Towards a just transition for workers in the built environment in Europe

Building materials and on-site construction sectors

Annex I: Country fiche – United Kingdom

ECORYS

Answering tomorrow's challenges today

Country Fiche

United Kingdom

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Building materials and on-site construction sectors

1. At a glance[1]

Strengths/Opportunities

• Opportunities in construction sector:
  ○ Decarbonisation presents a range of opportunities for workers in the **construction sector** in terms of the chance to acquire new skills and update existing. There is a consistent demand for both some traditional trade skills and emerging competencies in digital construction technologies and sustainable building practices. There are a number of government-back initiatives aimed at increasing skills in the construction sector. The most prominent of these is the Warm Homes Skills Programme. This will run until July 2026 and will provide up to 9,000 subsidised training opportunities for installers and retrofit professionals, including installing insulation and solar panels in homes and non-domestic properties. The engineering construction sub-sector, which covers heavy infrastructure projects such as energy and power plants, motorways, railways and other industrial facilities, is covered by a national-level collective agreement. This offers a floor of protection for workers in relation to minimum pay and working conditions.
  ○ Urban areas and regions with significant regeneration projects tend to offer more employment, while rural areas may see fluctuations depending on local demand.
• Opportunities in the building materials sector:
  ○ The above also applies to the **cement** industry. There will be opportunities in terms of new jobs, as the cement industry will continue to be a key sector in the construction supply chain as existing facilities are expanded, refurbished and equipped with new technology, which will require workers with different types of skills.
  ○ In the **timber** industry, there is likely to be job creation as the sector expands in line with government emissions reduction policy. Specifically, the creation of a national forest in a former industrial area and a planned new national forest in the west of England are positive developments in terms of a likely increase in jobs.

Weaknesses/Threats
• Weaknesses and threats in construction sector: ○ Workers with outdated skills will need to reskill or upskill if they do not want to be left behind in the decarbonised economy. Training is available but there will need to be further investment in training to ensure that the workforce has the right skills to function in the future decarbonised economy. There has been something of a shift towards private sector provision in terms of skills, with a growing number of courses now offered by private sector actors - such as heat pump manufacturers and energy companies - who equip workers with narrowly defined technology-specific skills. This marks a departure from the traditional college-based model, where learners

[1] The core construction sector is assessed in detail in all ten countries, while the depth of analysis varies in the building material industries, with the one or two biggest industries (measured by volume of material output produced in tons) analysed per country. For Italy, the Netherlands, Czechia, Denmark and Ireland, the analysis focuses on either steel or cement, depending on which material has the highest output. Germany, France, the United Kingdom, Poland, and Spain are subject to a deeper analysis, including steel or cement and an additional industry (either timber or glass) selected based on its importance in material output.

received a broader foundation in trades such as plumbing or engineering. As a result, the current training landscape is more privatised and less holistic, producing a workforce that is increasingly specialised but potentially less adaptable to future technological changes.
    - In terms of collective bargaining, the number of smaller companies and start-ups is increasing and these types of companies are less inclined to recognise trade unions. This means that there is likely to be relatively weak collective bargaining coverage in the sector in the decarbonised economy, in the overall context of a relatively low level of collective bargaining at sectoral level in the UK.
- Weaknesses and threats in the building materials sector:
    - For both the cement and timber supply chain industries, there will be pressures in terms of being able to upskill and reskill the workforce. Production process changes in cement may also result in workforce restructuring.

Key organisations

- There are many organisations that are active in advocating for improved labour conditions for workers in the construction sector. The main trade unions active in the sector are Unite the Union and the GMB.
- On the employer side, the main organisation is Build UK, which represents UK construction companies, including those in the supply chain. Further, the UK Green Building Council supports sustainability in the transformation of the built environment. Other organisations are involved in training, such as the Construction Industry Training Board - CITB which supports training of construction industry workers.
- A range of NGOs and charities also operate in the sector, such as the Construction Youth Trust, which helps young people to access careers in construction.
- There are also organisations dedicated to overseeing and supporting just transition, also in the construction industry, such as Campaign against Climate Change, the Greener Jobs Alliance and Climate Jobs UK.

Key initiatives and partnerships

- The **Greener Jobs Alliance** (GJA) is a campaigning organisation formed through a loose coalition of trades unions, student organisations, environmental groups, and individual supporters. The GJA campaigns around the issue of the jobs and skills needed to transition to a low carbon economy, supporting local projects through to advocacy at regional, national, and international level. It is led by the UK Trades Union Congress (TUC).
- **CO2nstructZero** is the construction sector's response to the UK Government's 10-point plan for a Green Industrial Revolution, setting out a path to Net Zero by 2050. It is a network of more than 220 companies, led by the Construction Leadership Council.

Hotspots of a Transition in the Construction Sector

United Kingdom

Legend

On-site construction:

Expected job creation

Building materials:

Cement

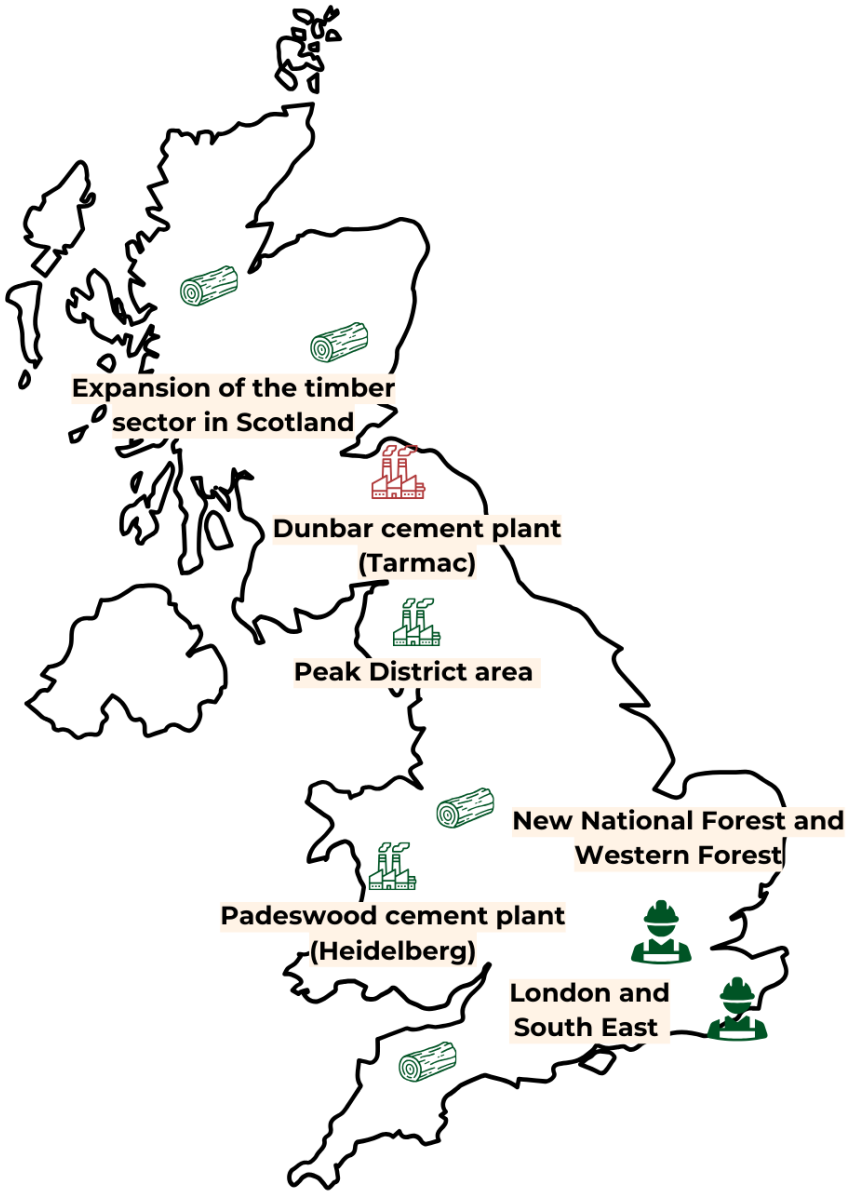
Modernisation of production site and reskilling of workers

Closure and/or repurposing with redundancy plans

Timber

Decarbonisation of production site and reskilling of workers

Not covered in the analysis: steel and glass (see footnote 1).



The on-site construction sector

The on-site construction sector today

Economic indicators	Employment	Workforce characteristics
• There were 364,514 construction companies in the UK in 2023. • SMEs dominate the sector, with a majority of companies having less than 3 employees, according to data from Statista. • The construction industry is estimated by the UK government to contribute £138 billion to the UK economy in value added.	• In 2024 there were 2,65 million people working in the construction industry in the UK, with the workforce forecast to grow to just over 2,75 million by 2030. The construction workforce grew between 2010-2020, with a significant drop during the pandemic in 2020 and a slight downward trend since. • The primary project areas in which UK construction industry participants operate include private sectors such as housing, retail, offices, industrial, hospitality, health, education and utilities, and public sectors such as local government, and central government and agencies.	• Made up of workers aged 25-44 (50%) followed by those aged 45-59 (25%), with only 19% of workers under the age of 25. Women constitute approximately 15% of workers in the sector, and make up around 2% of those working on-site in trades - slight increase from 2010. • **Increased focus on expanding and diversifying recruitment with initiatives led by construction stakeholders** such as the Construction Industry Training Board (CITB) and the UK government. • The only formal measure to encourage the recruitment of women is the legal requirement for employers with over 250 employees - in all sectors - to report their gender pay gap data. Increased female representation can be further supported through measures such as encouraging early exposure to construction jobs among young women through awareness-raising, vocational activities, and books for younger girls in schools. • **Lack of workforce diversity** which is particularly acute for onsite trade roles. The 'macho' culture and sometimes harsh working conditions of on-site work is also a barrier for women, black and minority ethnic workers and those from marginalised communities. 14% of architects are from ethnic minority backgrounds; just under 14% of engineers are from an ethnic minority.

The legislative framework for decarbonisation and its impacts on workers

Decarbonisation policies and emission timelines and targets

- **Climate Change Act 2008, revised in 2019:** This legislation established legally binding carbon budgets and was strengthened in 2019 to include a long-term, economy-wide target to reach net-zero greenhouse gas emissions, including methane, by 2050. Prior to this amendment, the Act had set a target of at least 80% reduction from 1990 levels by 2050. Territorial emissions have fallen by over 50% since 1990, largely due to the decarbonisation of the electricity sector and the phase-out of coal-fired power generation.

- **Net Zero Strategy:** This initiative further sets targets for public sector emissions, for example reducing emissions from public sector buildings, reducing waste and reducing travel for business purposes, including a 50% reduction by 2032 and 75% by 2037, with some devolved administrations adopting more ambitious timelines. Independent oversight is provided by the Climate Change Committee, whose 2024 report highlights the need for particularly urgent action in heating, transport, and industrial sectors.

- The UK Green Building Council's Net Zero Whole Life Carbon Roadmap sets out a pathway to net zero for the construction industry by 2050. Its key targets are: a 76% reduction in total emissions by 2035, compared to a 2018 baseline; a 57% reduction in embodied carbon in non-domestic buildings by 2035, compared to a 2018 baseline; an 81% reduction in operational carbon in non-domestic buildings by 2035, compared to a 2018 baseline; a 50% reduction in embodied carbon in domestic buildings by 2035, compared to a 2018 baseline; and an 86% reduction in operational carbon in domestic buildings by 2035, compared to a 2018 baseline.

- The UK government's Warm Homes Plan aims to lift over 1 million households out of fuel poverty by 2030. Key initiatives to support this target include the provision of grants of up to £7,500 to support the installation of air source heat pumps, ground source heat pumps and biomass boilers, and a fund of £500 million to provide energy upgrades for low-income households.

- **The Carbon Budget and Growth Delivery Plan (2025) and the Powering Up Britain policy paper (2023):** These initiatives collectively outline sector-specific pathways for emissions reduction across energy, transport, buildings, and industry. The UK government states that in the area of buildings, the Carbon Budget and Growth Delivery Plan will focus on providing more efficient, low-carbon buildings, reduced energy bills and healthier, more comfortable environments. The government will also provide funding and support to businesses and consumers to upgrade their commercial spaces and homes. The Powering Up Britain policy paper aims to reduce reliance on fossil fuels to heat buildings, with an ambition to phase out all new and replacement natural gas boilers by 2035 at the latest. It also aims to increase energy efficiency across different buildings.

- **Carbon Reduction Plans:** From 2023, suppliers bidding for government contracts are required to submit Carbon Reduction Plans as part of proposals, detailing their current carbon footprint and commitments to achieving Net Zero emissions by 2050.

- **Zero Carbon London:** The London Mayor has set a target for London to be carbon net zero by 2030. It aims to achieve this through an accelerated green pathway, which will include an almost 40% reduction in the total heat demand of London buildings. This will require over 2 million homes and a quarter of a million non-domestic buildings to be properly insulated. It also aims to have 2.2 million heat pumps in use in London by 2030 and to connect 460,000 buildings to district heating networks by 2030.

- **Birmingham City Council's route to net zero by 2030**: Birmingham City Council has put plans in place to achieve carbon net zero by 2030. Key initiatives of relevance to the construction sector include: a retrofit skills plan that will enhance skills in the retrofit sector in the Midlands region; improving energy efficiency in 2,000 homes through measures such as double glazing, solar panels, insulation and draught proofing; and the construction of 36 energy-efficient homes.

- **Emissions reduction timelines and targets for the construction sector:** Based on the above legislation and initiatives, the emissions reduction timeline for the construction sector is set out below.

    - 2030: the UK's first NDC target is to reduce all greenhouse gas emissions by at least 68% by 2030 on 1990 levels
    - 2032: 50% reduction in public sector emissions
    - 2035: UK NDC target to reduce all greenhouse gas emissions by at least 81% on 1990 levels, excluding international aviation and shipping emissions.
    - 2037: 75% reduction in public sector emissions
    - 2050: net zero emissions.

Impacts on the construction industry

- **(Expected) impacts on the construction sector and investments:** There is a high level of short-termism in employment within the clean energy subsector of construction, with jobs in areas such as heat pump installation, retrofitting, insulation, and other clean energy sub-sectors often lacking the stability seen in their legacy subsector counterparts. This is partly due to the nature of government funding, which tends to support short-term schemes and grants lasting only two or three years. This creates an unstable environment whereby there are surges in job creation followed by declines once funding ends. The short-term nature of funding also contributes to an absence of long-term pipelines of work in some clean energy sectors, particularly in those related to the decarbonisation of homes, as many consumers rely on external, targeted funding schemes, meaning that future demand is uncertain. This uncertainty also discourages investment in workforce development and training.

- **(Expected) impacts on employment, skills and activity of on-site construction workers:**

    - **Volume of labour:** While the green transition is resulting in losses of jobs in some traditional construction industries and supply chains, it is also generating a significant number of new jobs. The number of jobs in the low carbon and renewable energy economy (LCREE), most specifically defined as activity in 17 separate sectors including the following, which are relevant to the construction sector: energy efficient lighting, energy efficient products, energy monitoring and saving and control systems, growing over 5 times faster than overall employment. In 2022, the ONS estimated that there were 272,400 full-time equivalent (FTE) workers directly employed by the LCREE across the UK, with a further 180,000 FTE workers indirectly employed across the wider supply chain. This growth in jobs is not evenly distributed across the UK, however – the majority (85%) of FTE jobs are in England, with 9% in Scotland, 4% in Wales and 2% in Northern Ireland. Retrofitting of the country's existing housing stock is estimated to be likely to create around 500,000 jobs in the UK, as part of the country's commitment to Net Zero, with demand for roles such as heating engineers, glazers and insulation specialists likely to be highest. According to the Construction Industry Training Board (CITB), the total number of extra workers that will be

needed for the 2025–2029 period is estimated at 47,860 per year. This means the UK construction industry needs to recruit the equivalent of 239,300 extra workers over the next five years.

- **Working conditions:** Interviewed stakeholders foresee ongoing precarity in working conditions in the construction sector through the green transition, compounded by the decline of industries where trade unions have traditionally been strong and employment rights well established[2]. The industry's reliance on subcontracting and its reluctance to directly employ labour has continued to contribute to a highly mobile workforce in green energy sectors – for example, those working on nuclear power sites such as Hinkley Point C and Sizewell C frequently move between these sites. This high level of mobility, which is tied to high levels of self-employment, undermines the mechanisms needed to support workers in understanding and asserting their rights, can weaken employer accountability and creates an environment that can lack recognition of employees as rights holders. It could also benefit employers who want to avoid direct employment. This also means that when workers leave a site following the completion of a project, they often take their newly acquired, more specialised skills with them, leaving a skills gap.

- **Workforce composition:** The composition of the workforce is expected to shift significantly in response to emissions reduction efforts, with increased demand across a range of occupations in the clean energy sector. Engineering roles - particularly at NVQ Level 6 (equivalent to EQF Level 6) and above - will be critical, with civil, mechanical, electrical, chemical, and environmental engineers required in areas such as the construction and maintenance of offshore wind and nuclear facilities, and more broadly in engineering construction, which covers the construction of large-scale installations, including power plants. This highlights a key opportunity for STEM-qualified professionals. Skilled trades will also be essential, including welders and mechanical operatives across power, networks, and carbon capture, usage and storage (CCUS), although recruitment challenges persist in these areas. Electrical trades, such as electricians and fitters, will also play a central role in decarbonisation efforts, with demand spanning multiple levels and sectors. Planning professionals are also expected to be in high demand, with current delays in planning applications linked to a lack of workforce. Managerial roles - including project managers and retrofit coordinators - will be needed across all clean energy sectors, and many will require upskilling to meet the technical demands of emerging energy systems. Additionally, roles in legal, finance, procurement, and corporate services will support the transition, with some requiring specialist sector knowledge. Current job advertisement data already reflects this trend, with engineering professionals, electrical trades, and construction trades comprising the largest share of clean energy vacancies between 2021 and 2024.

- **Health and safety:** Concerns have been raised by trade unions and other stakeholders regarding health and safety standards for workers, as the construction sector experiences a disproportionately high rate of workplace accidents and injuries compared to other industries. As building materials and methods evolve in response to emissions targets, there is a risk that these safety issues may persist or manifest in new forms. For example, bricks composed of recycled materials are often heavier than traditional bricks, raising health and safety concerns for workers related to musculoskeletal risks. A perceived absence of joined-up strategy within the sector makes failures to consider the implications of changes associated with the green transition on workers more likely. Asbestos is recognised by the UK Health and Safety Executive (HSE) as the greatest occupational disease risk to construction workers. Workers can be particularly at risk of exposure to asbestos during maintenance or refurbishment work linked to retrofitting. The HSE notes that employers must identify the presence of asbestos as part of their risk assessment before the start of any work and have a duty to manage asbestos.

- **Skills:** Many of the jobs created by the shift towards clean energy could be filled by the existing workforce in carbon-intensive sectors, providing a significant need for reskilling. This is particularly true for the wind, solar, nuclear, hydrogen, and Carbon Capture and Storage sub-sectors, where there are key transferable skills in project management, engineering and construction, in terms of construction and maintenance of new types of energy facilities and systems. These skills are also transferable *between* these subsectors (except for nuclear). While these transferable skills present a significant opportunity, they may also generate competition between sectors as demand for workers increases. There are particularly acute shortages anticipated for STEM skills, non-technical skills such as leadership and management, digitisation, and specialist sector-specific skills, such as those for electrification and heat pump instillation. Most specifically, categories of role that will be in demand include skilled trades such as welders, electricians, planning roles and managerial roles, such as retrofit coordinators. There are a number of government-back initiatives aimed at increasing skills in the construction sector. The most prominent of these is the Warm Homes Skills Programme. This will run until July 2026 and will provide up to 9,000 subsidised training opportunities for installers and retrofit professionals, including installing insulation and solar panels in homes and non-domestic properties. In Phase 1 of the Programme, successful projects have secured a share of up to £8 million covering courses in: retrofit assessment and coordination; fabric insulation and solar panel installation; entry-level retrofit awareness; and skills for professionals working on non-domestic buildings.

Towards a Just Transition for Construction Workers

Just transition vision in construction
• **Collective agreements:** Workers in the engineering construction industry are covered by the National Agreement for the Engineering Construction Industry (NAECI), signed by the National Joint Council for the Engineering Construction Industry (NJC), which is made up of employer and trade union signatories. The agreement covers a range of issues, including pay, working time, safety, holidays, travel, pensions and social insurance, and discipline and grievance procedures. The agreement is renewed regularly and the current version covers 2024-2025. • **Country-level policies for just transition in the core construction sector:** The Employment Rights Bill, introduced in October 2024 but not yet passed into law, is a major reform of UK employment law with significant implications for the construction industry. The Bill introduces new protections aimed at improving job security, working conditions, and fairness in employment practices. Key provisions include the introduction of day-one rights for unfair dismissal, statutory sick pay, parental leave and bereavement leave, removing previous qualifying periods. Employers will also be required to offer guaranteed hours contracts to workers after a 12-week reference period with the aim of replacing the widespread use of zero-hours contracts. The Bill also bans the practice of 'fire and rehire', except in cases of insolvency, and strengthens protections against workplace harassment, including liability for third-party harassment. For the construction sector, which relies heavily on agency labour and flexible staffing models, these changes will necessitate substantial adjustments to workforce planning, contract management, and compliance procedures. • **Just transition considerations in relevant policy debates:** The state of just transition in the UK could be described as relatively advanced. The government has produced an updated Industrial Strategy, which includes a focus on sectors and companies that have a transformative role to play in the clean energy transition, a Clean Energy Industries sector plan, which includes a commitment to invest £625 million in skills to train new construction workers, including sustainable skills to support the skilled

workforce needed to support the UK's clean energy industries. It has also implemented a new Warm Homes Plan, and is due to produce a revised emissions reduction strategy in late 2025 (at the time of writing).

Labour implications of the decarbonisation agenda

- **Labour rights challenges:** the number of EU nationals in construction has fallen since 2021, attributed to factors such as Brexit and the COVID-19 epidemic.
    - **Skills**: the increasing specialisation of skills and training in the green sub-sectors of the construction industry reflects a significant shift in how education is delivered and funded. A growing number of courses are now offered by private sector actors - such as heat pump manufacturers and energy companies - who equip workers with narrowly defined technology-specific skills. This marks a departure from the traditional college-based model, where learners received a broader foundation in trades such as plumbing or engineering. As a result, the current training landscape is more privatised and less holistic, producing a workforce that is increasingly specialised but potentially less adaptable to future technological changes.
    - **Fragmented career pathways**: Traditional career pathways in the construction sector - with foundations in apprenticeships or college-based vocational routes - have become less common, replaced by informal entry points and ad hoc training that frequently occurs after employment begins. This lack of structure means that progression is rarely linear; workers may move sideways or even into unrelated sectors. Where formal training does happen, further education institutions and private providers often prioritise short-term programmes that attract funding, rather than developing curricula that support sustainable employment. Compounding this issue is the absence of clear definitions around 'green skills', which fuels confusion and anxiety among some workers about what the green transition entails. In terms of language skills, one key benefit for the UK construction sector is that it is able to attract foreign workers who are competent in English.

- **Geographical distribution of the implications:** While the green transition is resulting in losses of jobs in some traditional construction industries and supply chains in the UK, it is also generating a significant number of new jobs, with the number of jobs in the low carbon and renewable energy economy (LCREE) growing over 5 times faster than overall employment. In 2022, the ONS estimated that there were 272,400 full-time equivalent (FTE) workers directly employed by the LCREE across the UK, with a further 180,000 FTE workers indirectly employed across the wider supply chain. This growth in jobs is not evenly distributed across the UK, however – the majority (85%) of FTE jobs are in England, with 9% in Scotland, 4% in Wales and 2% in Northern Ireland. At a regional level, particularly high concentrations of jobs in clean energy sub-sectors are found in Scotland and in the South West of England, though there is considerable variation by subsector – in Wales and Northern Ireland, for instance, there are particularly high numbers of jobs in the Smart Systems and Storage Flexibility sub-sectors, and areas with coastlines, such as the North East, tend to have more jobs in Wind and Solar sub-sectors. It is difficult to predict exact areas of job creation, but as construction activity, including in the building renovation area, is concentrated in London and the South East of the country, it is expected that a large proportion of the new jobs in this sector will be created in these regions. The high demand for retrofitting, driven by carbon net zero targets, both nationally and in specific cities and regions in the UK, will drive the demand for retrofitting skills such as insulators, surveyors, project managers and installers of energy-efficient systems. Estimates of the total number of jobs that will be created by retrofitting vary, although the independent Green Jobs Taskforce estimated that the UK needs an increase of 230,000 trained workers by 2030 to retrofit every building in the UK.

Benefits for workers brought by the green transition in the construction sector	Disadvantages for workers brought by the green transition in the construction sector

• Opportunities to reskill and upskill to meet the demand for emerging green jobs in the construction sector. • Increased demand for certain types of workers, such as civil, mechanical, electrical, chemical and environmental engineers, who will be required in areas such as construction and maintenance roles in offshore wind, nuclear, and more broadly in engineering construction. Other categories in demand include skilled trades such as welders, electricians, planning roles and managerial roles, such as retrofit coordinators. Retrofitting in general is expected to generate a significant number of jobs in areas such as installation of energy-efficient systems, surveying, insulation and retrofit management roles. This applies to the private construction sector and the social housing sector.	• Risk of precariousness as employed workers work further down the supply chain, dominated by SMEs. • Increasing numbers of workers working for SMEs can lead to reduced training opportunities and reduced rates of unionisation. • Challenges for specific groups of workers, such as migrants, low-skilled workers and those with disabilities.
Ways to reinforce these	**Ways to reduce these**
• There is likely to be an ongoing shortage of these types of profiles and so it is vital that training is targeted at ensuring that workers have these types of skills. • Many of the jobs created by the shift towards clean energy will be filled by the existing workforce in carbon-intensive sectors, providing a significant opportunity for reskilling. This is particularly true for the wind, solar, nuclear, hydrogen, and carbon capture and storage sub-sectors, where there are key transferable skills in project management, engineering and construction. These skills are also transferable *between* these subsectors (except for nuclear). There is also likely to be opportunity for existing skills to be adapted to the retrofitting environment, with workers installing energy-efficient systems, insulation, ventilation and assessing and coordinating retrofit projects.	• To improve the quality of green jobs, interviewed stakeholders suggest that regulation of the sector will be important, either through strengthened procurement standards or support from policymakers to enable unions to establish relationships with these smaller companies. • For workers with disabilities, there is potential for new technologies to create roles in the sector that are less physically demanding, such as use of drones and other technologies, though this will require further integration of inclusion practices into the green transition.

<table>
<tr><th colspan="2">Workers groups most affected</th></tr>
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Professional groups in the core construction business and supply-chain who have the highest environmental footprint and how these are affected: The effects of emissions policies on the construction sector and its supply chains are uneven across occupational groups. Changes in building materials and design, including the reduction of use of high-carbon materials such as steel, iron, glass, wood, ceramics, concrete and petrochemicals, will affect demand for roles across the construction supply chain. However, while electrification is often cited as the future for these sectors, few firms are currently making that transition due to cost, lack of regulation and supply chain pressures. If green production becomes more expensive in the UK, companies may outsource to cheaper markets, putting domestic jobs at risk.
Groups where most training is needed: There is a persistent mismatch between training provision, skills development, and wider industrial and political strategies. The skills ecosystem is inflexible and difficult to navigate, reinforcing skills gaps, mismatches, and the under-use of existing skills. Although green construction requires significant retraining, interviewees highlight that investment in education, guidance, training, and apprenticeships has been insufficient from both governments and employers. Where training exists, it is often low-quality, under-resourced, and poorly integrated with digital and emerging technologies, limiting progress toward a future-ready workforce. Increasing specialisation in green construction has also shifted training from broad, college-based programmes toward more privatised, technology-specific courses offered by manufacturers and energy companies. This creates a highly specialised but less adaptable workforce, raising concerns about long-term resilience in a rapidly evolving sector.
Gaps in skills development: Analyses of green skills gaps in construction, including those informing local skills improvement plans and regional pilots, show strong regional variation linked to local deprivation, proximity to industry, and the availability of training infrastructure such as colleges. Government measures aim to support deprived areas by restricting funding eligibility to those in high-IMD zones, but because these provisions are administered at the Combined Authority level (which includes both deprived and affluent areas), there is no guarantee that support for green job creation reaches the most deprived communities. Workforce demand in construction spans multiple clean energy sectors. In heat and buildings, project managers, labourers, trade supervisors, and scaffolders are expected to be the main occupations needed to 2027. In power and networks construction, steel erectors, structural fabrication workers, plant operatives, civil engineers, and professional and technical staff will be both most in demand and hardest to recruit to 2027. In engineering construction for power and networks, level 3–4 quality control and assurance roles, level 2 labourers, and level 6–7 design engineers will be key occupations needed to 2030. Retraining the existing workforce to meet these needs is the biggest challenge, particularly for level 4 construction managers and level 3 supervisors, while new entrants will also be required across specialist trades in high demand at levels 2–3, including most installer roles.

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<tr><th>Workers positively affected</th><th>Workers negatively affected</th></tr>
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Workers with key skills as mentioned above. These include skilled trades, engineers, electricians, managers and planners.

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Workers without the skills to work in the green economy will be left behind. The sector is already experiencing redundancy in the need for the so-called ‘biblical trades’, which are non-technical trades such as joiners, stonemasons, bricklayers and painters. Doors are pre-coated so there is no need for traditional painters, and doors tend to be pre-drilled so there is no

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	need for a joiner to put hinges into doors.

Existing protection mechanisms

- **Existing mechanisms to protect or reinforce labour rights/conditions:** There is no specific legislation providing for protection for workers in the construction sector (these workers would all be subject to the employment protection provided by general UK legislation in relation to issues such as equal treatment, working time, redundancy and unfair dismissal). There are specific protections provided in the collective agreement that covers workers in the engineering construction industry, the National Agreement for the Engineering Construction Industry (NAECI). The agreement covers a range of issues, including pay, working time, safety, holidays, travel, pensions and social insurance, and discipline and grievance procedures.

- **Existence of gender-/age group-/workers group-specific measures:**

    - The only formal measure encouraging the recruitment of women into construction is the legal requirement for employers with over 250 employees (in all sectors) to report gender pay gap data. Research shows that increasing female representation can be supported through early exposure to construction careers for young women (awareness-raising, vocational activities, school materials), continuous professional development to help women progress, and cross-departmental experience within construction-related organisations to broaden their exposure to the sector. Trade unions also play a central role in promoting gender equality. The BWI Women's Committee, for example, challenges the industry's macho culture and develops mentoring schemes and support networks. Unions collaborate with employers to create communities of practice and develop enabling conditions for women and other underrepresented groups, including gender-sensitive recruitment, transparent promotion criteria, and equality and diversity training (such as unconscious bias awareness and mentoring preparation). They also support appointing equality managers or champions and encourage women's progression from administrative roles into technical and leadership positions.

    - There are no special measures to encourage migrant workers into construction. Although migrants constitute a key part of the workforce, their transferable skills are often unrecognised within UK training and qualification systems, limiting access to higher-skilled roles. Recruitment is becoming more difficult due to tighter UK visa rules, which raise qualification requirements and salary thresholds for skilled worker visas.

- **The role of trade unions/construction businesses:**
    - Trade unions campaign for improved training and skills development provisions through collaborations with employer federations and construction companies. In the nuclear sector, for example, Unite has established a social contract with EDF, the company leading the Hinkley Point C build, which has supported development of a strong apprenticeship programme. Another example comes from Northern Ireland, where the Construction Employers Federation collaborated with the Unite and GMB trade unions in an organisation called Construction Industry Futures, within which a skills review took place to review the local construction market and formulate skills-related recommendations. These recommendations included establishing a construction skills forum made up of education, government and industry representatives, reviewing the current apprenticeship delivery model, ensuring skills alignment through more effective engagement with the education sector, reviewing pay and reward in the construction sector, developing technical skills and promoting the construction sector in schools.

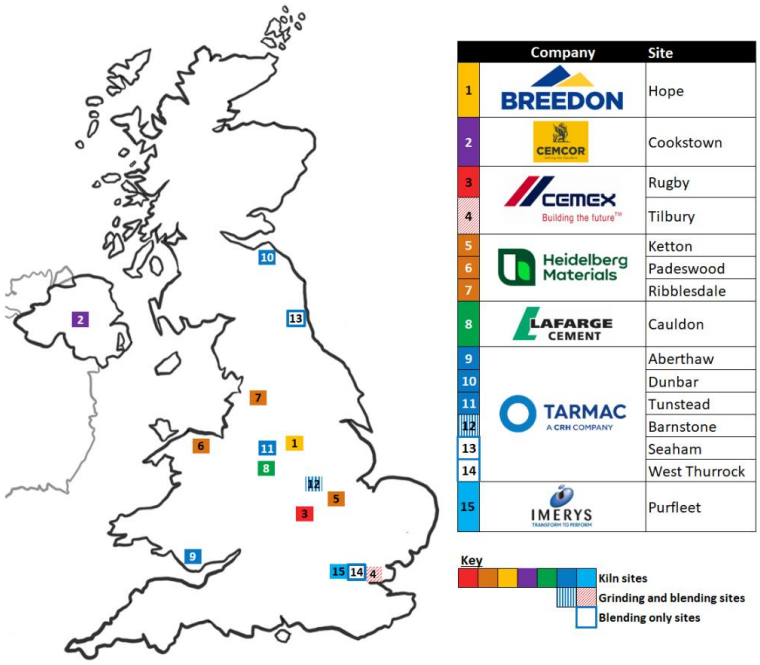
- Despite significant government funding for training in clean energy sectors, construction companies tend to invest very little in training their workers, diminishing the overall scale of training and contributing further to skills gaps. In Glasgow, the City of Glasgow College created the Built Environment Innovation Assessment Platform, and trade unions played a crucial role in shaping the project.
- Related to the decarbonisation agenda, trade unions in the UK are organising campaigns aimed at supporting workers, including those on construction site, who work in extreme heat. The TUC organised a week of action on workplace temperatures in August 2025, in which inspectors carried out temperature checks in workplaces. It found that construction and delivery workers reported the highest risk in relation to heat, with some shifts exceeding safe heat exposure levels for many hours. The TUC is campaigning for the introduction of a maximum working temperature.

Specific measure #1

In the offshore gas sector, which has a very high carbon footprint, initiatives such as the Offshore Skills Passport and targeted career support provided following the closure of the Grangemouth petrochemical plant are supporting workers to transition into green employment, representing the possibilities of the green transition when there is political will. However, such support is not yet widespread across other high-emission industries, leaving many workers in vulnerable positions. OEUK, which has launched the passport, notes that it is relevant to a range of skills, including engineering and construction skills.

2. The construction material supply chain: cement

Map of the main sites of Portland cement works in the UK



Source: Mineral Products Association

In focus: Decarbonising construction building material – cement		
The main cement companies in terms of output the UK are: • Breedon Group, producing more than two million tonnes of cement a year. Net earnings of £270 million in 2024); • Cemex UK. No production figures available, but likely to be around 2 million tonnes a year. UK earnings are not published separately from the US group earnings. • Tarmac. Its earnings were reported to be £51.8 million for the year ended 31 December 2024. Other companies include Heidelberg Materials, Aggregate Industries UK, Hanson Cement, and Castle Cement Ltd.	• No official figure specifies the share of UK cement used in construction. • The Breedon Group employs 4,900 people in the UK. All of its products are used in construction, ranging from cement, concrete, concrete products, asphalt and aggregates. • Cemex employs around 2,000 people in the UK. It also manufactures concrete, asphalt, aggregates and a range of other building materials. • Tarmac employs around 7,000 people across a network of more than 350 sites across the UK. It produces a range of construction materials, including cement, concrete, asphalt and aggregates.	• The cement and concrete industries directly employ 74,000 people and indirectly support an additional 3.5 million jobs, primarily in the construction sector, while contributing around £18bn to the UK's GDP. There are 10 cement plants in the UK. • There are no readily available figures that relate solely to the cement industry that break the workforce down by gender, age, nationality or educational level.

- **Title and main features of key decarbonisation policies:**
    - **UK Emissions Trading Scheme (UK ETS).** This sets limits on emissions for heavy industry in the UK, including cement. Under this scheme, the number of carbon allowances available will decrease by 45% between 2023 and 2027, with further reductions to follow.
    - **UK Carbon Border Adjustment Mechanism (CBAM)**, which will be implemented on 1 January 2027, and will impose a levy on imports of carbon-intensive goods, including cement.
    - Other emissions targets as set out earlier in this fiche are also relevant for the cement industry.
- **Existence of collective bargaining agreements:** It takes place at individual company level between employers and trade unions, mostly the Unite trade union but also the GMB trade union in some cases. The Mineral Products Association (MPA) is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries, and represents the six major UK Portland cement manufacturers: Breedon Cement, CEMCOR, CEMEX UK, Heidelberg Materials UK, Lafarge Cement and Tarmac and an affiliate member producing Calcium Aluminate Cement, Imerys (see map above for locations in the UK). Although the MPA is not directly involved in collective bargaining, it represents the industry on a range of issues, including related to climate change and just transition.

- **(Expected) impacts on the supply chain (i.e. building material production process itself and use in the construction supply chain:** Emissions reduction policies will stimulate new ways of working and new facilities in the cement industry. For example, there are plans to develop the UK cement industry's first carbon capture facility at the Padeswood cement works in north Wales. It is reported that this will capture up to 800,000 tonnes of CO2 a year starting in 2029. Another example is investment in a new cement mill at Dunbar cement plant in Scotland. This has replaced two older mills on site to reduce electricity consumption by 50% for part of the production process.
- **(Expected) impacts on employment, skills and activity levels (including volume of labour, working conditions, workforce composition and skills requirements) of workers in the materials industry:** The MPA notes that there are some urgent human resources challenges that need to be overcome to deliver a sector that is ready to function in the new green economy. There is a focus on trying to fill skills gaps, particularly in the area of carbon capture and storage, alternative fuels and digitalisation. There is also a need to replace a loss of expertise that will result from an ageing workforce. Overall, skills need to be aligned with the UK's decarbonisation milestones through actions such as reskilling and upskilling, apprenticeships, knowledge transfer, and coordinated partnerships between industry and education providers.

- **Country-level policies for just transition in the building material sector:** The UK Concrete and Cement Industry's 'Roadmap to Beyond Net Zero' outlines voluntary actions to align with government legislation. The strategy focuses on: Carbon Capture, Usage and Storage (CCUS); fuel switching; low-carbon cements; and the circular economy. Another initiative is the Peak Cluster collaboration to capture, transport and permanently store CO_2 emissions from four cement and lime plants across Derbyshire and Staffordshire. With 40% of all UK cement and lime manufactured in the Peak District and local area, this project has the potential to significantly reduce the sector's emissions.

- **Shifts between sectors:** It is at present difficult to say whether there will be any movement in jobs away from the cement sector other industries. In general, the cement sector will remain relevant in terms of its role in supporting construction in the green economy. The main changes will be in terms of the types of jobs needed as new and green technology becomes more a part of the way in which the sector operates. This will lead to demand for skills that are relevant to the sector's strategy for reduced emissions. For example, changes introduced to the UK standard for concrete have enabled supplementary materials such as limestone powder to now be added with Ground Granulated Blastfurnace Slag (GGBS) or fly ash to concrete mixes to reduce the amount of traditional cement (CEM I) needed, producing a lower carbon

concrete, in order to reduce emissions. This could have implications for the types of skills and knowledge needed in the cement sector workforce.

- **Geographical distribution of the implications:** The section above provides some examples of new facilities, which are likely to create jobs. There has also been major investment in a new cement grinding mill at Padeswood cement plant in Flintshire, Wales, which has reduced electricity consumption for part of the production process by 30%.

Key hotspot for transformation #1	Key hotspot for transformation #2
Given that 40% of the UK's cement and lime is produced in the Peak District area of the UK (Derbyshire and Staffordshire), this is likely to be a key hotspot for green transition. The **Peak Cluster** collaboration cited above, is active in working to reduce emissions in the industry in this area. In addition to enabling the continuation of these industries in a sustainable manner, Peak Cluster will help support around 1,000 direct skilled jobs. The aim is that from 2030, the project will prevent over three million tonnes of CO_2 emissions each year from being released into the atmosphere.	It would also seem that there is a lot of work being carried out to update production processes in cement works in **North Wales** (see above), in order to reduce emissions. This could have implications for jobs and skills levels. The cement plant in **Dunbar**, Scotland, owned by Tarmac, is benefitting from investment, as noted above. It is Scotland's only cement plant and makes around 700,000 tonnes of cement a year. However, as a result of planned changes to the operational structure and practices within the company's cement and packing operations, around 41 jobs are at risk, accounting for a third of the workforce.

- **Benefits for workers brought by the green transition in the sector:** There is an opportunity for workers to upskill and reskill in order to work with the new technologies that are coming on stream to reduce emissions in the cement industry, associated with carbon capture and storage, electricity use reduction and fuel switching.
- **Disadvantages for workers brought by the green transition in the sector:** The main disadvantages are associated with the need for workers to upskill and reskill in order to ensure that they have the right skills in terms of working in an environment dedicated to emissions reduction. There might also be pressure to move geographically to some of the places in the UK in which investment in the cement industry is taking place, such as the Peak District and possibly North Wales.
- **Existing mechanisms to protect or reinforce labour rights/conditions during the transition of the building material sector:** Trade unions play a key role in protecting the rights of workers in the cement industry. As collective bargaining in this sector exists at company level, trade unions have a platform on which to negotiate with employers in order to ensure that the rights and working conditions of workers in this sector are protected. Trade unions in the UK also collaborate with EU-level and Member State unions in the sector. For example, Unite was one of the unions attending a Technical Meeting on the Promotion of Decent Work and a Just Transition in the Building Materials Industry, including Cement in September 2024, which adopted conclusions and recommendations for the sector.
- **The role of trade unions/construction businesses in professional development:** Trade unions and employers in the cement industry are active in focusing on professional development in the sector. The MPA acknowledges in its recent report on the UK Concrete and Cement Industry Roadmap to Beyond Net

Zero[3] that it is vital to focus on skills gaps in order to ensure that jobs and skills remain in the UK. It is difficult to assess the implementation costs

In focus: Decarbonising construction building materials – timber		

• The UK produces 9,862,000 tonnes of softwood and 814,000 tonnes of hardwood in 2024. 53% of the softwood produced in the UK in 2024 came from private sector forests.
• While the UK's forests are managed by national organisations within the UK, for example Forestry England in the case of England, there are a wide range of individual timber companies which process the timber. These include the National Timber Group, which has a combined turnover of over £350 million, over 1,350 employees and 60 processing and distribution sites around the UK.
  • Overall, there were 188 establishments in the primary wood processing industries in the UK using UK-grown roundwood in 2023.
  • James Latham Timber is also a large timber company operating in the UK and Ireland.
	• Around 21,000 full-time equivalent staff were employed by the forestry sector in the UK in 2022. This number has increased by 7,300 in the 9 years to 2022. A further 7,500 staff work in primary wood processing sectors such as sawmilling and panel mills.
	• Timber is an important industry in UK construction and the UK government is committed to increasing its use in construction in the context of the green transition, as a renewable, low-carbon resource.
	• BSW timber has over 1,100 employees on 11 sites across the UK.
		• It is estimated by Forestry England that 44% of its workforce is female. Further, the proportion of female employees in the organisation is increasing.

• **Title and main features of key decarbonisation policies:**
  ○ **Timber in construction roadmap 2025:** This roadmap aims to increase the use of timber, which sequesters carbon, in order to significantly reduce emissions to achieve net zero by 2050. It contains a specific commitment to increasing the tree canopy and woodland cover in England to 16.5% by 2050. This aligns with broader UK initiatives such as zero-waste economy, and decarbonisation of concrete, steel, and cement. Among other things, it is hoped that this will create new green jobs and industries. It is also committed to increasing skills, capacity and competency across the supply chain.
  ○ **Timber industry net zero roadmap:** The timber industry net zero roadmap is based on a Net Zero emissions trajectory for the industry to 2050 and policy recommendations with sub-sectoral action plans to deliver these emissions reductions.		

[3] UK Concrete and Cement Industry Roadmap to Beyond Net Zero - Progress Report 2025.

- **National wood strategy for England:** This strategy was launched in December 2023 and aims to bring 75% of private woodlands under active management by 2040. One of its key goals is to create a skilled workforce in the sector.

- **Existence of collective bargaining agreements for workers in the sector:** There is no national sectoral collective bargaining for timber sector workers in the UK. This aligns with the UK context of bargaining being largely confined to individual agreements at company level. The main trade unions representing workers in this sector are the Unite and GMB trade unions. The main employer associations are the Timber Trade Federation (TTF) and the British Woodworking Federation (BWF). These bodies do not engage in collective bargaining but offer support, guidance and representation to the government on policy and regulatory issues, such as sustainability and skills development.

- **(Expected) impacts on the supply chain (i.e. material production and use in the construction supply chain:** The government's strategy to increase timber production in the UK is likely to lead to an expansion of this sector and an increase in the use of timber in construction overall in the UK. A further positive development for this industry is that it will be able to sell more into the EU market in the future, due to the growth of timber and prefabricated construction in the EU, as a result of EU policy and incentives to grow this industry.

- **(Expected) impacts on employment, skills and activity levels of workers in the materials industry:** It is expected that the government strategy will result in an increase in jobs in the timber sector. The increase in afforestation to meet the government's statutory target is likely to lead to an estimated 1,400 additional jobs being required in the nursery and forestry sectors by 2035, in addition to indirect job creation such as in tourism or local farming. This equates to approximately one job being supported for every 5 hectares of new woodland creation. The job figures are for England only and are conservative as they exclude potential jobs created in fencing, public sector advisers, deer control and social foresters. The UK government also notes, however, that the current forestry workforce is considered to be ageing and would be insufficient to enable such an increase in planting rates without substantial investment in skills and workforce. The Forestry Skills Forum lists the types of skills that are in demand in the forestry and timber sector:

    - Machine operators who are more technically competent and able to work in more demanding situations
    - Chainsaw operators, especially those able to fell larger hardwoods
    - Competent tree planters
    - Graduate recruits with practical and business skills

The UK government is working with the forestry sector to address skills shortages and has made £2.5million available through the Forestry and Arboriculture Training Fund, which covers the costs of short technical skills courses.

- Other issues of concern relate to the absence of forestry-related content in both the primary and secondary school national curricula, a decline in the number of students enrolling in forestry degree courses in England and Wales, a lack of focus on forestry related skills training in further education colleges, and a lack of female and BME recruits to the industry.

- **Country-level policies for just transition in the building material sector:** The main national-level policy for just transition in the timber industry is the government's Timber Industry Net Zero Roadmap, aiming for net zero by 2050, and the Timber in Construction Roadmap, which notes that using timber as a construction material can reduce embodied emissions in a single building by 20% to 60%.

- **Shifts between sectors:** It is expected that the timber sector workforce will increase over the coming decades, in line with government policy. It is, however, acknowledged that there will need to be an emphasis on providing opportunities for the ageing workforce in the sector to upskill and reskill in order to be able to work in the sector in the future, and for the sector to attract younger workers, in addition to a more diverse workforce. At present, the government acknowledges that the sector lacks the capacity, capability and skills to achieve and sustain the rates of planting, management and restoration required to support net zero.

- **Geographical distribution of the implications:** The UK's current national forest spans 200 square miles in the centre of England. Over the past 30 years, the post-industrial landscape of the Midlands (Derbyshire, Leicestershire and Staffordshire), which had been host to intensive coal mining, has been transformed by planting trees. Looking to the future, the UK government intends to plant 20 million trees across Bristol, Wiltshire, Gloucestershire and Somerset by 2050, creating a new national forest, the Western Forest, and so this is an area in which jobs are likely to be created. It also plans to plant 50 million trees over 25 years over 100,000 square miles in a Northern Forest between Liverpool and Hull.

Key hotspot for transformation #1	**Key hotspot for transformation #2**
Scotland is the dominant region in the UK in terms of timber production. For example, 69% of all softwood removals from private sector woodlands were harvested in Scotland. Softwood accounts for 92% of all removals from UK woodland. It can be assumed that the sector in Scotland will expand significantly in the coming years, as the forecast for softwood availability in Scotland is projected by increase from 8,766,000 cubic metres in 2022-2026 to 10,575,000 cubic metres by 2042-2046.	The UK government is planning an expansion of a number of forests around the UK. These will be for recreational but also timber sourcing purposes. It is therefore expected that jobs will be created as these forests expand. These forests include: the new National Forest, the Western Forest, as noted above, across the western regions of the UK, which; the Northern Forest between Liverpool and Hull; and a new forest in the Oxford-Cambridge corridor.

- **Benefits for workers brought by the green transition in the sector:** The green transition is likely to result in significant benefits for workers in the timber sector in the UK, based on the government's strategy of expanding in the industry over the coming decades in order to meet its emissions reduction targets. This is likely to result in increased numbers of jobs, including a range of good, skilled jobs.

- **Disadvantages for workers brought by the green transition in the sector:** There are concerns that the current workforce is not adequately skilled to meet the demands that are likely to be placed on it in the future. Those will outdated skills will find it hard to maintain a place in the workforce and there is currently an admission by the UK government that more needs to be done to reskill and upskill the workforce.

- **Existing mechanisms to protect or reinforce labour rights/conditions during the transition of the construction material sector:** There are no policies specifically aimed at protecting timber sector workers in the just transition in the UK. The trade unions can play a role in trying to ensure that new jobs benefit from good working conditions and that workers are fairly remunerated, although the role of collective bargaining in the UK overall is relatively limited. The Forestry Skills Forum is a cross-sector body which works to identify and address skills issues in the industry. Further, Timber Development UK (TDUK) and NMITE have also published a Timber in Construction Skills Action Plan, which provides an industry-agreed competency framework.