Work in progress: getting young people ready for jobs in the 2030s

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Methodology and assumptions

This is the accompanying methodology to Green Alliance's report *Work in progress: getting young people ready for jobs in the 2030s*. It describes the thinking and assumptions behind the report's analysis into the future skills young people will need to work in the green economy.

Aim of the analysis

The aim of this analysis was to forecast the top skills that young people now should develop to work in a green job in the future, when current GCSE students (aged 15 years old) are likely to be entering the workforce. The skills list we have created considers the impact of AI and automation. It focuses on durable skills, weighted towards sectors that are predicted to be in higher demand in the 2030s.

Overview of our method

The analysis was conducted as follows:

1. Define what a 'green job' is and the sectors that make up the green economy in the UK.
2. Research which of these jobs green economy sectors say they will need in the early 2030s.
3. Break these jobs down into the skills required.
4. Determine how the skills are likely to be impacted by AI and automation.
5. Considering step 4, list the top in-demand skills needed for green jobs in the early 2030s.

Step 1: Define 'green job' and the sectors that make up the green economy in the UK

According to the Green Jobs Task Force, green jobs are "employment in an activity that directly contributes to - or indirectly supports - the achievement of the UK's net zero emission target and other environmental goals, such as nature restoration and mitigation against climate risks".[1]

For this analysis, we adopted the widest definition of the green economy to include any sectors that contain ‘green jobs’. We looked at job demand forecasts at industry level, to ensure no green jobs were missed by discounting industries.

The Department for Education (DfE) breaks down the economy using the sectors set out in the table below.[2] The sectors we included, and our rationale are set out in the table.

To identify sectors that would make up a large proportion of jobs available in the early 2030s, we considered multiple factors, including predicted employment growth rates between 2025 and 2035, the predicted share of jobs in 2035, and whether they are a 'priority sector' for the government.[3, 4] We then chose ‘construction’, ‘professional services’, ‘clean energy’ and ‘engineering’ as our focus sectors, as those sectors which are predicted to play a big part in the UK’s future economy.

Office for National Statistics’ Standard Industrial Classification (SIC) codes	Our sector label	Notes
Electricity and gas	Clean power*	Renamed to cover the green jobs within this sector
Arts and entertainment	Creative industries	Renamed for simplicity
Construction	Construction*	-
Education	Education	-
Engineering	Engineering*	-
Finance and insurance	Financial services	Renamed for simplicity
Agriculture	Food and agriculture	Renamed for simplicity and combined with food and farming
Rest of manufacturing	Manufacturing	Renamed for simplicity
Professional services	Professional services*	-
Information technology	Technology	Renamed for simplicity
Transport and storage	Transport	Renamed for simplicity
Water and sewerage	Utilities	Renamed for simplicity
Accommodation and food	-	Green jobs in this sector are largely covered within the professional services sector
Food drink and tobacco	-	Green jobs in this sector are largely covered within the professional services sector
Health and social work	-	We did not consider this to a part of the green economy
Media	-	Covered in creative industries sector

Office for National Statistics' Standard Industrial Classification (SIC) codes	Our sector label	Notes
Mining and quarrying	-	We did not consider this to a part of the green economy. Any green jobs would also be covered in the manufacturing sector
Other services	-	-
Public admin. and defence	-	We did not consider this to a part of the green economy
Real estate	-	Green jobs in this sector are largely covered within the professional services or construction sector
Support services	-	We did not consider this to a part of the green economy
Wholesale and retail trade	-	Green jobs in this sector are largely covered within the professional services sector

*identified as a focus sector (as defined above)

Step 2: Research which green jobs will be in demand between 2030 and 2035

We looked at government and industry predictions on the jobs each sector will need between 2030 and 2035. Below is the list of jobs considered for each sector with sources detailed below the table; there are ten to 12 jobs for focus sectors, and around five for all other sectors. Our focus sectors are those predicted to play a large role in the UK's future economy so more jobs were considered for these. This serves to weight the top in-demand skills identified in the analysis towards these sectors.

Note that some job titles have been changed to match the European Skills, Competences, Qualifications and Occupations (ESCO) database which we used in the next step to break jobs down into skills. The jobs below are meant to represent a limited sample from each sector and so, where sources presented more roles than needed, green jobs were taken randomly.

There are cases where jobs could sit in multiple sectors. For instance, 'construction' and 'utilities', or 'professional services' and 'technology' have overlap in activities. In most cases, the jobs were included in sectors based on how they were classified in the source referenced. The exception was for jobs referenced for the 'financial services' sector but, after further research, these were deemed to be applicable to a wider pool of industries. These were then classed in the wider professional services sector.

Some jobs were predicted to be in high demand in the future that did not yet exist in the ESCO database, particularly newer jobs such as carbon

accountants or hydrogen electrolysis engineers. These were not included in the analysis and was a limitation of this database.

Sector [sources used]	Jobs (as listed in the ESCO database)	Jobs (as listed in the source used)
Clean power [5, 6]	cybersecurity risk manager	cyber security roles
	electrical mechanic	electrical fitter
	electrical supervisor	senior electrical roles
	electricity distribution technician	general grid electric system installer
	environmental scientist	environmental scientist
	land planner	planning worker
	offshore renewable energy technician	offshore technician and seamen
	overhead line worker	overhead line worker
	project manager	project manager
	roofer	roofer
	vehicle technician	EV qualified vehicle technician
	welder	welder
Construction [7, 8, 9]	civil engineer	civil engineer
	construction manager	construction project manager
	energy assessor	energy efficiency installer and assessor
	heating, ventilation, air conditioning engineer	HVAC engineer
	insulation worker	insulation installer
	interior architect	retrofit designer and co-ordinator
	land surveyor	surveyor
	plumber	plumber
	refrigeration air condition and heat pump technician	heat pump installer
	sheet metal worker	steel and metal worker
Creative industries [10, 11]	advertising specialist	advertising roles
	desktop publisher	electronic publisher
	digital media designer	streamed entertainment roles
	fashion designer	fashion roles
	graphic designer	graphic designer
	mobile application developer	app developer
Education [12]	higher education lecturer	higher education teaching professional
	primary school teacher	primary education teaching professional
	secondary school teaching assistant	teaching assistant
	secondary school teacher	secondary education teaching professional

Sector [sources used]	Jobs (as listed in the ESCO database)	Jobs (as listed in the source used)
	special educational needs assistant	special needs education teaching professionals
	youth worker	youth and community worker
Engineering [13, 14]	architect	architect
	chemical engineering technician	engineering technician
	civil engineering technician	engineering technician
	chemical engineer	chemical engineer
	electrical engineer	electrical engineer
	electrical engineering technician	engineering technician
	electronics engineering technician	engineering technician
	environmental engineer	environmental engineer
	mechanical engineering technician	mechanical engineer
	process engineer	production and process engineer
Financial services [15, 16]	cyber incident responder	cyber and risk professional
	financial manager	financial managers and director
	financial planner	finance and investment analysts and adviser
	insurance agency manager	financial managers and director
	insurance underwriter	underwriter
Food and agriculture [17]	arboriculturist	tree and biomass management
	countryside officer	countryside ranger
	farm manager	horticultural tradesperson
	forest worker	forest manager
	forester	forest works supervisor
	horticulture worker	nursery crop technician
Manufacturing [18, 19]	carpenter	carpenter and joiner
	manufacturing manager	production manager and director in manufacturing
	materials engineer	material specialist (including composite engineer)
	metal planer operator	metal machining setter and setter operator
	vocational teacher	vocational and industrial trainer
Professional services [20, 21, 22]	accountant	chartered and certified accountant
	business analyst	management consultants and business analyst
	climatologist	environmental scientist
	cloud architect	cloud developer
	cloud devops engineer	devops engineer
	cloud engineer	cloud engineer
	human resources manager	human resource manager and director
	investment analyst	finance and investment analysts and adviser
	lawyer	solicitors and lawyer

Sector [sources used]	Jobs (as listed in the ESCO database)	Jobs (as listed in the source used)
	software developer	programmer and software development professional
	supply chain manager	circular economy business planning/development role
Technology [23, 24, 25]	artificial intelligence engineer	AI professional
	consumer electronics repair technician	electrical equipment repairer
	database designer	data architect
	ICT project manager	IT manager
	product quality inspector	routine inspectors and tester
	telecommunications engineer	telecommunications engineer
Transport [26]	aerospace engineer	aerospace engineer
	bus driver	bus and coach driver
	cargo vehicle driver	large goods vehicle driver
	marine engineer	maritime engineer
	powertrain engineer	development of electric vehicles roles
	predictive maintenance expert	predictive maintenance roles
Utilities [27]	boiler operator	boilerman
	cable jointer	cable layer
	construction scaffolder	scaffolder
	gas station operator	gas producer operator
	water treatment systems operator	water treatment/sewage works operator

Step 3: Break down in-demand jobs into the skills required

Using the EU's ESCO (European Skills, Competences, Qualifications and Occupations) database, the jobs listed in step 2 were broken down into their essential skills.[28] In the ESCO database, an essential skill is defined as "knowledge, skill, or competence that is typically required to perform a specific occupation, regardless of the work context or the employer".[29] This database was chosen as it closely aligns with the skills taxonomy being developed by the UK government and also weights the skills need in a job, which allowed us to quantify the top skills across sectors and the whole green economy.

There are three skill levels in the database with Level 3 being the most granular i.e. each Level 1 skill can be broken down into multiple Level 2 skills, and so on.

Level 1 skills include assisting and caring, communication, collaboration and creativity, constructing, handling and moving, information skills, management skills, working with computers, and working with machinery and specialised equipment. Those in orange were classed as technical skills, and those in blue were classed as interpersonal skills.

To determine the skills overlap between two sectors, a list of essential skills from all jobs in the two sectors was created. The proportion of skills that appeared in both sectors were taken to be the skills overlap.

Step 4: Determine how skills are likely to be impacted by AI and automation

We classified each level 3 ESCO skill as either 'unaffected by AI/automation', 'changed by AI/automation' or 'replaced by AI/automation'.

Unaffected refers to skills where AI or automation would not be used prevalently by the person who performs the task: i.e. the task will continue to be performed by a person in a similar way to previously.

Changed refers to skills where the person who performs it will use AI or other technology to help them perform the task, but there will not be a significant proportion of workers performing the task who lose their job as a result.

Replaced refers to skills where we believe over five to ten per cent of workers who perform it may be at risk of losing their job because of AI or automation.

To classify the Level 3 skills we started by splitting them up using general questions about the type of skill they are, to make the data more manageable. Once we had skills in related groups of around ten to 20 we questioned the likelihood of AI and automation changing or replacing them. These questions focused on features like: repetition, pattern recognition, the stakes associated with the tasks' outputs, the importance of the context and the levels of empathy required. We also considered the current technology landscape, but it was not feasible to do in detail for every skill due to time constraints. Where there were significant uncertainties, we researched the skill in more depth to determine its categorisation.

The ESCO database weights the skills needed across each job. These weights were summed for all jobs within a sector to determine the weighting of skills needed across that sector, which was then normalised for easier comparison with other sectors.

We then multiplied the normalised weighting of each skill across a given sector by 0, 1, or 2, if it was likely to be unaffected, changed, or replaced by AI or automation respectively. This meant that the weighting of skills unaffected by AI were ignored, and those that were likely to be replaced by AI were counted as being twice as vulnerable to AI and automation than those likely to be changed by AI. The resulting sum was then taken to reflect the relative vulnerability to AI and automation of a sector. This was compared across sectors to understand how vulnerable each sector is compared to others.

Step 5: List the top in-demand skills needed for green jobs in the early 2030s

By cross referencing the skills likely to be in demand across the green economy and their likelihood of being changed or replaced by AI, we can estimate the top skills that young people now will need when they enter the workforce in the mid-2030s.

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Endnotes

[1] Green Jobs Taskforce, 2021, *Report to government, industry and skills sector*
[2] Department for Education (DfE), 2023, *Labour market and skills projections: 2020 to 2035*
[3] DfE, 2023, op cit
[4] Department for Business and Trade, 2025, *Sector plans policy paper*
[5] Department for Education (DfE), 2020, *Sector skills needs assessments: Clean energy industries*
[6] Department for Energy Security and Net Zero (DESNZ), 2021, *Green Jobs Taskforce report: annex – sectoral transitions to net zero*.
[7] Ibid
[8] CITB, 2025, *Construction workforce outlook 2025–29, United Kingdom*
[9] EngineeringUK, 2024, *Net zero workforce: an analysis of existing research*
[10] The University for the Creative Arts, 2021, *Creative industries foresight 2030*
[11] DfE, 2025, *Skills England: sector skills needs assessments: Creative industries*
[12] DfE, 2024, *'Labour market and skills revised projections: 2021 to 2035, nations projections*, United Kingdom additional tables, table 2: employment by occupation (SOC2020 unit group), baseline scenario, 2021 to 2035, United Kingdom'. The data was filtered to show the top 50 roles that are forecasted make up the largest proportion of jobs in 2035. These roles were then filtered further to those with a positive growth in numbers expected between 2025 and 2035.
[13] DfE, 2020, op cit
[14] Skills England, 2025, *Assessment of priority skills to 2030*
[15] DfE, 2024, op cit
[16] DfE, 2025, *Skills England: sector skills needs assessments: Financial services*
[17] DESNZ, 2021, op cit
[18] DfE, 2024, op cit
[19] DfE, 2025, *Skills England: sector skills needs assessments: Advanced manufacturing*
[20] DESNZ, 2021, op cit
[21] DfE, 2024, op cit
[22] DfE, 2025, *Sector evidence on the growth and skills offer*

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[24] DfE, 2024, op cit
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[26] NSAR, 2024, *Future skills assessment for the transport sector*
[27] Energy & Utility Skills and EUSkills, 2024, *Workforce demand estimates - 2024 to 2030, The Waste & Recycling industry*. Five entry level jobs expected to see a growth in numbers between 2024 and 2030 were taken at random.
[28] The European Commission, 'European Skills, Competences, Qualifications and Occupations (ESCO)', esco.ec.europa.eu/en/about-esco/escopedia/escopedia/skill, (last accessed 14 May 2026)
[29] Ibid