

Green Jobs: Job creation, skills and quality

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renewable energy can deliver more jobs than fossil-fuels or nuclear

In this report we present provisional findings from our review of literature on green job creation, quality and skills, providing an update to a 2014 project that examined the evidence for net job creation from policy support for 'low carbon jobs' (Blyth et al., 2014).

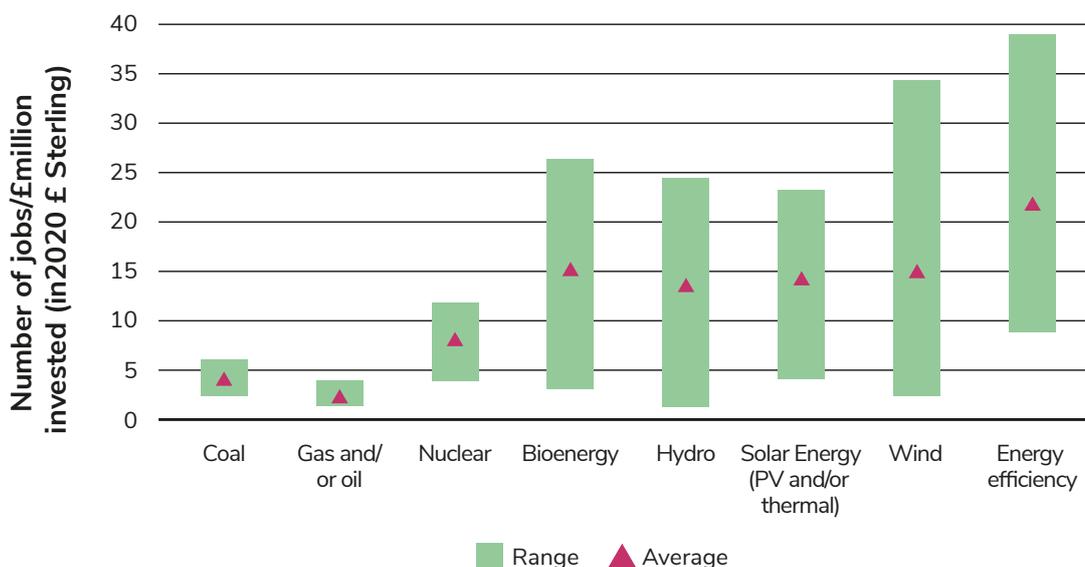
The updated analysis considers whether policy-driven expansion of renewable energy and energy efficiency actually creates jobs, particularly if the policies in question require subsidies that are paid for through bills or taxes. For example, the number of gross jobs created through additional renewable energy deployment could be offset by the implied number of jobs that would be lost due to less power generation from gas and coal.

Given the UK net zero emissions target and the economic implications of the COVID-19 pandemic, a key question is whether investment in low carbon jobs, skills and infrastructure can facilitate economic growth and a just transition. One significant change since 2014 is the rapid reduction in costs of leading renewable energy technologies. Another is the current energy price crisis. These change the economic context that the project is exploring.

Green job creation

- The literature indicates that overall, investment in renewable energy and energy efficiency can deliver more jobs than fossil-fuel generation or nuclear power (Figure 1).
- Evidence relating to the 2009 financial crisis indicates that green measures forming part of the recovery stimulus created more jobs than conventional stimulus measures.
- In the current context of supporting economic recovery from COVID-19 and insulating against rising energy bills, UK-based projects such as building retrofits or the construction of wind turbines could be particularly favourable and less prone to offshoring services overseas.
- The geographic distribution of green job creation has the potential to 'level up' between regions. We note the potential for green jobs to be located in areas where traditional industry may be in decline. Several studies quantify significant regional employment opportunities pertaining to energy infrastructure upgrades, energy efficiency and heat decarbonisation.

Figure 1 Gross jobs created per £million invested (jobs/£million)



Notes to Figure 1

1. Data obtained from 10 studies on gross job creation per £ million invested. 2. Studies published from 2013 to 2020, focusing on USA, Europe and India. 3. Investment currency was converted to pounds sterling and adjusted for inflation.

Quality of green jobs

- It is important to ensure that green jobs are quality jobs, for example in terms of adequate wages, full-time employment, safe working conditions, and permanent rather than temporary jobs.
- Direct employment in renewable energy construction or installation has been linked to temporary or short-term. The evidence suggests that labour intensity tends to fall as renewables mature and employment needs shift from construction to maintenance and servicing.
- Meeting the UK's net zero target implies a continuous need for jobs over several decades. Sequential planning will be required to train and coordinate local workforces required for renewable expansion, minimising time gaps between projects and the need for construction workers to relocate.
- There will also be an ongoing need and opportunity for jobs to support a nationwide programme of energy efficiency retrofitting in UK buildings.

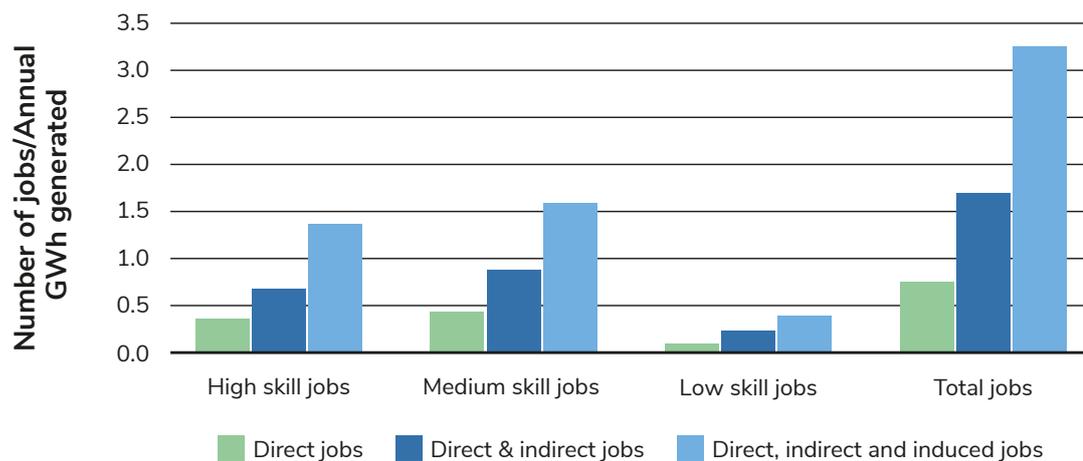
Green skills

- The literature suggests that green and low carbon jobs tend to be more highly skilled compared to higher carbon occupations (see Figure 2). This however creates challenges for upskilling and retraining workers who may in the future be displaced from traditional fossil fuel sectors.
- There is some evidence to indicate that women are underrepresented in green jobs occupations and training programmes.
- There is potential to equip young people with new, green competencies through nationally recognised training programmes and online resources, while helping to address youth unemployment.
- Green skills supply and demand, including access to and provision of training and apprenticeships, will need to be carefully co-ordinated with policies supporting green job creation.



green and low carbon jobs tend to be more highly skilled

Figure 2 Offshore wind in the UK: Gross jobs per GWh by skill level



Notes to Figure 2

1. This chart indicates that almost 90% of UK offshore wind jobs in 2010 were in high to medium skill categories. Most jobs are created indirectly in the supply chain or through the induced effect of additional household expenditure. Data derived from Allan et al. (2021).
2. **High skill jobs** – Managers, directors and senior officials; professional; associate professional and technical occupations.
3. **Medium skill jobs** – Administrative and secretarial; skilled trades occupations; caring, leisure and other services.
4. **Low skill jobs** – Sales and customer services; process, plant and machine operatives; elementary occupations.