

Green shoots: growing the green workforce of the future

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Methodology and assumptions

The core aims of this analysis are to estimate the current number of entry level jobs across the UK economy and to estimate future growth in entry level green jobs in three areas: power, the circular economy (ie reuse, repair, remanufacturing and recycling) and nature recovery.

Key assumptions of our analysis

- Green job definitions: two distinct definitions of green job are employed in the calculation of current entry level jobs, which are the environmental goods and services sector (EGSS) definition and the low carbon and renewable energy economy (LCREE) definition. The EGSS definition is based on identifying green sectors as follows: "areas of the economy engaged in producing goods and services for environmental protection purposes, as well as those engaged in conserving and maintaining natural resources," while the LCREE definition is based on green activities across all sectors as follows: "economic activities that deliver goods and services that are likely to help the UK generate lower emissions of greenhouse gases, predominantly carbon dioxide". These definitions are outlined in more detail by the Office for National Statistics (ONS).ⁱ
- Entry level job definition: entry level jobs are defined in this analysis as job roles corresponding to either skill level 1 or skill level 2 on the ONS skill level spectrum from 1-4, as defined in the UK Standard Occupational Classification (SOC) 2020.ⁱⁱ
- Jobs measurement: jobs are measured in terms of the full time equivalent (FTE) jobs.
- UK sector definitions: sector definitions from the Standard Industrial Classification (SIC) 2007 are used when comparing jobs across industries.
- Skills level breakdown: the skill level distributions for green jobs in a given sector are assumed to be equivalent to the skill level breakdowns for the wider sector (including non-green jobs).

Current entry level jobs

The current entry level green jobs are calculated by multiplying the number of green jobs for each sector by the percentage of jobs in that sector that are entry level. The jobs are distributed regionally based on the relative split of jobs in each SIC 2007 sector across the UK.ⁱⁱⁱ

The current number of green jobs for the EGSS definition, across each UK economy sector, are obtained from an ONS database for the year 2019, released in March 2022.^{iv}

The current number of green jobs for the LCREE definition, across each UK economy sector, are obtained from an ONS database for the year 2019, released in February 2022, with the incomplete 2019 data, augmented with data from 2020.^v

The percentage of entry level jobs for each industry is obtained from a NOMIS query of the annual population survey looking at the “employment by occupation (SOC2010) and industry (SIC 2007)”, determining the relative split of each occupation across industry and then converting these occupations into ONS skill levels, according to Table 1.

Future growth in entry level green jobs

The future growth analysis builds on previous reports released by Green Alliance: *Powering the labour market* (2022), *Levelling up through circular economy jobs* (2021) and *Jobs for a green recovery* (2021).^{vi, vii, viii}

Two contrasting scenarios are used in the future growth analysis in each sector: a ‘government scenario’ based on current government commitments and an ‘alternative scenario’ that presents more ambition.

The jobs numbers presented for each sector are gross additional jobs created in each sector by 2035 based on reaching set targets within each scenario.

1. Power sector

The government scenario used is the ‘energy security strategy’ scenario and the alternative scenario is the ‘low carbon acceleration’ scenario’, both taken from *Powering the labour market* (Green Alliance, 2022).

Entry level jobs growth in power sector is calculated based on the methodology in *Powering the labour market* (Green Alliance, 2022) with the following modifications: only entry level jobs are considered (instead of skilled jobs), and both permanent and temporary jobs are considered (instead of just permanent jobs).

Temporary jobs created in manufacturing and construction, measured in job years, are converted into equivalent full time jobs by dividing job years by the lifetime of a typical renewable power plant (assumed to be 25 years), as per the definition of job years given in Ram, et al, 2022.^{ix}

2. **Circular economy**

The government scenario used is ‘Scenario 1 – business as usual’ and the alternative scenario is ‘Scenario 2 – growing potential’, both from *Levelling up through circular economy jobs* (Green Alliance, 2021).

The skills distribution of jobs across recycling, repair, rental and leasing, and remanufacturing are calculated based on the relative occupational distribution within these subsectors, using the same 2019 data that was used in *Levelling up through circular economy jobs* (Green Alliance, 2021), and converting these into relative skill distributions, according to the conversion in table 1 below.

Gross entry level jobs created are calculated by multiplying the total gross jobs created across the subsectors, in each region, by the percentage of these jobs that are entry level based on the relative skill level distributions.

3. **Nature recovery**

New scenarios were developed to estimate growth in entry level jobs in the nature recovery sector, which for the purposes of this analysis is limited to woodland creation and peatland restoration.

The government scenario is a compilation of the commitments of the central and devolved governments on woodland creation and peatland restoration, corresponding to restoring 30,000 hectares of trees by 2025 and thereafter up to 2035, and restoring 479,000 hectares of peatland by 2035. The alternative scenario is based on the Climate Change Committee’s Wider Engagement scenario where woodland is restored at a rate that reaches 70,000 hectares by 2035 and 789,000 hectares by 2035.^x The respective targets for woodland creation and peat restoration are given in tables 2 and 3 below.

Data for the jobs created per hectare of woodland and peatland restored are taken from RSPB, 2020, with both the temporary jobs during restoration and maintenance jobs created included in the analysis.^{xi}

Relative skill levels of jobs associated with woodland and peatland restoration is assumed to be equal to the skill level distribution for the forestry sector for England and Wales (using Lantra data for 2009-10).^{xii}

It is assumed that the temporary jobs are shortlived (on average one year) but sustained on an annual basis as the restoration rates need to be kept up every year and, therefore, the total additional full time jobs sustained from restoration is the difference in annual planting and restoration rates multiplied by the number of temporary jobs created per hectare.

It is assumed that maintenance jobs are distributed equally over the lifetime of the woodland and peatland (100 years as in RSPB, 2020) and therefore the job years of maintenance jobs created from the total amount of woodland and peatland restored between 2022 and 2035 is divided by 100 to get the number of full time maintenance jobs created by 2035. The maintenance jobs created is the total sum of peatland and woodland restored, multiplied by the maintenance job years created per hectare.

The distribution of jobs from woodland creation is based on the relative amount of suitable area for woodland creation, as identified by RSPB for our *Jobs for a green recovery* (Green Alliance, 2021) report, with this constituency level data converted to regional data.

The distribution of jobs from peatland restoration is assumed to be distributed based on the relative amount of unrestored peatland across UK nations, based on Defra, 2017.^{xiii} The relative amount of unrestored peatland in each English region is determined using estimates made based on figure 1 of the England Peat Action Plan.^{xiv}

**Table 1:
Conversion between occupational categories and ONS skill levels**

Job classification	ONS skill level
Managers and senior officials	4
Professional occupations	4
Associate professional and technical	3
Administration and secretarial	2
Skilled trades	3
Personal services	2
Sales and customer services	2
Process, plant and machine operatives	2
Elementary occupations	1

Table 2:
Targets for woodland restoration in the government's and alternative pathways

		Government pathway				Alternative pathway	
	Current rate (per 1,000 hectares per year)	Official target (per 1,000 hectares per year)	Target planting rate (per 1,000 hectares per year)	Total planted 2022-2035 (per 1,000 hectares per year)	CCC target (per 1,000 hectares per year)	Target planting rate (per 1,000 hectares per year)	Total planted 2022-2035 (per 1,000 hectares per year)
UK	14 ^{xv}	30 by 2025	30	403	70 by 2035	70	623

**Table 3:
Targets for peatland restoration in the government’s and alternative pathways**

	Current rate (per 1,000 hectares per year) ^{xvi}	Government pathway			Alternative pathway	
		Official target (per 1,000 hectares per year)	Total restored 2022-2035 (per 1,000 hectares per year)	Average restoration rate (per 1,000 hectares per year)	Total restored 2022-2035 (per 1,000 hectares per year)	Average restoration rate (per 1,000 hectares per year)
England	4	280 by 2050 ^{xvii}	135	10	169	12
Scotland	5	250 by 2030 ^{xviii}	250	18	555	40
Wales	0	45 by 2050 ^{xix}	22	2	23	2
Northern Ireland	1	All peatland restored by 2040 ^{xx}	72	5	33	2
UK	10		479	34	779	56

ⁱ Office for National Statistics (ONS), 7 April 2021, ‘The challenge of defining a “green job”’

ⁱⁱ ONS, 2021, ‘SOC 2020 Volume 1: structure and descriptions of unit groups’

ⁱⁱⁱ ONS, 13 December 2022, ‘JOBS05: Workforce jobs by region and industry’

^{iv} ONS, 21 March 2022, ‘Environmental goods and services sector (EGSS) estimates’

^v ONS, 17 February 2022, ‘Low carbon and renewable energy economy estimates’

^{vi} S Alvis, J Evans and V Viisainen, 2022, *Powering the labour market: skilled work in a low carbon energy system*, Green Alliance

^{vii} Z Avison and S Alvis, 2021, *Levelling up through circular economy jobs*, Green Alliance

^{viii} S Alvis and Z Avison, 2021, *Jobs for a green recovery: levelling up through nature*, Green Alliance

^{ix} M Ram et al, 2022, ‘Job creation during a climate compliant global energy transition across the power, heat, transport, and desalination sectors by 2050’, *Energy*, vol 238, part A, pp 121690

^x Climate Change Committee (CCC), 2020, *The sixth carbon budget: the UK’s path to net zero*

^{xi} J Dicks, O Dellaccio and J Stenning, 2021, *Economic costs and benefits of nature-based solutions to mitigate climate change*, Cambridge Econometrics

^{xii} Royal Forestry Society, 2017, *A forestry skills study for England and Wales*

^{xiii} C Evans et al, 2017, *Implementation of an emissions inventory for UK peatlands*, Department for environment, food and rural affairs (DEFRA)

^{xiv} DEFRA, 2021, *England peat action plan*

^{xv} Forest Research, 29 September 2022, ‘Forestry statistics and forestry facts and figures’

^{xvi} CCC, 2020, op cit

^{xvii} Department for energy security and net zero, and department for business, energy and industrial strategy, 2021, *Net zero strategy: build back greener*

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- ^{xviii} Scottish government, 5 June 2021, 'Funding to restore Scotland's iconic peatlands'
- ^{xix} Nature-based solutions initiative, 17 October 2022, 'Wales to triple peatland restoration'
- ^{xx} For peat's sake, 11 June 2021, 'Northern Ireland peatland strategy 2021-2040 released'