JOBS AND THE GREEN RECOVERY

Research summary
completed by 3Keel LLP,
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GREENPEACE

FOREWORD

The coronavirus pandemic has shocked the world, exposing vulnerabilities and inequalities both in terms of health and economic outcomes.

In the UK, the essential action taken to reduce the spread of the virus has triggered the worst recession in 150 years. Millions are facing unemployment and poverty, with poorer and BAME communities harder hit. We are a country desperately in need of better job prospects.

A properly funded green recovery from COVID-19 presents the government with a huge opportunity for job creation. This briefing shows how an investment of £100bn over the lifetime of this parliament would create around 1.8m jobs, with much of this channelled towards 'shovel-ready' projects that would provide an immediate solution to the current recession.

Greenpeace commissioned sustainability advisors 3Keel to analyse the employment benefits of implementing the policies outlined in Greenpeace's manifesto, A Green Recovery: How We Get There. The manifesto focuses on four policy areas: Clean Transport, Green Buildings, Smart Power, and Nature and a Circular Economy. It shows how rapidly deployed spending in these areas will help solve a key part of the economic crisis, create jobs and bring about far-reaching improvements to UK society.

This briefing focuses solely on job creation, but these investments will reap enormous benefits to the country in other ways. A green recovery could insulate homes, reduce electricity bills and cut fuel poverty, thereby reducing the thousands of deaths caused by cold housing in the UK every year. It could improve sustainable transport and address air pollution, transforming the health of our cities. It could revive natural habitats and safeguard these essential spaces for future generations, while building on the remarkable success of the UK renewables industry. This would create a robust, zero-carbon economy that is fit to tackle the climate crisis. A green recovery is essential to solve both the immediate unemployment crisis and the long-term existential threat of the escalating climate emergency.

This is a historic opportunity for transformative growth and in the coming months, the UK government has a duty to intervene, both to deal with the economic fallout of the pandemic and to mitigate the climate emergency. Current annual spending on climate and nature is around £17bn. To stand a chance of meeting our climate targets, this needs to be increased by an additional £25bn annually. Investment in the green sector generates a higher number of jobs for the money you spend than the same expenditure in the high carbon sector.[1] Over the course of this parliament the investments outlined in this briefing will create around 1.8m jobs.

The benefit to the economy and to the health and wellbeing of society cannot be overstated. While this briefing provides analysis of how much work is created by investing in different areas of the green economy, the UK also needs policy and support to improve the conditions and quality of work. For this reason we urge the government to consider the 'green jobs guarantee' outlined in our manifesto. From a place of great jeopardy, with a short-term economic crisis and the long-term existential threat of the climate emergency, comes a moment of great opportunity. We won't get a better chance – the government must seize it.

Greenpeace is calling on the government to invest in the 1.8m jobs as outlined in this report as part of its commitment to building back better. With the necessary vision and commitment, the UK can create a country that works for all communities and the planet.

John Sauven
Executive Director, Greenpeace UK

APPROACH

This research summary comprised of a rapid, systematic review of evidence for the employment outcomes from the investment in green recovery packages, in line with Greenpeace's manifesto, A Green Recovery: How We Get There. The recovery packages included are Clean Transport, Green Buildings, Smart Power and Nature and a Circular Economy.

The research and analysis processes were as follows:

- Systematic searches of relevant literature using keywords taken from the manifesto
- Assimilation, categorisation and assessment of evidence based on parameters including sector specificity, geographical comparability, and publication dates
- Construction of a simple data model, assigning job creation potential per £1m investment at sector level (eg Solar PV or Home retrofitting)
- Generation of UK-level job estimates, based on investment levels required to support a green recovery

The research approach focused on matching evidence on the employment impacts of green investment to the Manifesto's recovery packages, prioritising studies conducted in the UK and EU and selecting for recent publications.

Studies on the employment impacts of green investment typically include not just 'direct employment' impacts, but also supply chain 'indirect employment' impacts. Further, many studies account for 'induced employment' impacts resulting from higher spending by the population who have benefited from the newly created employment. For this analysis, we only selected studies that provide estimates of direct and indirect jobs created, ie we excluded studies that provide estimates of only direct employment or include estimates of induced employment.

Most studies do not differentiate between the employment impacts of government investment and those of private investment; therefore, we contend that the job estimates are applicable regardless of the sources of recovery funding. We used a mean of the available data to arrive at our estimates for job numbers.

FINDINGS

Our review suggests that the average number of **jobs created per £1m invested is 19.6 jobs.** Investments in a circular economy and green buildings generate relatively higher average numbers of jobs, at 24.1 and 23.2 jobs respectively. Investments in smart transport and smart power generate relatively lower average numbers of jobs, at 18.5 and 12.7 jobs respectively. Using these data, we estimate that **a green recovery stimulus totalling £100bn over a period of four years would create around 1.8m jobs.**

A £25bn stimulus for each year for a period of four years is taken from the joint NGO investment document[2] for delivering a greener and fairer economy which focused on (predominantly) government spending. It is also comparable to the size of the German stimulus package, which included €40bn for climate and green measures.

Identifying the allocation of this recovery stimulus across the different sectors was more complex. The joint NGO spending document included expenditure that was not appropriate as a recovery or stimulus investment, for example, revenue spend on agriculture and the environment department. There is also some spending like the Just Transition Fund that whilst essential, are not really stimulus. On the other hand, the power sector will need very substantial investment, but that was not captured by the NGO document as it was expected to be predominantly from the private sector rather than the government.[3] But in the context of the need to drive investment in the COVID-19 recovery, the government could hasten this private investment through policy changes like those identified in Greanpeace's manifesto. It is extremely hard to predict the level of investment, but we have estimated the power sector investment to be the average of the other sectors. The value for each sector was then normalised to a share of £100bn.

We considered two factors for any investment to support job creation. The first consideration is how quickly the recovery spending can be deployed, hence affecting how quickly jobs can be brought onstream, sometimes referred to as 'shovel-ready'. We refer to this as 'Timeliness' and based on the sources, we rated each recovery package from 1 (slow to commence) to 3 (fast to commence). Although coarse, these ratings reflect consistent findings from the research.

The second consideration is the extent to which the recovery spending will be needed over the long-term, hence, to some extent, determining how long-term the created jobs will be. Perhaps counterintuitively, for stimulus packages, it is deemed desirable for policymakers to create short-term jobs that plug urgent needs for employment, but then free up that labour force when the economy has recovered. Using the same ratings system, we considered 'Reversibility', from 1 (long-term spending needs) to 3 (short-term spending needs).

Table 1 below summarises the aggregated findings, in line with the manifesto's recovery packages. Table 2 presents the more granular summary of jobs per £1m invested.

Table 1

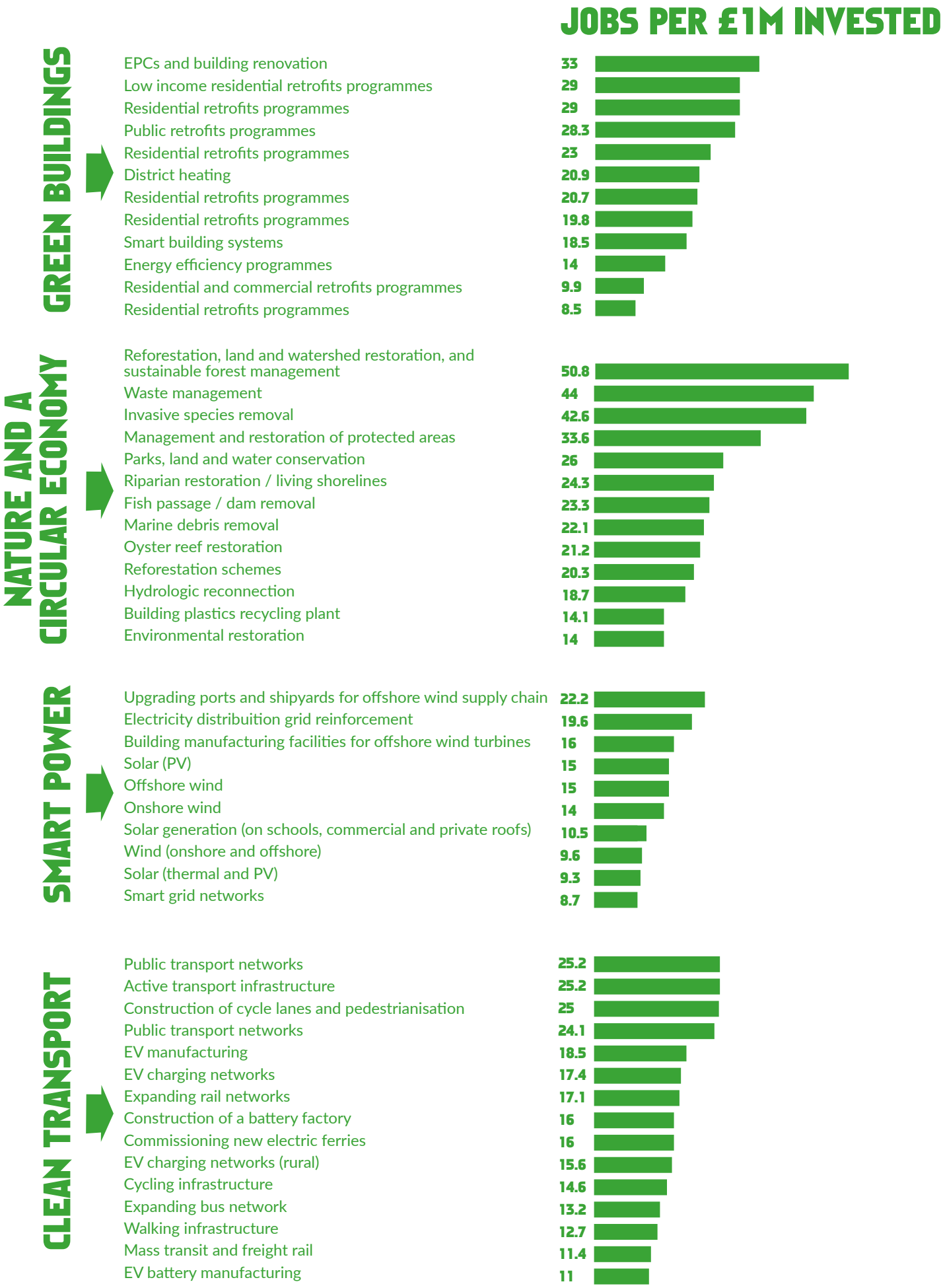
Summary results of jobs created under each recovery package, derived from subset of references most relevant to UK

** Scores (1 = worst; 3 = best)*

RECOVERY PACKAGES	AVERAGE JOBS/£1M INVESTED	TIMELINESS	REVERSIBILITY	TOTAL STIMULUS PACKAGE (£bn)	JOBS CREATED
GREEN BUILDINGS	**23.2**			**17.2**	**400,000**
Energy Efficiency	**23.2**	**3**	**3**		
Green Buildings	**-**	**2**	**1**		
NATURE AND CIRCULAR ECONOMY	**24.1**			**9.6**	**230,000**
Circular Economy	**29.1**	**2**	**1**		
Natural Capital	**19.1**	**3**	**2**		
SMART POWER	**12.7**			**25.2**	**320,000**
Smart Grid	**8.7**	**1**	**3**		
Solar	**12.7**	**2**	**3**		
Wind	**16.8**	**2**	**3**		
CLEAN TRANSPORT	**18.5**			**48**	**890,000**
Electric Vehicles	**14.2**	**3**	**1**		
Public Transport	**16.3**	**2**	**1**		
Urban Transport	**25.0**	**2**	**1**		
TOTAL	**19.6**			**100**	**1,840,000**

Table 2

Job creation per £1m invested, with each line taken from different sources used to inform the research



DISCUSSION

This discussion provides context from the references used to inform the estimates of job creation. Refer to Manifesto for a Green Recovery for the detail of Greenpeace UK's asks in each area.

Clean Transport

Various studies point to the importance of the competitiveness of UK car manufacturers and component suppliers for the overall job impacts of the electric vehicle (EV) transition. The job creation potential of EV and battery production-related investments relies on the ability of UK-based companies to speed up their transition to a low-carbon vehicle market and gain market share across Europe, as around 85% of UK automotive production is exported.[4]

A study by the Faraday Institution[5] notes that the majority of new jobs created through investments in EVs will be in the battery manufacturing and battery supply chain, highlighting the need for a large production facility for vehicle battery manufacture. Furthermore, a study by WWF[6] claims that for the majority of jobs created, skills are transferable as EV and internal combustion engine (ICE) assembly are largely similar and vehicle parts do not differ significantly between EVs and ICEs. However, ICE-specific component jobs (which currently account for 5% of automotive jobs) will be difficult to replace directly. To further improve job creation, securing UK jobs in the manufacturing of EV-specific components will be important as the share of existing jobs in this segment is currently small (at around 2% of current automotive jobs).

Studies on investments in public transport emphasise their relatively high job intensity. However, the numbers of jobs created can vary depending on the nature of the project and on funding allocation. Expenditure on vehicles and facilities creates fewer jobs than expenditure on operations.[7] The public transport sector also creates a range of jobs: skilled and unskilled, and temporary and permanent.

The urban transport sector shares many characteristics of the public transport sector, such as high job intensity of investment and the creation of local jobs. However, retail sales of bikes and cycling accessories account for the biggest share of employment in the UK cycling industry. The retail cycling sector also comprises many micro-, small-, and medium-enterprises, with two-thirds of cycle stores employing between 1 and 4 people.[8] Given the fact that the highest share of employment is in retail, jobs in the cycling sector are often classed as low-skilled and do not require high levels of qualifications. The rise of bike-sharing schemes (using high-tech solutions) and the increased popularity of rideable tech options such as e-bikes and e-scooters will potentially generate new higher-skilled professions.

Green Buildings

The studies in our review suggest that investments in domestic energy efficiency are important in creating jobs in the short-to-medium term and that energy efficiency programmes tend to be labour-intensive. Energy efficiency retrofits can be considered a shovel-ready investment when implemented through existing programmes,[9] allowing faster policy implementation and creating jobs immediately.

Furthermore, the demand created by energy efficiency programmes generates jobs locally. A nationwide energy efficiency programme would create jobs across all UK regions. However, jobs created in the construction sector and manufacturing supply chains tend to be temporary and are projected to decrease over time when most of the housing stock has achieved the required levels of efficiency.

The studies in our review also indicate that investments in energy efficiency and green buildings will demand an overall shift towards more skilled workers as new requirements are introduced and new materials, technologies, and techniques are adopted.

Smart Power

Our systematic review suggests that in general, electricity production from renewable sources is more labour-intensive than that of coal or gas, implying that in the short term, investing in renewable energy would create more jobs than investing in fossil fuels. However, there are wide variations between renewable technologies, with the job intensity of an investment in solar being relatively higher than other technologies.[10]

A study by Oxford Smith School of Enterprise and the Environment[11] claims that renewable energy creates more jobs in the short run, boosting spending and increasing short-run GDP multipliers. In the long-run, renewable energy requires less labour for operation and maintenance and is more efficient, freeing up labour as the economy functions at full capacity and encouraging spending on other sectors from savings on fuel.

The durations of jobs created also vary. Construction and installation jobs are typically relatively short. For example, the installation of rooftop solar only lasts for several days or weeks while the construction of offshore wind infrastructure may take several years. In contrast, operation and maintenance jobs are stable and last for the lifetime of the plant.

An assessment of skills transferability between the UK oil and gas industry to offshore renewables suggests that only 14% of existing jobs in the UK oil and gas industry have little or no skills overlap[12] with those of offshore renewables, while 28% have good skills overlap.

Nature and a Circular Economy

Natural capital spending, such as afforestation, expanding parkland and enhancing rural ecosystems, allows for speedy policy implementation since it generates jobs that require low training requirements. Natural capital projects also need minimal planning and procurement requirements relative to other sectors.[13]

Estimating jobs created from the investments in nature enhancement, flood and coastal resilience and marine protection is difficult since nature enhancement and restoration projects vary depending on local climate and topography, and the underlying causes of ecosystem degradation. There are wide variations in the relative share of labour inputs, materials, and equipment depending on the type of ecosystem being enhanced or restored.[14]

The studies in our review suggest that a circular economy can create a broad range of job types, from low- to high-skilled professions. While waste management, reuse and recycling tend to provide low- and medium-skilled employment, remanufacturing and biorefining generate high-skilled professions with relatively high skill and training requirements. Circular economy activities are often labour-intensive and provide jobs over the long term. Furthermore, circular economy activities offer a wide range of potential geographical dispersion of job creation. For example, reuse and open-loop recycling create jobs that are dispersed throughout the country while remanufacturing and biorefining offer jobs that are mainly concentrated near manufacturing sites, transport hubs and population centres.[15]

Endnotes

1 https://sustainabledevelopment.un.org/content/documents/17495PB13.pdf

2 https://www.greenpeace.org.uk/wp-content/uploads/2019/08/Government-Investment-for-a-greener-and-fairer-economy-FINAL-30.08.19.pdf

3 Examples of the private investment required: offshore wind industry £50bn in 2020s https://renews.biz/60759/offshore-wind-should-be-backbone-of-uk-green-recovery/; up to £6.5bn on grid infrastructure https://www.smart-energy.com/industry-sectors/electric-vehicles/evs-up-to-6-5bn-is-required-to-avoid-stressing-uk-grid/; at least hundreds of millions per year on storage https://about.bnef.com/blog/energy-storage-620-billion-investment-opportunity-2040/

4 https://www.wwf.org.uk/sites/default/files/2018-03/Final%20-%20WWF%20-%20accelerating%20the%20EV%20transition%20-%20part%201.pdf

5 https://faraday.ac.uk/wp-content/uploads/2019/06/Exec-Summary-Report_May2019_FINAL.pdf

6 https://www.wwf.org.uk/sites/default/files/2018-03/Final%20-%20WWF%20-%20accelerating%20the%20EV%20transition%20-%20part%201.pdf

7 https://bettertransport.org.uk/sites/default/files/research-files/employment_in_sustainable_transport.pdf

8 http://eprints.lse.ac.uk/38063/1/BritishCyclingEconomy.pdf

9 https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-02.pdf

10 https://ukerc.ac.uk/publications/low-carbon-jobs-the-evidence-for-net-job-creation-from-policy-support-for-energy-efficiency-and-renewable-energy/

11 https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-02.pdf

12 http://priceofoil.org/content/uploads/2019/05/SeaChange-final-r3.pdf

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14 https://curs.unc.edu/files/2014/01/RestorationEconomy.pdf

15 https://www.wrap.org.uk/sites/files/wrap/Employment%20and%20the%20circular%20economy%20summary.pdf