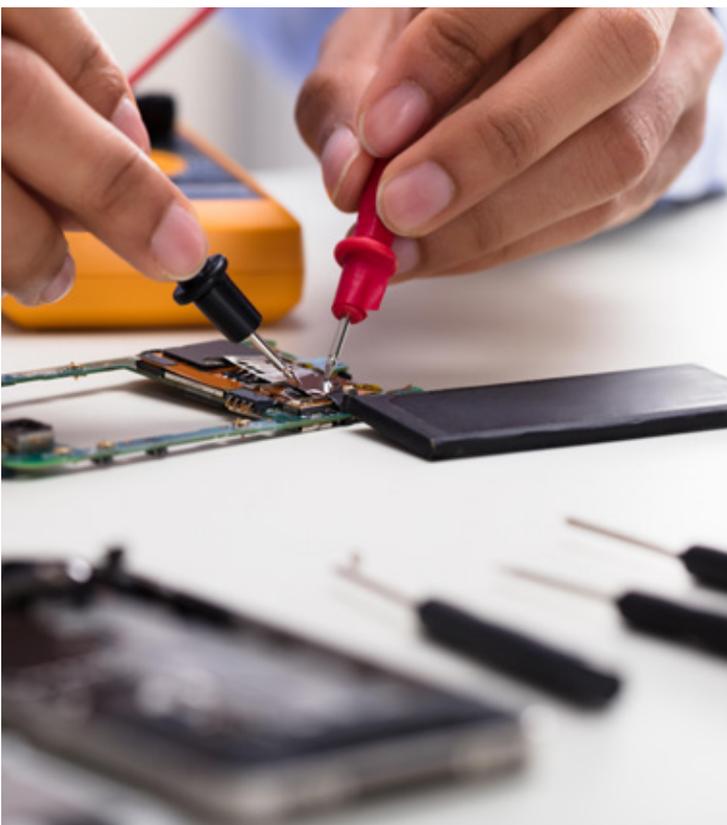


“green
alliance...”

Levelling up through circular economy jobs



Summary

“Greater government ambition for an effective and expanded circular economy by 2035 would create hundreds of thousands of new jobs.”

The UK government has an opportunity to create new jobs and drive economic growth through expanding the circular economy. This sees products and resources kept in use for as long as possible through reuse, recovery, remanufacturing and recycling.

The UK’s current approach is unsustainable. Too many products and materials are cast aside without a structure in place to reclaim them or prolong their use. Too much value is lost through destruction and disposal. A reused iPhone, for example, retains around 48 per cent of its original value, whereas as recycle it retains just 0.24 per cent.

Here we show that greater government ambition for an effective and expanded circular economy by 2035 would create hundreds of thousands of new jobs across the country. Just a few new policies focused on improving the use of valuable resources, led by the Treasury, would help to drive economic growth and the government’s own levelling up agenda, while supporting environmental aspirations.

Using current employment data and a methodology we developed for a report in 2015, we estimate that the government could help to create over 450,000 jobs in the circular economy by 2035. An ambitious approach to reuse, repair and remanufacturing would also lead to jobs being created more evenly across the regions of the UK.

Crucially, a plan to transform the circular economy would create thousands of new jobs in those occupations suffering higher rates of unemployment. This could mean opportunities for engineers at a new biorefining plant in the North East, skilled repairers of machinery and electronics finding new roles in the West Midlands and more recycling operatives across the country, along with the associated new administrative jobs required, including administrators and purchasing managers.

How the government can transform the UK's circular economy

To realise this jobs potential by 2035, the government should consider the following measures to transform the circular economy:

Set targets and build an overarching plan

- Set an ambitious target to halve UK resource use by 2050, with a clear plan to reach it in the industrial strategy.
- Co-ordinate circular economy supply chains, closing the information gap by providing a central materials data hub for businesses.

Make the circular economy a safe bet for business

- Stimulate innovation through a £400 million circular economy starter fund.
- Unlock new technology through the UK Infrastructure Bank, making circular economy investment an explicit part of its portfolio.
- Increase consumer demand by zero rating VAT on repairs and refurbishment.

Support new skills development

- Support workers transitioning into the circular economy with retraining programmes and work coaches.
- Provide strategic funding to universities and colleges to market and run new courses central to the circular economy.

Introduction

The UK government's momentous decision to commit in law to net zero emissions by 2050 will bring huge opportunities for new industries and economic growth. It should deliver new high quality jobs and be a core part of the government's ambition to level up parts of the country, especially those with significant labour market challenges. But, to seize these opportunities quickly and get the country on track, the government needs to be proactive and anticipate change, helping to drive jobs growth and private sector innovation.

Addressing how resources are used will be critical to reduce the UK's impact on climate change. The current approach is not only unsustainable, driving carbon emissions and damaging the environment, it also holds back the economy. Products and materials are discarded before the end of their lifetimes, wasting both economic value and embedded carbon.

Moving towards a circular economy, where products and resources are kept in use for as long as possible, would help to level up the country by providing new good quality jobs and higher productivity, while helping the government to meet its environmental targets. This policy insight sets out how expanding the circular economy can support the government's ambitions.

In 2015, Green Alliance worked with WRAP to examine the job creation potential of the circular economy.¹ Six years on, with the government having committed to net zero and seeking to level up the country, we have updated the research to see how the circular economy can support these objectives and contribute to recovery from coronavirus.

Through mapping the six activities of a circular economy (see page five) onto employment data, we have estimated how different levels of growth in the circular economy could boost job numbers, where those jobs are likely to be and at what skill levels.

What is the circular economy?

The circular economy keeps products and resources in use at their highest value for as long as possible through recovery, reuse, remanufacturing and recycling. This could be repairing household electronics like phones or TVs, but also includes reclaiming steel frames from buildings or repurposing industrial machinery. These activities help to reduce the waste and energy needed to make new products.

This analysis covers six circular economy activities:

1. Reuse

Direct reuse of a product to preserve as much of its value and embodied carbon as possible. For example, a reused iPhone retains around 48 per cent of its original value, whereas this figure as recycle is just 0.24 per cent.

2. Repair

Extending the lifetime of products by repairing them instead of throwing them away.

3. Remanufacturing

Disassembling used products into components for repair and reconditioning, to restore performance and quality to new product specifications.

4. Servitisation

Moving away from product-based to service-based business models. Examples are frequently business to business, such as Rolls Royce renting engines to airlines based on the amount of time an engine is used in flight.

5. Closed loop recycling

Secondary materials are processed to create a new product of the same or similar value. For example, bottles made from PET being recycled and remade back into PET bottles.

6. Open loop recycling

Also known as downcycling, recovered materials are processed to create new materials of lower value, such as turning glass bottles into road aggregate.

Examples of jobs in the circular economy

Job	Description	Skills Level
Repairer	Goods are often thrown away instead of being repaired. Skilled repairers fix items like machinery, electronics, vehicles or household white goods so they stay in use longer and continue providing value.	Indoor, manual work. Mostly skilled, with tasks specific to the product type. Developed through formal or informal education and training.
Remanufacturer	Someone working in remanufacturing collects old products, deconstructs them and restores or replaces components so the product works like new again. Remanufacturers are often specific to an industry or sector.	Indoor, manual work. Requires skills in machining and mechanical assembly but may not require formal qualifications.
Recycling operatives	Recycling operatives are involved either in waste and scrap wholesale, or in the recovery, processing and treatment of recycled materials and products for resale.	Indoor, manual work. Low and intermediate skilled employment.
Biorefining (plant and crop development, cultivation and harvesting, transport, distribution and storage of feedstock, plant design, maintenance and repair)	Biorefining – the process of extracting valuable materials from biowaste or converting biowaste into energy – covers a broad mix of occupations.	Indoor and outdoor, manual work with low to high skill requirements.
Second hand retail	Retail jobs involve sourcing, grading and selling second hand goods.	Indoor, non-manual work. Low and intermediate skilled employment, no formal qualifications required.
Circular procurement professionals (eg purchasing or procurement managers, planning officers and consultants, and buyers)	A circular procurement professional is responsible for purchasing goods and services within an organisation or business, with the aim of maximising the value of products and materials and keeping them in use for as long as possible by recovering and repurposing them.	Mid to high wage occupations. Requires managerial and administrative skills, such as project management qualifications.
Rental and leasing	As part of the ‘sharing economy’, waste and resource use can be minimised, eg through leasing vehicles, machinery, household or sports goods.	Rental and leasing requires a broad range of skills, depending on the type of equipment dealt with. Leasing passenger air transport equipment will require higher skills, while leasing household goods and vehicles will require lower skill sets.

The current UK labour market

To calculate the potential for job creation in the circular economy by 2035, we have looked at the current UK labour market; then the number, distribution and skill levels of circular economy jobs, assessing the benefits they offer to government objectives on levelling up, jobs and skills development under three different scenarios.

As the country emerges from the pandemic, some parts of the economy are finding it difficult to recruit staff. This is particularly noticeable in hospitality, retail and leisure, which have been hardest hit by enforced closures. Talk of broader labour shortages, however, is premature.

Over two million people who were working before the pandemic are not working now, either having lost their jobs, remained on furlough or ceased to be self employed. The total hours worked across the country is, at the time of writing, still five per cent below its pre-pandemic level.² Short term dislocation between the supply and demand of labour will ease as reopening progresses, although some structural changes resulting from the pandemic and Brexit are likely to be permanent.

Regional labour market risks: before, during and after the pandemic

Region	Underemployment rate (16-64 year olds) pre-pandemic ³	Percentage increase in underemployment (Sept 2019-Sept 2020)	Percentage of 16-64 year olds on furlough or the Self-Employment Income Support Scheme ⁴	Percentage change in forecast employment (2019-25) ⁵
East Midlands	10.0%	28%	15%	1.9%
East of England	8.1%	45%	17%	2.7%
London	10.0%	50%	19%	3.6%
North East	12.6%	29%	13%	2.3%
North West	9.7%	45%	15%	2.5%
Scotland	10.0%	35%	15%	2.6%
South East	8.6%	28%	17%	2.9%
South West	8.7%	38%	18%	2.4%
Wales	10.8%	24%	14%	1.9%
West Midlands	10.0%	42%	15%	2.0%
Yorkshire and the Humber	10.0%	35%	15%	2.1%
UK	9.6%	38%	16%	2.6%

“The pandemic has had a disproportionate effect on those regions where more people are employed in customer facing roles.”

We can understand more about future risks to regional labour markets by examining how they fared before and during the pandemic. Those regions with higher rates of underemployment up to 2019 indicate where the labour market was already challenging. The pandemic has had a disproportionate effect on those regions where more people are employed in customer facing roles in retail and hospitality, and this is particularly noticeable in London.

The Institute of Chartered Accountants in England and Wales and Oxford Economics forecast employment levels in 2025 to be 2.6 per cent higher than in 2019. At a sectoral level, however, the picture is different. Jobs in ICT and professional, scientific and technical roles are forecast to grow by seven per cent. Other sectors, most notably manufacturing, are expected to struggle, continuing the trend in the decline of their share of GDP. This has important implications for those regions which have higher concentrations of manufacturing jobs, such as the Midlands, Wales and Yorkshire and the Humber.

Employment trends and levelling up

“Mismatches between where job vacancies exist and where people live contribute to structural unemployment.”

Many issues of the modern labour market are driven by long term trends. Technological advances have changed what is produced and how it is produced. Globalisation has reorganised supply chains, allowing labour intensive jobs in sectors, such as manufacturing, to be offshored to countries where labour is cheaper. But the government’s recent Industrial Decarbonisation Strategy has recognised the role that the circular economy could play in boosting UK jobs and growth in the transition to net zero.⁶

Offshoring has had a particularly negative effect on those regions where routine jobs are overrepresented: ie the Midlands, North, North West and parts of Scotland.⁷ Automation has created capacity and demand for higher skilled, cognitive jobs but those are disproportionately located in the South East and London.⁸

Mismatches between where job vacancies exist and where people live contribute to structural unemployment. There is evidence for this in the substantial variation in unemployment between the regions. In 2019, the North East had an unemployment rate (6.1 per cent), more than two percentage points above the national average (3.9 per cent).

Tackling these trends and rebalancing their impacts is the justification for government’s recent levelling up ambition, attempting to capture more economic and environmental benefits in the UK’s regions.

Transforming employment opportunities through the circular economy

In 2015, working with WRAP and industry experts, we analysed how three different levels of ambition for the circular economy could boost jobs in the UK by 2030. We have now built on that research to explore three scenarios for 2035, taking into account new targets announced in the UK's 2020 Circular Economy Package.⁹

Our three scenarios:

1 Business as usual: This assumes little progress on the circular economy. Recycling rates should increase by 17 per cent by 2035, in line with current targets. There would be no growth in remanufacturing, repair or rental services.

2 Growing potential: In this scenario, policy has been more ambitious, providing incentives for the private sector to increase recycling rates further and make substantial leaps in the rate of remanufacturing.

3 Transformation: Under this, there has been a move to a fully sustainable economy, with growth in recycling and remanufacturing and major developments in servitisation and reuse.

Below, we set out projected growth in the core activities of the circular economy under each scenario. By looking at 2019 employment levels in these activities, we are able to estimate how the growth in rates under different scenarios will increase job creation for each area (see page ten).¹⁰ Where appropriate, we have subtracted estimates of the jobs affected elsewhere in the economy. For example, higher paper recycling rates will reduce demand for virgin pulp and the forestry workers who supply it.

Growth in core circular economy activities by 2035

	2019	2035 scenarios		
		Business as usual	Growing potential	Transformation
Recycling rate (all waste streams)	48% ¹¹	65%	75%	85%
Remanufacturing rate	1%	1%	20%	50%
Reuse growth	0%	10%	10%	25%
Rental and leasing growth	0%	5%	30%	100%

Our 2015 study considered where growth would add to employment levels and where it would displace employment elsewhere. Currently, however, there is considerable uncertainty about how unemployment levels will settle out post-Covid and post-Brexit, with reopening and changed migration patterns. Therefore, we use 2019 figures as our baseline as we cannot report reliably how the circular economy might affect unemployment from its current state. The figures in this report are for gross rather than net jobs.

High ambition will create hundreds of thousands of jobs

Continuing at current rates of recycling, reuse and other aspects of the circular economy will fail to deliver the significant economic or environmental benefits possible. Raising ambition, on the other hand, would lead to considerable progress in job creation and the government's levelling up and environmental objectives.

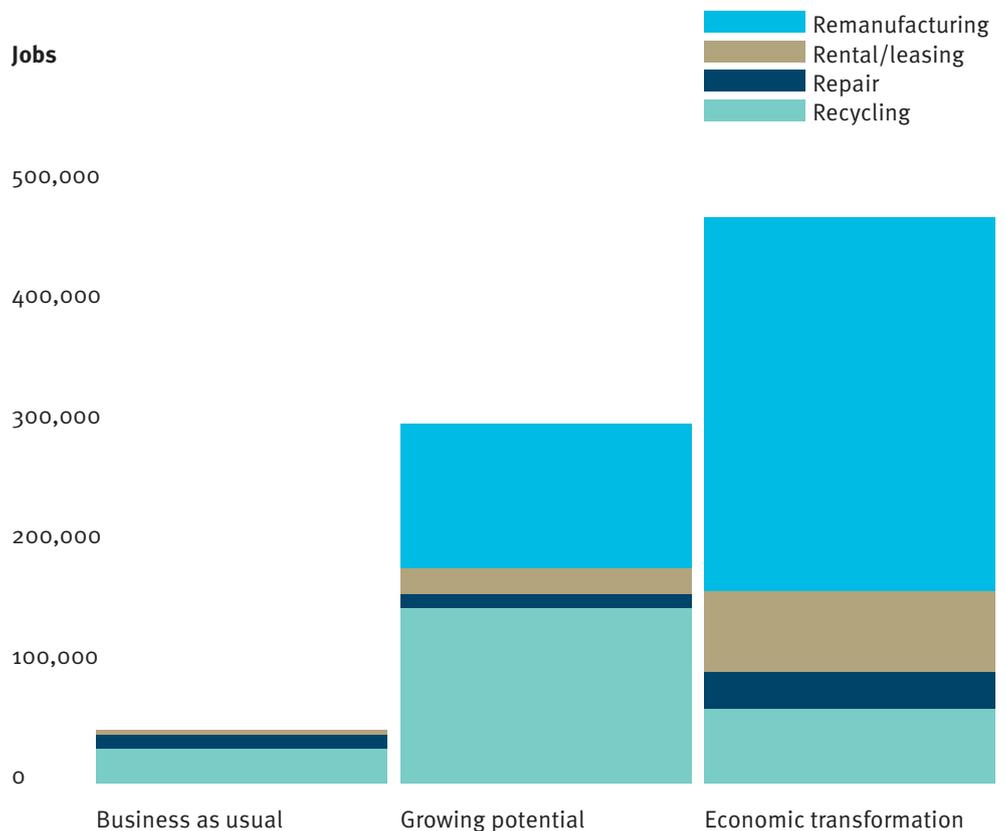
Overall job creation potential:

Business as usual: under this scenario, the government adds barely 40,000 jobs by 2035, concentrated in recycling and repair.

Growing potential: the growth of remanufacturing offers great potential both to UK economic recovery and levelling up. Increasing remanufacturing rates to 20 per cent could deliver 120,000 jobs, as part of a total of 199,000 for the circular economy as a whole.

Transformation: increasing remanufacturing by 50 per cent could create 312,000 jobs. Growth in servitisation could increase the number of roles in rental and leasing by up to 67,000, while there is the potential to increase jobs in recycling by 62,000 and in repair work by 31,000. This could more than double job creation from our 'growing potential' scenario, to a total of 472,000 new jobs by 2035.

Job creation potential at different levels of circular economy ambition by 2035



New jobs for regions with persistent unemployment

The distribution of jobs already created in the circular economy shows there is strong potential to increase employment in regions with more significant labour market challenges. This potential grows as the circular economy grows.

In regions with high employment, such as the South East, many of the new jobs may displace jobs in other activities. However, in regions with higher unemployment, such as the North East, the circular economy could create additional jobs and reduce overall unemployment.

Regional job creation potential:

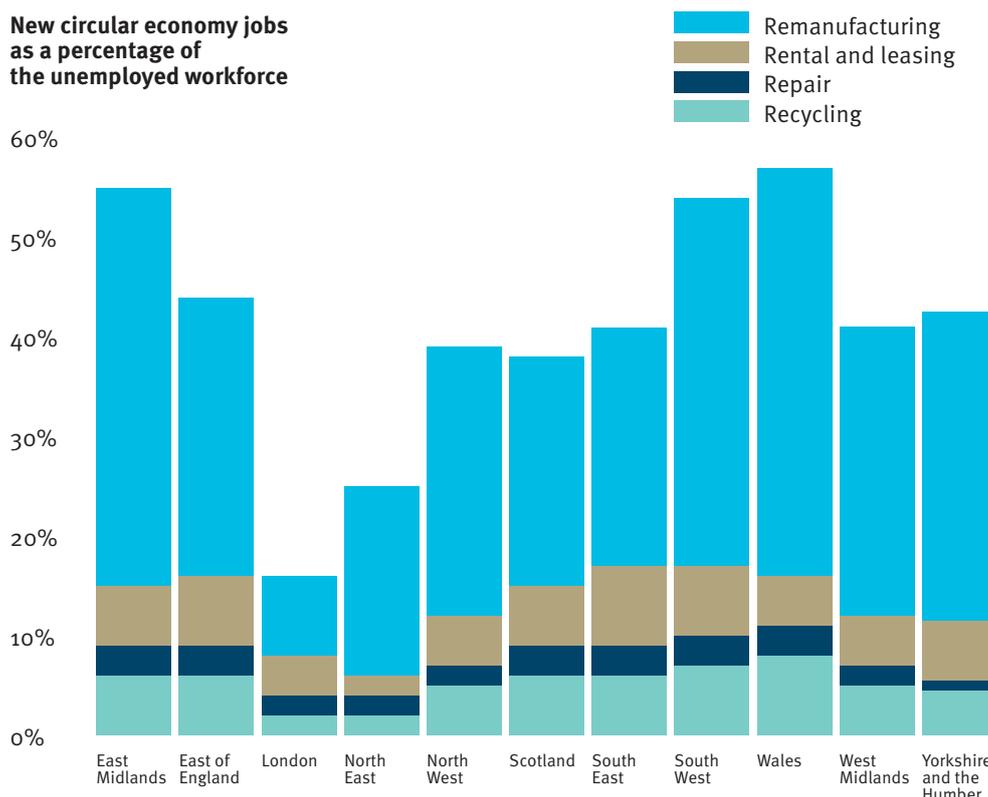
Business as usual: London and the South East are likely to benefit significantly from new jobs, where unemployment is predicted to be lowest. Fewer than 2,000 jobs, for example, are likely to be in the North East.

Growing potential: a boosted remanufacturing industry would increase jobs in traditional industrial hubs of the UK. A total of 199,000 jobs could be created across the country with 11 per cent in the West Midlands. This is equivalent to 23,000 roles, for that region or 17 per cent of its unemployed workforce.

Transformation: this scenario would have a major impact on regions right across the UK. Wales and the East Midlands, where employment is forecast to grow at a rate below that of the rest of the UK over the next five years, could benefit significantly from greater rates of remanufacturing. Importantly, this would draw on existing manufacturing industries and skills in these regions.

Circular economy jobs growth could be significant for the regions under a 'transformation' scenario

New circular economy jobs as a percentage of the unemployed workforce



Circular economy jobs are in professions facing high unemployment

As well as helping to level up the regions, jobs in the circular economy also level up across industries and job roles, including those negatively affected by automation and offshoring. Elementary, process plant and machine operatives, and skilled trades, would be well represented in an efficient circular economy, helping to address declines in employment in these occupations. For instance, this could be collecting, sorting and grading waste materials, or the disassembly and repair of products and machinery.

Skills range potential:

Business as usual: there could be just 22,000 new jobs by 2035 in elementary occupations and process, plant and machine operations.

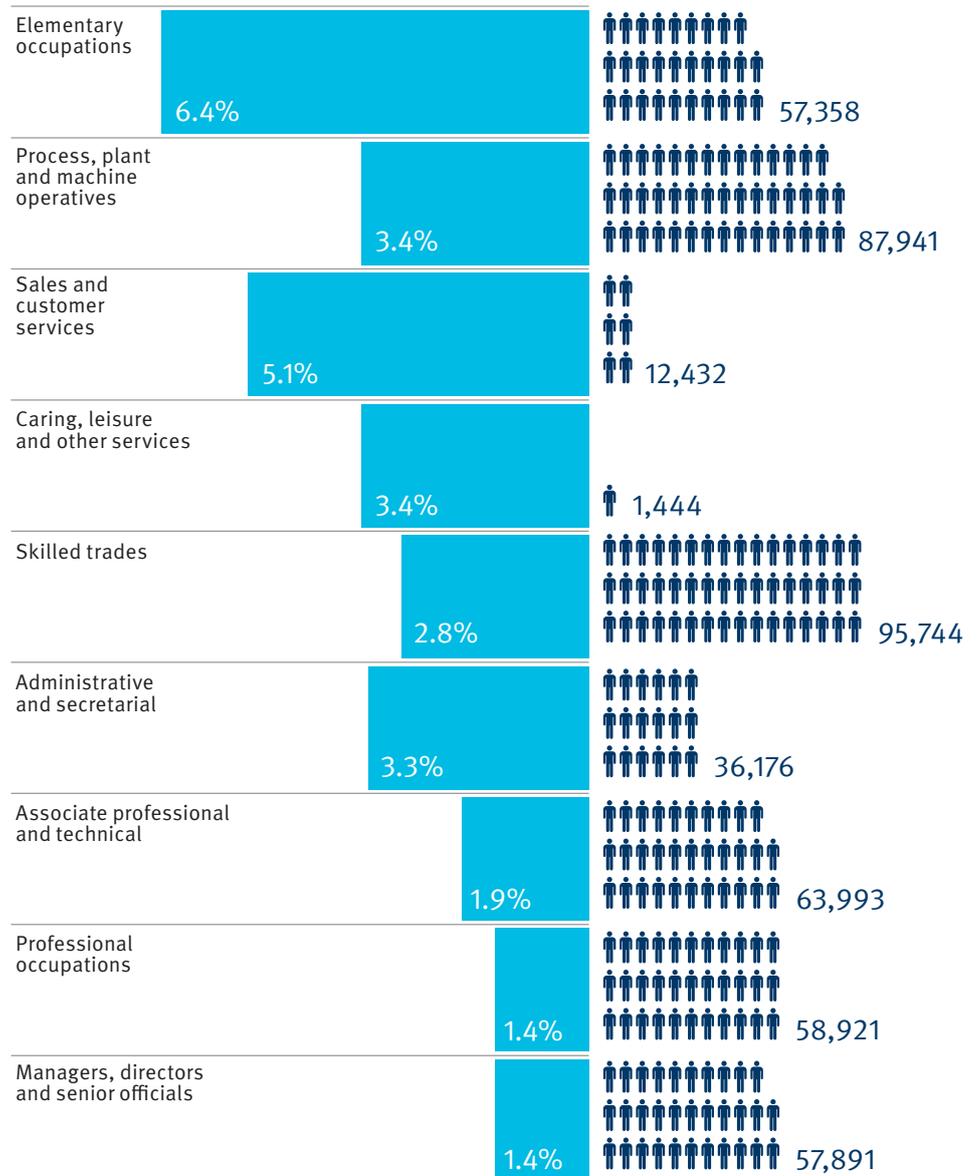
Growing potential: under this scenario, there could be 70,000 jobs in elementary occupations and process, plant and machine operations by 2035, but some growth in remanufacturing would also add jobs in skilled trades and higher paid professional occupations.

Transformation: this could result in 96,000 workers in skilled trades, mostly in remanufacturing and repair, by 2035 and an increase in the demand for workers in administrative and secretarial roles. One in three jobs could be in those lower skilled occupations that currently have higher unemployment rates, boosted by greater recycling and remanufacturing ambitions.

An ambitious circular economy creates jobs in occupations with high unemployment

Unemployment rate by last occupation (%)

Gross job creation in 2035 under the 'transformation' scenario



How government policy can transform the UK's circular economy

The Treasury has a crucial role to play in stimulating activity in the private sector, with multiple policy levers at its disposal. The chancellor is able to accelerate growth in the circular economy, in particular, by laying out an ambitious plan, reducing the risk for business and supporting the development of new and necessary skills.

We outline how this should be approached below.

A plan to grow the circular economy

We recommend a new framework for businesses, so they fully understand the direction of travel, have financial security to change their business models and can support development of the skills required. This should include the following actions:

Set an ambitious target

As with the net zero carbon or nature recovery goals, businesses need the certainty of a clear target to halve UK resource use by 2050. This would bring the circular economy in line with other government objectives to protect the environment and stimulate green growth. Binding interim targets will ensure businesses act quickly and that the UK gains a competitive edge in circular economy technology and techniques.

In the same way the net zero strategy is accompanied by decarbonisation plans for housing and transport, the government should provide circular economy businesses with guidance and plans for the six sectors in our analysis and for specific materials. Current waste management policies are too narrowly focused on plastics and household waste (which is just 13 per cent of total waste). Maximising job creation will only come from an economy wide view that translates the target set to the necessary business activity on the ground to reach it, helping to implement new processes or predict labour needs.

Co-ordinate emerging circular economy supply chains

The government has a role in closing the information gap by providing a central materials datahub for businesses along the circular economy value chain. This will allow businesses to share products and integrate their processes better. Clear standards are also needed for the quality of remanufactured goods, as they are currently non-existent.

Make the circular economy a safe bet for business

Stimulate innovation with a £400 million circular economy starter fund

Over the next five years, the Treasury should dedicate seed finance for trial initiatives to prove the potential of a more circular economy to cut carbon and create jobs. Projects could include redesigning and testing more durable products, piloting remanufacturing plants for goods with valuable materials and high turnover, like electronics, refurbishing homes and buildings, or increasing the rate and quality of recycling across all sectors.

Unlock new technology through the UK Infrastructure Bank

The UK Infrastructure Bank (UKIB) provides high risk or patient capital to new technology that will help to make progress towards the UK's net zero carbon by 2050 goal. Making the circular economy an explicit part of that aim will be crucial. This should go beyond the narrow view of 'waste' held by UKIB's predecessor, the Green Investment Bank, which dedicated most of its funding to incineration and energy from waste (which are not circular economy activities). Derisking circular economy developments and proving that revenue streams are viable should be the role of the bank and its target areas should include the automated technology vital to remanufacturing.¹²

Increase consumer demand through VAT changes

Currently, VAT is charged at the standard rate of 20 per cent for repairs which, when added to labour costs, often makes buying new items cheaper than repairing them. Reducing VAT on home repairs and professionally repaired goods would stimulate demand and provide more viable revenue streams for repair businesses. Similarly, VAT on building refurbishment should be reduced to zero in line with new build, to end the current tax bias encouraging demolition. Zero rating VAT on repairs would also help to underpin government investment in building retrofits and the circular economy infrastructure to support it. This would be an important step towards embedding environmental principles in the tax system.¹³

Support new skills development

Support workers transitioning from declining industries

Reskilling workers in declining sectors will be fundamental to a just transition and many will have useful, transferable skills. They should be supported with retraining programmes and work coaches to provide guidance on circular economy job opportunities, where the skills profile matches their own.

Provide strategic funding to universities and colleges

Many young people choose their careers early but their awareness of the circular economy is low. Increasing its visibility will be important to attract and develop a highly skilled workforce, with the emphasis that this sector will be at the heart of the future economy.

Endnotes

- ¹ Green Alliance, 2015, *Employment and the circular economy: job creation in a more resource efficient Britain*
- ² Resolution Foundation, 2021, *Understanding the labour market: pandemic not pandemonium*
- ³ These rates of underemployment have been calculated using Office for National Statistics data for the 12 months to September 2019, with links and methodology provided in: Green Alliance, 2021, *Jobs for a green recovery*
- ⁴ Note that this is calculated from the total employments on furlough and total claims for the Self-Employment Income Support Scheme at the end of January 2021, as a share of working age population. HM Revenue and Customs, 2021, 'Coronavirus job retention scheme statistics: January 2021'
- ⁵ ICAEW and Oxford Economics, 2020, 'UK economic outlook'
- ⁶ Department for Business, Energy and Industrial Strategy, 2021, *Industrial decarbonisation strategy*, p65: "From an economic perspective, by increasing material and resource efficiency, the productivity of the economy can be increased, making the UK more competitive and improving our resource security. Rather than leading to a loss of economic activity, this shift towards 'recommerce', remanufacture and repair activity can enhance our economy in terms of jobs and growth."
- ⁷ Spatial Economics Research Centre, 2015, *Offshoring and the geography of jobs in Great Britain*
- ⁸ Deloitte, 2015, *From brains to brawn: the impact of technology on jobs in the UK*
- ⁹ Department for Environment, Food and Rural Affairs (Defra), Department of Agriculture, Environment and Rural Affairs, Northern Ireland (DAERA), Welsh Government and Scottish Government, 2020, 'Circular economy package policy statement'
- ¹⁰ For our full dataset, showing gross jobs creation potential by region and occupation under each of our three scenarios, see www.green-alliance.org.uk/resources/Levelling_up_through_circular_economy_jobs_data.xlsx
- ¹¹ The total waste recycling rate for the UK is available up to 2016. This figure is inflated in line with the growth in the household recycling rate between 2016 and 2018 (latest available data). Defra, 2020, 'UK statistics on waste'
- ¹² Green Alliance, 2019, *Building a circular economy*
- ¹³ Green Alliance, 2020, *Added value: improving the environmental and social impact of UK VAT*

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This policy insight is part of Green Alliance's work with the Green Renewal coalition, which seeks to ensure a green recovery from the pandemic. The Green Renewal project works across the economic policy agenda to ensure green measures, including private finance and public infrastructure, deliver strong economic growth and high quality jobs across the UK.

The Green Renewal coalition



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Green Alliance

Green Alliance is a charity and independent think tank, focused on ambitious leadership for the environment. With a track record of over 40 years, Green Alliance has worked with the most influential leaders from the NGO and business communities. Green Alliance's work generates new thinking and dialogue, and has increased political action and support for environmental solutions in the UK.

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