



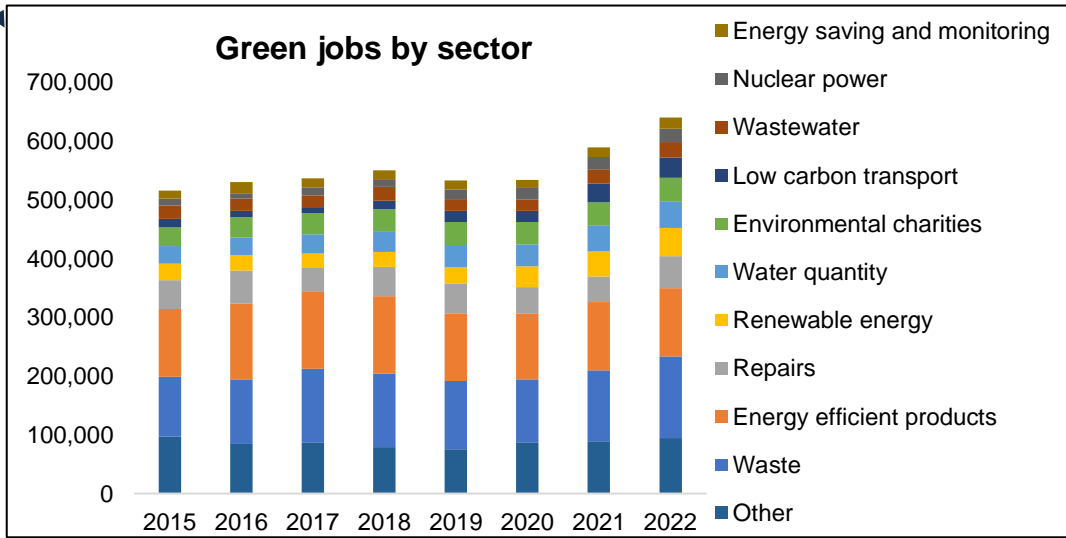
September 2024

Skills & Workforce Challenges

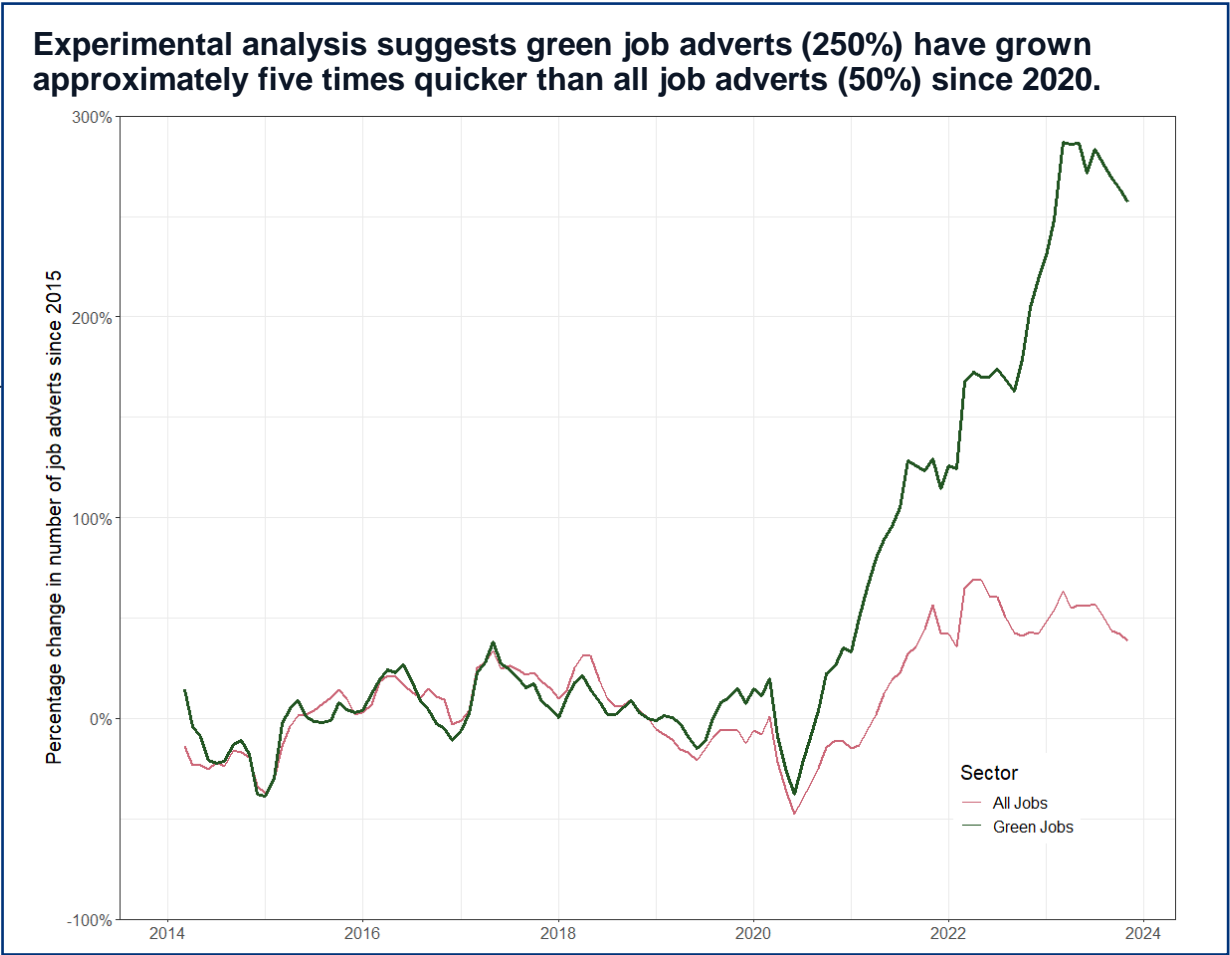
Green jobs are growing and at a much quicker rate than the rest of the labour market

Green jobs have **increased rapidly** in recent years, while growth in green job adverts is vastly outpacing all job adverts.

- Around **640,000** full-time equivalents (FTE) directly employed in green jobs in 2022 – a **rise of 20% since 2020**. (ONS, 2024)
- Green jobs grew nearly **4x faster than overall UK employment** between 2020 and 2022. (ONS, 2024)
- Since 2020, **green job adverts have grown by more than 250%** - compared to less than 50% for all job adverts



Source: [ONS](#), 2024



Source: [DESNZ](#), 2024

Note: ONS analysis uses a green jobs definition outlined [here](#). DESNZ analysis covers 10 priority green sectors in line with the ONS' definition.

The green transition creates a significant opportunity for new, highly skilled jobs

Up to **725,000** net new jobs could be created by 2030 in low-carbon sectors.

The scale of the net zero workforce transition is comparable to only a limited number of previous labour market transitions, **rapid reskilling and reallocation of the workforce will likely be compressed within 5 years.**

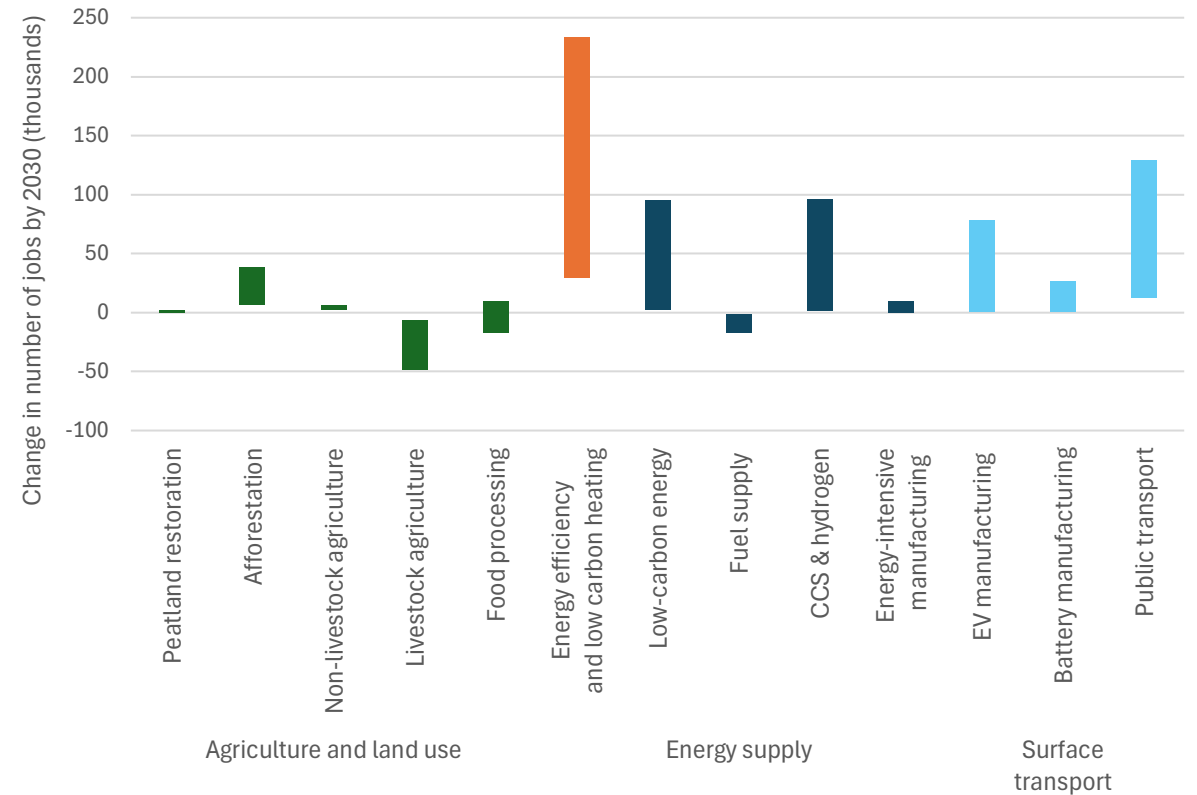
Industry examples of how workforce demand is projected to increase by sector by 2030 (unless stated otherwise):

Sector	Current Demand	Future Demand
Offshore Wind	32,000 (2022)	104,000
Heat Pumps	12,400 (2025)	50,200
Automotive and Battery	150,000 (2022)	270,000 (2040)
Hydrogen	2,000 (2022)	29,000
CCS (direct workforce)	800 (2022)	15,000
Water	71,000 (2022)	100,000
Nature	78,300 (2020)	89,000

Other examples include:

- Reinforcing onshore **electricity networks** to meet net zero could directly support an additional 50,000-130,000 FTE jobs by 2050.
- **Resources and waste could** require 74,200 new roles by 2030.
- **Nuclear** workforce could rise to 150,000-180,000 by 2043 (in both civil and defence).

By 2030, the energy efficiency and low carbon heating sector is likely to have the largest increase in jobs



Source: A Net Zero Workforce, Climate Change Committee, 2023

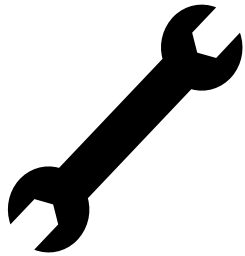
Many occupations and skills will be in demand, but there'll be several workforce challenges

Key Occupations Gaps:



- **Technical engineers:** Levels 4-7, particularly 6+ (including civil, mechanical, electrical and design)
- **Electrical trades:** Levels 2-7
- **Welding trades:** Levels 2-7
- **Mechanical trades:** Levels 2-7
- **Managerial:** Levels 4-7 (including project and delivery managers)
- **Operational:** Levels 2-4 (including plant and construction operatives)

Key Skill Gaps:

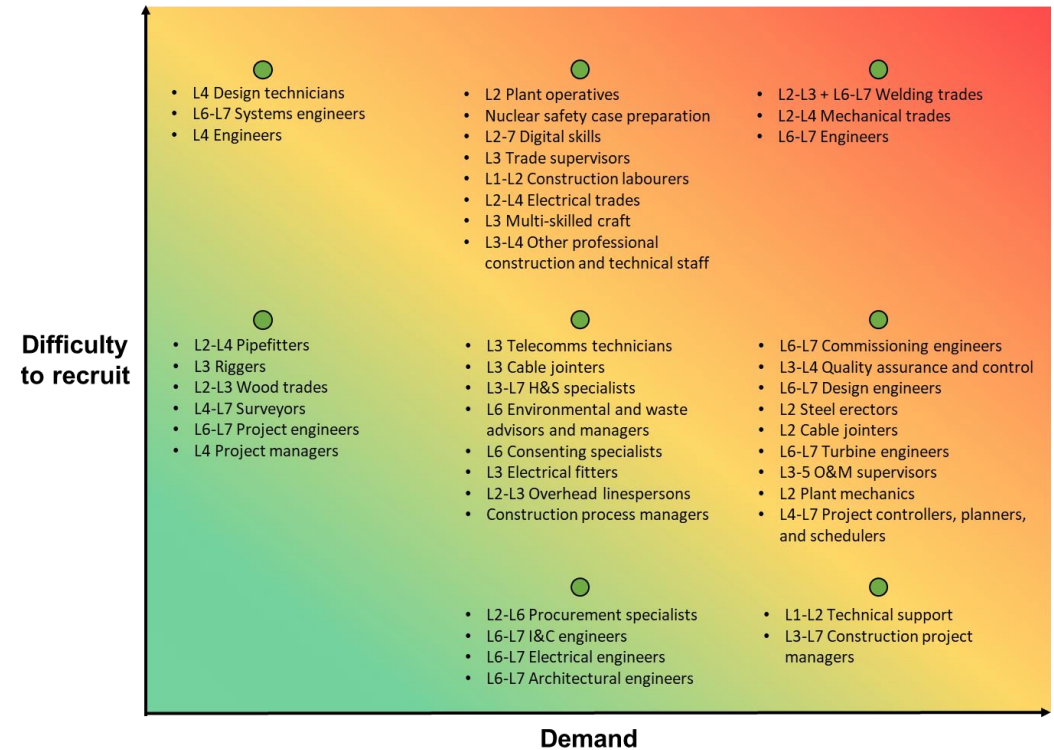


- **Science, technology, engineering and mathematics (STEM)**
- **Specialist and niche sector-specific skills**, e.g., heat pump manufacturing and installation
- **Soft skills**, e.g., leadership and project management
- **Digitisation**

Power and Networks sector¹

Based on previous targets, to 2030 across power and networks, industry figures estimate the following are needed:

- 32,000 engineers
- 29,000 electrical trades
- 25,000 mechanical trades
- 15,000 welders



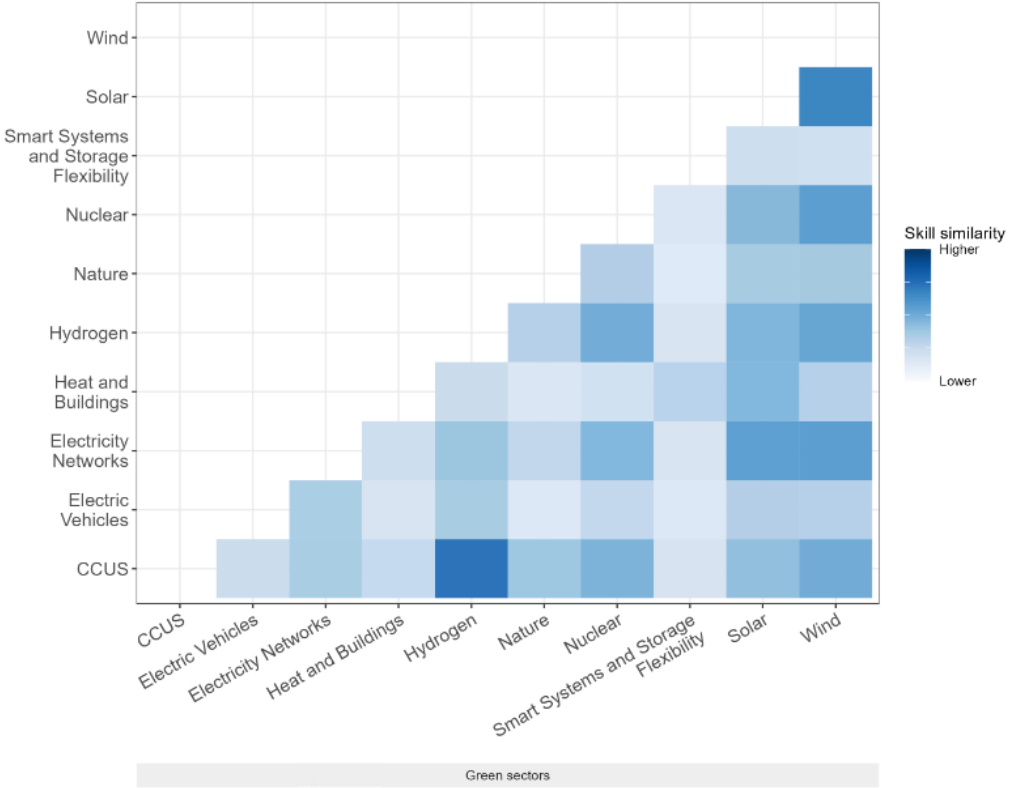
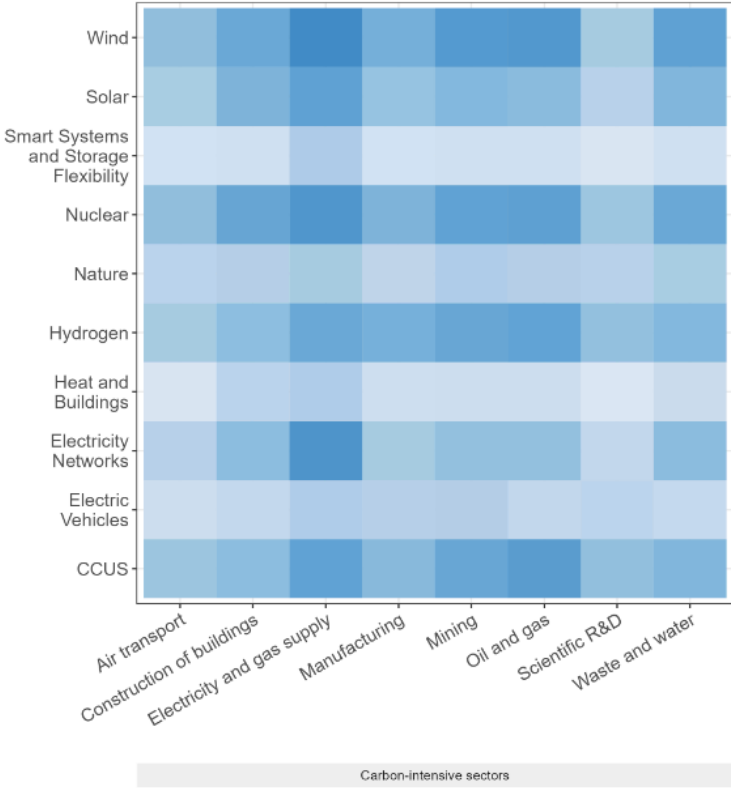
¹ Power and networks analysis covers nuclear, transmission and distribution of networks, construction and engineering construction. Offshore wind is also covered in the heatmap.

There's a high similarity of skills between some carbon-intensive and green sectors

A higher similarity of skills suggests workers can more easily move between sectors as part of the green transition.

- Skills similarity analysis compares skills demanded across sectors and jobs, assigning a 'pairwise' similarity score. Sectors with more skills in common have a higher similarity score (*darker blue shading*).
- As shown in the left chart, there is **relatively high skills similarity between some carbon-intensive and green sectors, such as electricity and gas supply or oil and gas with wind, solar, nuclear, hydrogen and CCUS.** This suggests workers in those carbon-intensive sectors will already have many of the necessary skills to work in those green sectors.
- In terms of skills similarity across green sectors, this appears to be **high between offshore and renewable energies, like CCUS, hydrogen, wind and solar,** meaning workers may be able to move easily between these sectors.





Similarity of skills across carbon-intensive sectors and green sectors



Source: DESNZ Analysis, 2024

Clustering of industry make this skills challenge highly regionalised for some sectors – bringing both opportunities and challenges

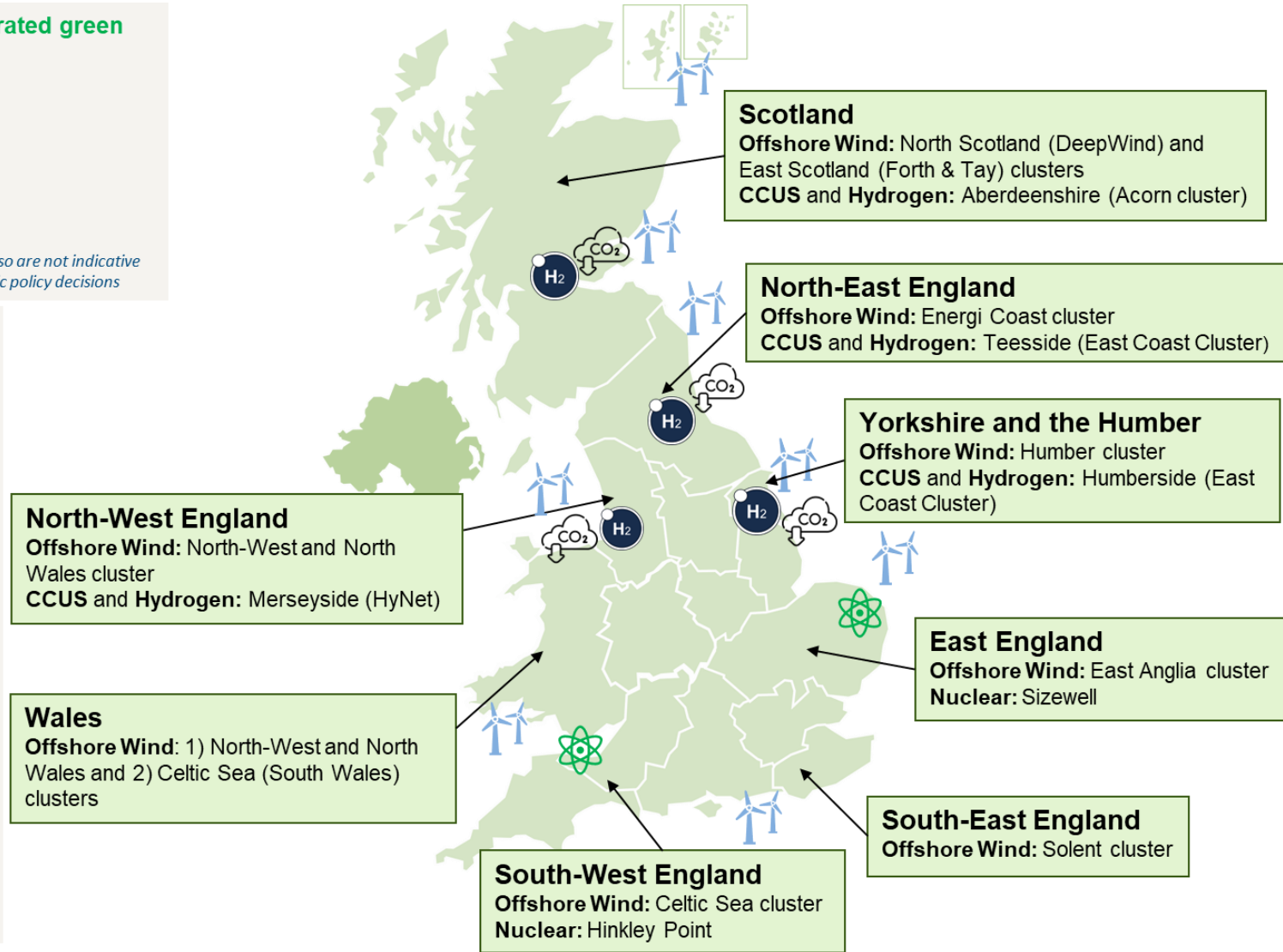
Some sectors are clustered, providing concentrated green job opportunities in specific regions:

-  Offshore Wind
-  Nuclear
-  CCUS
-  Hydrogen¹

¹Locations based on industry information, so are not indicative of government funding support or strategic policy decisions

Other sectors provide opportunities for green jobs across the UK, including:

-  Heat Pumps
-  Energy Efficiency and Retrofit
-  Electricity Networks
-  Solar
-  Manufacturing
-  Resources and Waste
-  Water
-  Nature
-  Automotive, such as Electric Vehicles
-  Rail
-  Finance



Working with industry, we have identified the following barriers to ensuring confidence in the supply of individuals with the right skills in the workforce



Reskilling and transferability

The vast majority of the 2030 workforce is already employed, so reskilling and increasing the transferability of workers between sectors will be essential for a just transition. As will pushing employers to invest more in skills provision.



Awareness, perceptions and accessibility of jobs

There is a low level of awareness, particularly amongst young people. Furthermore, there is a distinct lack of women and workers from ethnic minorities in the energy and emerging clean energy sectors, hampering diversity of those workforces and limiting the pool employers can draw from.



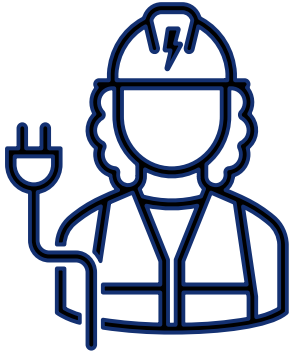
Delivering future skills needs

There are several gaps and key occupations that need to be better targeted in the post-16 skills system. Exacerbating the challenge to the skills system is the high proportion of SMEs who have struggled to engage with the existing skill system.



Regional pressures and 'Just Transition'

Several net zero sectors are heavily clustered in specific regions of the UK, and with inconsistent data, local skills providers are struggling to identify and tailor skills requirements around the rapidly evolving needs of their local areas.



Office for Clean Energy Jobs

Objectives:

- The Office for Clean Energy Jobs will work to ensure the success of the **Clean Power Mission** by ensuring that clean energy jobs are good jobs.
- The Office will work with Department of Education, DfE and support the newly established **Skills England** to ensure we have the skills we need to deliver the Mission, forming a view across DESNZ to feed into Skills England's wider assessment of the UK economy's structural skills needs, and supporting with targeted delivery of specific policy solutions in the energy sector.
- The Office will engage across key groups relevant to the clean energy sector workforce including the trade union and industry. Engagement with trade unions will be key to ensure issues such as job quality, pay, terms and conditions remain at the forefront of delivery of the clean energy mission.



Proposed Functions for the 'Office'



Influence

Influence and coordinate with wider cross government work on workforce planning, representing DESNZ in engagement with Skills England, the Migration Advisory Council, and the Industrial Strategy Council on workforce. This will include focusing on delivering a '**Just Transition**' and working with industry to ensure good jobs in key clean energy and net zero sectors.

Data

Improve the consistency, quality, and availability of data on the UK's clean energy workforce to develop better and more targeted interventions, working closely with Skills England to understand how any supply and demand mismatches align to wider economic labour market challenges.



Policy

Alongside taking a role to coordinate policy activity across in scope clean energy sectors, where necessary, the Office will take a role developing and delivering specific and targeted policies to tackle issues pertinent to the clean energy mission such as supporting the Just Transition of Skills.

Coordination

Coordinate action across critical clean energy and net zero sectors relating to jobs and skills to ensure work is not disjointed and a collective policy processes are followed, for example with bids for funding. Monitor the impact of DESNZ sector policies to support developing the workforce and skills needed to deliver our clean energy mission



External Engagement

Provide a route for structured engagement with a range of external stakeholders including industry representatives, trade unions, education providers, local government, academia, and other key partners. It will cover key issues impacting workforce and skills development to meet our Clean Energy Mission through the Advisory Council.



**Office for
Clean Energy
Jobs**



There are several policy options to explore to help meet the new government's net zero ambitions

There are several **cross-cutting policies** which we should look to **influence** to ensure that skills and workforce needs are embedded across a wider range of policy leavers.

Growth and Skills levy



To allow companies to use 50% of the levy on non-apprenticeship training. This will include pre-approved qualifications, overseen by the new Skills England body, and pre-apprenticeship training.

Skills England



A new body to ensure a coordinated approach to skills policy that meets economic needs. It will oversee the levy and devolved adult education budgets.

GB Energy & National Wealth Fund



A new publicly owned body that could be used to leverage investment into skills and workforce.

Industrial strategy



A mission led industrial strategy to partner with industry and look at how to remove barriers to growth. Skills expected to be significant horizontal policy lever to enable growth mission.

British Jobs Bonus



There are opportunities to build in further skills requirements to grants and contracts to ensure successful contract winners are investing in the future pipeline of the workforce.

Jobseekers and careers service



Utilise DWP policy levers to promote career paths and green roles, including a greater focus on overall employment support and career progression.

Migration



Whilst our overall ambition is to grow the domestic net zero workforce, with accelerated timelines, we need to consider the role of migration for short-term workforce needs.

