
Digital technologies	5%
Construction	Treated separately (front-loaded)

Table 1: Assumed distribution of the operational workforce across hydrogen and carbon capture workforce domains

To reflect differences in the importance of workforce domains over the longer term, each domain is assigned a modest importance multiplier within relevant pillars of the Index. Domains expected to account for a larger share of the operational workforce receive higher multipliers, while domains expected to account for a smaller share receive lower multipliers. The findings therefore reflect the practical reality that sustained delivery depends more heavily on some workforce domains than others, particularly operations and maintenance. Construction receives a lower importance multiplier, reflecting its smaller contribution to long-term workforce requirements once assets are operational.

These assumptions are intended as an orientation tool rather than a definitive staffing benchmark. They provide a consistent way to weight domains within the Index so that it captures delivery-relevant capability differences across regions without implying a fixed workforce composition for every project.

Reflecting national recruitment difficulty

The Index incorporates evidence on national recruitment difficulty to ensure that roles facing tighter labour market conditions are appropriately reflected in the scoring. Using Skills England's Occupations in Demand analysis, each of the 39 occupations is assigned a weighting based on how difficult it is to recruit nationally. Occupations recognised as being in critical or elevated demand across the UK are assigned a modest weighting multiplier.

While this adjustment is small, it is important for interpretation. In practice, delivery risk is often driven by a small set of hard-to-fill roles that are critical during construction, commissioning and early operations. Weighting occupations by recruitment difficulty helps ensure that these roles contribute proportionately to the overall Index results, rather than all occupations being treated as equally straightforward to recruit.

Interpreting the scores

The Index is intended as a diagnostic tool. The scores broadly indicate the range of workforce conditions across areas and are intended to highlight where further investigation may be needed to inform planning and decision-making.

Every region has a mix of strengths and constraints across the five pillars. For example, an area with strong occupational coverage today may still face significant recruitment pressure or medium-term replacement risk, while another may have a smaller workforce base overall but face fewer immediate pressures in particular parts of the workforce. The pillar-level detail helps show where particular constraints or opportunities arise, which workforce domains and occupations are most affected, and what type of response may be appropriate.

Each pillar produces a score between 0 and 100, calculated by rescaling the underlying indicators so that the highest observed value is set to 100 and the lowest to 0. Scores indicate the range of workforce conditions across the UK rather than an absolute measure of strength or weakness.

Underlying indicators are converted into location quotients (LQs) to account for differences in the size of regional labour markets. These indicate whether an occupation, training pipeline or industrial activity is more or less concentrated in a region relative to the UK average. For readability within this report, patterns are described as occupations or activities being over-represented, under-represented, or concentrated relative to each region's employment baseline. The employment baseline used for this interpretation is based on the industrial footprint measure using the region of workplace, as this provides the best available proxy for the actual distribution of jobs across regions.

The five pillars and their purpose

The Regional Workforce Resilience Index outlines five complementary pillars to provide a structured view of: (i) the workforce currently present in relevant occupations, (ii) the training pipeline that may replenish that workforce over time, (iii) recruitment pressure affecting mobilisation in the near term, (iv) the industrial ecosystem that supports skills transfer and delivery, and (v) longer-term structural risks that may constrain sustainability as deployment scales. Taken together, these pillars capture distinct but interrelated dimensions of workforce readiness and allow the Index to reflect both current capacity and the factors likely to shape resilience over time.

This report sets out the framework and draws on the same underlying evidence to interpret the implications for workforce planning. These implications are explored through the regional summaries and the cross-cutting analysis that follow.

The section below describes the purpose and interpretation of each pillar.

Pillar A: Existing workforce stock: Do regions already have people working in the relevant occupations?

This pillar measures the presence and concentration of workers across the 39 priority occupations, grouped into six domains. It reflects the potential local labour pool that could support hydrogen and CCUS delivery, recognising that these roles are observed across the whole economy and therefore indicate transferable capacity, rather than confirmed hydrogen/CCUS employment. The score reflects both scale and specialisation. Workforce

location is based on region of residence, recognising that commuting can occur across regional boundaries.

Pillar B: Education and training pipeline: Is the future workforce being built?

This pillar measures the volume and concentration of relevant education and training enrolments in each region, drawing on further education, higher education and apprenticeships aligned to the hydrogen and CCUS occupational set. It provides an indication of whether regions are likely to replenish and grow the workforce over time. The score reflects both volume and specialisation. It is an indicator of pipeline presence, not training quality, completion rates or the extent to which learners enter hydrogen/CCUS roles.

Pillar C: Labour market pressure: How hard is it likely to be to recruit in the near term?

This pillar provides a view of recruitment pressure for the priority occupations by combining signals on skills-shortage vacancies, vacancy tightness relative to the existing workforce and job-posting volume. It distinguishes between regions where relevant skills may exist but are highly contested, and those with greater headroom to absorb new demand. The measure is scaled so that higher scores indicate lower labour market pressure.

Pillar D: Industrial footprint: Does the region have proven capacity to host similar industries?

This pillar measures the concentration of adjacent, safety- and regulation-intensive industries most comparable to hydrogen and CCUS delivery environments. It provides a proxy for the strength of the industrial ecosystem that supports deployment, including supply chains, contractors, compliance capability and operational culture. The score reflects both scale and specialisation. Industrial footprint is measured using region of workplace, reflecting where industrial activity and infrastructure are physically located.

Pillar E: Structural workforce risk: Where could today's strength become tomorrow's constraint?

This pillar captures longer-term workforce sustainability risks that can constrain scaling even where current capacity appears strong, such as retirement exposure, reliance on graduate entry, gender imbalance and dependence on international talent. Because reliable region-by-occupation demographic estimates are limited, risk is assessed nationally for each occupation. Regional scores therefore reflect the occupational mix in each region and are best interpreted as a signal of composition-driven exposure rather than a precise regional demographic measure.

Methodological boundaries

The report draws on Labour Force Survey (LFS) workforce indicators using a four-quarter average (July 2024 to June 2025), alongside complementary evidence on industrial footprint and education and training pipelines. The approach is designed to provide a consistent and robust basis for profiling workforce conditions across the UK, relevant to hydrogen and CCUS delivery.

Workforce estimates are based on surveys rather than censuses. Four-quarter averaging reduces volatility but does not remove uncertainty, particularly for smaller regions and low-incidence occupations. Apparent zero or near-zero values should be interpreted as very low recorded employment and/or employment not reliably detected in the sample, rather than

literal absence. Small deviations from baseline are not treated as meaningful in themselves, as minor differences between a region's share of in-scope occupational employment and its overall employment share may reflect sampling variability rather than a genuine labour market signal. The analysis therefore places greater weight on domain-level patterns, which are typically more stable, and uses occupation-level detail directionally to highlight potential pinch points.

Occupational presence should not be conflated with deployable capacity. The indicators describe people currently working in those occupations across all industries, not people already working in hydrogen or CCUS. They do not indicate whether individuals are available to move, whether they are fully utilised, or whether barriers such as certification, process safety experience, location, pay differentials, or employer retention will constrain redeployment. Workforce stock should therefore be interpreted as an indicator of transferable potential, alongside evidence on recruitment pressure, industrial context, and pipeline strength.

Finally, the report adopts a system-alignment approach and uses different geographic measures where conceptually appropriate. Workforce analysis is based on region of residence, reflecting the location of the labour pool potentially available to support local project delivery. Industrial footprint analysis is based on region of workplace, reflecting where industrial activity is physically located. Taken together, these considerations support a balanced interpretation of the results: the Index provides a consistent basis for identifying where workforce capability is relatively embedded, where recruitment conditions may constrain mobilisation, and where structural risks could affect sustainability as deployment scales.

How this report should be read

The report is structured to support both place-based reading and cross-cutting interpretation. The regional chapters provide concise 'Workforce and Industrial Profile' and 'Education and Training Pipeline' summaries for each region and nation and are intended to stand alone for place-based discussion. Throughout this report, 'region' is used as a shorthand for the twelve UK areas analysed: the nine English regions together with Scotland, Wales and Northern Ireland. It is recognised that Scotland, Wales and Northern Ireland are nations with their own devolved arrangements for skills and workforce policy, and the summaries should be read with those distinct policy and delivery contexts in mind.

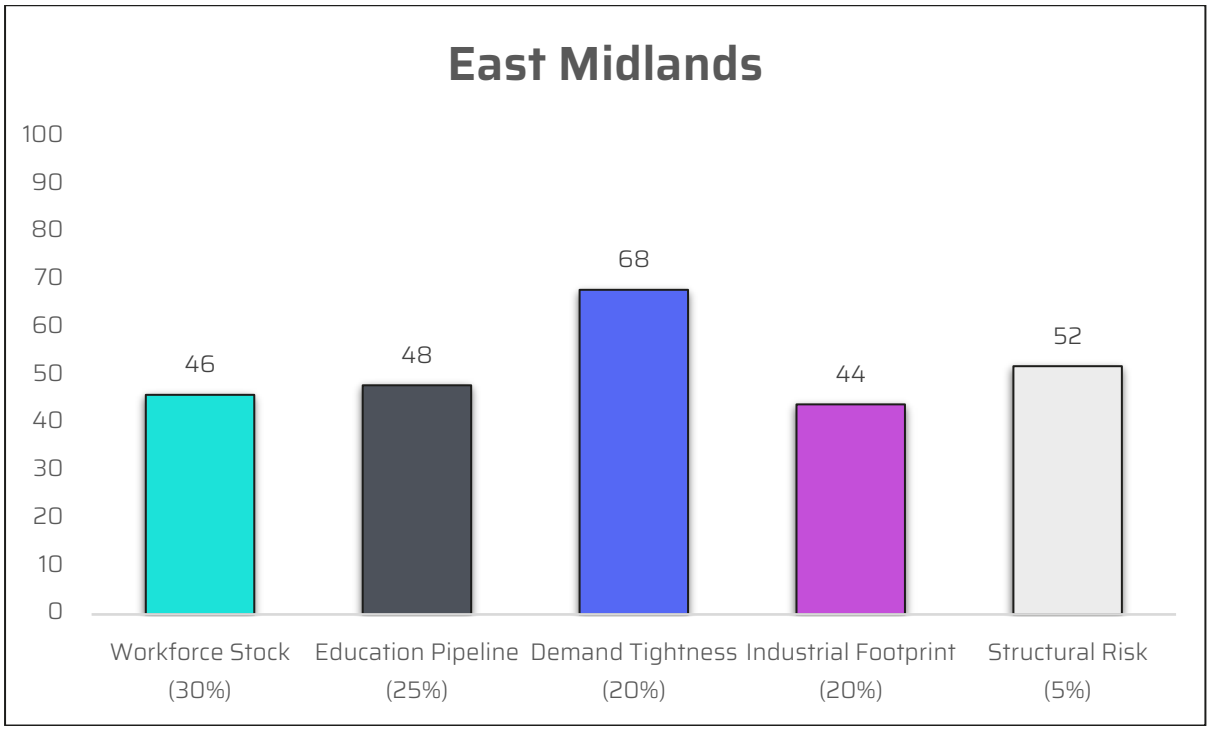
The cross-cutting sections that follow draw out themes across regions. They focus on structural workforce risk, job postings and skills transferability, and strategic implications and policy considerations, setting out how the findings can inform workforce planning tailored to local conditions and ongoing workforce intelligence.

Each regional summary also includes an indicative count of hydrogen and carbon capture projects recorded as active or planned. These counts were drawn from Hydrogen UK's project map and the Carbon Capture and Storage Association's UK project pipeline and reflect the position as of 18 February 2026. A light-touch review was undertaken to align projects to the region in which site delivery is taking place or is expected to take place. These figures are included to provide context on the scale and distribution of sector activity, rather than as a definitive measure of the delivery pipeline.

3. Regional and National Summaries

The summaries that follow describe each region's workforce and industrial profile and its education and training pipeline, benchmarked against the UK average. They are intended to support place-based workforce planning and should be read as individual diagnostics rather than as positions in a wider comparison.

East Midlands



Workforce and Industrial Profile

People living in the East Midlands make up 7.7% of UK employment across the 39 priority occupations, compared with 7.0% of total UK jobs located in the region, indicating a slightly higher share of relevant workers relative to overall employment. The occupational mix, however, suggests a more differentiated capability profile. The region shows clear strength in engineering (10.5%) and maintenance (9.0%) occupations, supported by an established base of mechanical engineering, specialist engineering professionals, environmental expertise and skilled maintenance trades. Construction (8.8%) is also above baseline, underpinned by welding, site-based delivery and construction leadership roles, although recorded employment in pipe fitting and steel erection is notably low within the sample, suggesting potential constraints in pipework-intensive and structural installation activity.

Operations (5.8%) represents the principal area of relative constraint. Roles linked to plant management, process engineering and industrial operations are less concentrated, pointing to a comparatively thinner locally embedded operational workforce. Digital technologies (5.7%) are also below baseline, indicating a more limited embedded base for data, systems integration and cyber capability. While technician-level quality assurance roles are strongly represented, professional-level regulatory and safety functions sit closer to baseline, suggesting solid operational technical coverage but less depth in higher-authority oversight roles.

This workforce profile aligns with the region's industrial footprint. In-scope industries account for 7.8% of UK activity, above the 7.0% employment baseline, indicating a relative concentration of relevant industrial activity. Upstream extraction is limited within the sample, with no recorded natural gas extraction or transport via pipelines, and construction of utility projects is comparatively modest. By contrast, the region demonstrates strength in machinery and steam generator manufacturing, alongside a notable concentration in gas manufacture and distribution and industrial installation activities. Taken together, the evidence suggests a region

oriented towards equipment production and energy network infrastructure, alongside an established presence in regulated process industries rather than primary extraction activity. The presence of 69 COMAH sites (28 upper tier, 41 lower tier), accounting for 7.6% of the UK total, reinforces the scale of its established process industry base.

Workforce domain	Employees	Share of UK employment
Construction	47,503	8.8%
Engineering	36,518	10.5%
Operations	26,160	5.8%
Maintenance	56,802	9.0%
Logistics	21,391	7.2%
Digital technologies	29,339	5.7%
Total: Priority occupations	**217,712**	**7.7%**
Total: All employment	**2,363,587**	**7.0%**

Table 2: Workforce distribution across priority occupations in the East Midlands

- **Sector activity:** The region has an estimated 4 Carbon Capture (CCSA) and 9 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 61,062 online job postings in the East Midlands for the 39 priority occupations (all industries), 7.2% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in the East Midlands (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

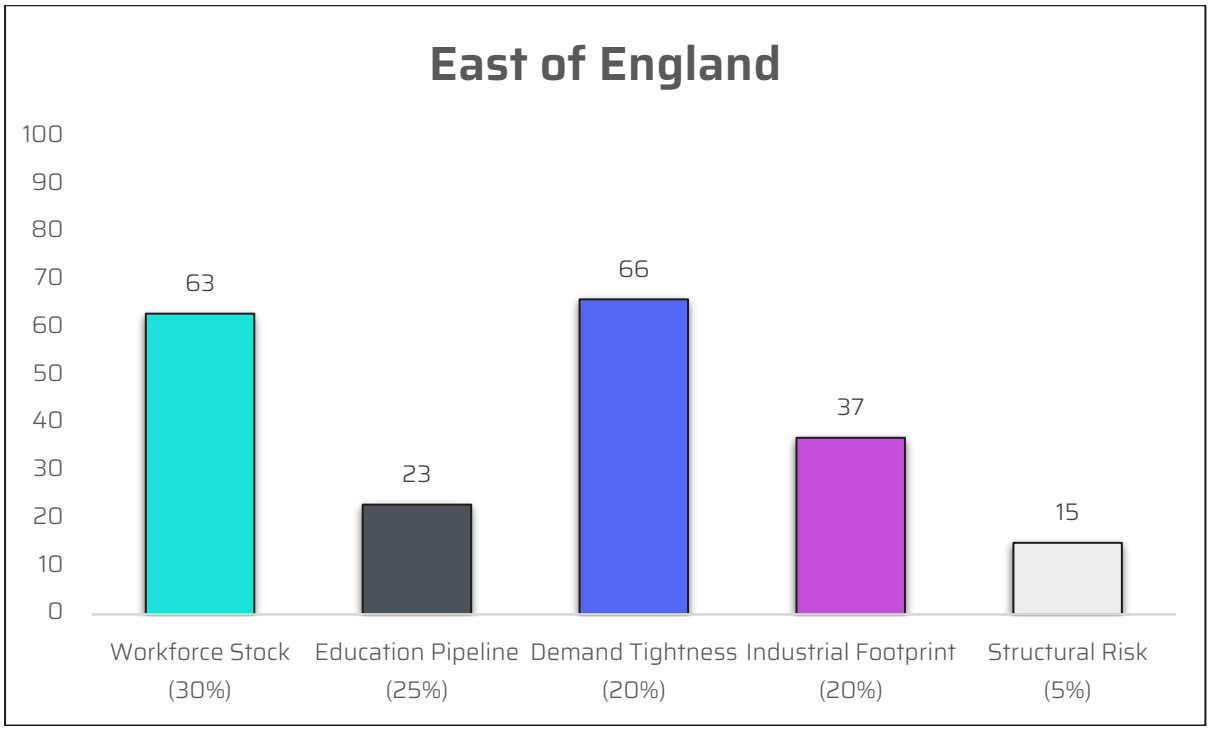
Education and Training Pipeline

Within relevant subjects, the East Midlands accounts for 6.8% of UK FE enrolments and 7.0% of UK HE enrolments, both close to its 7.0% employment baseline, indicating a broadly proportionate skills pipeline overall. At FE level, enrolment share is relatively strong in construction (7.6%) and engineering and manufacturing (8.3%), consistent with the region's delivery-oriented workforce profile, while science and mathematics (4.5%) and ICT (5.2%) sit below baseline, signalling lower relative participation in analytical and digital feeder areas.

At HE level, enrolments are notably strong in production and manufacturing engineering (13.6%), materials technology (11.9%), mechanical engineering (10.3%) and chemistry (9.8%), reinforcing strength in applied engineering, materials and process capability, whereas information technology (1.2%) and urban, rural and regional planning (1.3%) account for a comparatively small share of UK enrolments. Overall, the education and training base provides solid technical depth, particularly in higher-level engineering and materials-related subject areas relevant to hydrogen and carbon capture delivery, but shows lighter enrolment activity in digital and core analytical fields that underpin systems integration and longer-term capability development.

- **School pupil population:** The East Midlands has 743,758 school pupils across state-funded primary, secondary and independent schools, 7.2% of the UK total.

East of England



Workforce and Industrial Profile

The East of England is home to 10.0% of the UK workforce in the 39 priority occupations, compared with an 8.9% share of total UK jobs, indicating a modestly elevated share of relevant workers relative to overall employment. The occupational mix suggests a region with comparatively strong capability in operating and sustaining industrial assets. Operations (11.5%) stands out as a particular strength, supported by process engineering, energy plant operations, process operatives and operational management roles, indicating established experience in industrial operations and asset management. Construction (11.2%) is also above baseline, with solid coverage across construction leadership, civil engineering, technician roles and pipe fitting, although recorded employment in steel erection is notably low within the sample, suggesting potential constraints in certain structural build activities.

Engineering (7.6%) is comparatively less concentrated as a domain. While project engineering and delivery-focused roles are well represented, the broader stock of specialist engineering and scientific roles appears more limited. Maintenance (8.5%) sits close to baseline and is characterised by strong technician-level capability, including process and production technicians and refrigeration/HVAC trades, supporting plant reliability and systems performance. The region also demonstrates strength in logistics (10.9%), particularly logistics management, and maintains broadly solid coverage in digital technologies (9.1%), spanning IT operations, data and cyber roles. Overall, the workforce profile reflects substantial operational and enabling capacity, alongside more selective depth in specialist engineering functions.

This occupational structure sits alongside a slightly smaller industrial footprint. In-scope industries account for 8.4% of UK activity, below the 8.9% employment baseline. Upstream extraction and related support activities are limited within the sample, as are electric power generation, the construction of utility projects and industrial installation activities. By contrast, the region demonstrates clear strength in advanced manufacturing and technical services,

particularly in steel tubes and pipe manufacture, steam generators, electric motors and transformers, precision instruments, the repair of industrial machinery and technical testing and analysis. Taken together, the evidence suggests a manufacturing- and systems-oriented industrial base with strong fabrication and technical capability. The presence of 74 COMAH sites (31 upper tier, 43 lower tier), representing 8.1% of the UK total, sits slightly below the region's employment share and is consistent with a comparatively dispersed hazardous industrial footprint.

Workforce domain	Employees	Share of UK employment
Construction	60,707	11.2%
Engineering	26,371	7.6%
Operations	51,576	11.5%
Maintenance	53,593	8.5%
Logistics	32,278	10.9%
Digital technologies	47,103	9.1%
Total: Priority occupations	**271,627**	**10.0%**
Total: All employment	**3,014,113**	**8.9%**

Table 3: Workforce distribution across priority occupations in the East of England

- **Sector activity:** The region has an estimated 1 Carbon Capture (CCSA) and 6 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 75,631 online job postings in the East of England for the 39 priority occupations (all industries), 8.9% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in the East of England (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

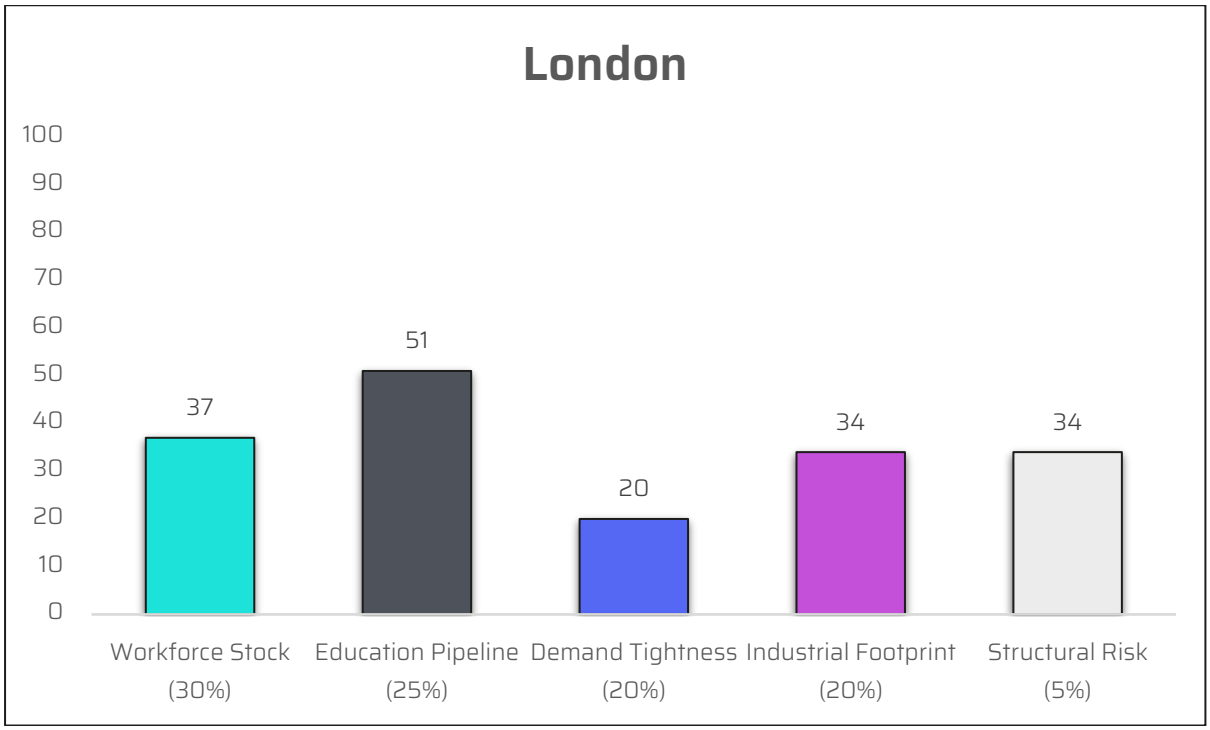
Education and Training Pipeline

Within relevant subjects, the East of England accounts for 7.1% of UK FE enrolments and 5.2% of UK HE enrolments, both below its 8.9% employment baseline, with the shortfall more pronounced at HE level. At FE level, enrolment share sits below baseline across all major subject areas, including construction (8.0%), science and mathematics (8.0%), engineering and manufacturing (6.6%) and ICT (6.1%), indicating lower participation across technical and analytical pathways relative to the scale of the regional labour market.

At HE level, enrolments are structurally lower across core engineering subject areas, including mechanical (2.7%), civil (2.3%), electrical and electronic (3.5%) and chemical, process and energy engineering (4.0%). There is, however, notable strength in materials science (25.1%), biotechnology (15.6%) and production and manufacturing engineering (11.5%). Overall, the education and training base suggests comparatively modest HE enrolment volumes in mainstream engineering disciplines relative to regional scale, alongside more specialised areas of strength in materials, bioscience and manufacturing-related fields.

- **School pupil population:** The East of England has 1,011,104 school pupils across state-funded primary, secondary and independent schools, 9.8% of the UK total.

London



Workforce and Industrial Profile

People living in London make up 10.9% of UK employment across the 39 priority occupations, compared with a 15.7% share of total UK jobs. This suggests that the occupational base most directly aligned to hydrogen and carbon capture delivery is comparatively smaller relative to the scale of London's labour market.

Digital capability is the defining feature of the region's occupational mix, with Londoners representing 18.7% of UK employment in in-scope digital technologies, reflecting a strong presence in systems design, analytics, cyber security and IT operations. This provides capacity for programme coordination, digital assurance and systems integration at scale. By contrast, delivery-facing domains are less represented relative to the overall labour market size. Construction (11.4%) sits below baseline and is weighted towards leadership and professional roles rather than site-based trades. Logistics (10.2%) follows a similar pattern, with greater representation in enabling and procurement functions than in physical distribution capacity. Engineering (8.0%) and maintenance (7.3%) are both well below baseline, and although operations (9.8%) is closer to proportional, the mix leans towards governance, regulatory and safety roles rather than plant-level and process-operational activity.

Taken together, the workforce profile suggests strong capability in oversight, coordination and digital integration, but comparatively limited depth in technician-level and plant-operational roles typically associated with industrial deployment. This workforce profile sits alongside a comparatively smaller industrial footprint. In-scope industries account for 10.6% of UK activity, below the 15.7% employment baseline. Advanced manufacturing activity is limited, as are electric power generation, chemical production and the manufacture and distribution of gas. While construction of utility projects sits above baseline, and refined petroleum manufacturing and architectural and engineering activities are broadly proportional, the overall industrial base remains less weighted towards large-scale production and energy infrastructure. In the case of

refined petroleum manufacturing, activity is likely to reflect corporate or administrative functions rather than significant production capacity. The presence of just 14 COMAH sites (5 upper tier, 9 lower tier), representing 1.5% of the UK total, reinforces the comparatively limited concentration of large-scale process industry within the region.

Workforce domain	Employees	Share of UK employment
Construction	61,590	11.4%
Engineering	27,800	8.0%
Operations	43,986	9.8%
Maintenance	46,133	7.3%
Logistics	30,309	10.2%
Digital technologies	97,088	18.7%
Total: Priority occupations	**306,906**	**10.9%**
Total: All employment	**5,283,096**	**15.7%**

Table 4: Workforce distribution across priority occupations in London

- **Sector activity:** The region has an estimated 2 Carbon Capture (CCSA) and 1 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 142,011 online job postings in London for the 39 priority occupations (all industries), 16.7% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in London (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

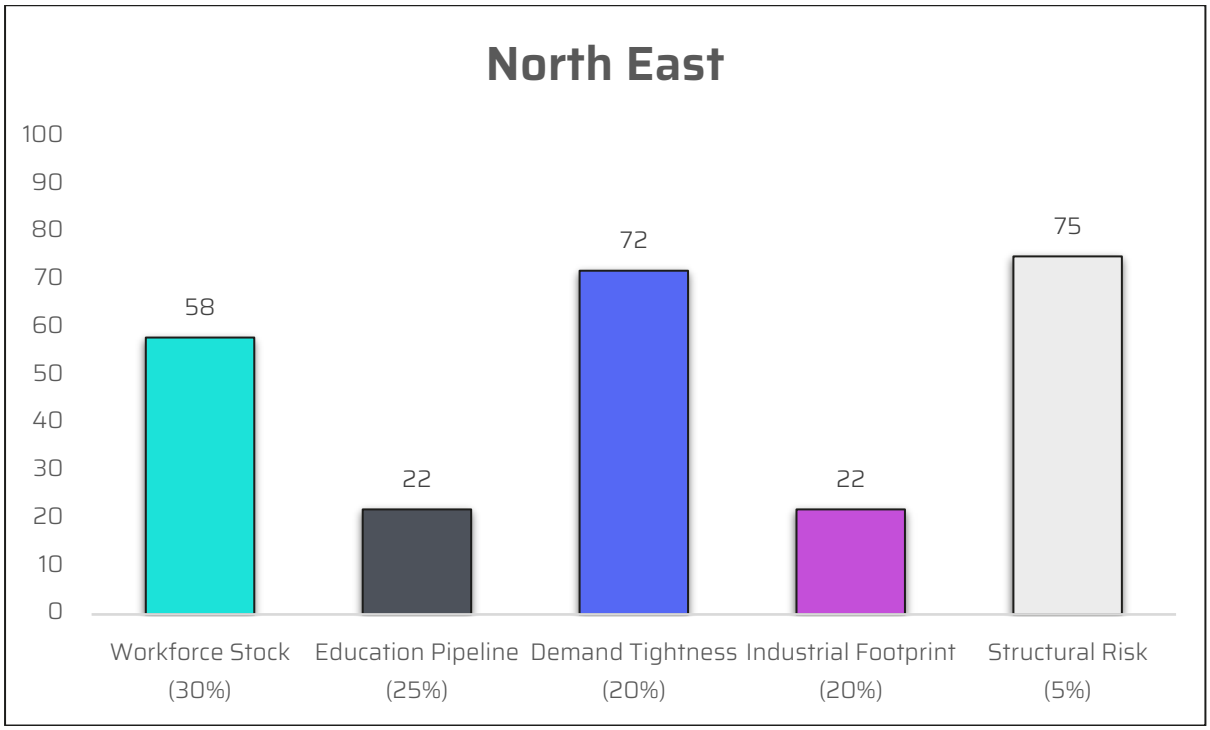
Education and Training Pipeline

Within relevant subjects, London accounts for 10.0% of UK FE enrolments and 18.2% of UK HE enrolments, compared with a 15.7% employment baseline, indicating a structurally HE-led skills pipeline relative to regional labour market scale. At FE level, London accounts for a large share of UK ICT enrolments (20.5%), while engineering and manufacturing (5.8%) sits well below baseline and construction (9.5%) and science and mathematics (8.1%) are more moderate, pointing to comparatively lower technician-level technical participation relative to the size of the regional workforce.

At HE level, enrolments are notably strong across core engineering and analytical subject areas, including civil engineering (19.6%), chemical, process and energy engineering (20.4%), electrical and electronic engineering (16.7%), mathematics (18.0%) and materials technology (30.6%). London also accounts for a particularly high share of UK enrolments in information systems (46.5%), alongside computer science (21.8%), architecture (27.9%) and urban, rural and regional planning (21.4%), reinforcing its position as a major national centre for higher-level technical and enabling disciplines. Overall, the education and training base is weighted towards HE-level technical, digital and design-led subject areas, which align strongly with systems, planning and higher-level engineering functions across the hydrogen and carbon capture value chain, with comparatively lighter participation in FE engineering and manufacturing relative to the regional workforce.

- **School pupil population:** London has 1,403,383 school pupils across state-funded primary, secondary and independent schools, 13.6% of the UK total.

North East



Workforce and Industrial Profile

The North East is home to 4.6% of the UK workforce in the 39 priority occupations, compared with a 3.5% share of total UK jobs. This suggests a comparatively strong presence of hydrogen and carbon capture-relevant workforce capacity relative to the size of the regional economy.

The domain mix is weighted towards delivery, operations and asset integrity roles. Maintenance (5.0%) and operations (4.7%) represent the region's strongest areas of relative concentration, supported by process-facing roles and quality assurance capacity. Construction (4.1%) is also above baseline and includes a trade profile that is notably strong in pipework-related, structural and welding occupations, capabilities that are typically difficult to substitute in large-scale industrial build and retrofit contexts. However, technician roles supporting civils and site delivery appear thinner within the sample, suggesting potential constraints in the enabling construction workforce even where core trades are present. Engineering (4.3%) sits modestly above baseline but appears more applied and project-oriented than science-led in composition. Enabling domains are comparatively less developed: logistics (2.9%) represents the clearest area of relative constraint, and digital technologies (3.4%) sit slightly below baseline, indicating a more limited embedded base for supply chain coordination and digital or analytical support functions.

This occupational profile sits alongside a broadly proportionate industrial base. In-scope industries account for 3.5% of UK activity, aligned with the region's 3.5% employment baseline. The North East demonstrates strength in process manufacturing, particularly in basic chemicals and refined petroleum products, and maintains a significant presence in pipeline transport and utility project construction, indicating established capability in midstream processing and energy infrastructure delivery. By contrast, upstream extraction and certain advanced manufacturing segments, including electric motors and precision instruments, are limited within the sample. The presence of 54 COMAH sites (32 upper tier, 22 lower tier),

representing 5.9% of the UK total, underscores the region's strong concentration of major hazard process activity relative to workforce size.

Workforce domain	Employees	Share of UK employment
Construction	22,149	4.1%
Engineering	14,961	4.3%
Operations	21,195	4.7%
Maintenance	31,716	5.0%
Logistics	8,683	2.9%
Digital technologies	17,409	3.4%
Total: Priority occupations	**116,111**	**4.6%**
Total: All employment	**1,188,240**	**3.5%**

Table 5: Workforce distribution across priority occupations in the North East

- **Sector activity:** The region has an estimated 8 Carbon Capture (CCSA) and 17 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 25,646 online job postings in the North East for the 39 priority occupations (all industries), 3.0% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in the North East (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

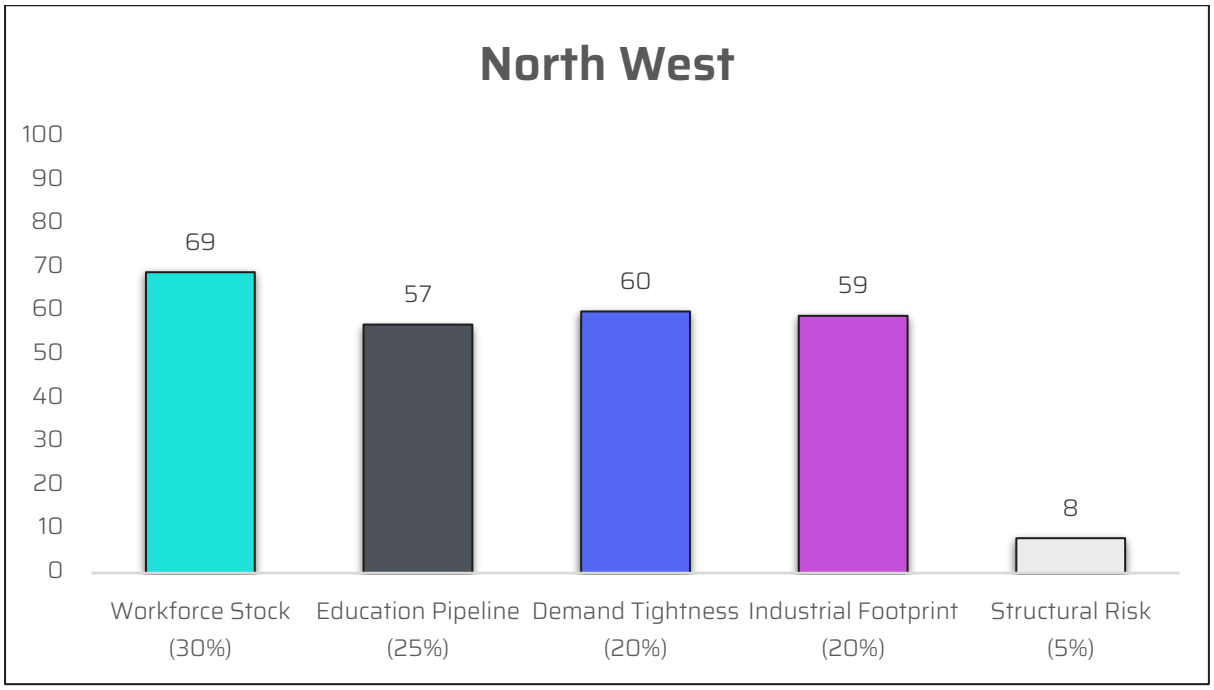
Education and Training Pipeline

Within relevant subjects, the North East accounts for 6.3% of UK FE enrolments and 5.4% of UK HE enrolments, both well above its 3.5% employment baseline, indicating a comparatively strong training pipeline relative to regional labour market scale. At FE level, enrolment share is particularly high in construction (7.4%) and engineering and manufacturing (7.3%). ICT (5.3%) and science and mathematics (3.8%) account for smaller shares by comparison, but both remain above the employment baseline, indicating that participation in analytical and digital pathways is proportionate in absolute terms, even if less pronounced than in technical trades.

At HE level, enrolments are strong across several engineering subject areas, including electrical and electronic engineering (8.2%), mechanical engineering (6.5%), civil engineering (6.7%) and chemical, process and energy engineering (6.7%). Participation is lower in some analytical and digital fields, such as statistics (0.9%) and artificial intelligence (2.3%). Overall, the education and training base is strong relative to regional scale, particularly in engineering at both FE and HE levels, with a more limited footprint in advanced analytical and digital subject areas that support systems integration and data-intensive functions.

- **School pupil population:** The North East has 392,188 school pupils across state-funded primary, secondary and independent schools, 3.8% of the UK total.

North West



Workforce and Industrial Profile

People living in the North West account for 10.6% of UK employment across the 39 priority occupations, compared with an 11.0% share of total UK jobs, indicating a broadly aligned workforce presence relative to overall employment.

The domain mix highlights depth in roles required to sustain and enable industrial activity, alongside a comparatively less pronounced operating workforce signal. Maintenance (13.2%) represents the region's most significant area of concentration, reflecting a substantial base of technical and trade roles supporting asset integrity, reliability and plant performance. Logistics (13.7%) is also strongly represented, indicating embedded capability in supply chain management, procurement and distribution. These strengths are complemented by above-baseline engineering (12.1%) and digital technologies (12.2%), suggesting a broad applied engineering platform supported by systems, cyber and analytical capacity. By contrast, operations (9.0%) sits below the regional employment baseline and is less concentrated than other core domains. While process and plant roles are present, operational workforce depth appears less distinctive relative to maintenance and enabling functions. Construction (9.6%) is below baseline overall, although specialist industrial trades, including pipework and structural roles, are well represented.

This occupational structure is supported by a similarly strong industrial base. In-scope industries account for 11.3% of UK activity, slightly above the 11.0% employment baseline. The North West demonstrates diversified strength across core process industries, including basic chemicals and refined petroleum products, alongside a marked presence in pipeline transport, environmental remediation services and the manufacture of metal tanks and reservoirs relevant to storage infrastructure. Electric power generation, waste treatment and industrial installation activities are also above baseline. Upstream extraction and gas manufacture and distribution are more limited relative to the overall labour market scale. The presence of 127 COMAH sites (62 upper tier, 65 lower tier), representing 14.0% of the UK total, exceeds the region's

employment share and underscores its status as a major centre of large-scale process and hazardous industrial activity.

Workforce domain	Employees	Share of UK employment
Construction	51,897	9.6%
Engineering	41,949	12.1%
Operations	40,516	9.0%
Maintenance	83,823	13.2%
Logistics	40,829	13.7%
Digital technologies	63,548	12.2%
Total: Priority occupations	**322,561**	**10.6%**
Total: All employment	**3,690,047**	**11.0%**

Table 6: Workforce distribution across priority occupations in the North West

- **Sector activity:** The region has an estimated 10 Carbon Capture (CCSA) and 21 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 94,185 online job postings in the North West for the 39 priority occupations (all industries), 11.1% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in the North West (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

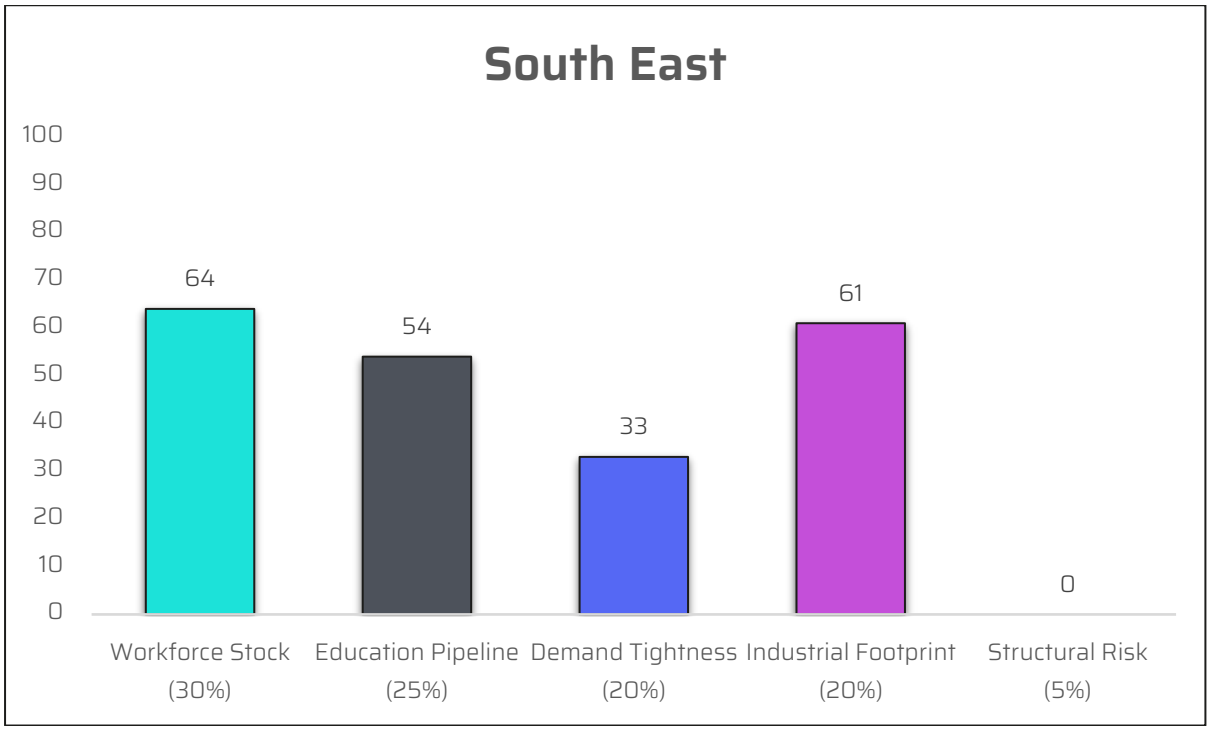
Education and Training Pipeline

Within relevant subjects, the North West accounts for 15.0% of UK FE enrolments and 9.7% of UK HE enrolments, compared with an 11.0% employment baseline, indicating a strong FE-led skills pipeline relative to the regional labour market and a more moderate HE position. At FE level, the region accounts for a significant share of UK enrolments across all major subject areas, including construction (15.1%), engineering and manufacturing (13.6%) and ICT (12.7%), with a particularly large share in science and mathematics (20.0%).

At HE level, enrolment share sits close to baseline across core STEM subject areas, including mechanical engineering (11.0%), electrical and electronic engineering (11.0%) and chemical, process and energy engineering (10.3%), alongside physics (12.3%) and chemistry (12.3%). The region also accounts for a notably high share of UK enrolments in specialist fields such as materials science (32.6%) and biotechnology (27.1%). Overall, the education and training base positions the North West as a major contributor to the UK's FE technical cohort, complemented by steady HE participation across key engineering and science disciplines relevant to hydrogen and carbon capture delivery.

- **School pupil population:** The North West has 1,162,250 school pupils across state-funded primary, secondary and independent schools, 11.3% of the UK total.

South East



Workforce and Industrial Profile

People living in the South East make up 15.1% of UK employment across the 39 priority occupations, compared with a 13.9% share of total UK jobs, indicating a modestly elevated share of relevant workers relative to overall employment. The domain profile is comparatively balanced: engineering (13.2%), operations (14.1%), maintenance (13.9%) and digital technologies (13.3%) all sit close to the regional baseline. This suggests broadly even coverage across core technical and enabling functions, rather than reliance on a narrow occupational base.

Logistics (16.8%) is the most pronounced area of relative strength, supported by strong representation in supply chain management and procurement roles. This indicates substantial embedded capability in commercial coordination and distribution functions that can underpin both capital delivery and ongoing operational supply chains. By contrast, construction (12.6%) sits below the regional baseline despite solid coverage in project management, quantity surveying, technician roles, and site supervision. The profile therefore appears weighted towards professional and supervisory capacity, with comparatively weaker signals in certain hands-on specialist trades. Pipe fitting and steel erection are particularly low within the sample, highlighting potential pinch points in pipework-intensive and structural build activities.

In-scope industries account for 14.6% of UK activity, slightly above the 13.9% employment baseline. The South East shows clear strength in downstream energy and process manufacturing, including the refining of petroleum products and the manufacture and distribution of gas. There is also a strong presence in metal tanks and reservoirs, as well as in instruments for measuring and testing, indicating capability in storage infrastructure and precision systems. Chemicals manufacturing and electric power generation sit broadly in line with overall employment. By contrast, upstream extraction is limited, as are waste treatment, remediation services, and construction of utility projects. This points to a region oriented more

towards processing, storage and network infrastructure than primary extraction or environmental services. The region's 66 COMAH sites (19 upper tier, 47 lower tier), representing 7.3% of the UK total, sit well below the employment baseline, indicating a less concentrated level of major hazard process activity relative to workforce size.

Workforce domain	Employees	Share of UK employment
Construction	68,212	12.6%
Engineering	45,790	13.2%
Operations	63,636	14.1%
Maintenance	88,244	13.9%
Logistics	50,028	16.8%
Digital technologies	69,110	13.3%
Total: Priority occupations	**385,020**	**15.1%**
Total: All employment	**4,680,019**	**13.9%**

Table 7: Workforce distribution across priority occupations in the South East

- **Sector activity:** The region has an estimated 2 Carbon Capture (CCSA) and 15 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 129,012 online job postings in the South East for the 39 priority occupations (all industries), 15.2% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 8% of sites in the South East (all industries) reported at least one skill-shortage vacancy, above the UK average.

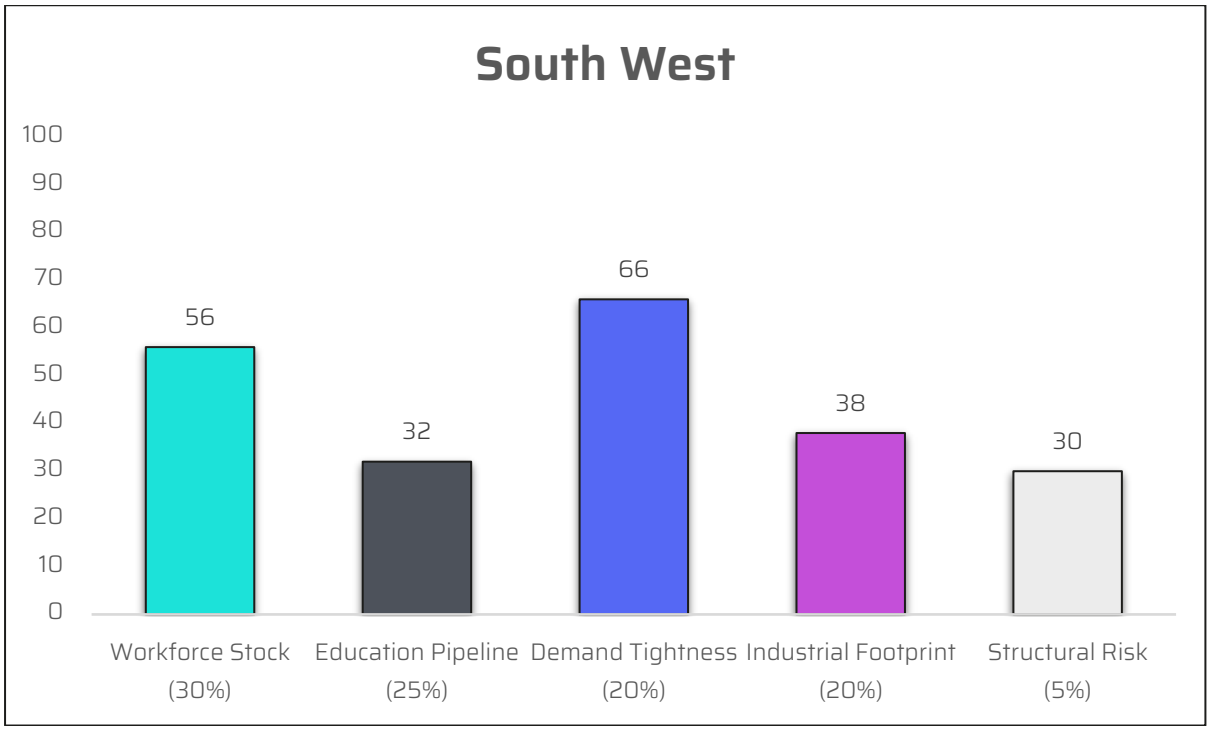
Education and Training Pipeline

Within relevant subjects, the South East accounts for 12.6% of UK FE enrolments and 12.1% of UK HE enrolments, both below its 13.9% employment baseline, indicating a comparatively lighter skills pipeline relative to the regional labour market. At FE level, enrolment share is strongest in science and mathematics (16.8%) and sits close to baseline in engineering and manufacturing (13.4%), while ICT (11.0%) and construction (9.7%) are significantly below the regional employment share, indicating comparatively lower participation in digital and construction pathways relative to workforce scale.

At HE level, the region accounts for a substantial share of UK enrolments in analytical and environmental subject areas, including information technology (35.8%), physical sciences (38.9%), environmental sciences (25.9%) and operational research (23.8%). Participation is more limited across several core engineering disciplines, particularly in chemical, process and energy engineering (3.6%). Overall, the education and training base reflects strong analytical, digital and environmental strengths at HE level, alongside comparatively lighter engineering and construction participation relative to the size of the regional workforce, suggesting a stronger pipeline for systems, analytical and environmental functions than for some delivery-focused engineering pathways.

- **School pupil population:** The South East has 1,462,684 school pupils across state-funded primary, secondary and independent schools, 14.2% of the UK total.

South West



Workforce and Industrial Profile

The South West is home to 9.7% of the UK workforce in the 39 priority occupations, compared with an 8.9% share of total UK jobs, indicating a comparatively strong concentration of hydrogen and carbon capture-relevant workforce capacity. The domain mix is weighted towards technical and operational roles, with more limited depth in sustainment and logistics functions.

Engineering (12.5%) represents the region's clearest strength, supported by scientific capability, electrical engineering expertise and environmental specialisms. Operations (10.5%) is also above baseline, with strong representation in operational management and safety, quality and regulatory roles, indicating established governance and assurance capacity. Construction (9.6%) sits above baseline and is underpinned by civils, technician coverage and welding capability. However, recorded employment in pipe fitting and steel erection is notably low within the sample, suggesting potential constraints in specialist structural and pipework-intensive activity. Digital technologies (9.3%) are also above baseline, reinforcing the region's technical platform through cyber and systems capability. Maintenance (7.8%) sits below baseline, indicating a thinner embedded base in asset reliability and plant upkeep roles. Logistics (6.0%) is the most materially under-represented domain, pointing to potential constraints in supply chain and distribution capacity as activity scales. Overall, the workforce profile combines strong engineering, operational and digital capability with more limited maintenance depth and a clearer constraint in logistics, alongside specific trade-level pinch points.

In-scope industries account for 9.6% of UK activity, above the 8.9% employment baseline. The South West shows particular strength in waste treatment and environmental services, industrial machinery installation, general-purpose machinery manufacture and technical testing and analysis. Water collection and treatment and architectural and engineering activities are also above baseline. By contrast, upstream extraction, petroleum refining, gas manufacture and distribution, and pipeline transport activity are limited, and construction of utility projects sits

well below baseline. The 53 COMAH sites (15 upper tier, 38 lower tier), representing 5.8% of the UK total, sit below the region's employment share, indicating a comparatively lighter concentration of major hazard process industry relative to workforce scale.

Workforce domain	Employees	Share of UK employment
Construction	52,084	9.6%
Engineering	43,314	12.5%
Operations	47,160	10.5%
Maintenance	49,084	7.8%
Logistics	17,869	6.0%
Digital technologies	48,317	9.3%
Total: Priority occupations	**257,827**	**9.7%**
Total: All employment	**3,009,775**	**8.9%**

Table 8: Workforce distribution across priority occupations in the South West

- **Sector activity:** The region has an estimated 2 Carbon Capture (CCSA) and 7 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 77,858 online job postings in the South West for the 39 priority occupations (all industries), 9.2% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in the South West (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

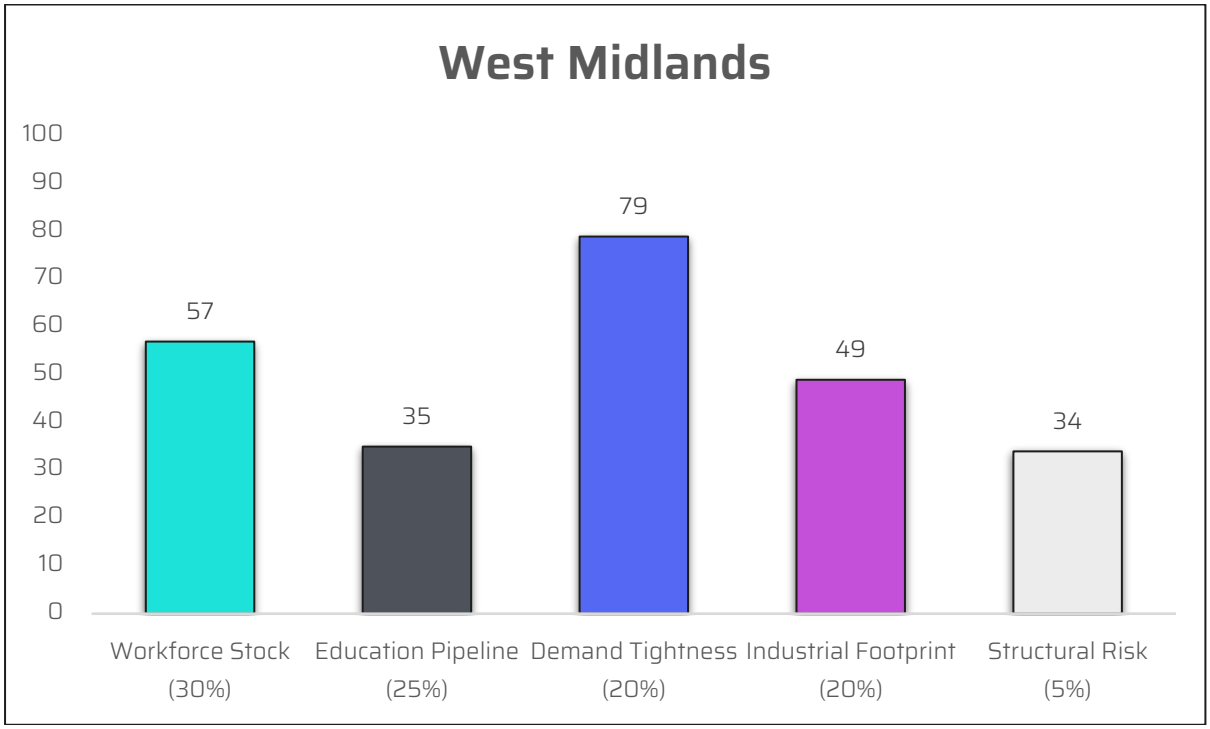
Education and Training Pipeline

Within relevant subjects, the South West accounts for 8.5% of UK FE enrolments and 7.7% of UK HE enrolments, compared with an 8.9% employment baseline, indicating a broadly aligned FE position and a slightly lighter HE footprint relative to regional labour market scale. At FE level, enrolment share is highest in engineering and manufacturing (10.5%), sits close to baseline in construction (8.0%), and is lower in ICT (7.3%) and science and mathematics (6.7%), indicating comparatively lower participation in digital and analytical pathways relative to workforce scale.

At HE level, the region accounts for a substantial share of UK enrolments in building (20.6%) and geoscience-related subject areas, including physical geographical sciences (14.3%) and earth sciences (14.1%). Participation is more limited across several core engineering disciplines and sits below baseline in electrical and electronic engineering (5.8%) and chemical, process and energy engineering (5.1%). Overall, the education and training base reflects strong FE engineering enrolment share and a distinctive HE position in built environment and geoscience subjects, but a lighter pipeline in some of the engineering disciplines most directly linked to hydrogen and carbon capture delivery.

- **School pupil population:** The South West has 803,572 school pupils across state-funded primary, secondary and independent schools, 8.0% of the UK total.

West Midlands



Workforce and Industrial Profile
People living in the West Midlands make up 9.5% of UK employment across the 39 priority occupations, compared with an 8.6% share of total UK jobs, indicating a comparatively strong concentration of hydrogen and carbon capture-relevant workforce capacity. The domain mix highlights strength in delivery and sustainment roles, alongside a more mixed picture in operational and enabling capability.

Construction (11.2%) represents the region's clearest area of concentration, supported by strong coverage in civils professions, technician roles and key site trades, including welding and structural occupations. However, recorded employment in pipe fitting is notably low within the sample, suggesting potential constraints in specialist pipework capacity. Maintenance (9.9%) is also above baseline and reflects a solid mechanical and technician backbone associated with asset integrity and plant upkeep. The recorded near absence of planning and production technician roles may indicate a thinner planning and scheduling layer underpinning maintenance activity.

Engineering (9.6%) is above baseline, with solid representation in electrical and project engineering functions. Operations (8.8%) is broadly aligned with the regional employment share but appears uneven, with stronger coverage in quality assurance than in some plant-operational roles. Logistics (11.5%) stands out as a further strength, indicating embedded capability across supply chain and distribution functions, while digital technologies (8.5%) sit slightly below baseline, suggesting comparatively limited digital and analytical depth. Overall, the workforce profile combines strong construction and maintenance capability with robust logistics capacity, alongside potential pinch points in pipework trades, operational depth and digital capability.

In-scope industries account for 9.3% of UK activity, above the 8.6% employment baseline. The West Midlands shows a very strong concentration in industrial fabrication and network

infrastructure, particularly steel tubes and pipe manufacture, transport via pipelines, electric motors and transformers, general-purpose machinery and tanks and reservoirs. Gas manufacture and distribution and construction of utility projects are also comfortably above baseline. By contrast, upstream extraction, petroleum refining and chemical manufacturing are limited. The presence of 61 COMAH sites (15 upper tier, 46 lower tier), representing 6.7% of the UK total, sits below the region's employment share, indicating a more moderate concentration of major hazard process industry relative to workforce size.

Workforce domain	Employees	Share of UK employment
Construction	60,447	11.2%
Engineering	33,259	9.6%
Operations	39,514	8.8%
Maintenance	62,607	9.9%
Logistics	34,094	11.5%
Digital technologies	44,122	8.5%
Total: Priority occupations	**274,042**	**9.5%**
Total: All employment	**2,879,596**	**8.6%**

Table 9: Workforce distribution across priority occupations in the West Midlands

- **Sector activity:** The region has an estimated 0 Carbon Capture (CCSA) and 7 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 80,515 online job postings in the West Midlands for the 39 priority occupations (all industries), 9.5% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 4% of sites in the West Midlands (all industries) reported at least one skill-shortage vacancy, below the UK average.

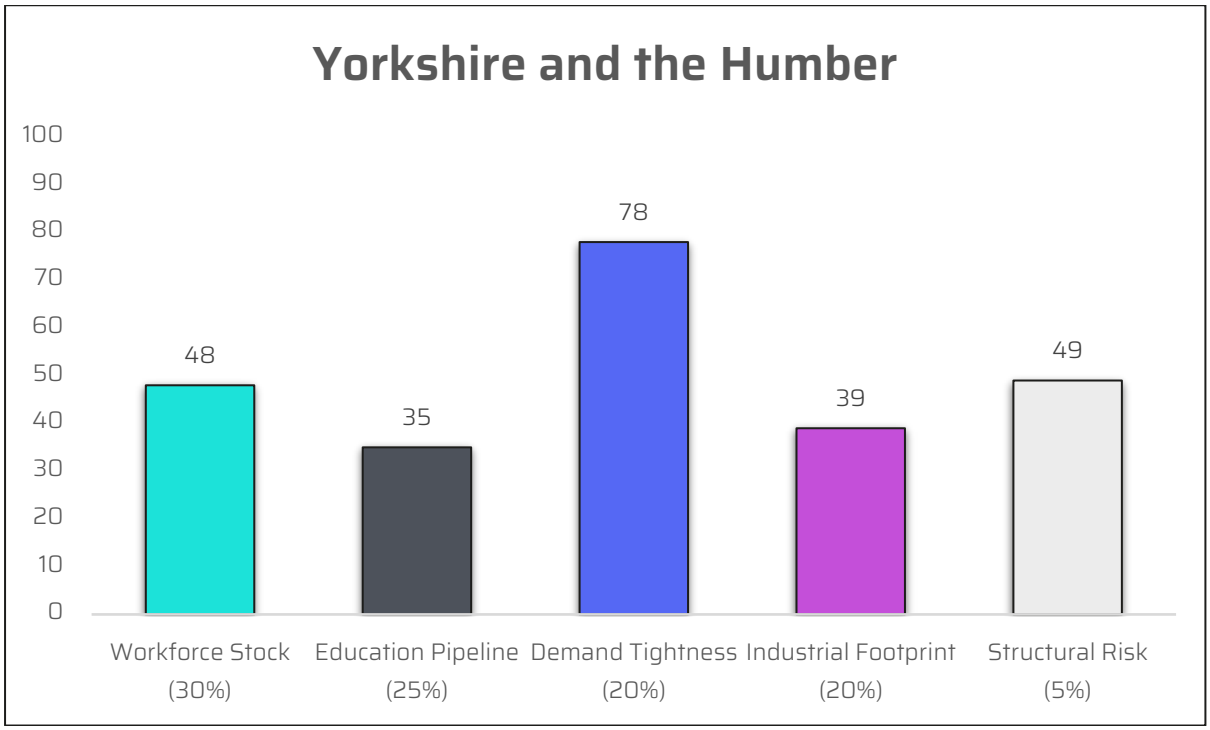
Education and Training Pipeline

Within relevant subjects, the West Midlands accounts for 10.9% of UK FE enrolments and 8.3% of UK HE enrolments, compared with an 8.6% employment baseline, indicating a strong FE-led skills pipeline and an HE position broadly in line with regional labour market scale. At FE level, the region accounts for above-baseline shares across all major subject areas, including engineering and manufacturing (11.9%), ICT (11.6%), science and mathematics (10.9%) and construction (9.1%), reflecting sustained participation across core technical and analytical pathways relative to workforce scale.

At HE level, enrolment share is particularly high in production and manufacturing engineering (16.2%) and information technology (15.7%). Participation is lower in some environmental and geoscience subject areas, including physical geographical sciences (1.9%) and environmental sciences (3.7%). Overall, the education and training base combines broad FE participation across core technical disciplines with targeted HE strengths in manufacturing engineering and digital fields, supporting both delivery-focused technical roles and wider digital capability across the hydrogen and carbon capture value chain.

- **School pupil population:** The West Midlands has 974,591 school pupils across state-funded primary, secondary and independent schools, 9.5% of the UK total.

Yorkshire and the Humber



Workforce and Industrial Profile

People living in Yorkshire and the Humber make up 7.6% of UK employment across the 39 priority occupations, compared with a 7.9% share of total UK jobs, indicating broadly proportionate workforce coverage. However, the domain mix highlights strong sustainment and process-operational capability alongside comparatively thinner construction capacity.

Maintenance (9.1%) represents the region's most pronounced strength, reflecting a solid base of technician and trade roles associated with plant reliability, production maintenance and electrical maintenance. Operations (8.1%) is also modestly above baseline and is oriented towards plant-facing capability, including process operative and energy plant roles supported by health and safety functions. Engineering (7.7%) sits close to baseline and is weighted towards applied engineering and project delivery, with more limited science-led depth. Construction (6.5%) is the clearest area of relative constraint. While certain site roles are represented, the overall domain signal suggests less embedded construction capacity relative to workforce scale, which may create pressure where significant build activity is required concurrently. Digital technologies (8.0%) and logistics (7.7%) sit broadly in line with baseline, although digital capability appears stronger in IT operations and data roles than in cyber-related functions. Overall, the profile points to a region with established maintenance and operational depth, with construction capacity representing the principal relative constraint.

The industrial footprint is broadly aligned with this operationally focused workforce base. In-scope industries account for 7.5% of UK activity, close to the 7.9% employment baseline. Although upstream extraction and pipeline transport activity are limited within the sample, the region demonstrates strong concentrations in equipment and industrial manufacturing, including tubes and steel fittings, tanks and reservoirs, steam generators, electric motors, general-purpose machinery and industrial installation activities. This indicates established capability in the manufacture and servicing of industrial systems relevant to hydrogen and

carbon capture infrastructure. The presence of 102 COMAH sites (47 upper tier, 55 lower tier), representing 11.2% of the UK total, indicates a comparatively strong concentration of major hazard process industries.

Workforce domain	Employees	Share of UK employment
Construction	35,244	6.5%
Engineering	26,519	7.7%
Operations	36,400	8.1%
Maintenance	57,758	9.1%
Logistics	22,726	7.7%
Digital technologies	41,741	8.0%
Total: Priority occupations	**220,386**	**7.6%**
Total: All employment	**2,657,792**	**7.9%**

Table 10: Workforce distribution across priority occupations in Yorkshire and the Humber

- **Sector activity:** The region has an estimated 11 Carbon Capture (CCSA) and 28 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 61,670 online job postings in Yorkshire and the Humber for the 39 priority occupations (all industries), 7.3% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 5% of sites in Yorkshire and the Humber (all industries) reported at least one skill-shortage vacancy, slightly below the UK average.

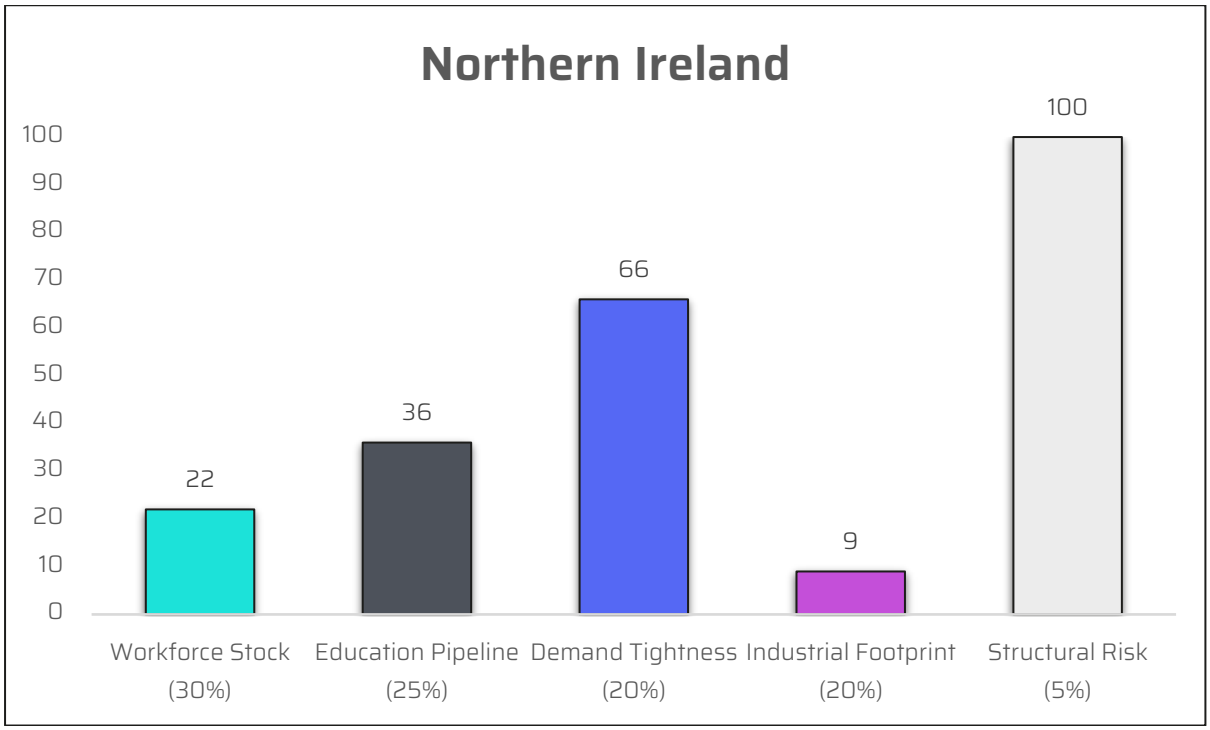
Education and Training Pipeline

Within relevant subjects, Yorkshire and the Humber accounts for 9.5% of UK FE enrolments and 7.7% of UK HE enrolments, compared with a 7.9% employment baseline, indicating a strong FE position and broadly aligned HE participation relative to regional labour market scale. At FE level, enrolment share is notably high in construction (10.4%), engineering and manufacturing (10.0%) and science and mathematics (9.7%), while ICT (6.9%) sits below baseline.

At HE level, the region accounts for above-baseline shares across several engineering subject areas, including electrical and electronic engineering (11.2%), chemical, process and energy engineering (11.7%), civil engineering (9.6%), production and manufacturing engineering (10.0%) and chemistry (10.0%). Participation is more uneven in enabling disciplines, with a low share in information technology (1.9%) but higher shares in artificial intelligence (15.7%) and urban, rural and regional planning (15.3%), alongside a significant presence in materials technology (20.2%). Overall, the education and training base appears strongest in FE technical subjects and in HE engineering, materials and process-related disciplines, with weaker representation in some digital fields that support wider systems and integration functions.

- **School pupil population**: Yorkshire and the Humber has 855,348 school pupils across state-funded primary, secondary and independent schools, 8.3% of the UK total.

Northern Ireland



Workforce and Industrial Profile

Northern Ireland is home to 2.4% of the UK workforce in the 39 priority occupations, compared with a 2.6% share of total UK jobs, indicating a slightly thinner relevant workforce base relative to overall employment. The domain mix is uneven, with relative strengths concentrated in construction and maintenance and weaker coverage across operational and enabling functions.

Construction (3.0%) and maintenance (3.1%) sit above baseline, reflecting trade- and technician-led capability associated with site delivery and asset upkeep. Representation appears stronger at hands-on level than within construction leadership and project professional roles, suggesting that planning and programme capacity may be more constrained than delivery trades. Operations (1.8%) is below baseline, indicating comparatively limited depth in process engineering and plant operational roles and therefore a thinner locally embedded operational workforce.

Engineering (1.9%) is also under-represented, suggesting a smaller pool of specialist engineering professionals. Enabling domains show more pronounced shortfalls: logistics (1.5%) and digital technologies (1.6%) sit further below baseline, indicating limited embedded supply chain, systems, data and cyber capabilities. Overall, the workforce profile suggests practical delivery and maintenance strengths alongside more limited depth in operational, engineering and enabling functions that may require coordination beyond the immediate regional labour market as deployment scales.

In-scope industries account for 2.0% of UK activity against a 2.6% employment share, indicating modest under-representation. The region demonstrates capability in the manufacture of electric motors and generators, technical testing and remediation services, and construction of utility projects. However, large-scale process industries such as refined petroleum, chemical manufacturing and gas distribution are less prominent. The presence of 28 COMAH sites (10

upper tier, 18 lower tier), representing 3.1% of the UK total, slightly exceeds the region's employment share and indicates pockets of concentrated hazardous process activity despite a smaller overall industrial base.

Workforce domain	Employees	Share of UK employment
Construction	16,289	3.0%
Engineering	6,413	1.9%
Operations	7,883	1.8%
Maintenance	19,682	3.1%
Logistics	4,555	1.5%
Digital technologies	8,367	1.6%
Total: Priority occupations	**63,188**	**2.4%**
Total: All employment	**872,287**	**2.6%**

Table 11: Workforce distribution across priority occupations in Northern Ireland

- **Sector activity:** The region has an estimated 1 Carbon Capture (CCSA) and 7 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 15,131 online job postings in Northern Ireland for the 39 priority occupations (all industries), 1.8% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 7% of sites in Northern Ireland (all industries) reported at least one skill-shortage vacancy, slightly above the UK average.

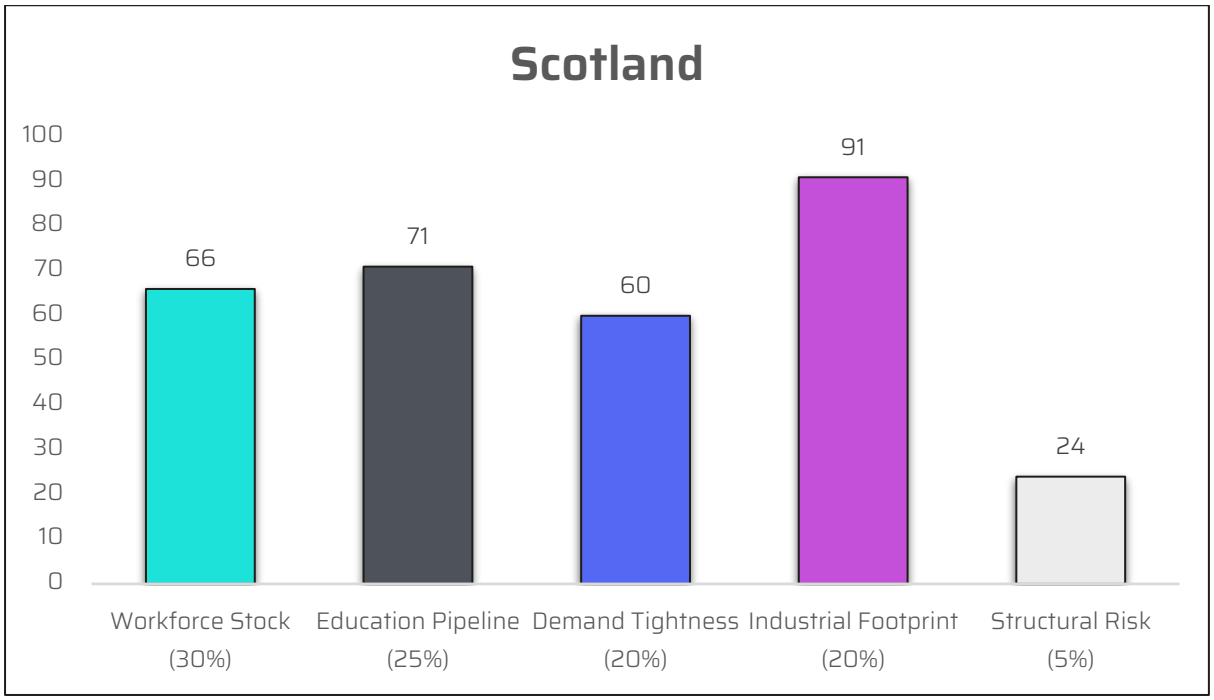
Education and Training Pipeline

Within relevant subjects, Northern Ireland accounts for 2.4% of UK FE enrolments and 2.5% of UK HE enrolments, compared with a 2.6% employment baseline, indicating broadly proportionate participation relative to the regional labour market. At FE level, enrolment share is comparatively strong in ICT (3.4%) and sits above baseline in construction (2.8%), while engineering and manufacturing (2.0%) and science and mathematics (1.5%) remain below baseline.

At HE level, enrolment share is limited across several core STEM subject areas, including physics (1.8%), chemistry (1.8%) and mathematics (1.4%). However, participation is stronger in applied digital fields such as software engineering (4.5%) and information technology (3.2%), with urban, rural and regional planning (3.9%) also sitting above baseline. Overall, the education and training base is proportionate in scale but is more weighted towards digital and built-environment pathways than towards broad engineering and scientific participation, suggesting relatively stronger coverage in enabling and planning-related functions than in core technical delivery disciplines.

- **School pupil population:** Northern Ireland has 322,180 school pupils across state-funded primary, secondary and independent schools, 3.1% of the UK total.

Scotland



Workforce and Industrial Profile

People living in Scotland make up 7.9% of UK employment across the 39 priority occupations, compared with a 7.9% share of total UK jobs, indicating broadly proportionate workforce coverage. Beneath this headline position, the domain mix highlights pronounced strengths in operational and technical capability alongside comparatively thinner enabling capacity.

Operations (10.1%) is the most distinctive area of concentration, reflecting a substantial base in industrial operational roles, including operational management and plant-facing occupations. Engineering (9.3%) is also above baseline and includes strong science-led and electrical engineering depth alongside broader engineering professions. Maintenance (9.0%) sits above baseline, indicating a well-established sustainment workforce across mechanical, electrical and fitting roles. Construction (8.4%) is modestly above baseline and supports industrial build, retrofit and access-intensive maintenance activity through solid site-based capability.

Enabling functions are less concentrated overall. Logistics (6.6%) sits below baseline, suggesting a thinner embedded supply chain and distribution layer relative to Scotland's operational strengths. Digital technologies (7.3%) are also slightly below baseline, indicating that digital and analytical capabilities are present but less concentrated than in operations and engineering. Overall, the workforce profile is strongly operations- and engineering-led, with logistics and, to a lesser extent, digital capability representing the principal relative constraints.

This occupational structure aligns with a highly concentrated industrial base. In-scope industries account for 12.3% of UK activity, substantially above the 7.9% employment baseline. The profile is driven by strong upstream oil and gas extraction and associated support activities, alongside petroleum refining, basic chemicals manufacturing and electric power generation. Equipment manufacturing, industrial installation and pipeline transport are comparatively under-represented within the sample. The presence of 207 COMAH sites (64 upper tier, 143

lower tier), representing 22.8% of the UK total, reinforces Scotland's position as a major centre of large-scale extraction and process industry.

Workforce domain	Employees	Share of UK employment
Construction	45,459	8.4%
Engineering	32,129	9.3%
Operations	45,407	10.1%
Maintenance	57,089	9.0%
Logistics	19,525	6.6%
Digital technologies	37,910	7.3%
Total: Priority occupations	**237,518**	**7.9%**
Total: All employment	**2,662,555**	**7.9%**

Table 12: Workforce distribution across priority occupations in Scotland

- **Sector activity:** The region has an estimated 7 Carbon Capture (CCSA) and 64 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 61,591 online job postings in Scotland for the 39 priority occupations (all industries), 7.3% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 7% of sites in Scotland (all industries) reported at least one skill-shortage vacancy, slightly above the UK average.

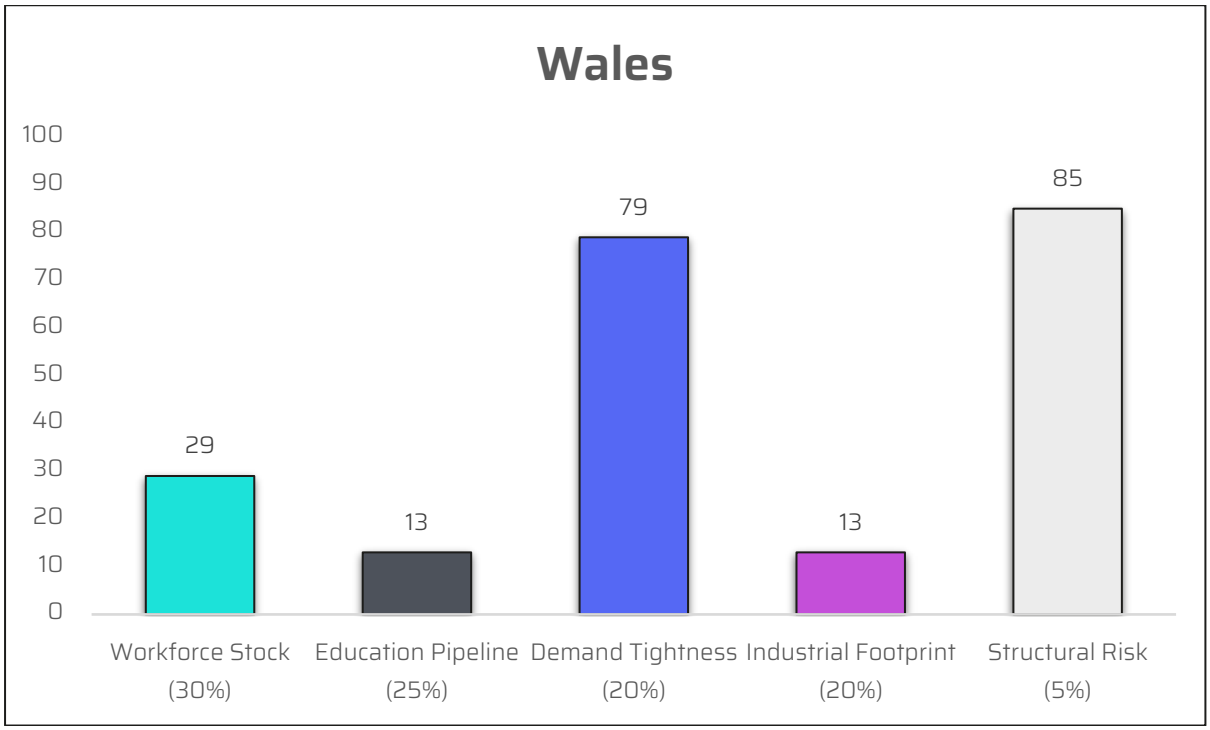
Education and Training Pipeline

Within relevant subjects, Scotland accounts for 5.7% of UK FE enrolments and 11.3% of UK HE enrolments, compared with a 7.9% employment baseline, indicating a smaller FE footprint and a materially stronger HE position relative to regional labour market scale. At FE level, enrolment share sits below baseline across major subject areas, including construction (5.6%), engineering and manufacturing (6.4%), ICT (5.2%) and science and mathematics (4.9%), reflecting lower relative participation at this level.

At HE level, Scotland accounts for a substantial share of UK enrolments across core engineering subject areas, including mechanical engineering (13.4%), civil engineering (13.3%), electrical and electronic engineering (12.6%) and chemical, process and energy engineering (14.9%). Participation is also high in analytical, scientific and digital disciplines such as statistics (18.5%), earth sciences (20.0%), information technology (15.1%) and chemistry (11.6%). Overall, the education and training base is HE-led, with significant depth in engineering, analytical, scientific and digital subject areas, supporting a broad range of higher-level technical and enabling functions across the hydrogen and carbon capture value chain, while FE enrolment share remains below workforce scale.

- **School pupil population:** Scotland has 713,753 school pupils across state-funded primary, secondary and independent schools, 6.9% of the UK total.

Wales



Workforce and Industrial Profile

Wales is home to 4.0% of the UK workforce in the 39 priority occupations, compared with a 4.1% share of total UK jobs, indicating broadly proportionate workforce coverage. The domain mix is uneven, combining strength in parts of the operational workforce with weaker coverage in engineering, construction and digital enabling capability.

Operations (5.9%) represents the region's clearest area of concentration, with strong representation in chemical and process operative workers alongside process engineering and safety functions. Logistics (5.0%) is also above baseline, indicating an embedded base in transport and distribution roles. By contrast, engineering (3.3%) is under-represented, with weaker coverage across several engineering professional groups and particularly limited representation in environmental roles. Construction (3.8%) also sits below baseline, and recorded employment in specialist trades such as pipe fitting and steel erection is notably low within the sample, highlighting potential constraints in site delivery capacity. Maintenance (4.1%) sits broadly in line with baseline but appears uneven across specialisms, with stronger signals in planning, process and production technician roles and HVAC-related trades than in some core mechanical and electrical technician groups. Digital technologies (2.9%) represent the clearest enabling constraint, indicating a comparatively thin base in systems, data and cyber capability. Overall, the profile combines strength in process-operational roles with more limited engineering depth, specialist construction trades and digital capacity, which may constrain scaling and longer-term operational resilience.

The industrial footprint reflects a similarly mixed position. In-scope industries account for 3.1% of UK activity, against a 4.1% employment share, indicating a smaller industrial footprint relative to the overall workforce. Upstream extraction, gas manufacture and distribution, and several heavy fabrication segments are absent or limited. However, the region demonstrates capability in certain manufacturing sectors, including chemicals, steam generators and electric motors,

as well as industrial repair and installation. It also shows strength in electric power generation, pipeline transport, water treatment and environmental remediation services, indicating a diversified downstream and infrastructure-oriented industrial base. Wales hosts 54 COMAH sites (25 upper tier, 29 lower tier), representing 5.9% of the UK total, a share that exceeds the region's overall employment footprint and underlines the relative concentration of major hazard process industry within the region.

Workforce domain	Employees	Share of UK employment
Construction	20,342	3.8%
Engineering	11,353	3.3%
Operations	26,665	5.9%
Maintenance	26,225	4.1%
Logistics	14,754	5.0%
Digital technologies	15,086	2.9%
Total: Priority occupations	**114,424**	**4.0%**
Total: All employment	**1,376,923**	**4.1%**

Table 13: Workforce distribution across priority occupations in Wales

- **Sector activity:** The region has an estimated 4 Carbon Capture (CCSA) and 22 Hydrogen (Hydrogen UK) projects recorded as active or planned.
- **Recruitment demand:** Between June 2024 and May 2025, there were 24,595 online job postings in Wales for the 39 priority occupations (all industries), 2.9% of the UK total.
- **Employer-reported skill shortages:** In 2024, around 6% of sites in Wales (all industries) reported at least one skill-shortage vacancy, in line with the UK average.

Education and Training Pipeline

Within relevant subjects, Wales accounts for 5.2% of UK FE enrolments and 5.0% of UK HE enrolments, compared with a 4.1% employment baseline, indicating a proportionately strong skills pipeline relative to regional labour market scale. At FE level, enrolment share is above baseline across all major subject areas, with higher participation in construction (6.7%) and steady shares in ICT (4.8%), science and mathematics (5.2%) and engineering and manufacturing (4.4%).

At HE level, Wales also accounts for above-baseline shares in several engineering and digital subject areas, including civil engineering (5.7%), mechanical engineering (5.4%) and computer science (5.4%). Participation is notably high in environmental and geoscience disciplines such as physical geographical sciences (10.8%) and environmental sciences (8.0%), with a further area of strength in materials technology (13.1%), while enrolment share is lower in chemical, process and energy engineering (3.8%) and statistics (1.9%). Overall, the education and training base is proportionately strong for the size of the workforce, with balanced FE participation and distinctive HE strength in environmental, geoscience and selected materials-related subject areas, alongside more limited depth in process and analytical disciplines that support some higher-level engineering and systems functions.

- **School pupil population:** Wales has 463,083 school pupils across state-funded primary, secondary and independent schools, 4.5% of the UK total.

4. Structural Workforce Risk

Pillar E asks where current occupational coverage could become a future delivery constraint as hydrogen and carbon capture projects scale. It focuses on longer-term workforce sustainability issues that can tighten timelines and raise delivery risk even where capacity currently appears strong, including retirement exposure, reliance on graduate entry, gender imbalance, and dependence on international talent.

What the score captures and how to interpret it

Because reliable region-by-occupation demographic estimates are not consistently available, structural risk is assessed at the national level for each occupation. Regional results for Pillar E therefore reflect the occupational mix in each region rather than region-specific demographic profiles. As with the wider Index, higher scores indicate a more favourable position; for Pillar E, this means lower exposure to structural workforce risk. Regions with a higher concentration of at-risk occupations will record lower scores, while those with a lower concentration will record higher scores. The results therefore indicate relative exposure based on occupational mix, rather than providing a detailed demographic picture of each region's workforce. The intent is to show where workforce sustainability pressures may emerge as deployment scales, without implying that particular regions have uniquely unfavourable demographic profiles.

For each of the 39 priority occupations, the structural risk score draws on four indicators:

- the proportion aged 55+ (retirement exposure)
- the proportion born outside the UK (international talent reliance)
- the proportion qualified to degree level or above (graduate entry reliance)
- an indicator of gender imbalance[1]

Occupations with smaller workforces are based on fewer survey respondents, which makes the figures less stable. Where values appear as zero or close to zero, this most likely reflects very low or undetected employment rather than a genuine absence of workers.

Practical implications for delivery

Hydrogen and carbon capture deployment draws on a defined set of technical, construction, operational, maintenance and enabling roles. Over time, delivery constraints are shaped not only by the number of workers today but also by whether the workforce can be quickly replaced and replenished as demand rises and projects move from build to sustained operations.

Structural risk highlights four slow-moving pressures that can tighten timelines as scale increases:

- **Time to competence (reliance on degree qualifications):** where roles rely heavily on higher-level entry pathways, increasing supply is rarely quick. Even if training volumes increase, it can take years for new entrants to reach full competence. As a result, workforce pressure may emerge as scheduling risk if projects mobilise faster than the training pipeline can respond.

[1] In this report, gender imbalance is shown as the female share for transparency and readability. Across this occupational set, men are the majority in all but one of the 39 priority occupations, so female share is the clearest single descriptor of the prevailing imbalance. This is a descriptive measure only and is not intended to imply that higher or lower female representation is preferable; it is used to indicate where persistent imbalance may constrain the available recruitment pool over time.

- **Replacement pressure (aged 55+ share):** where a large share of an occupation is approaching retirement age, recruitment demand can rise simply to maintain today's workforce size. In practice, this can mean a significant proportion of hiring effort being absorbed by replacing leavers before any additional growth is achieved.
- **Participation constraints (gender imbalance):** low representation of one gender can indicate that an occupation is drawing from a relatively narrow share of the available talent pool. This does not automatically imply an immediate shortage, but it can limit the scope to expand and refresh the workforce over time, particularly when demand rises across multiple sectors competing for the same roles.
- **Sensitivity to external labour conditions (non-UK-born share):** international recruitment is common in some specialist occupations, but it can increase exposure to global competition for talent, mobility conditions and recruitment costs. Where reliance is high, delivery may become more sensitive to changes beyond the UK labour market, particularly during periods of overlapping infrastructure demand.

These indicators describe structural exposure, not whether an occupation is currently in shortage. An occupation may appear well supplied today but still face medium-term fragility if replacement and replenishment mechanisms are slow, constrained or dependent on external labour market conditions. Table 14 shows the ten occupations with the highest calculated structural risk scores. Data covering all 39 priority occupations are provided in the appendices.

4-digit SOC code	RQF Level 6+	Aged 55+	Female	Country of Birth (non-UK)	Calculated risk score
Civil engineers	70%	21%	13%	24%	**0.66**
Mechanical engineers	56%	24%	6%	19%	**0.65**
Physical scientists	93%	18%	40%	31%	**0.63**
Engineering project managers and project engineers	62%	21%	13%	21%	**0.62**
Construction and building trades supervisors	7%	34%	5%	23%	**0.62**
Production managers and directors in construction	33%	35%	11%	17%	**0.62**
IT business analysts, architects and systems designers	60%	14%	21%	29%	**0.60**
Cyber security professionals	63%	14%	19%	26%	**0.59**
Production and process engineers	58%	12%	15%	24%	**0.57**
Electrical engineers	49%	20%	1%	13%	**0.57**
Total: Priority occupations	**42%**	**20%**	**22%**	**19%**	**-**
Total: All UK employment	**39%**	**22%**	**49%**	**21%**	**-**

Table 14: Occupations with the highest calculated structural workforce risk scores

Two examples illustrate how these indicators combine to shape structural risk. Civil engineers record one of the highest structural risk scores, largely because the occupation relies heavily on graduate entry routes: around 70% hold qualifications at RQF Level 6 or above, compared with 39% across all UK employment. This means expanding supply typically depends on higher education pipelines and longer training periods before new entrants reach full competence. The occupation also has low female representation (13%), well below the 49% UK workforce average, suggesting it draws on a relatively small share of potential female talent. Construction and building trades supervisors also record a high structural risk score, but for a different reason. The occupation has very low female representation (5%) and a much older workforce profile, with 34% aged 55 or over compared with 22% across the UK workforce, pointing to substantial replacement demand as experienced workers approach retirement.

5. Job Postings and Skills Transferability Analysis

To complement the wider readiness assessment, this section draws on online job postings and associated skills requirements to understand what current recruitment patterns suggest about the pace and feasibility of workforce mobilisation. This analysis was developed in partnership with the data analytics company Lightcast. Together, we defined a tightly scoped set of sector-specific keywords and search parameters to isolate online job adverts credibly attributable to UK hydrogen and carbon capture activity. The resulting dataset reflects real job postings from employers operating in these markets, rather than a broader proxy for energy or industrial decarbonisation. In total, the research identified around 17,300 unique job postings from 2019 onwards. This provides both a time-series view of recruitment activity and an evidence base on the skills employers most frequently request in job adverts.

Labour market demand signals

Table 15 summarises UK hydrogen and carbon capture postings from 2019 to 2025. The series shows a rapid rise from a low base through the early 2020s, peaking in 2023, followed by lower volumes in 2024 and 2025. This pattern should be treated as a signal rather than a definitive measure of underlying workforce requirements or evidence that demand has stabilised.

2019	2020	2021	2022	2023	2024	2025
251	319	1,489	3,840	4,619	3,410	3,373

Table 15: UK hydrogen and carbon capture job postings by year, 2019–2025

There are several plausible explanations for the post-2023 profile. It may reflect the sequencing of project activity and associated shifts in role mix as programmes move between development, construction and operations. It may also reflect changes in market confidence or investment conditions that affect employer hiring behaviour. The analytical value of job postings therefore lies less in treating the series as a direct measure of total labour demand, and more in using it to understand where recruitment activity is concentrated and the potential implications for workforce mobilisation.

Table 16 shows the top 20 most advertised occupations between 2021 and 2025 (using the Lightcast occupational taxonomy rather than SOC). The distribution indicates demand across three broad capability clusters:

- **Environmental and planning capability**, consistent with the enabling work required to progress projects through assessment and permitting.
- **Engineering and technical delivery roles**, linked to design, process and equipment integration and technical assurance.
- **Project, commercial and governance functions**, alongside safety, quality and compliance roles that underpin high-assurance delivery.

This distribution is significant because it indicates that scaling is not solely dependent on core engineering supply. Capacity in enabling and assurance functions, such as planning, project controls, safety and quality, can be equally influential, as these roles sit on or close to critical paths for project definition, consent, governance and safe delivery. Where these functions experience sustained recruitment intensity, programmes may face longer lead times and increased reliance on contractors, even where technical capability is available elsewhere in the system.

Occupation	2021	2022	2023	2024	2025	Total
Environmental Planner / Scientist	83	350	240	319	490	**1,482**
Process Engineer (General)	54	198	357	150	123	**882**
Estimator / Quantity Surveyor	7	28	22	27	78	**162**
Mechanical Engineer (General)	15	113	133	108	77	**446**
Project Manager (General)	59	148	137	104	60	**508**
Environmental Health and Safety (EHS) Director	-	-	20	38	56	**114**
Business Development Manager (General)	45	80	52	50	52	**279**
Energy Engineer (General)	69	114	164	62	46	**455**
Alternative Energy Manager	14	38	21	7	46	**126**
Civil Engineer	16	90	79	24	42	**251**
Quality Inspector (General)	-	-	2	15	37	**54**
Marine Engineer / Architect	7	23	42	34	37	**143**
Project Controls Manager	4	16	19	29	36	**104**
Environmental Health and Safety (EHS) Coordinator	-	9	3	23	32	**67**
Pipeline Worker / Operator	7	60	67	46	29	**209**
Mining Engineer	14	40	36	25	28	**143**
Electrical Engineer (General)	23	100	90	61	27	**301**
Building Engineer	3	29	40	42	26	**140**
Construction Superintendent	-	2	5	2	25	**34**
Contracts Manager	27	52	21	12	25	**137**

Table 16: Most commonly advertised occupations in UK hydrogen and carbon capture job postings, 2021–2025

Postings are recorded across all parts of the UK, with shares by area shown in Table 17. Location fields in job adverts have known limitations, including head-office postings, hybrid roles and multi-site work, so the data is best used to confirm that recruitment activity is geographically distributed rather than to pinpoint precisely where roles will be delivered. A small number of postings could not be assigned to a region, meaning totals do not fully reconcile with the 2025 UK figure.

Region	Postings	Share
London	460	15%
Scotland	441	15%
North East	359	12%
South East	307	10%
North West	269	9%
South West	250	8%
Yorkshire and the Humber	212	7%
East Midlands	210	7%
Wales	174	6%
West Midlands	172	6%
East of England	102	3%
Northern Ireland	29	1%

Table 17: UK hydrogen and carbon capture online job postings by region, 2025

Skills similarity and transition potential

We used the job postings data to produce 10 skills fact sheets for roles selected from the most advertised occupations. These were not chosen solely on the basis of posting volume. Instead, they were selected to provide insight into:

- specialist and semi-specialist roles critical to delivery and operations;
- roles likely to grow as activity shifts from development into construction and operations; and
- occupations where skills requirements are sufficiently distinctive to be most informative for policy, training design and workforce planning.

Each fact sheet summarises the specialised, common, digital and green skills most frequently requested in job adverts for that role. Each fact sheet also includes the top 10 adjacent occupations with similar skills profiles in the wider labour market. These represent realistic talent pools that targeted reskilling could activate. In this context, “skills” is used in a broad sense to encompass knowledge, skills and abilities.

Two implications follow. First, familiar job titles can mask role-specific requirements that shape how quickly recruitment demand can be met. Hydrogen and carbon capture roles often require specific technical tools, software and domain knowledge, such as process simulation with Aspen HYSYS and familiarity with methanol production in hydrogen value chains. In practice, this means mobilisation will not be uniform: some roles can be filled relatively quickly with targeted top-up training, while others will take longer to develop the necessary competence and experience.

Second, the skills similarity analysis uncovers transition routes beyond the most obvious feeder roles. The Environmental Planner/Scientist analysis, drawing on around 1,500 UK hydrogen and carbon capture postings, identifies meaningful overlap with Alternative Energy Managers (47%), Technical Sales Specialists (38%) and Biochemists (27%). Employers cannot treat these as directly interchangeable roles, but the overlap points to where well-designed recruitment strategies and bridging provision could realistically broaden the candidate pool.

The full set of 10 skills fact sheets, including the top 10 adjacent occupations for each role, is included in the appendices.

6. Strategic Implications for Policy and Delivery

The evidence presented in this report points to a workforce challenge that is more complex, more varied and more time-sensitive than a national overview would suggest. Across hydrogen and CCUS, delivery depends on a defined set of technical, operational, construction and enabling roles that are unevenly distributed across the UK, face different recruitment conditions in different places, and are subject to structural pressures that will not resolve themselves without deliberate action. The core implication for government, and for DESNZ in particular, is that workforce readiness needs to be treated as a live delivery variable, embedded in planning and investment decisions from the outset, rather than assumed to be a background condition that the market will manage.

What the evidence tells us

The most important finding is that the workforce challenge is not uniform. Regions face different binding constraints, and the factors that will shape delivery differ materially from place to place. In some regions, the principal risk lies in recruitment pressure on a relatively strong existing workforce. In others, the pipeline is thin, the industrial base is less developed, or structural risks threaten to erode today's capacity over time. Addressing these varied constraints effectively calls for approaches that reflect local conditions rather than a single national framing.

The construction trades gap is one of the few areas where the evidence points to a genuinely national structural problem. Pipe fitting and steel erection are weakly represented across almost every region, and these are roles that are difficult to substitute and sit on critical paths during large-scale industrial build activity. The gap is not confined to one or two regions and is unlikely to close through normal market adjustment alone, particularly as hydrogen and CCUS projects compete for the same trades as other major infrastructure programmes. This points to the need for early, coordinated action across government, industry and the skills system that goes beyond what any single region or employer can achieve.

Enabling and assurance functions merit more attention than they typically receive in workforce planning. The job postings evidence shows that environmental planners, project managers, safety professionals and project controls specialists are among the most frequently advertised roles in the sector. These functions sit on or close to critical paths for project definition, consent and safe delivery, and sustained recruitment pressure in these areas can slow programmes just as effectively as shortages in core engineering roles. The evidence therefore suggests that they should be treated as delivery-critical in their own right, not as secondary to technical and trades supply.

The education and training pipeline broadly supports the workforce but shows a more uneven position in digital and analytical subjects, with weaker coverage in several regions, relative to the engineering and construction participation that characterises many regions. As hydrogen and CCUS assets move into sustained operations, demand for data, systems integration and cyber capability will grow. Where the pipeline does not reflect this shift, regions will become more dependent on drawing talent from other sectors, increasing competition and cost. This points to the need for early engagement with the skills system and relevant government partners to assess whether current provision and workforce planning are aligned with these emerging operational requirements before demand becomes acute.

Lessons for policymakers

The evidence suggests that workforce readiness should be treated as a core element of hydrogen and CCUS delivery planning, rather than a secondary consideration. In practice, this means:

- **Testing assumptions against local conditions:** Expectations about hiring volumes, deployment timescales and contractor reliance need to be checked against the labour markets where projects are actually located.
- **Monitoring proactively:** Workforce constraints often develop in local labour markets before they surface in formal delivery updates, so routine project reporting alone is unlikely to provide early warning. Active tracking of labour market conditions is needed as programmes evolve.
- **Tailoring support to place:** A single national response will not fit every region. The main constraint varies, with recruitment pressure in some areas, a thin training pipeline in others, and longer-term structural risk elsewhere. The Index offers a consistent basis for identifying which constraint applies where, so support can target the actual problem rather than being applied uniformly.

Against this wider context, three areas warrant particular attention:

- **Construction trades present a structural national gap:** Pipe fitting and steel erection are weakly represented across almost every region. Closing this gap is beyond any single organisation and will require coordinated engagement with the construction sector, apprenticeship and training partners, and other major infrastructure programmes competing for the same scarce roles.
- **Enabling and assurance functions are critical to delivery:** Environmental planning, project controls and safety roles sit on critical paths and are already under sustained recruitment pressure. Workforce planning focused only on engineering and trades supply will underestimate the risk.
- **The future skills pipeline extends beyond engineering:** Engineering provision is relatively strong, but digital and analytical subjects show a more uneven picture, with weaker participation in several regions. Early engagement with skills bodies and education providers is more likely to shape outcomes than a reactive response once demand has intensified.

Working with the wider system

Many of the actions the evidence points to depend on bodies beyond any single department:

- **Responsibilities across the UK:** In England, these include Skills England, training providers, awarding bodies, mayoral combined authorities and local skills partners; in Scotland, Wales and Northern Ireland, equivalent responsibilities sit with the devolved administrations and the relevant skills bodies in each nation. Industry trade associations and employers also operate across all four nations, and each partner has a role in building and sustaining the workforce that hydrogen and CCUS delivery requires.

The evidence and the Index can support this engagement by clearly setting out where workforce gaps are emerging, the delivery consequences of inaction, and what a coordinated response would need to achieve. This shared, consistent evidence base helps partners focus on the most significant risks without each needing to develop its own diagnostic capability.

Using the data and dashboard

The Index and dashboard are most valuable when used as active planning tools rather than reference documents. The following applications represent the highest-value uses of the evidence for delivery planning and workforce intervention.

Stress-test project plans and sequencing

- Test whether delivery assumptions align with likely recruitment headroom and the availability of credible transition routes for priority occupations.
- Assess whether training pipelines appear sufficient to support the workforce needed across the full delivery lifecycle, not only at peak construction.

Broaden hiring pools selectively using transition evidence

- Use the skills and role-adjacency evidence to identify realistic entry routes from adjacent occupations and feeder industries.
- Factor in time to competence, assurance requirements and role specificity before treating transition as a route to rapid mobilisation.

Use regional job postings as an early warning system

- Track posting volumes to identify where recruitment pressure may be developing close to delivery-critical paths.
- Treat sustained increases as a prompt to investigate whether supply-side constraints are beginning to bind.

Interpret training pipeline evidence through sustained operations, not only build phases

- Link pipeline data to the roles that underpin long-run operational capacity, not just construction demand.
- Where pipelines are thin or slow to expand, factor in greater dependence on transition, contractors or wider labour market draw and the cost and competition risks that follow.

Maintain and refresh a delivery-critical watchlist

- Keep an internal watchlist of key occupations and review it regularly using the Index, postings and pipeline evidence.
- Use it to anticipate emerging pinch points, focus engagement where constraints are most likely to bind, and reduce avoidable competition where multiple programmes are drawing on the same labour pools.

Keeping the evidence current

Workforce conditions will shift as projects move through stages, market confidence changes, and competition from adjacent net-zero and infrastructure programmes evolves. The evidence in this report reflects conditions at a point in time, and its value as a planning tool depends on being revisited and refreshed as circumstances change. This requires adaptive planning. Assumptions on demand, supply and transition routes should be reviewed regularly rather than treated as settled. The dashboard is designed to support this, enabling ongoing interrogation of the evidence as new data becomes available and as the balance of delivery activity across regions evolves.

7. Appendices

Table 18: Regional distribution of priority occupations by workforce domain and 4-digit SOC

Workforce domain	4-digit SOC code	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorkshire and The Humber	Northern Ireland	Scotland	Wales
Construction	Production managers and directors in construction	10.7%	13.4%	15.4%	3.5%	8.6%	16.9%	9.6%	6.4%	5.7%	1.1%	5.8%	2.9%
Construction	Civil engineers	4.5%	7.5%	12.6%	2.6%	13.2%	6.9%	12.6%	15.4%	4.2%	3.3%	13.9%	3.3%
Construction	Quantity surveyors	4.8%	5.6%	6.0%	1.9%	10.9%	16.4%	11.9%	14.8%	11.7%	3.6%	10.7%	1.8%
Construction	Construction project managers and related professionals	8.6%	11.8%	14.2%	3.6%	10.4%	12.6%	7.7%	13.8%	6.9%	1.2%	5.8%	3.4%
Construction	Building and civil engineering technicians	6.1%	13.3%	2.9%	0.0%	10.1%	18.7%	17.8%	18.6%	2.7%	1.8%	5.3%	2.7%
Construction	Welding trades	16.3%	12.7%	0.0%	9.5%	2.1%	3.3%	10.2%	18.1%	6.0%	10.7%	6.6%	4.4%
Construction	Pipe fitters	0.0%	25.7%	0.0%	25.1%	31.1%	0.0%	0.0%	0.0%	7.1%	6.6%	4.4%	0.0%
Construction	Steel erectors	0.0%	0.0%	17.0%	11.4%	22.7%	0.0%	0.0%	15.5%	18.8%	5.9%	8.7%	0.0%
Construction	Construction and building trades supervisors	8.3%	17.3%	9.5%	5.2%	8.1%	13.6%	5.5%	4.6%	5.2%	5.8%	9.3%	7.7%
Construction	Scaffolders, stagers and riggers	9.4%	2.6%	4.2%	5.5%	8.4%	15.2%	7.2%	3.2%	13.4%	2.1%	18.7%	10.1%
Engineering	Physical scientists	7.9%	5.3%	16.8%	0.7%	5.1%	20.5%	16.8%	5.2%	2.4%	0.3%	13.4%	5.5%
Engineering	Electrical engineers	7.1%	4.8%	5.0%	5.9%	9.6%	9.8%	22.2%	12.7%	6.3%	1.9%	10.3%	4.3%
Engineering	Engineering project managers and project engineers	5.1%	11.5%	10.0%	6.6%	15.6%	13.9%	5.4%	11.7%	7.0%	2.1%	7.2%	4.1%
Engineering	Engineering professionals not elsewhere classified	14.7%	6.8%	6.0%	3.6%	12.8%	10.9%	10.1%	9.5%	10.2%	2.1%	10.0%	3.3%
Engineering	Environment professionals	12.2%	8.2%	7.8%	3.8%	12.4%	15.5%	14.5%	7.8%	7.3%	1.8%	7.7%	1.0%
Operations	Production managers and directors in mining and energy	1.9%	13.0%	14.6%	0.0%	5.8%	9.4%	22.3%	1.3%	5.6%	0.0%	23.5%	2.6%
Operations	Production and process engineers	2.5%	12.0%	9.3%	4.0%	10.3%	16.1%	7.7%	9.6%	8.9%	1.4%	12.8%	5.4%
Operations	Quality assurance technicians	13.3%	10.2%	1.7%	10.4%	6.4%	17.0%	10.2%	13.6%	4.7%	3.3%	5.0%	4.1%
Operations	Quality assurance and regulatory professionals	5.7%	9.2%	13.9%	3.0%	9.6%	15.6%	10.0%	11.9%	6.9%	1.2%	7.3%	5.7%
Operations	Health and safety managers and officers	6.8%	12.0%	9.0%	5.1%	7.2%	14.3%	13.5%	5.4%	9.8%	2.0%	8.6%	6.2%
Operations	Chemical and related process operatives	3.0%	11.9%	0.7%	11.7%	11.7%	9.6%	6.3%	2.6%	15.7%	4.8%	6.7%	15.3%
Operations	Mining and quarry workers and related operatives	5.2%	31.2%	1.9%	7.5%	4.5%	2.8%	4.6%	0.0%	0.0%	3.7%	38.7%	0.0%
Operations	Energy plant operatives	7.7%	21.8%	0.0%	3.0%	14.8%	0.0%	10.2%	1.6%	10.2%	0.0%	28.5%	2.1%
Maintenance	Mechanical engineers	11.8%	8.4%	7.8%	7.2%	8.9%	13.6%	9.5%	16.1%	4.2%	1.7%	8.4%	2.3%
Maintenance	Quality control and planning engineers	9.7%	8.9%	13.1%	8.1%	14.1%	12.2%	5.6%	8.0%	5.0%	0.6%	11.9%	2.9%
Maintenance	Electrical and electronics technicians	6.6%	5.5%	22.9%	1.0%	15.4%	9.2%	13.2%	5.4%	7.9%	1.6%	9.7%	1.6%
Maintenance	Engineering technicians	8.3%	10.2%	3.0%	5.7%	11.5%	16.6%	7.5%	13.8%	9.7%	3.7%	5.3%	4.7%
Maintenance	Planning, process and production technicians	5.9%	15.1%	0.0%	6.5%	9.6%	13.0%	12.3%	0.0%	14.4%	7.5%	7.8%	8.1%
Maintenance	Metal working production and maintenance fitters	10.4%	5.8%	5.2%	4.3%	17.4%	14.1%	4.0%	11.6%	11.5%	1.8%	11.2%	2.8%
Maintenance	Air-conditioning and refrigeration installers and repairers	11.4%	13.4%	2.6%	3.7%	20.9%	17.0%	0.0%	7.8%	9.6%	0.4%	5.3%	7.9%
Maintenance	Electricians and electrical fitters	7.0%	9.1%	8.9%	4.0%	12.2%	13.6%	9.9%	5.9%	9.6%	4.9%	8.9%	5.7%
Logistics	Managers in transport and distribution	7.9%	9.0%	10.8%	2.8%	13.7%	18.8%	3.7%	15.1%	6.1%	2.3%	5.7%	4.1%
Logistics	Managers in logistics	6.6%	23.3%	4.0%	2.7%	15.3%	13.5%	8.7%	11.4%	6.1%	0.0%	4.3%	4.1%
Logistics	Buyers and procurement officers	5.9%	6.1%	12.5%	6.2%	13.9%	21.2%	9.7%	5.3%	7.4%	1.4%	7.4%	3.3%
Logistics	Transport and distribution clerks and assistants	7.9%	10.8%	10.7%	0.2%	12.9%	12.5%	3.9%	13.2%	10.3%	1.6%	8.0%	8.0%
Digital technologies	IT business analysts, architects and systems designers	5.4%	8.1%	22.1%	5.1%	11.8%	14.6%	7.3%	7.5%	7.8%	2.3%	6.8%	1.3%
Digital technologies	Cyber security professionals	5.5%	7.6%	12.4%	2.7%	13.0%	16.0%	16.4%	7.0%	4.7%	0.2%	10.1%	4.4%
Digital technologies	IT operations technicians	6.2%	11.2%	11.6%	3.0%	9.3%	13.5%	8.3%	11.8%	10.5%	2.8%	9.0%	2.8%
Digital technologies	Data analysts	5.7%	9.9%	22.7%	1.7%	14.3%	9.8%	8.4%	8.6%	8.8%	0.8%	5.2%	4.2%
	Total – All occupations in scope	**7.7%**	**10.0%**	**10.9%**	**4.6%**	**10.6%**	**15.1%**	**9.7%**	**9.5%**	**7.6%**	**2.4%**	**7.9%**	**4.0%**
	Total - All UK Employees	**7.3%**	**9.7%**	**14.3%**	**3.6%**	**10.8%**	**14.4%**	**8.8%**	**8.6%**	**7.8%**	**2.6%**	**7.8%**	**4.3%**

Table 19: Regional distribution of in-scope industries by 3-digit SIC

3-digit SIC code	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorkshire and The Humber	Northern Ireland	Scotland	Wales
06.1 Extraction of crude petroleum	10.3%	1.2%	10.6%	0.0%	5.5%	5.5%	0.0%	0.0%	0.0%	1.5%	65.3%	0.0%
06.2 Extraction of natural gas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
09.1 Support activities for petroleum and natural gas extraction	3.9%	1.1%	5.5%	1.2%	2.4%	4.9%	3.2%	0.8%	1.0%	0.3%	75.6%	0.0%
19.2 Manufacture of refined petroleum products	3.1%	2.8%	14.8%	8.4%	24.4%	21.8%	0.5%	1.1%	5.6%	1.0%	15.5%	0.9%
20.1 Manufacture of basic chemicals	7.5%	7.7%	3.7%	6.1%	23.6%	12.6%	5.5%	1.8%	9.9%	1.1%	15.4%	4.9%
24.2 Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	8.3%	29.2%	0.0%	5.9%	0.0%	0.0%	2.3%	36.5%	13.8%	2.9%	1.2%	0.0%
25.2 Manufacture of tanks, reservoirs and containers of metal	0.0%	6.2%	0.0%	0.0%	24.8%	18.5%	7.6%	16.1%	26.9%	0.0%	0.0%	0.0%
25.3 Manufacture of steam generators, except central heating hot water boilers	39.2%	10.1%	0.0%	2.7%	11.7%	13.3%	4.4%	0.0%	13.4%	0.0%	0.0%	5.2%
26.5 Manufacture of instruments and appliances for measuring, testing and navigation	6.8%	11.2%	8.2%	0.9%	12.5%	25.1%	6.5%	8.2%	4.7%	2.9%	9.2%	3.7%
27.1 Manufacture of electric motors, generators and transformers	8.9%	10.7%	1.7%	0.0%	8.8%	11.2%	5.3%	18.1%	11.3%	9.3%	2.0%	12.6%
28.1 Manufacture of general-purpose machinery	16.4%	7.3%	2.6%	5.0%	6.7%	13.7%	11.9%	19.2%	9.2%	1.4%	6.2%	0.5%
33.1 Repair of fabricated metal products, machinery and equipment	9.5%	10.7%	11.1%	4.1%	13.1%	15.9%	10.6%	7.8%	5.1%	2.0%	7.8%	2.2%
33.2 Installation of industrial machinery and equipment	11.1%	4.8%	9.9%	3.5%	12.3%	11.9%	12.5%	9.1%	13.8%	1.1%	4.9%	5.1%
35.1 Electric power generation, transmission and distribution	7.3%	5.7%	8.8%	4.3%	12.9%	13.6%	8.5%	6.3%	7.3%	2.8%	17.6%	5.0%
35.2 Manufacture of gas; distribution of gaseous fuels through mains	12.8%	8.8%	5.3%	2.1%	8.1%	20.6%	2.5%	15.7%	8.5%	1.3%	14.3%	0.0%
36.0 Water collection, treatment and supply	4.7%	7.9%	8.7%	2.6%	10.2%	20.3%	10.6%	6.7%	8.7%	3.5%	7.8%	8.2%
38.2 Waste treatment and disposal	8.5%	8.3%	9.4%	2.1%	15.5%	8.8%	16.8%	9.7%	11.9%	0.4%	7.1%	1.3%
39.0 Remediation activities and other waste management services	10.1%	8.9%	1.9%	3.3%	39.7%	6.4%	5.1%	3.1%	5.6%	3.8%	6.4%	5.6%
42.2 Construction of utility projects	2.8%	5.9%	17.4%	8.4%	14.5%	5.4%	4.3%	12.4%	9.6%	3.8%	12.3%	3.2%
49.5 Transport via pipeline	0.0%	10.4%	0.0%	12.4%	26.7%	11.4%	0.0%	29.3%	0.0%	0.0%	0.0%	9.8%
71.1 Architectural and engineering activities and related technical consultancy	6.8%	9.6%	14.7%	3.5%	9.2%	15.7%	11.2%	11.3%	7.3%	1.5%	6.8%	2.4%
71.2 Technical testing and analysis	9.9%	11.5%	4.8%	3.2%	10.2%	13.0%	12.9%	9.5%	9.4%	4.2%	9.4%	2.0%
Total - All industries in scope	**7.8%**	**8.4%**	**10.6%**	**3.5%**	**11.3%**	**14.6%**	**9.6%**	**9.3%**	**7.5%**	**2.0%**	**12.3%**	**3.1%**
Total - All UK Employees	**7.0%**	**8.9%**	**15.7%**	**3.5%**	**11.0%**	**13.9%**	**8.9%**	**8.6%**	**7.9%**	**2.6%**	**7.9%**	**4.1%**

Table 20: Educational enrolments, aims and activities in hydrogen and carbon capture-relevant subject areas by level and region, 2024/25

Level	Region	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorkshire and The Humber	Northern Ireland	Scotland	Wales	Total
Further Education	Construction, Planning and the Built Environment	29,017	30,458	36,380	28,385	57,673	36,917	30,498	34,506	39,682	10,795		25,410	**381,171**
	Construction and Property (Built Environment)											21,450		
	Engineering and Manufacturing Technologies	42,455	33,956	29,872	37,588	69,793	68,972	53,831	61,120	51,673	10,045		22,560	**514,585**
	Engineering											31,845		
	Manufacturing/Production Work											875		
	Information and Communication Technology	14,122	16,427	55,570	14,421	34,519	29,932	19,765	31,534	18,802	9,270		13,040	**271,492**
	Information Technology and Information											14,090		
	Science and Mathematics	12,301	21,552	21,893	10,344	54,072	45,492	18,130	29,436	26,295	3,960	12,970	14,125	**270,945**
	Oil/ Mining/ Plastics/ Chemicals											375		
	In-scope FE total	**97,895**	**102,393**	**143,715**	**90,738**	**216,057**	**181,313**	**122,224**	**156,596**	**136,452**	**34,070**	**81,605**	**75,135**	**1,438,193**
	FE total all subject areas	**471,824**	**530,388**	**940,562**	**380,965**	**963,376**	**808,247**	**506,086**	**680,531**	**603,847**	**114,920**	**256,985**	**455,205**	**6,712,936**
Higher Education	Environmental and public health	240	1,075	2,650	1,080	1,555	445	240	1,070	880	220	700	815	**10,970**
	Physics	1,385	820	3,580	1,050	2,760	3,595	1,730	1,530	1,720	410	3,140	805	**22,525**
	Chemistry	2,200	800	3,720	1,265	2,755	2,405	1,395	1,510	2,245	405	2,600	1,040	**22,340**
	Physical sciences	0	45	25	90	80	490	0	105	25	265	85	50	**1,260**
	Mathematics	2,295	1,890	6,525	1,860	3,260	5,480	3,640	3,195	2,300	490	3,765	1,500	**36,200**
	Operational research	260	30	75	0	260	270	0	135	5	0	75	25	**1,135**
	Statistics	260	600	1,850	70	720	1,245	245	610	450	90	1,425	150	**7,715**
	Mechanical engineering	3,455	890	4,395	2,175	3,670	2,710	3,340	2,850	2,780	900	4,495	1,795	**33,455**
	Production and manufacturing engineering	1,870	1,575	880	200	1,055	1,610	1,015	2,230	1,380	120	1,100	710	**13,745**
	Civil engineering	1,855	595	4,970	1,705	2,485	1,655	2,005	2,015	2,430	855	3,390	1,435	**25,395**
	Electrical and electronic engineering	1,975	1,005	4,815	2,355	3,185	2,560	1,685	2,470	3,245	410	3,625	1,540	**28,870**
	Chemical, process and energy engineering	1,185	565	2,860	940	1,440	510	720	1,090	1,640	440	2,085	525	**14,000**
	Others in engineering	0	140	0	0	260	10	90	45	60	55	175	0	**835**
	Minerals technology	330	0	0	5	0	0	0	40	0	0	0	0	**375**
	Materials technology	300	70	770	5	245	35	20	230	510	0	5	330	**2,520**
	Biotechnology	165	265	105	135	460	35	15	50	105	5	330	30	**1,700**
	Materials science	5	450	260	5	585	300	0	25	150	15	0	0	**1,795**
	Computer science	6,665	7,115	21,010	5,445	7,745	10,295	5,660	9,060	6,805	2,700	8,700	5,205	**96,405**
	Information technology	210	1,195	1,070	670	355	6,380	495	2,800	345	575	2,685	1,020	**17,800**
	Information systems	940	300	7,850	530	1,235	795	410	1,460	925	325	1,555	545	**16,870**
	Software engineering	1,750	1,125	4,075	1,240	2,810	3,940	1,390	2,475	2,085	1,210	3,215	1,380	**26,695**
	Artificial intelligence	540	870	1,440	210	730	1,160	725	835	1,435	145	760	265	**9,115**
	Architecture	2,450	900	7,480	1,080	3,095	2,520	2,365	995	1,590	655	2,570	1,155	**26,855**
	Building	2,175	1,205	3,875	1,950	2,935	4,575	6,485	1,910	1,565	960	2,940	980	**31,555**
	Planning (urban, rural and regional)	85	275	1,430	455	635	375	410	615	1,025	260	620	500	**6,685**
	Physical geographical sciences	730	165	625	680	935	1,480	1,375	180	735	175	1,495	1,035	**9,610**
	Environmental sciences	585	430	770	400	975	2,610	655	375	735	245	1,490	810	**10,080**
	Earth sciences	160	625	1,010	400	590	1,315	1,170	385	335	55	1,660	610	**8,315**
	In-scope HE total	**34,070**	**25,020**	**88,115**	**26,000**	**46,815**	**58,800**	**37,280**	**40,290**	**37,505**	**11,985**	**54,685**	**24,255**	**484,820**
	HE total all subject areas	**188,095**	**154,640**	**549,365**	**120,070**	**269,265**	**403,955**	**219,085**	**262,905**	**213,655**	**65,695**	**272,615**	**143,825**	**2,863,170**

Table 21: Workforce, structural risk, recruitment demand and pay metrics for priority occupations

Workforce domain	4-digit SOC code	Employment (all industries)	RQF Level 6+	Aged 55+	Female	Country of Birth (non-UK)	Calculated risk score	Online job postings (Jun 24–May 25)	Job postings per current employment	Annual pay (all employee jobs), 2025	Skills England: Occupations in Demand (2025)
Construction	Production managers and directors in construction	170,383	33%	35%	11%	17%	0.62	36,479	21%	£54,947	Not in high demand
Construction	Civil engineers	90,640	70%	21%	13%	24%	0.66	23,806	26%	£50,602	Elevated demand
Construction	Quantity surveyors	39,700	67%	18%	18%	7%	0.48	38,858	98%	£51,950	Elevated demand
Construction	Construction project managers and related professionals	106,595	41%	20%	21%	19%	0.51	12,262	12%	£45,613	Not in high demand
Construction	Building and civil engineering technicians	14,577	42%	19%	20%	13%	0.46	5,531	38%	£36,912	Not in high demand
Construction	Welding trades	47,694	0%	23%	3%	18%	0.5	18,161	38%	£34,742	Not in high demand
Construction	Pipe fitters	2,352	0%	44%	0%	0%	0.5	2,898	123%	£42,580	Not in high demand
Construction	Steel erectors	6,438	0%	5%	0%	17%	0.39	1,859	29%	£34,782	Not in high demand
Construction	Construction and building trades supervisors	41,432	7%	34%	5%	23%	0.62	9,159	22%	£45,000	Not in high demand
Construction	Scaffolders, stagers and riggers	22,112	1%	14%	0%	4%	0.34	4,216	19%	£40,797	Not in high demand
Engineering	Physical scientists	31,610	93%	18%	40%	31%	0.63	5,096	16%	£53,142	Not in high demand
Engineering	Electrical engineers	49,125	49%	20%	1%	13%	0.57	14,610	30%	£59,930	Elevated demand
Engineering	Engineering project managers and project engineers	68,718	62%	21%	13%	21%	0.62	15,410	22%	£52,451	Elevated demand
Engineering	Engineering professionals not elsewhere classified	118,304	55%	21%	16%	19%	0.57	38,276	32%	£47,985	-
Engineering	Environment professionals	78,618	80%	12%	48%	20%	0.43	17,994	23%	£41,555	Critical demand
Operations	Production managers and directors in mining and energy	15,135	65%	15%	15%	6%	0.46	1,078	7%	£63,241	Elevated demand
Operations	Production and process engineers	63,374	58%	12%	15%	24%	0.57	13,023	21%	£47,711	Not in high demand
Operations	Quality assurance technicians	33,183	39%	14%	40%	30%	0.46	15,028	45%	£33,242	Critical demand
Operations	Quality assurance and regulatory professionals	190,864	57%	19%	48%	19%	0.4	39,184	21%	£47,969	Not in high demand
Operations	Health and safety managers and officers	93,889	41%	34%	28%	14%	0.51	34,441	37%	£44,551	Critical demand
Operations	Chemical and related process operatives	29,260	8%	21%	16%	6%	0.34	8,049	28%	£33,531	Not in high demand
Operations	Mining and quarry workers and related operatives	11,131	4%	18%	2%	23%	0.52	23,016	207%	£38,301	Elevated demand
Operations	Energy plant operatives	13,259	20%	22%	12%	11%	0.44	6,977	53%	-	Not in high demand
Maintenance	Mechanical engineers	96,759	56%	24%	6%	19%	0.65	23,134	24%	£50,594	Elevated demand
Maintenance	Quality control and planning engineers	37,050	54%	12%	38%	21%	0.42	5,267	14%	£42,511	Elevated demand
Maintenance	Electrical and electronics technicians	21,353	24%	19%	10%	19%	0.5	7,429	35%	£39,187	Elevated demand
Maintenance	Engineering technicians	82,646	24%	22%	9%	11%	0.47	29,250	35%	£44,330	Critical demand
Maintenance	Planning, process and production technicians	21,464	21%	20%	31%	23%	0.43	8,688	40%	£36,062	Critical demand
Maintenance	Metal working production and maintenance fitters	159,334	11%	25%	5%	13%	0.49	113,434	71%	£40,002	Critical demand
Maintenance	Air-conditioning and refrigeration installers and repairers	14,644	1%	11%	0%	13%	0.4	9,295	63%	£41,166	Elevated demand
Maintenance	Electricians and electrical fitters	199,505	10%	20%	2%	12%	0.46	54,818	27%	£35,018	Elevated demand
Logistics	Managers in transport and distribution	92,443	27%	23%	25%	17%	0.45	16,322	18%	£46,734	Elevated demand
Logistics	Managers in logistics	43,840	33%	21%	13%	16%	0.5	5,935	14%	£45,104	Elevated demand
Logistics	Buyers and procurement officers	76,667	46%	18%	56%	21%	0.41	31,648	41%	£36,230	Critical demand
Logistics	Transport and distribution clerks and assistants	84,089	25%	15%	49%	27%	0.34	20,590	24%	£32,060	Elevated demand
Digital technologies	IT business analysts, architects and systems designers	193,357	60%	14%	21%	29%	0.6	61,931	32%	£59,593	Critical demand
Digital technologies	Cyber security professionals	87,598	63%	14%	19%	26%	0.59	18,373	21%	£54,816	Elevated demand
Digital technologies	IT operations technicians	94,225	40%	12%	25%	24%	0.47	40,121	43%	£34,656	Critical demand
Digital technologies	Data analysts	143,958	66%	8%	44%	27%	0.45	17,261	12%	£38,107	Critical demand
	Total – All occupations in scope	**2,787,322**	**42%**	**20%**	**22%**	**19%**	-	**848,907**	**30%**	-	-
	Total - All UK employed	**33,897,144**	**39%**	**22%**	**49%**	**21%**	-	**8,225,003**	**24%**	**£32,890**	-

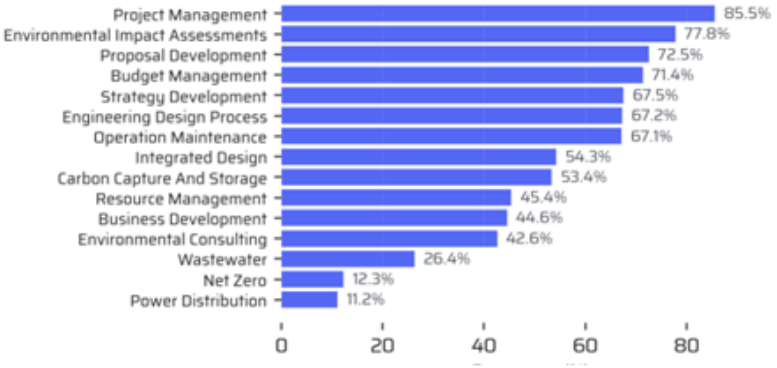
Skills Snapshot

Environmental Planner / Scientist

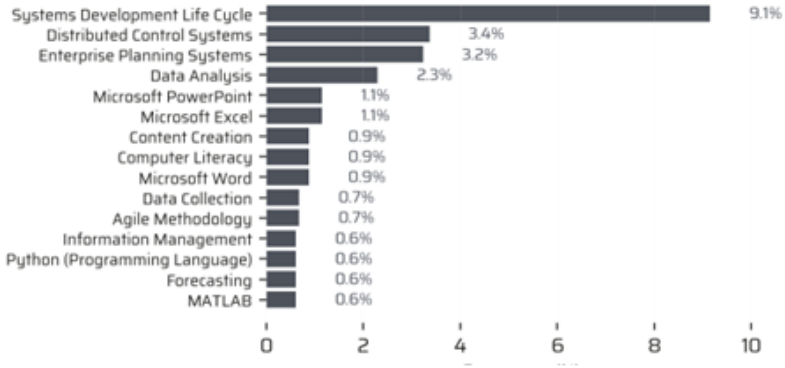
Key job posting figures
Unique postings:
1,487
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

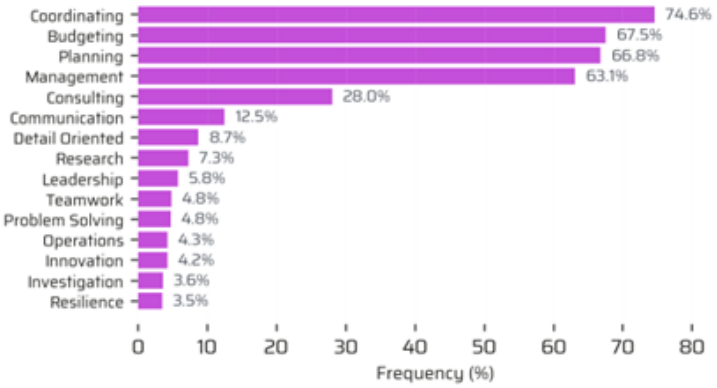
Top Specialised Skills



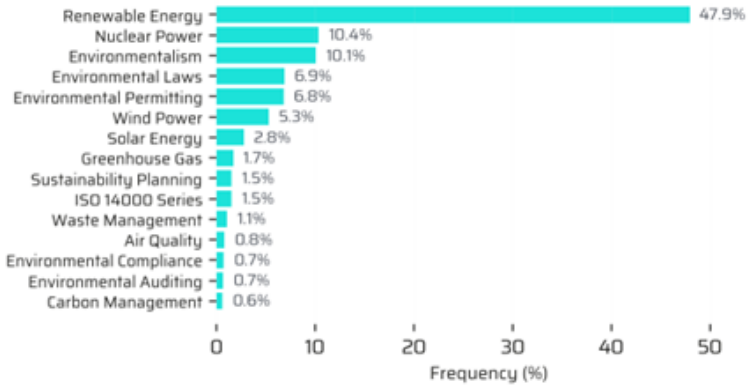
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Alternative Energy Manager	47
Technical Sales Specialist	38
Biochemist	27
Renewable Energy Engineer	26
Transportation Engineer	21
Energy Engineer (General)	21
Water Resource Specialist	20
Energy Specialist	20
Energy Analyst / Auditor	17
Sustainability Specialist	16

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

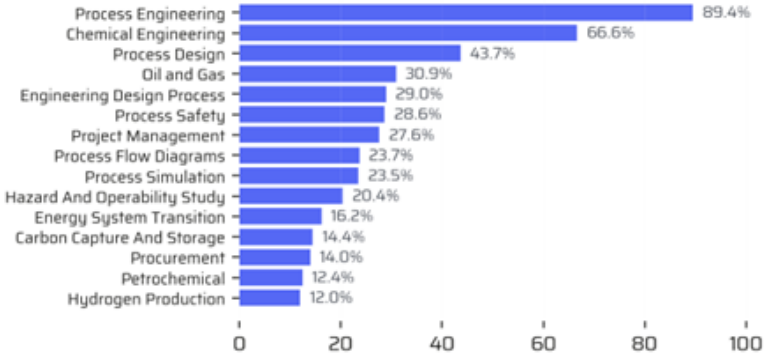
Skills Snapshot

Process Engineer (General)

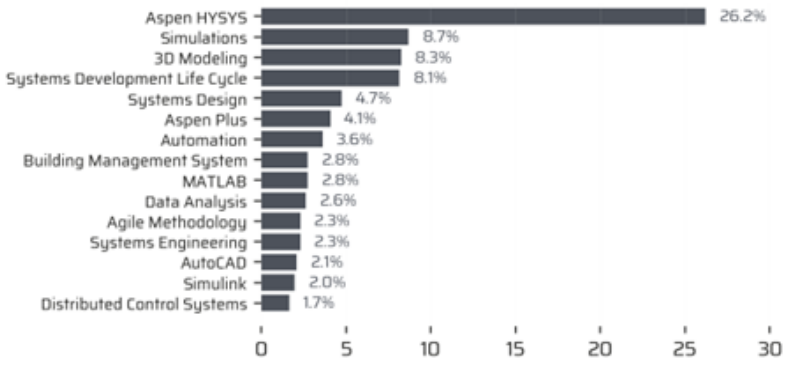
Key job posting figures
Unique postings:
908
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

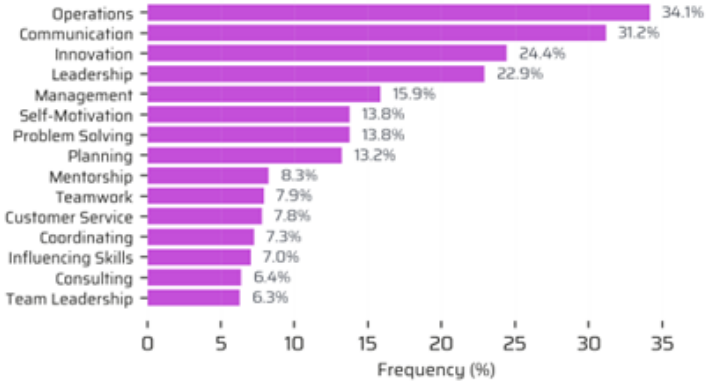
Top Specialised Skills



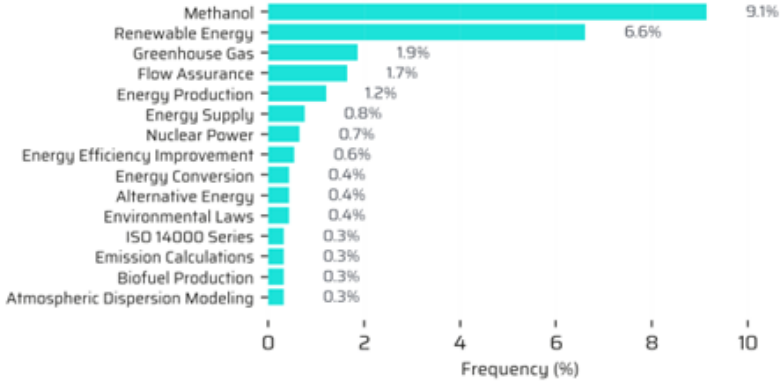
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Process Industrial Engineer	60
Chemical Engineer (General)	56
Plastics Engineer	30
Water / Wastewater Engineer	29
Renewable Energy Engineer	26
Process Manager	25
Automotive Engineer	22
Design Engineering Manager	21
Lean Manufacturing Engineer	21
Metallurgical Engineer	20

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

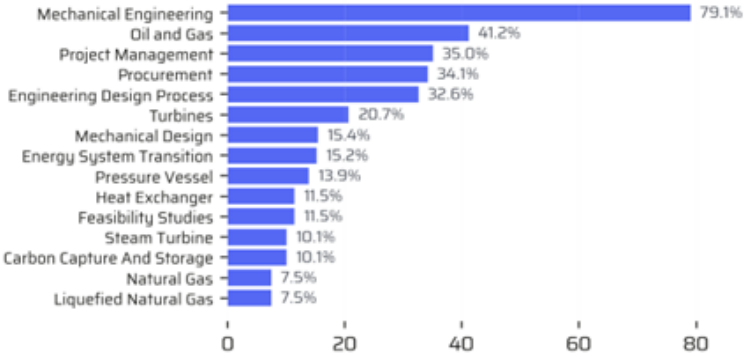
Skills Snapshot

Mechanical Engineer (General)

Key job posting figures
Unique postings:
454
Hydrogen & Carbon Capture Sectors

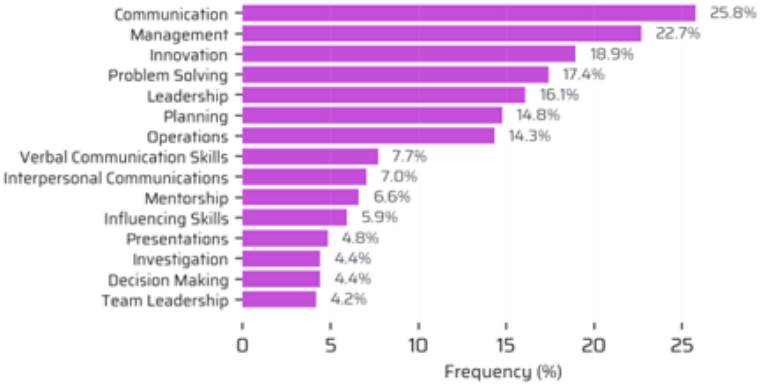
Cogent Skills
for science and technology

Top Specialised Skills

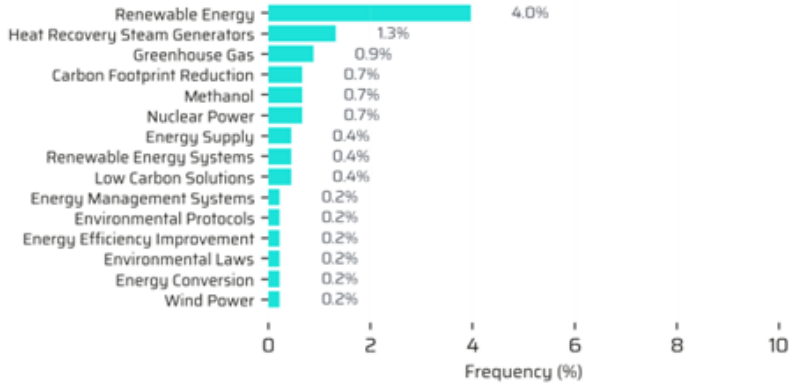


Top Digital Skills

Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Mechanical Design Engineer	48
Automotive Engineer	36
Manufacturing Process Engineer	34
Mechanical Engineering Manager	34
Mechanical Systems Engineer	31
Transportation Engineer	30
Energy Efficiency Engineer	30
Mechanical / Electrical Draughtsperson	27
Design Engineering Manager	27
Building Engineer	25

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

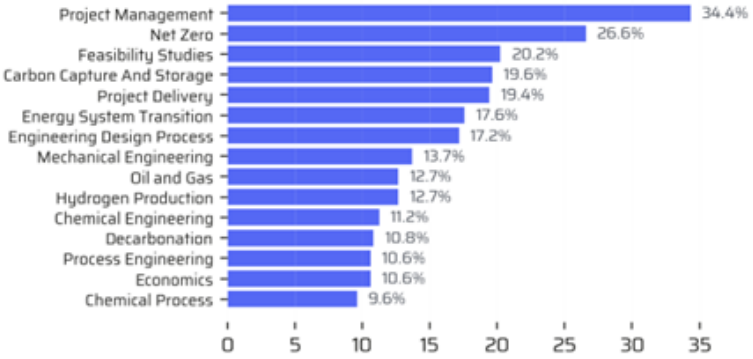
Skills Snapshot

Energy Engineer (General)

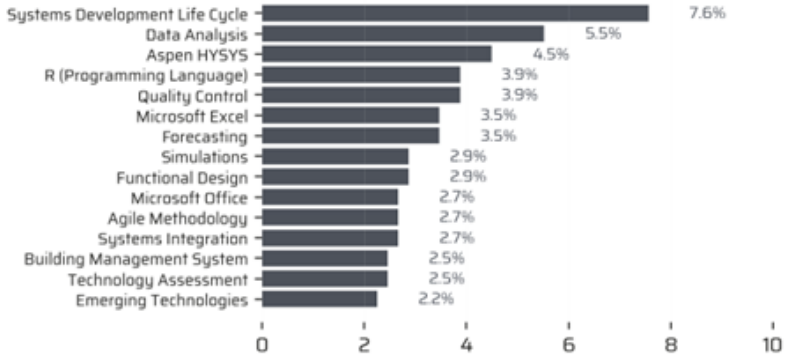
Key job posting figures
Unique postings:
489
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

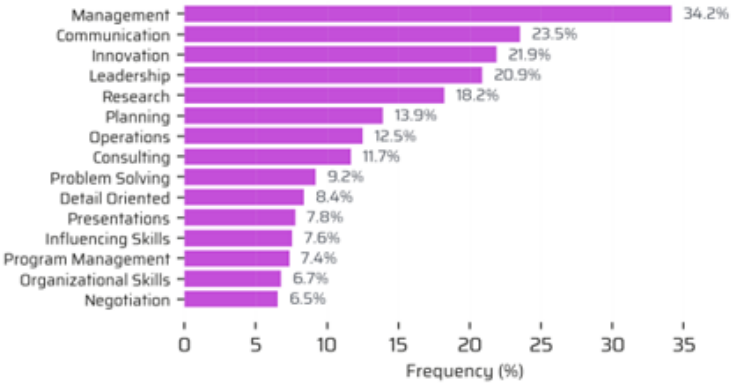
Top Specialised Skills



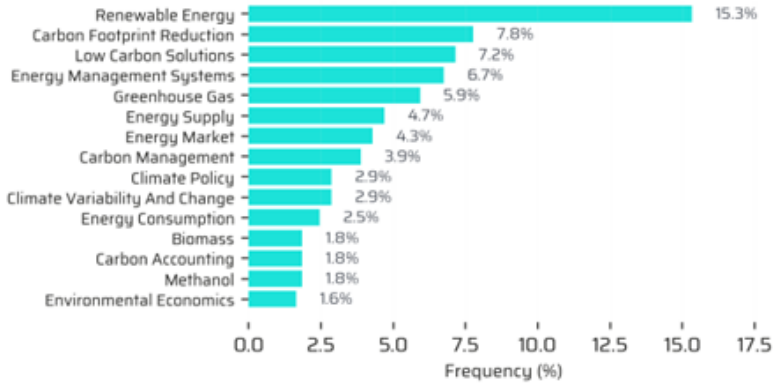
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Sustainability Specialist	41
Process Engineer (General)	39
Chemical Engineer (General)	38
Alternative Energy Manager	37
Process Industrial Engineer	30
Energy Specialist	29
Automation Engineer	26
Manufacturing Automation Engineer	25
Materials Research Engineer	24
Energy Analyst / Auditor	24

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

Skills Snapshot

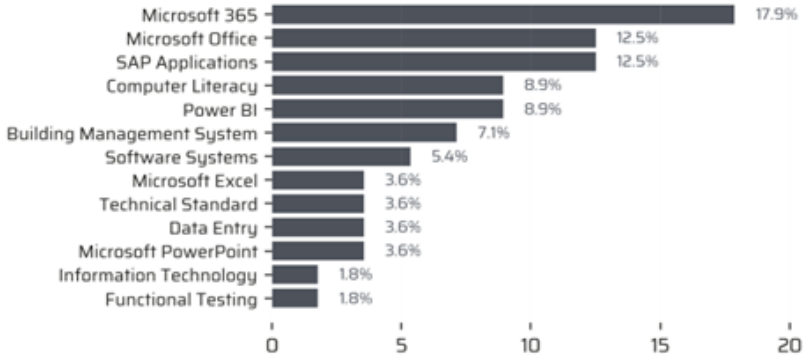
Quality Inspector (General)

Key job posting figures
Unique postings:
56
Hydrogen & Carbon Capture Sectors

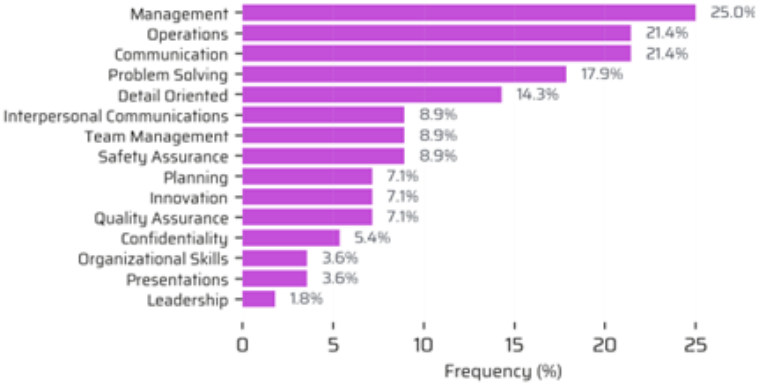
Cogent Skills
for science and technology

Top Specialised Skills

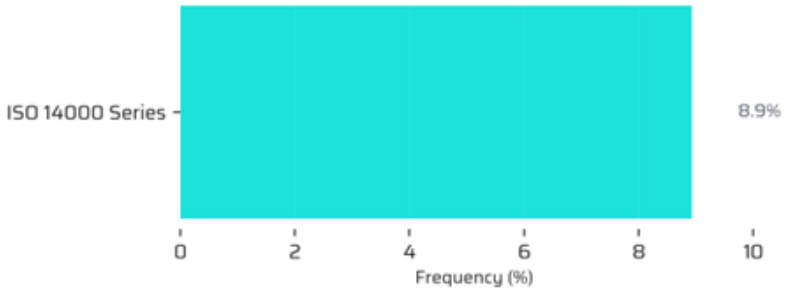
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Calibration Technician	37
Test Technician	36
Corrosion Engineer	35
Engineering Test Technician	30
Completions Engineer	27
Quality Manager (General)	23
Software QA Lead	23
Validation Engineer	22
Instrumentation Technician	22
Packaging Industrial Engineer	22

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

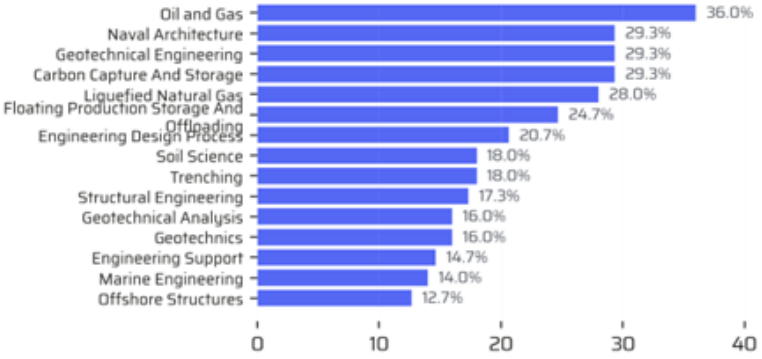
Skills Snapshot

Marine Engineer / Architect

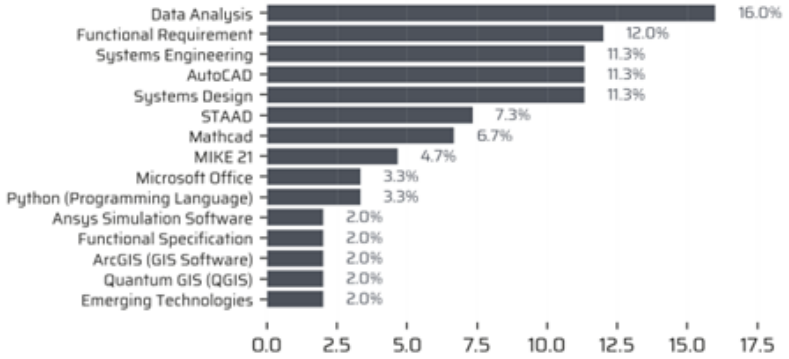
Key job posting figures
Unique postings:
150
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

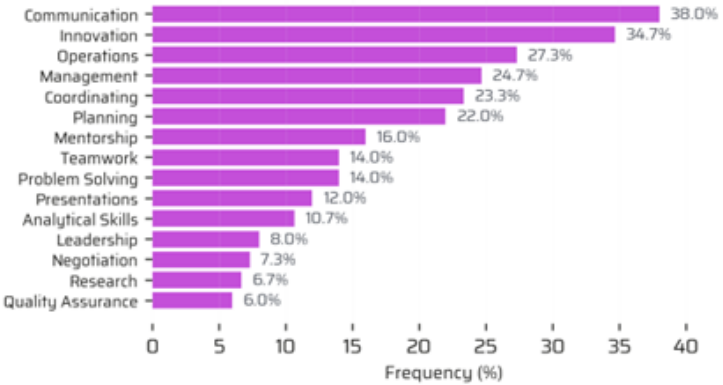
Top Specialised Skills



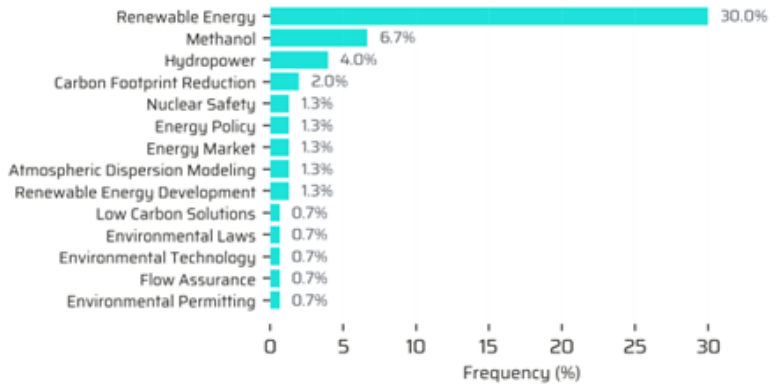
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Geotechnical Engineer	65
Mining Engineer	65
Geologist	64
Geophysicist	60
Renewable Energy Engineer	33
Drilling Engineer	31
Technical Sales Specialist	31
Civil Engineer	30
Mining Manager	28
Transportation Engineer	26

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

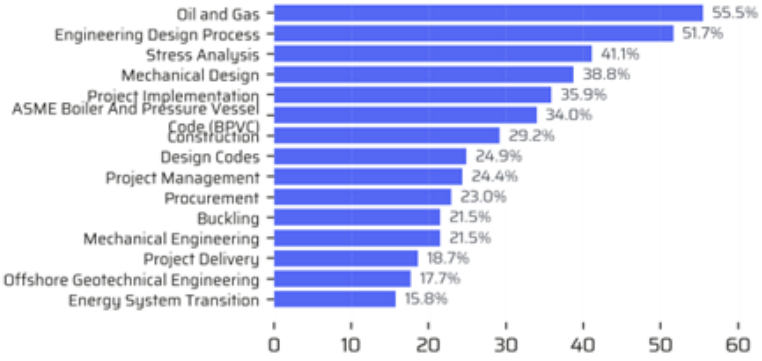
Skills Snapshot

Pipeline Worker / Operator

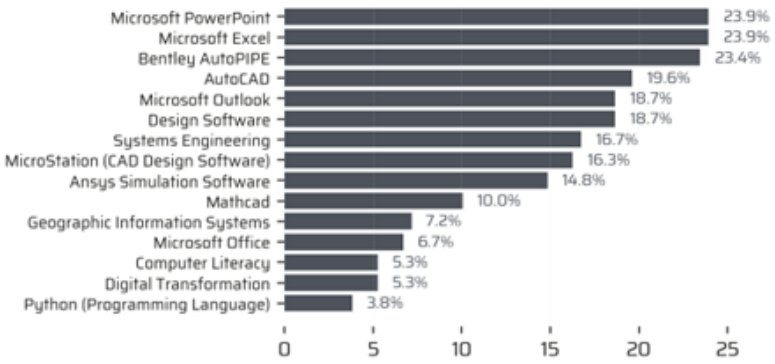
Key job posting figures
Unique postings:
209
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

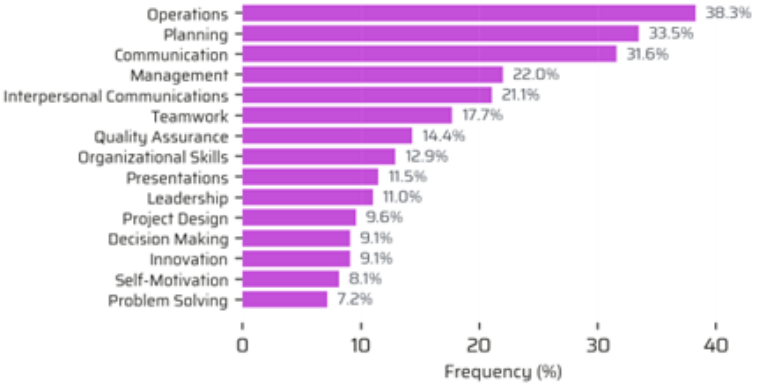
Top Specialised Skills



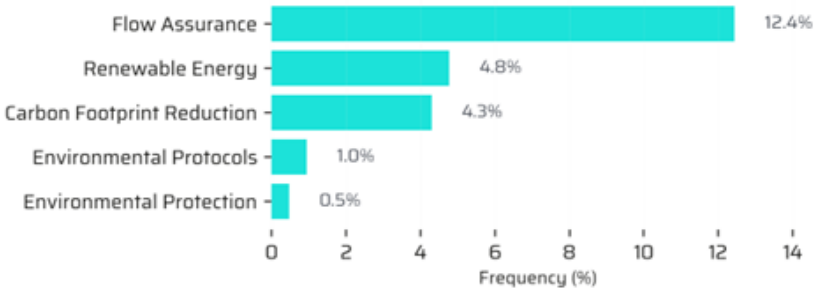
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Geotechnical Engineer	51
Mining Engineer	50
Geologist	48
Geophysicist	45
Drilling Engineer	43
Mechanical Design Engineer	36
Mechanical Engineer (General)	31
Corrosion Engineer	28
Operations Engineering Manager	24
Mining Manager	24

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

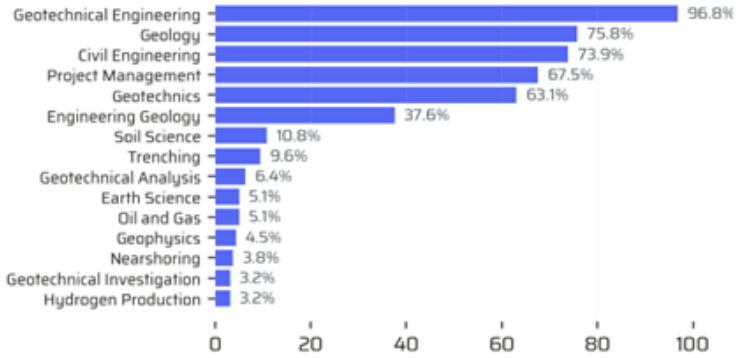
Skills Snapshot

Mining Engineer

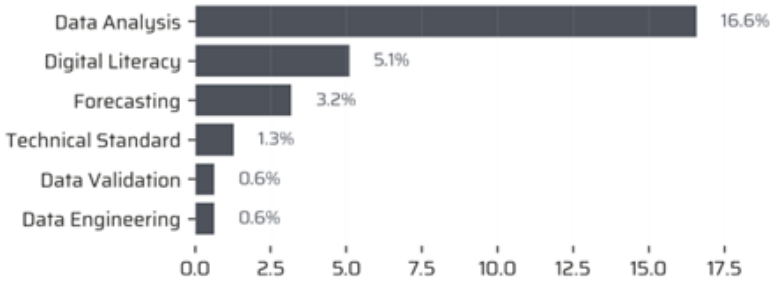
Key job posting figures
Unique postings:
157
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

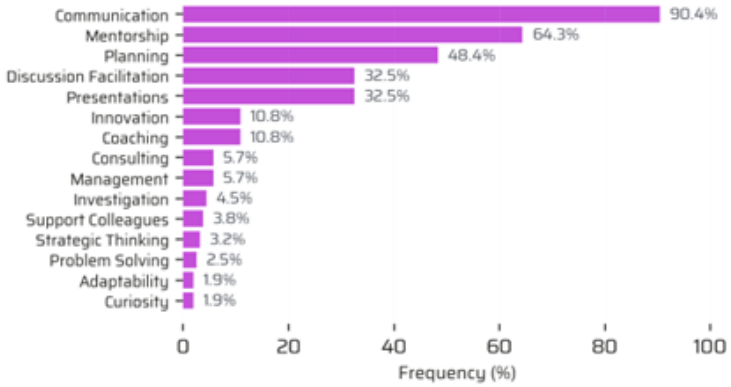
Top Specialised Skills



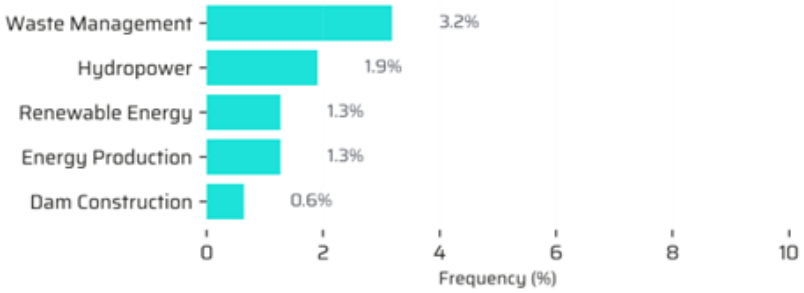
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Geotechnical Engineer	84
Geologist	79
Geophysicist	70
Civil Engineering Manager	37
Mining Manager	36
Mining Supervisor	33
Driller / Drill Operator	32
Transportation Engineer	26
Civil Engineer	24
Construction Engineering Manager	22

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

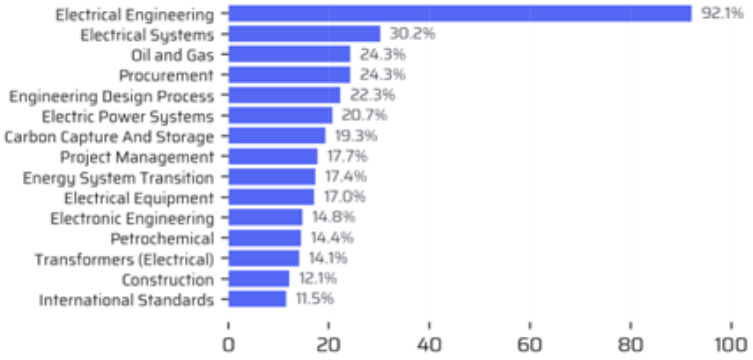
Skills Snapshot

Electrical Engineer (General)

Key job posting figures
Unique postings:
305
Hydrogen & Carbon Capture Sectors

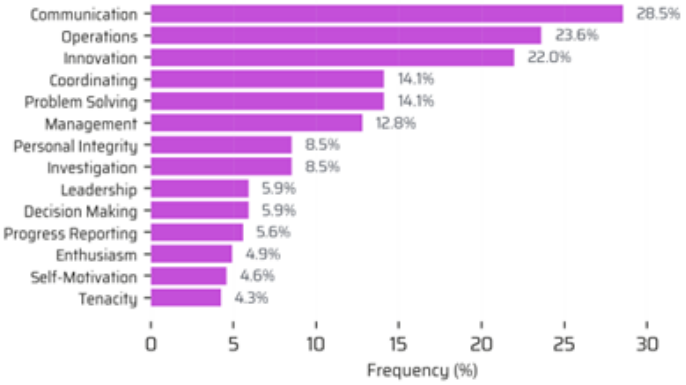
Cogent Skills
for science and technology

Top Specialised Skills

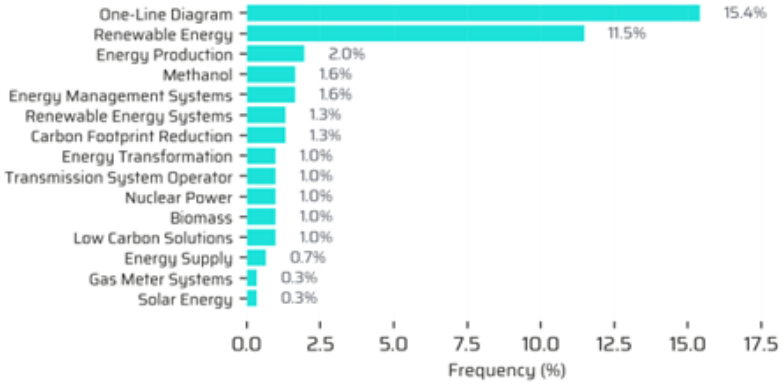


Top Digital Skills

Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Energy Efficiency Engineer	60
Electrical Substation Engineer	52
Power Systems Engineer (General)	50
Electrical Engineering Technician	48
Electrical Engineering Manager	43
Solar Engineer	41
Renewable Energy Engineer	35
Electrical Designer	35
Electrician	30
Automotive Engineer	25

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.

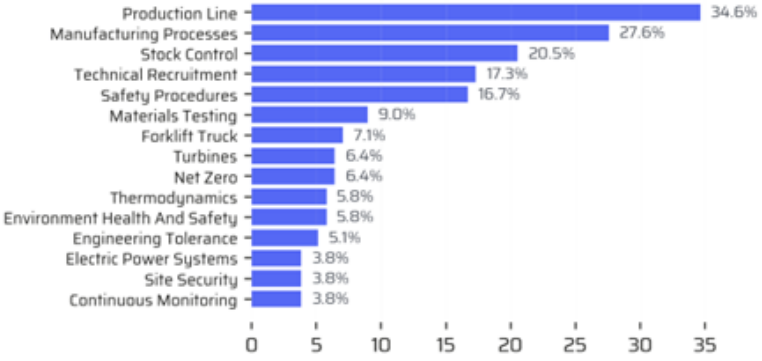
Skills Snapshot

Power Distributor / Plant Operator

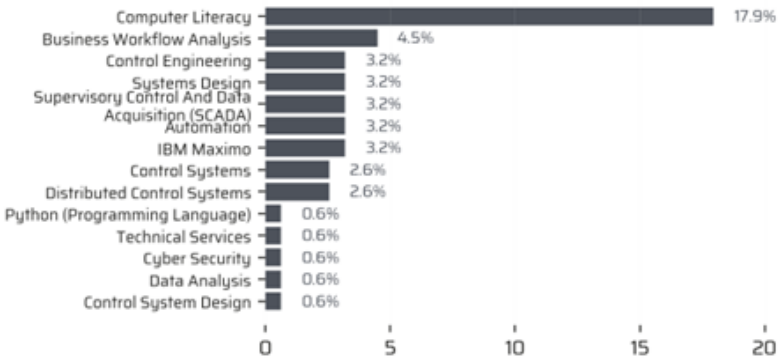
Key job posting figures
Unique postings:
156
Hydrogen & Carbon Capture Sectors

Cogent Skills
for science and technology

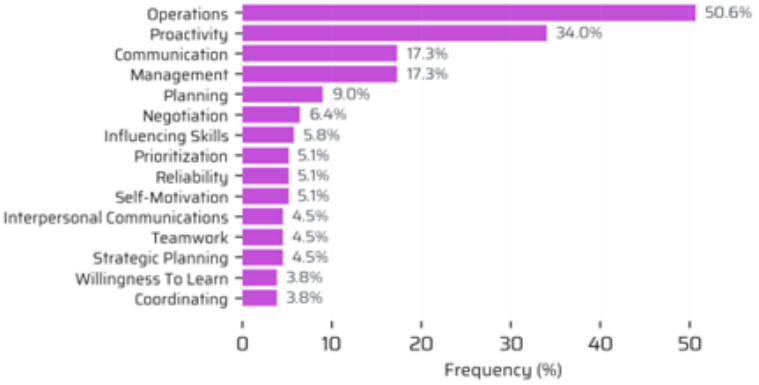
Top Specialised Skills



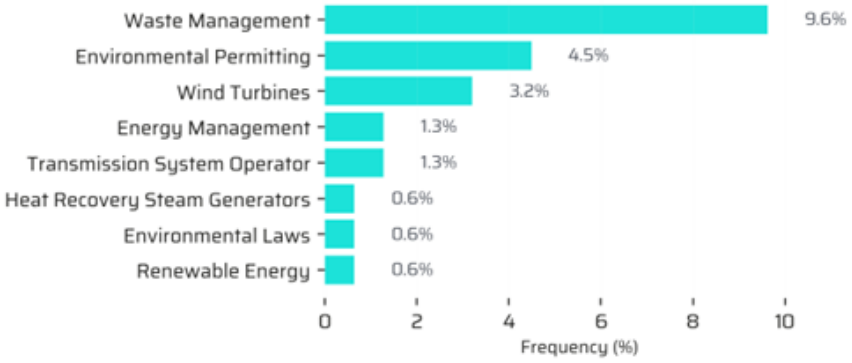
Top Digital Skills



Top Common Skills



Top Green Skills



Closest occupations by skills overlap (%)

Packaging Machine Operator	34
Manufacturing Machine Operator	33
Manufacturing Production Supervisor	25
Manufacturing / Production Technician	22
Quality Inspector (General)	14
Industrial Engineer (General)	14
Packaging Industrial Engineer	13
Manufacturing Chemist	12
Polymer Chemist	11
Quality Technician (General)	10

Source: Lightcast job posting data, 2025.
Note: Skills frequencies represent share of job postings referencing each skill.