

The challenges of defining a "green job"

This article reviews the options available to define "green jobs" and explores the challenges in doing so. The ONS contributions to defining and measuring "green jobs" are explained, together with alternatives from the relevant literature.

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Release date:
7 April 2021

Next release:
To be announced

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1 . Background to “green jobs”

In November 2020 the government launched the [Green Jobs Taskforce](#) to help deliver on the [Ten Point Plan for a Green Industrial Revolution](#). This is also part of the government's plans to [Build Back Better](#). This references the UK's [legal commitment to meet "Net Zero"](#) greenhouse gas emissions by 2050. "Green jobs" are also discussed in international policy briefs, such as the Organisation for Economic Co-operation and Development's commentary on [the "green recovery"](#) and the International Monetary Fund's [World Economic Outlook](#) among others.

The Office for National Statistics produces two different estimates of "green jobs". The term "green job" has no one particular meaning, so this is a complex area. Often, more than one definition is cited, and different definitions can suit different uses.

This article provides an overview of the topic - it looks at the range of definitions available and examples of how they are used¹. It also considers the challenges of obtaining data under the various definitions.

Notes for Introduction:

1. A range of resources are linked throughout the article to demonstrate the use of the different definitions covered. These are only examples and a citation does not imply endorsement of the methodology or findings of the linked resources.

2 . International definitions

There are two main definitions available internationally. These are from the United Nations System of Environmental Economic Accounting and from the International Labour Organization.

United Nations System of Environmental Economic Accounting definition

The [United Nations System of Environmental Economic Accounting](#), an international statistical standard for measuring the relationship between the environment and the economy, sets out a definition of the "Environmental Goods and Services Sector" (EGSS), which is:

"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."

A "green job" in this context would then be a job engaged in any of these areas of the economy.

The Office for National Statistics produces [estimates of employment in the UK](#) under this definition, using 17 relevant activities¹. These cover a range of activities from the production of renewable energy to environmental university education to organic agriculture. These estimates are also broken down by the UK's [Standard Industrial Classification](#) and by Eurostat's [Classification of Environmental Protection Activities and Classification of Resource Management Activities](#). Obtaining data under the definition can be difficult, and modelling is required in a number of cases. The quality of the method varies by activity and is continually under development.

An advantage of EGSS data is their international comparability, as a common statistical framework is used across different countries. However, at present there are a limited number of countries that publish EGSS estimates. Europe is the main region for which [EGSS is available](#), and while country data follow the same framework, sources and methodology do vary. EGSS estimates have been used in several papers on "green jobs", including [The role of innovation and agglomeration for employment growth in the environmental sector](#) (for the German Economic Association) and [Going Green: Preparing the UK workforce for the transition to a net-zero economy](#) (from Nesta).

International Labour Organization definition

The International Labour Organization (ILO) provides another international definition of "green job", which is cited in its [2018 "flagship" report](#) on "green work". This definition comes from a longstanding programme of work by organisations with expertise in labour markets, and is commonly cited in research papers as part of framing the discussion. This work was part of "The Green Initiative", formerly the "The Green Jobs Initiative".

The definition was devised during the past decade by the ILO in partnership with several other organisations (United Nations Environment Programme, the International Organisation of Employers, and the International Trade Union Confederation). More detail on the ILO's work in this area can be found in [Promoting Green Jobs: Decent Work in the Transition to Low-Carbon, Green Economies](#) (from International Development Policy).

The ILO uses a broader definition of what is considered "green", including activities such as community adaptation to climate change. A second difference from the EGSS definition is that to be "green", jobs must also be "decent":

"...They [green jobs] reduce the consumption of energy and raw materials, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems and enable enterprises and communities to adapt to climate change. In addition, green jobs have to be decent..."

Adding a quality dimension adds a level of complexity to the definition of "green jobs". It also then makes estimating their number more difficult. As with "green jobs", there is no single definition of "decent", although adequate pay and safe working conditions often feature. In the UK, some exploratory work has taken place on [estimating the proportion of jobs that fulfil some job quality criteria](#), although not in relation to "green jobs".

The concept of "quality" also fits with other international commitments, such as the [Paris Agreement](#). Signatory countries must consider "...the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities".

There has been further discussion on the quality question in, for example, [Looking for green jobs: the impact of green growth on employment](#) (London School of Economics). The authors argue that the additional requirement of quality for "green jobs" could cause problems in less economically developed countries, where employment to alleviate poverty is desirable, even if the jobs are not as high quality as they could be. In [The green factor: unpacking green job growth](#) (University of Strathclyde) the authors explain that applying a blanket definition to the whole economy is difficult in practice.

Notes for International definitions:

1. These activities are: energy saving and sustainable energy systems; environmental charities; environmental consultancy and engineering services; environmental construction; environmental education; environmental low emissions vehicles, carbon capture and inspection and control; in-house environmental activities; insulation activities; management of forest ecosystems; managerial activities of government bodies; organic agriculture; production of industrial environmental equipment; production of renewable energy; recycling; waste; wastewater; and water quantity management.

3 . “Low carbon” jobs in the UK

The Office for National Statistics launched the [Low Carbon and Renewable Energy Economy \(LCREE\) survey](#) in 2015 to collect information from businesses conducting "low carbon" and renewable energy activities, including employment in these activities.

The survey focuses on 17 sectors¹ defined through consultation with stakeholders, which are deemed to be "low carbon" or related to renewable energy. The specific definition of these sectors is: "economic activities that deliver goods and services that are likely to help the UK generate lower emissions of greenhouse gases, predominantly carbon dioxide". Note that these are not the same as the 17 activities covered by the Environmental Goods and Services Sector (EGSS) definition discussed in the earlier section.

Some activities that might be considered "green", such as recycling and the protection of biodiversity, are not among the sectors included, so the scope of LCREE is narrower than the international definitions given previously. However, LCREE potentially captures more activity as it samples businesses across the economy, no matter their primary purpose. The survey has found that many businesses have some activity in LCREE sectors and that only a small number of businesses are active solely in LCREE. For example, a business might undertake construction activities. If a certain proportion of their work is in sustainable buildings, even if this was not their primary business activity, this would be reported in the survey. The non-LCREE aspects of their activity would be excluded.

Results from the survey have been cited in various papers, especially those focused on domestic policy within the UK. For example, the Local Government Association commissioned a [report on local green jobs](#), which uses LCREE. In the [Ten Point Plan for a Green Industrial Revolution](#), LCREE estimates are cited in the Introduction. However, as LCREE covers "low carbon", it is often used in conjunction with other measures when a wider estimate of "green jobs" is required.

Notes for “Low carbon” jobs in the UK:

1. These sectors are: alternative fuels; bioenergy; carbon capture and storage; energy efficient lighting; energy efficient products; energy monitoring, saving or control systems; fuel cells and energy storage systems; hydropower; low carbon financial and advisory services; low emission vehicles and infrastructure; nuclear power; offshore wind; onshore wind; other renewable electricity; renewable combined heat and power; renewable heat; and solar photovoltaic.

4 . Taking a sectoral approach

It is difficult to set one overarching definition of "green job" that works for every policy brief, media article or analysis.

The approach taken in much of the literature on the topic is to first select the sectors of interest, and then either take jobs in this sector to be "green", or to review the jobs within those sectors for further grouping. The former approach is simple (in terms of setting a definition), as there is no specific definition used beyond "jobs in sector X".

The renewable energy production industry is used as the sector of focus in many reports on "green jobs". Jobs statistics are more readily available for this sector internationally than others, with the International Renewable Energy Agency producing an [annual review](#). Examples of academic papers are [Green versus brown](#) (from Economic Modelling) and [Employment effects of green energy policies](#) (from the Institute of Labor Economics, PDF, 310KB).

Considerations of a "green recovery" from the coronavirus (COVID-19) pandemic have included an emphasis on nature-related jobs. For example, a joint [World Wide Fund for Nature and International Labour Organization report on jobs in forestry](#) by two United Nations bodies.

In addition, the "circular economy" - focusing on reducing waste and increasing the re-use of materials - might be considered by some to be "green". Some Organisation for Economic Co-operation and Development papers use the "circular economy" concept to identify first relevant sectors and then jobs, such as [Labour market consequences of a transition to a circular economy](#) and [The jobs potential of a transition towards a resource efficient and circular economy](#).

In the UK, the policy approach has been to look at specific areas of the economy based on existing strengths, for example, in the [Ten Point Plan for a Green Industrial Revolution](#) these areas include offshore wind and electric vehicles. Similarly, [Skills Development Scotland](#) outlines sectors of interest, such as construction and agriculture (which will be especially affected by "greening" the economy). This approach (focusing on specific business areas) is taken by other literature, including [Jobs for a strong and sustainable recovery from COVID-19](#) (London School of Economics).

The advantage of a sectoral approach is that, if necessary, the definition can be made very simple (like "all jobs in the renewable energy sector") and so it can be easier to find the data required. This could be an option for a specific research question or policy focus. If the assumption that all jobs in the chosen sector are "green" is not made, then defining which are "green" and which are not becomes necessary.

5 . Other approaches: the importance of skills and combining definitions

Discussion on skills appears regularly in reports on "green jobs", especially if they are setting or recommending policy. O*NET, an occupational classification database in the United States, provides an alternative definition to [identify "green jobs"](#). O*NET selected sectors that could make up the "green economy", such as energy efficiency and transport, then devised three occupational categories for the relevant jobs based on the skills needed. These are "Green Increased Demand", "Green Enhanced Skills" and "Green New and Emerging."

This approach has been discussed by academic researchers in papers such as [The green factor: unpacking green job growth](#) (University of Strathclyde) and [Characterising green employment: The impacts of "greening" on workforce composition](#) (from Energy Economics). It can be popular because it considers the "green transition" - rather than fixing jobs as either "green" or "not green". Taking a scaled approach makes setting a definition of "green jobs" harder, but may be useful for reflecting the complexities of the transition.

Academic papers often include multiple definitions of a "green job"; for example, in [Estimating the scale of the US green economy within the global context](#) (from Humanities and Social Sciences Communications) the "Low Carbon and Environmental Goods and Services Sector" dataset is used, which is provided by a private firm, kMatrix. This is based on the Environmental Goods and Services Sector (EGSS) and [initial investigations by the UK government](#) into the "low carbon" economy. Actual data, which are for the United States, come from a wide range of sources. Another example is [Green jobs, definitional issues, and the employment of young people: An analysis of three European Union countries](#) (Journal of Environmental Management) where the definitional challenge is covered, with citations of EGSS and International Labour Organization contributions.

The flexible approach shown here and in other papers reflects the complexity of setting a single definition of "green job" that can be applied to the whole economy. It also shows the importance of data availability for any analysis - while a definition is important, without relevant data, measurement using that definition is not possible. These papers show how existing data sources can be combined and modified to help meet conceptual needs.

6 . Main challenges and future direction of work

As this article has shown, there is no simple answer to the question "what is a green job?"

The lack of an agreed definition of "green", as well as other factors such as data availability and coherence across different groups such as industries for robust analysis, give rise to numerous challenges in defining and measuring "green jobs". Another challenge is considering how "green" a specific job is in practice; even if it is in a "green" sector, its net effect on the environment might not be positive (or as positive as you might expect). For example, an individual may work in environmental education, and take frequent flights as part of their job.

There are several approaches which could be taken to help address this problem. These include adopting existing statistical frameworks like the Low Carbon and Renewable Energy Economy (LCREE) survey or the Environmental Goods and Services Sector (EGSS) estimates. Another approach is using the definition proposed by the International Labour Organization (ILO) and partners. Selecting a sector of interest to then identify relevant jobs is another option, and close linkages with required skills are common. Often multiple definitions are used together. The best definition to use is likely to depend on the question under consideration.

With increasing policy and public interest in "green jobs", we might expect further developments in the area across government, civil society and academia. For example, the government's [Green Jobs Taskforce](#) will run until April 2021 and is expected to make recommendations, while the House of Commons Environmental Audit Committee [is looking at "green jobs"](#) (drawing on, but not limited to the ILO definition).

The Office for National Statistics will consider these developments and reports while continuing to develop our EGSS and LCREE estimates, and will work with government departments and interested parties to understand how best to measure green jobs under the various definitions.

This article is an introduction and overview for the topic; if you have any questions, comments or would like more information, please contact environment.accounts@ons.gov.uk.