OUTLINING A UK VISION FOR 2030

POLICIES FOR A JUST TRANSITION

A literature review commissioned by WWF-UK

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EXECUTIVE SUMMARY

Reducing emissions in line with the UK's 2030 targets on climate change is an imperative for the UK and the world. Bold policies that put the UK on the path to achieving its climate goals will bolster the UK's influence in the upcoming COP26 talks and galvanise other countries to put in place their own ambitious climate action plans.

Getting to net zero will transform our lives in many ways, from how we heat our homes to how we travel to work. In addition to mitigating climate change, many of these policies will also deliver a meaningful improvement to people's lives by 2030 and beyond. Getting this policy agenda right – and matching it with the appropriate investment – is essential to delivering a transition that is as inexpensive as possible, provides appropriate protection for vulnerable groups, and maintains a political consensus to successfully deliver net zero.

This literature review outlines a bold and positive vision for 2030, examining the benefits to households, businesses, local areas and nationwide that would be accrued if a package of policies is put in place that reduces the UK's greenhouse gas (GHG) emissions in line with hitting our 2030 climate target, which is a 68% reduction in GHG emissions by 2030 compared to 1990 levels. The policy package that generates these benefits and gets us to our 2030 climate goals is based on the Committee on Climate Change's Sixth Carbon Budget pathways.

A summary of some of these benefits is provided in the table below:

Household	New jobs in low carbon industries – which will grow as a result of policy action to meet 2030 targets – have a median annual gross income that is 30% higher than wages in a carbon intensive industry.[i]
	To meet 2030 targets, green space near homes will be expanded to increase biodiversity and sequester carbon – a 10% increase in exposure to green space means that households near these green spaces will have expected health symptoms of someone around 5 years younger.[ii]
	With early action taken in the financial sector, pensions are protected from the effects of climate change, with the fund value 2% higher by 2060 than if there is either no action at all, or if there is a disorderly transition.[iii]
	Due to all homes reaching EPC band C by 2030, households will spend on average £400 less on energy bills a year. [iv]
	Moving to an electric car means that households would spend around £500 less in fuel costs each year, assuming they drive 250km a week. Households would also save around £170 per year in the lower maintenance costs for electric vehicles.[v]
	More homes would be protected from flood risk through increased investment in wetland restoration projects that help to store carbon – per hectare per year, floodplain/wetland restoration provides flood risk management benefits of £407.[vi] To give a current example, the Steart Marshes contribute to the protection of 100,000 homes, with an estimated value of around £5 billion.[vii]
	Improving the efficiency of electronic products through eco-design and energy labelling continues to help UK households save on average £100 per year in energy bills and extend the life of many household products. [viii]

	In the UK, electronic and electrical goods are worth 50% more if they are sold for reuse rather than recycling. However only 23% are suitable for reuse and only 2% are currently reused.[ix]
Business	Government upfront investment in tackling climate change means that businesses are protected from the risk of higher taxes to fund the higher costs that result from delayed action. Research has showed that if the UK Government delayed climate action to 2030, this would translate into an increase in required investment to at least £64 billion a year from 2030.[x]
	Reduced staff absences from illness, driven by improved air quality from more electric vehicles and lower car use in urban centres. [xi] Modelling by CBI Economics found that 3 million working days can be gained per year if we raise air quality to World Health Organisation (WHO) standards.[xii]
	New business links will be unlocked through better rail connectivity as a result of the rail electrification required to reduce emissions from train travel. Railway electrification improves journey times through better braking and acceleration, lower wear of tracks, and higher reliability compared to diesel trains. To give an example, journey times between Sheffield and London are estimated to be 13 minutes less due to ongoing electrification of the Midland main line.[xiii]
	Company pension schemes will be better protected from climate change impacts by an orderly transition to meeting climate targets, with its value 2% higher than in a failed transition or disorderly transition scenario, which leads to reduced costs for the business.[xiv]
	Businesses will be able to tap into greater export potential, particularly in offshore wind goods and services. Vivid Economics estimates that the turnover from green exports could grow from around £5 billion today to £80 billion a year by 2050.[xv]
UK-wide	There could be 17,000 fewer deaths a year from respiratory illnesses if air quality in the UK were brought up to WHO standards by 2030.[xvi]
	Better walking and cycling infrastructure can help to achieve a 2% shift in car miles to active travel, which would overall lead to £2 billion annual co-benefits in 2030.[xvii]
	Building, upgrading and operating the smart energy grid of the future could support 117,000 jobs by 2030, mainly in the North West, Scotland and the South East.[xviii]
	Increasing green and blue habitats to meet climate and nature targets in 2030 can increase property values: living near a publicly available green or blue space (e.g. a park or a lake) leads to an average higher property value of £3000.[xix]
	Expanding the circular economy could create 450,000 new jobs in the UK alone by 2035.[xx]
	Acting now will halve the overall cost of decarbonisation, in comparison to action in a decade's time.[xxi]

	The Bank of England estimates that GDP will be five times lower in 2050 if no action on the climate is taken at all, compared to early action to achieve net zero.[xxii]
	Investment in public transport, such as electric rail and bus services, could create 230,000 jobs in these sectors.[xxiii]
	Analysis by Vivid Economics showed that an investment strategy to deliver net zero – which needs to begin before 2030 – could deliver total benefits of £133 billion, including business growth opportunities, avoided costs of inaction and co-benefits.[xxiv]
	If the UK Government doesn't invest in battery and EV manufacturing then there is a risk that the production of EVs could move out of the UK. Without UK battery manufacturing, car production in the UK would decline and there would be a potential loss of 114,000 existing automotive jobs by 2040.[xxv]
	Overheating in buildings is expected to cause 7000 deaths a year by 2050.[xxvi] Building energy efficiency and the installation of heat pumps can both help to tackle instances of overheating.
	Transitioning to a net zero building stock could increase the current construction sector by around 13%, adding 350,000 additional jobs by 2028, from construction project managers to labourers and building specialists.[xxvii]
	In the right policy environment, a total of £900 billion of insurance and pension investments could be made available for financing green projects across the UK, according to analysis by Boston Consulting Group for the Association of British Insurers.[xxviii]
Local areas	Extending the network of marine protected areas by 30% to restore coastal biodiversity whilst protecting and increasing the carbon stored in coastal ecosystems would yield net gains of £10.5 billion.[xxix] WWF estimates 100,000 full time jobs could be created by a 'marine recovery' composed of investment in restoring coastal habitats, protecting more UK seas, improving UK fishing practices, and developing offshore wind and marine renewable energy.[xxx]
	Protection of the UK's coastal areas would enable communities to benefit from reduced flood risk. Currently, the UK's coastal areas provide £4.5 billion in flood risk management benefits.[xxxi]

1. INTRODUCTION

The imperative to prevent and mitigate against catastrophic climate change is the greatest challenge of our time. Success depends on change in almost every area of our lives. It also requires an unprecedented degree of cooperation by governments, businesses, civil society organisations and citizens – as well as multilateral cooperation by the nations of the world.

COP26 is a vital opportunity to achieve this level of cooperation, and the UK will play an important leadership role in its position as host. To perform this leadership role effectively, the UK will need to be able to point to strong action domestically to reduce emissions. It is therefore right that the UK has committed to its Nationally Determined Contribution of at least a 68% reduction in emissions by 2030 in comparison to 1990 levels. Scotland, Wales and Northern Ireland have adopted their own legislation, targets and strategies to achieve net zero. As powers are increasingly further devolved, it is essential that all nations address the current policy gaps in achieving 2030 emission reduction targets.[xxxii]

It is essential that the transition to net zero delivers tangible improvements to people's lives, as well as tackling climate change. For this reason, we used the following two lenses to choose policies:

- **Fairness** – as well as creating a health crisis, Covid has had a substantial economic impact on communities across the country. Analysis for the Covid Recovery Commission towards the end of last year found that the poorest neighbourhoods in the country were hit hardest by the health and economic consequences of the pandemic.[xxxiii] It would be wrong for the climate transition to add further financial pain to those individuals and communities who have suffered greatly as a result of the Covid crisis, and so real investment is needed to deliver green policies in a fair way. Further, one of the UK Climate Assembly's strongest recommendations was that the transition to net zero must be underpinned by fairness for the most vulnerable, across different UK regions and for those in different types of jobs.[xxxiv] The Scottish transition to net zero is guided by the Just Transition Commission, an independent commission set up to advise the Scottish Government, with the aim to avoid creating these inequalities and instead to maximize the economic and social opportunities that a move to a net zero economy offers.[xxxv] Overall, communities and individuals around the UK need to have equal access to the economic and social opportunities that a move to a net zero economy offers, and lower income and vulnerable groups need financial and non-financial support to ensure the transition does not leave them worse off.
- **Bringing people with us** – success in tackling climate change relies on policy certainty and a long-term political consensus on the importance of tackling climate change. Any long-term consensus is unlikely to be maintained without the broad and consistent support of the public. As a result, policies that tackle climate change need to speak to the priorities of individuals and communities across the country.

In the past, we have seen examples of policies which have been successful in helping the UK to reduce its contribution to global climate change, while also delivering significant and tangible benefits to households themselves. Two case study examples are given below.

Case study 1: Contracts for Difference

Contracts for Difference (CfD) is a successful scheme in the UK that has existed since 2014 to incentivize investment in and development of renewable energy generation. Under a CfD, the UK Government agrees to pay the difference between an agreed price for each MWh of renewable electricity generated ("the strike price") and the reference market price for electricity generated. If it costs more than the reference price to generate renewable electricity then the government pays renewable energy generators the difference: conversely, if it is cheaper to produce renewable electricity than the reference price then renewable energy generators pay the difference back to the Government. Strike prices are decided in a competitive auction where renewable generators bid for government contracts.

CfDs have been an important factor in unleashing renewable deployment in the UK. The scheme has protected renewable energy generators from the risk of volatile wholesale prices and provides assurance of a long-term income that justifies the high upfront investment needed for new renewable generation schemes. The effects of this have been to drive greater innovation in the sector and reduce capital costs for investors. The September 2019 CfD auctions resulted in prices for offshore wind generation that were a third lower than in 2017, and two thirds lower than 2015. Analysis by researchers from Imperial College London predicts that – partly as a result of the CfD policy – offshore wind will be able to operate on a negative subsidy basis in the UK by the mid-2020s, helping reduce bills to consumers.

Source: Gov.UK, Renewables UK, Institute of Mechanical Engineers[xxxvi]

Case study 2: Restoring peatland to improve water quality

The world's peatlands are increasingly being recognised for the ecosystem services that they provide, such as carbon sequestration. In the UK, the peatlands store around 22 times as much carbon as all of its trees.

Peatlands also play an important role in improving water quality while reducing the need for the use of environmentally damaging chemicals and treatments. Tackling peat erosion, which leads to the leakage of high levels of dissolved organic carbon into water sources, reduces the need for future water treatment. For example, Scottish Water identified a large area of exposed peat in the Shetlands during routine survey work. Following this, they worked with local organisations to put in place measures to restore the peat, helping to safeguard drinking water quality for 12,000 customers.

Source: Scottish Water[xxxvii]

2. A POSITIVE VISION FOR 2030

Policies that help to deliver our 2030 climate target can also benefit people by supporting them to have better lives and livelihoods. This literature review categorised and recorded the potential benefits of decarbonisation policies documented in a wide range of literature accessed during the review process. Benefits were split into economic benefits, health and wellbeing benefits, and social benefits. Sub-categories within each of these are recorded in Table 1 below.

The decarbonisation policies suggested in the following sections are based on policies outlined in the Climate Change Committee's (CCC) Sixth Carbon Budget pathways that get us on track to meeting our 2030 climate targets. In some areas, policy was suggested in addition to or instead of policy in the CCC pathways, where there was existing expertise from within the WWF and in previous work by WPI Economics that differed from the CCC's advice.

The policies suggested in the following sections have been highlighted because they are consumer-facing, so therefore will have the most positive impact and visibility for people, communities and businesses out to 2030. They are not intended to be the complete package for getting on track to our 2030 climate target, which would need the comprehensive package of policy, taxation, regulation and incentives that has been outlined by the CCC in their Sixth Carbon Budget scenarios.

We also assume that the cost of these policies is comparable to the estimate of the CCC in their Sixth Carbon Budget pathways: that is, the annualised resource cost of meeting climate targets would rise to about 0.6% of GDP in the early 2030s. How this cost is shared across society is a political question but given the lens through which this literature review was selecting policies to highlight that help to deliver our 2030 target – fairness and bringing people with us – most of the suggested policies aim to avoid regressive impacts on lower income and vulnerable groups and protect individuals and households who lack the ability or resources to realise the benefits of incentive. Again, these are not intended to be a complete package for fairly delivering on our 2030 climate targets: as outlined above, this needs to be a comprehensive package of policy, regulation and taxation.

Finally, this literature review only considers policies that will support the UK to deliver its 2030 emissions targets and their associated benefits.

Table 1: Categories of co-benefits of 'Vision 2030'

Economic	Jobs and earnings
	Lower energy bills
	Lower product costs
	Reduced damage from natural catastrophes
	Fiscal savings
	Better long-term savings

	Higher productivity
	Other economic
Health and wellbeing	Comfort
	Better diet
	Reduced respiratory illnesses
	Warmth
	Improved wellbeing and mental health
Social	Social cohesion
	Better connectivity
	Greater equality

HEAT, BUILDINGS, AND ENERGY

The UK's building stock is a major contributor to climate change – resulting in 18% of the UK's annual emissions according to the CCC.[xxxviii] While there was some success in reducing emissions from this source between 2000 and 2015, progress in more recent years has been slow. In particular, moving buildings away from broad reliance on natural gas for heating has been identified as potentially the greatest challenge of decarbonisation.[xxxix] This is due to a combination of factors, including:

- The sheer scale and cost of the task in terms of the number of properties across the UK that require retrofitting, and the corresponding skills and supply chain challenges
- The relatively under-developed role in the UK currently played by the kinds of technology that will be used to heat homes in the future compared to the pervasiveness of natural gas boilers, and the current favourable taxation policies on gas used for heat over electricity used for heat.
- Any pathway to decarbonising heat set out by the CCC requires a significant increase in the number of homes using electricity as the basis for their heating, and their balanced pathway includes millions of homes taking up heat pumps during the 2020s.[xl] This creates the need to increase deployment of renewable energy generation, as well as to reinforce sections of the distribution network and encourage uptake of Time of Use Tariffs.

While several policy initiatives exist to support energy efficiency retrofits and heat decarbonisation, these need to be dramatically scaled up and built upon to deliver the pace of change necessary. The Scottish Government have introduced a Heat in Buildings Strategy, and we are awaiting a UK Government strategy for England later this year. [xli]

Below are listed some key consumer-facing policies that could help to make a substantial contribution towards the UK meeting its 2030 targets in relation to buildings whilst providing benefits to households. This is based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: we have also provided additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 2: Summary of heat, buildings and energy-related policies

Policy	Sources	Description
Zero rated VAT for repair and restoration of properties, in line with new build, and zero rate VAT for solar installations	Committee on Climate Change, Sixth Carbon Budget,[xlii] Green Alliance,[xliii] Experian,[xliv] Scottish Government[xlv]	This would provide significant and long-term stimulus to the energy efficiency sector, creating up at 100,000 jobs. It would also shift more of this work into the formal economy, potentially increasing income tax and VAT receipts, and cost around £900 million in its first year.
Energy efficiency requirements at point of sale, either driven by regulation or by	Committee on Climate Change, Sixth Carbon Budget,[xlvi]	This would provide a timely incentive for many households to improve the energy efficiency of their homes. Regulations at the point of sale of EPC Band C would be

incentives such as reduced stamp duty liability for home energy efficiency improvements, as measured by an improvement to EPC ratings	UK Green Building Council[xlvii]	bought in at around 2028. Reduced stamp duty liability for home energy efficiency improvements could be revenue-neutral by raising stamp duty on less efficient homes, or else be directed as a subsidy. New homeowners could reclaim stamp duty if they are able to make changes to the property during their first year of moving in.
Reform Energy Performance Certificates (EPCs) and deploy smart technology to support mechanisms (such as green mortgages) for financing energy efficient retrofit	Committee on Climate Change, Sixth Carbon Budget,[xlviii] Knauf,[xlix]	This would replace the modelled approach used in the SAP for the current EPC with one based on the actual use of energy by buildings, supported by smart technology. More reliable methods of predicting the financial savings of the installation of measures can then underpin financial products or service contracts which cover the upfront cost in exchange for an agreement to share the savings in relation to ongoing energy bills.
Shift energy policy costs onto general taxation, and introduce a carbon tax	Committee on Climate Change, Sixth Carbon Budget,[l] Public First[li]	Combined with improved energy efficiency of 2% a year, this combined change would save the mean household £300 a year in bills by 2030.
Ensure that the grid is sufficiently smart, flexible and resilient to integrate the necessary levels of renewable generation	Committee on Climate Change, Sixth Carbon Budget,[lii] Covid Recovery Commission [liii]	Analysis for Hitachi ABB Power Grids found that investing in key upgrades to the distribution network could support 34,000 jobs, with the potential for this to support 147,000 jobs in the wider system.
Governance and regulation measures to support heat pump rollout and protect consumers	Committee on Climate Change, Sixth Carbon Budget,[liv] E3G [lv]	This would create a coordinating body for heat pump rollout made up of industry, Government and independent experts to focus on delivery, including in terms of skills. Furthermore, it would create a consumer redress and protection body which can support consumers who are unhappy with heat pump installation.
Capital grants for heat pump installation	Committee on Climate Change, Sixth Carbon Budget, [lvi] E3G[lvii]	This should prioritise low income households and will have the potential to be funded by carbon revenues, while transitioning to a market-led approach.

If these policies are put in place, as well as getting the building sector on track to decarbonising in time for our 2030 climate goals, it also creates significant benefits which can be maximised with the right policy framework. These include:

Green jobs – retrofitting buildings is highly labour-intensive, and is one of the largest areas of job creation for an economy transitioning to net zero.

- The additional workers required to achieve a net zero building stock could increase the current construction sector by around 13%, adding 350,000 to total employment in 2028, in roles ranging from construction project managers to labourers and building specialists.[lviii]
- Zero rating VAT for repair and renovation of buildings alone could create around 100,000 jobs according to previous work in this space,[lix]
- Beyond the implementation of retrofit programmes, it is estimated that around 100,000 additional jobs in local areas can be created to 2030 in local retail and services through increased consumer spending stimulated by energy bill savings.[lx]

Lower bills

- Energy efficiency can significantly reduce bills for households. If all homes reached EPC band C by 2030, household energy expenditure would reduce by £7.5 billion per year compared to today's prices (around £400 per home). This would help to target fuel-poor households, reducing north-south and rural-urban disparities in living costs.[lxi]
- Furthermore, reducing reliance on natural gas can means that consumers are protected from fluctuating fossil fuel process. Analysis by the think tank Ember found that the current gas price spike could add up to £29 billion to bills next year.[lxii]

Health and wellbeing [lxiii]

- Improving fuel poverty and cold living conditions could prevent 10,000 excess winter deaths, in turn saving the NHS between £1.4 to £2 billion annually.[lxiv]
- Warm homes have been found to contribute to reductions in the incidence of cardiovascular disease, cardiopulmonary disease, lung cancer and childhood asthmas, and improved mental health and wellbeing.[lxv] In contrast, it has been found that cold homes cause negative effects on mental health in adults, including worry about debt and affordability and consequences of cold and damp for health.[lxvi]
- Homes retrofitted for a zero-carbon future would also be designed to provide superior air quality through improved ventilation and filtration techniques.[lxvii] Improved indoor air quality could reduce risk of heart disease, stroke and respiratory conditions such as asthma.[lxviii]
- Improved ventilation can also help to reduce the risk of buildings overheating, which can cause acute demand for health and social care services. For example, the number of heat related deaths in the UK is expected to rise from 2,000 to 7,000 each year by 2050.[lxix]

Economic benefits

- According to Cambridge Econometrics, wind farms could save Britain up to £7.4bn in natural gas imports in 2030, the fuel currently used to heat 85% of the UK's homes.[lxx]

As outlined above, we assume the costs of decarbonising the residential buildings sector in the UK are in line with the estimates of the CCC in their Sixth Carbon Budget, analysis for which suggests investment costs of £71 billion to 2035.[lxxi] Although investing in our built environment to tackle climate change has a price tag, the consequences of not acting soon- or not acting at all- will be greater than the investment required now. The longer it takes to

implement action, the greater the economic, environmental and social impacts will be in the built environment:

- Infrastructure sectors are connected, meaning that vulnerabilities on one network will cause problems for another. For example, power cuts caused by extreme weather can affect the ability to provide health and social care in hospitals and disruption to transport will impact emergency vehicle efficiency.[lxxii]
- The CCC have estimated that the costs of installing a package of passive cooling measures at the beginning of the new build stage is £2,300 for a small semi-detached house. This compares to £9,200 to retrofit the same building.[lxxiii]

TRANSPORT

Transport is now the largest sector contributing to UK emissions according to the CCC. Emissions from surface transport in the UK have barely fallen since 1990 whilst emissions from international aviation have doubled. The majority of transport emissions come from cars, taxis and light vans.[lxxiv]

The UK Government's decision to ban the sale of new petrol and diesel vehicles from 2030 will be key in cutting emissions from private vehicle use. The ban is supported by the Welsh and Scottish Governments, with the Scottish Government seeking to ban petrol and diesel cars by 2032. The pace of electric vehicle (EV) use will have to accelerate in the period to 2030 as demonstrated in Figure 1.

Figure 1: Proportion of mileage by powertrain among all new vehicles sold in each year, in CCC Balanced net zero pathway

	2020	2022	2024	2026	2028	2030	2032
Fossil fuel vehicles	92%	77%	52%	27%	18%	2%	0%
Plug in Hybrid EVs	3%	10%	17%	17%	8%	<1%	0%
Battery EVs	5%	12%	31%	56%	74%	97%	100%

Source: Climate Change Committee[lxxv]

According to modelling by the Office for Budget Responsibility and CCC, costs of electric vehicles should reduce significantly over time, delivering substantial savings to households and the economy as a whole.[lxxvi] The cost of lithium batteries has fallen 97% in three decades[lxxvii] and Bloomberg New Energy Finance (BNEF) showed that battery pack prices of less than $100 per kWh have been reported for the first time, which is at a lower cost than the level needed for EVs to achieve price parity with comparable internal combustion engine cars. BNEF predicts that average price packs will be below $101/kWh by 2023.[lxxviii] Furthermore, while not a panacea, electric vehicles can play a major contribution towards improving some types of air quality as they do not emit NOx pollution or most of the particulates caused by Internal Combustion Engines.[lxxix]

However, even with a very ambitious shift towards electrified private transport, meeting the UK's 2030 climate targets also requires a modal shift towards public transport.[lxxx]

The UK Government has made some positive steps in this regard towards investing in local bus, cycling and walking infrastructure, recently announcing £5 billion for improved and lower carbon bus services and more high-quality cycling infrastructure in England.[lxxxi] Similarly, the Scottish Government has committed to reducing car miles by 20% by 2030 and has invested £500 million in bus infrastructure as well as £500 million in cycling and walking. Scotland also aims to have completely decarbonised railways by 2030.[lxxxii] Finally, the Welsh Government has also committed to ensuring 35% of journeys are made by public transport, walking and cycling by 2030.[lxxxiii] We assume for the sake of this literature review that this level of investment for buses, walking and cycling continues out to 2030 to continue to encourage people to use public and active transport.

Despite these positive developments for public and active transport, the Public Accounts Committee (PAC) has highlighted the shortcomings in the UK Government's plans to electrify rail. Rail electrification would reduce journey times for members of the public through better braking and accelerating and better reliability than diesel trains and is a crucial enabler for decarbonising rail.

Below are listed some key consumer-facing policies that could help to make a substantial contribution towards the UK meeting its 2030 targets in relation to transport sector whilst benefiting communities and businesses. This is based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: we have also provided additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 3: Summary of transport-related policies

Policy	Sources	Description
Continued financial incentives for EV purchases, for example, upfront-grants, time-limited VAT rebate for purchase of Electric Vehicles, fuel duty exemptions	Committee on Climate Change, Sixth Carbon Budget,[lxxxiv] WPI Economics[lxxxv]	Financial incentives for EV purchases need to continue as long as purchase costs of EVs remain higher than for fossil fuel cars and vans. These can take the form of upfront grants, lower vehicle excise duty (VED), preferential company car tax and fuel duty exemptions. Polling carried by ComRes in a WPI Economics report for Client Earth found that a VAT rebate would be a more attractive incentive to purchase a new electric car than the existing system of grants. Given the falling cost of EVs, this rebate could be restricted to 2 years.
Zero Emissions Vehicle (ZEV) mandate	Committee on Climate Change Sixth Carbon Budget,[lxxxvi] Green Alliance,[lxxxvii] UK Government Transport	A mandate for companies to manufacture an increasing proportion of their cars as ZEVs. For every ZEV they sell, a manufacturer earns a credit which they can then sell to manufacturer that is less advanced in scaling up their ZEV manufacturing capacity.

	decarbonisation plan[lxxxviii]	
New road tax	Policy Exchange [lxxxix]	Over the long term – a new road tax could be introduced which would replace both Vehicle Excise Duty and fuel duty, varied by the weight and the harmful emissions of the vehicle and multiplied by the annual mileage of the vehicle. Functionally, this would operate based on data collected by insurers. This new tax would be needed to replace the fiscal gap created by a shift to electric vehicles.
Net Zero Rail Plan	Committee on Climate Change, Sixth Carbon Budget; [xc] Transport Decarbonisation Plan[xci]	A detailed long-term plan for rail electrification is required in order to build and retain the skills and capabilities needed to carry out this work, as the current piecemeal approach is causing 'boom and bust' issues in the supply chain.[xcii] It is important that the 'sustained programme' discussed in the Transport Decarbonisation Plan delivers this.[xciii]

If these policies are put in place, as well as getting the transport sector on track to decarbonising in time for our 2030 climate goals, it also creates significant benefits which can be maximised with the right policy framework. These include:

Reducing the financial burden on the NHS through improved air quality and increased active travel:

- Shifting 2% of car miles towards walking and cycling will have an annual co-benefit of over £2 billion in 2030 by reducing levels of obesity-related diseases.[xciv]
- Furthermore, improving air quality by cutting private car use could help to reduce the number of early deaths caused by air pollution levels in the UK by 17,000 a year.[xcv]
- Improved air quality could reduce the burden on the NHS, and result in overall savings of approximately £14 billion.[xcvi]

Improved access and employment:

- Almost half (46%) of low-income households are likely to benefit from better public transport as they don't have access to a car.[xcvii]
- Cambridge Econometrics and Element Energy also find that by bringing forward the ban on sales of new polluting cars from 2035 to 2030, the Government has ensured that an additional 32,000 new jobs will be created in 2030. These jobs would be created across the sectors directly linked to the rapid transition to electric vehicles, including energy battery manufacturing and mass roll out of charging infrastructure.[xcviii]
- Investment in public transport, such as electric rail and bus services, could create 230,000 jobs in these sectors.[xcix]

Reduced costs of driving:

- There are savings to be made by consumers for switching to EVs. Owners of petrol and diesel cars driving 250km a week currently pay £17 for their fuel. Driving the same distance in an electric vehicle could cost around £6, saving the driver £500 each year.[c]
- Reducing congestion and accidents on the roads in line with increasing public and active transport has a monetizable co-benefit of £8.2 billion in 2030.[ci]

BUILDING A GREEN ECONOMY

Transitioning to net zero will touch on every part of our economy. Our consumer spending patterns, where our financial institutions invest, what we trade with the rest of the world, where we have manufacturing and innovation strength, and the sectors that make up the UK's workforce will all be shaped by the movement to a low carbon economy. Taking advantage of the opportunities afforded by this transition early could help the UK to able to become a world leader in a range of green sectors. Not shifting to a green economy or shifting to one late risks stranded assets, in which infrastructure and workforces associated with higher carbon industries become obsolete as the rest of the world decarbonises.

In order to drive forward both new green industries and the 'greening' of our existing industries, a number of changes to broader economic policy can help deliver this transition. Below are listed key policies that could help to make a substantial contribution towards the UK meeting its 2030 targets in relation to overarching economic strategy and will, over the longer term, benefit UK business and communities. This is mostly based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: in one case we have included additional WWF policy that has not been yet recommended by the CCC because we believe there is strong evidence it would be a key part in helping to deliver our climate goals to 2030. We have also provided additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 4: Summary of green economy-related policies

Policy	Sources	Description
A Net Zero Test for HM Treasury	WWF[cii]	While a methodology exists for assessing the greenhouse gas emissions impact of individual policies, there is no clear framework for ensuring that fiscal packages, such as Budgets and Spending Reviews, are net zero compliant. HMT should introduce a Net Zero Test to assess the emissions impact of each Budget and Spending Review and ensure it aligns with a credible pathway to net zero.
Strong net zero mandate for the UK Infrastructure Bank	Committee on Climate Change, Sixth Carbon Budget[ciii], E3G[civ]	The new bank should be a mission-driven institution which has an explicit mandate to deliver net zero, and focus on 'future fit' investments where it can crowd in private capital.
More R&D on green innovation	Committee on Climate Change,	Within the UK Government's plan to increase public R&D spending to £22 billion

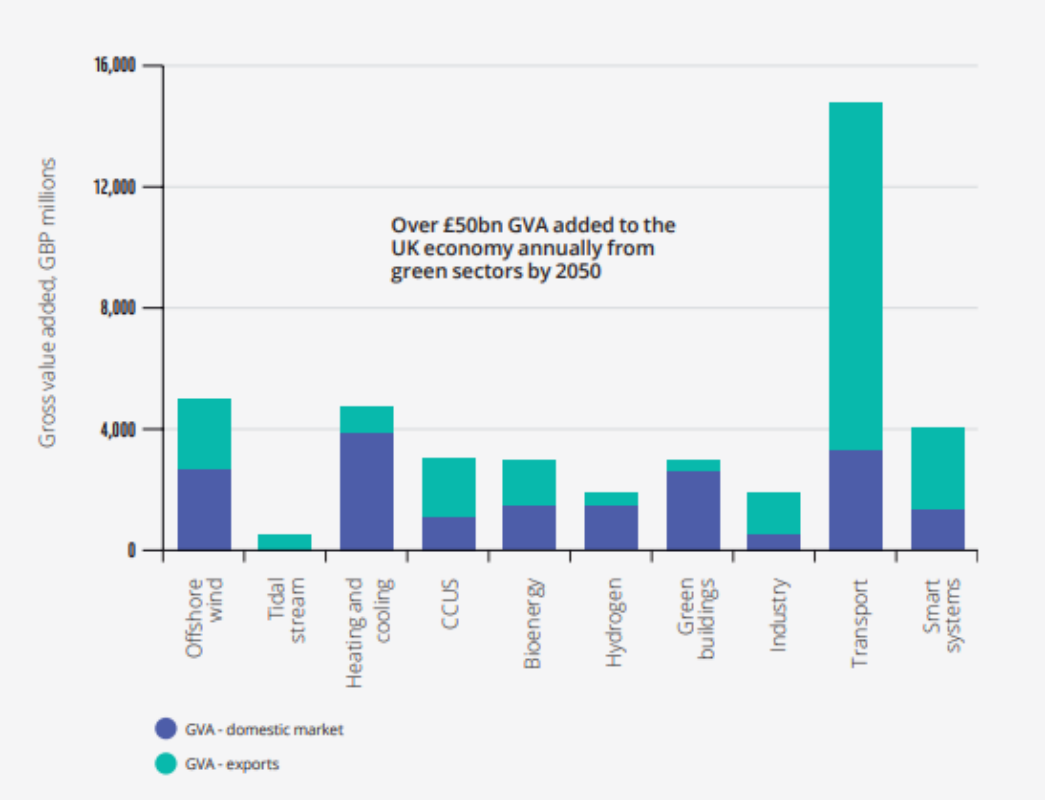
	Sixth Carbon Budget[cv], Covid Recovery Commission[cvi], House of Lords Science and Technology Committee.[cvii]	a year by 2025, there should be a conscious targeting of innovation in key areas of green technology. One way in which this could be achieved is by expanding the resources available to the Catapults.
Greening jobs and skills through investment in skills and support for retraining and reskilling for existing workers	Committee on Climate Change, Sixth Carbon Budget[cviii], Onward[cix]	The UK Government could aid in the greening of industries and jobs by investing in skills (including the learning of science, technology, engineering and maths (STEM) subjects in education) and in vesting in reskilling and retraining for existing workers in high carbon industries. Onward suggested this could be through introducing a 'green human capital tax credit' to support employer investment in upskilling and retraining, and more closely tailor policies such as the lifetime skills guarantee to delivering net zero.

If these policies are put in place, as well as getting the economy on track to decarbonising in time for our 2030 climate goals, it also creates significant benefits which can be maximised with the right policy framework. This includes:

Export potential:

- There are a range of green sectors in which the UK has a comparative advantage. The WWF *Keeping us Competitive* report identifies the potential to unlock sizeable business opportunities from a net zero transition, given the UK competitiveness in low-carbon technologies. Green exports, for example, could grow from £5 billion to £80 billion per annum by 2050. This is expected to support around 200,000 export-orientated jobs by 2050.[cx]

Figure 2: Green sectors in the UK, exports and productivity



Source: WWF Keeping us Competitive[cxi]

Higher wages all around the UK

- There is evidence to suggest that these productivity benefits can feed through into higher wages for workers in the UK. According to research by Onward, net zero jobs have a median annual gross income that is 18% higher than the national average wage, and 30% higher than jobs in current carbon-intensive industries. Furthermore, these jobs are predominantly in currently lower wage and lower GVA areas such as Yorkshire and the Humber and the North East.[cxii]

Big employment creation potential

- Potentially around **350,000 new jobs** in retrofit in order to produce the net zero building stock between now and 2028, according to analysis by CITB.[cxiii]
- At least **16,050 jobs in nature restoration for the 20% of constituencies** likely to face the most significant employment challenges post-pandemic.[cxiv]
- Building, upgrading and operating the smart grid of the future could support **117,000 jobs** by 2030 mainly in the North West, Scotland and the South East.[cxv]
- WWF estimates **100,000 full time jobs** could be created by a 'marine recovery' composed of investment in restoring coastal habitats, protecting more UK seas, improving UK fishing practices, and developing offshore wind and marine renewable energy.[cxvi]
- Investment in public transport, such as electric rail and bus services, could create **230,000 jobs** in these sectors, according to figures from the Institute for Public Policy Research. [cxvii]

- With the right policy framework, there could be **17,000 jobs** in floating offshore wind, a substantial proportion of which could be for those formerly in the oil and gas industry.[cxviii]

If the UK does not move to quickly capture the opportunities of a transition to net zero- or if it does not do so in an orderly way- it is at risk from a number of economic threats. These include:

- OBR estimate that delaying action to tackle carbon emissions by a decade will double the overall cost of achieving net zero.[cxix] Furthermore, the Bank of England estimates that GDP will be five times lower in 2050 if no action on climate is taken at all, compared to early action on achieving net zero. Late action on mitigating climate change would also mean that GDP is three times lower than an early action scenario.[cxx]
- A disorderly transition would increase the risk of a fall in labour force participation. For example, 1.5 million jobs in the UK could be lost if employment from carbon-intensive sectors is not absorbed by non-carbon intensive sectors.[cxxi]
- A disorderly transition will cause disruption to the financial market and in particular will cause risk appetite to diminish.[cxxii]
- The OBR estimates that if temperatures were to rise by around 4°C by the end of the century, this could cause UK public debt to reach 289% of GDP. Climate change shocks would be expected to add to the existing long-term societal pressures and spending demands and recovery from shocks would be slower.[cxxiii]

FINANCE

The climate crisis poses significant risks to the financial system, which in turn can have a substantial impact on the wider economy, company balance sheets, and the savings of the wider public. Risks to the financial system arising from climate change can be grouped into two sources:

- **Physical risks** – additional heat, rising sea levels, and increased frequency of natural disasters as a result of climate change can harm investments in assets in certain parts of the world.
- **Transition risks** – High-carbon assets can become 'stranded' during the net zero transition, impacting the balance sheets of investors who do not diversify away from them and companies who hold them.

In order to minimise financial risks arising from climate change, it is vital that two things are achieved – (a) there is a successful transition towards a net zero economy by 2050 and (b) this is an orderly transition based on early action by institutional investors to engage in stewardship of companies which steers them towards environmental goals, with divestment from these firms held as a last resort, so as to prevent a stranded assets crisis.

In order to drive forward a net zero transition in the finance sector, a number of key policies that could help to make a substantial contribution towards the UK meeting its 2030 targets, whilst benefiting pension-holders, are listed below. This is mostly based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: we have also provided

additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 5: Summary of the finance-related policies necessary to meet 2030 targets

Policy	Sources	Description
Financial institutions have mandatory transition plans in place (and are delivering them) that align with Net Zero and the 1.5C Paris Agreement goal	Committee on Climate Change Sixth Carbon Budget[cxxiv], WWF[cxxv]	The UK should fully integrate climate risk and Net Zero into financial regulation and monetary policy. Net Zero targets should be made mandatory for financial institutions. WWF have further proposed that all companies listed on the London Stock Exchange (LSE) have mandatory transition plans in place (and are delivering them) that align with Net Zero and the 1.5C Paris Agreement goal and deliver nature positive goals. They also suggest that financial institutions should adopt the Sustainable Blue Economy Finance Principles to bring clarity and consent on sustainability in ocean financing. This would build on recent work by the UK Government to mandate the rollout of the Taskforce on Climate Related Financial Disclosures requirements to all institutional investors and companies between now and 2025.[cxxvi]

If these policies are put in place, as well as getting the economy on track to decarbonising in time for our 2030 climate goals, it also creates significant benefits which can be maximised with the right policy framework. This includes:

Higher value and more secure pensions:

- The Institute and Faculty of Actuaries (IFOA) have modelled the impact of an orderly transition pathway on an example Defined Benefit pension fund and found that – relative to a modelled pathway that took no account of climate change – this pathway protected the value of the fund best in comparison to either a disorderly transition or failed transition (see chart below).[cxxvii] Furthermore, these benefits would be realised within the model by 2030.

Figure 3: Modelling impact of Paris transition pathways on a pension fund

Quantified Risk Return Impact for Total Fund Value						
Investment portfolio	Aggregate Impact (ratios to climate-uniformed baseline)					
	2020 - 2024	2025 – 2029	2030 – 2039	2040 – 2049	2050 – 2059	**2020 – 2059**
	Median	Median	Median	Median	Median	**Median**

Paris orderly transition pathway	-3%	0%	0%	0%	-1%	**-4%**
Paris disorderly transition pathway	-4%	-2%	0%	0%	-1%	**-6%**
Failed Transition pathway	0%	-5%	-3%	3%	0%	**-6%**

Source: IFOA[cxxviii]

Higher investment from private companies in the green transition

- A stronger commitment to an orderly climate pathway can also support greater investment in delivering emissions reductions by private finance. The Association of British Insurers (ABI) stated that its members could invest £0.9trn in climate transition opportunities between 2021 and 2035, including by investing in vital network infrastructure, given the right policy and market framework.[cxxix]

AGRICULTURE, FOOD AND LAND USE

Agriculture, combined with the impacts of imported feed, accounts for around 12% of total UK greenhouse gas emissions.[cxxx] Pressure on land for intensive agricultural use contributes to deforestation, excessive water use, pollution and biodiversity loss. UK farmers are at the forefront of initiatives to address many of these issues. Supportive agricultural policy can encourage widespread adoption of low carbon practices and technologies.

At the individual level, even small changes can make a big difference – Livewell dietary analysis indicates that making relatively modest changes to existing diets, such as cutting animal protein intake by 30% and replacing it with plant protein, could cut greenhouse emissions related to UK food consumption by 30% by 2030.[cxxxi] Government policy should encourage these small changes at the individual level.

In order to drive forward a net zero transition in the farming sector, a number of key policies that could help to make a substantial contribution towards the UK meeting its 2030 targets whilst benefiting communities and businesses in the UK are listed below. This is mostly based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: we have also provided additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 6: Summary of land and agricultural related policies

Policy	Source	Description
Regulations that reduce emissions from methane and NOx	Committee on Climate Change,[cxxxii] Vivid[cxxxiii]	Introduce direct policies for fertiliser use, manure storage and manure application by extending existing regulatory requirements as per the Nitrate Vulnerable Zones and the Clean Air Strategy; ensure that the Clean Air Strategy includes measures that reduce methane emissions.
Major new support for nature-based solutions, including the planting of more trees	Committee on Climate Change,[cxxxiv] WPI Economics	Bring forward major investment in nature-based solutions – including restoring urban green infrastructure.[cxxxv] This must help to scale up afforestation by increasing the extent of woodland in the UK by 30,000 hectares per year to 2030, with the right trees in the right place so as not to disrupt habitats and biodiversity.
Investment to restore and regulation to protect the UK's peatland	Committee on Climate Change[cxxxvi],[cxxxvii] WWF[cxxxviii]	Introduce regulation to ensure that peat soils are not left bare (reducing the vulnerability to further damage by weather and improving carbon storage). Peat related policies should also consider introducing legislation to ban any rotational burning of all upland peat sites. Restore and sustainably manage 70% of the UK's two million hectares of peatland by 2030 (increasing to 95% by 2035).
New target to reduce food waste by 50% by 2030	Committee on Climate Change[cxxxix], WWF[cxl]	Reduce the creation of food waste by setting a national target for food waste reduction from farm to fork by 50% by 2030 (at a retail, consumer level and at farm level). This will require measures to 'nudge' consumers towards best practice and mandating of separate food waste collection.
Reduce meat and dairy consumption by making plant-based foods accessible and attractive to choose and cook	Committee on Climate Change[cxli], National Food Strategy[cxlii]	Reduce consumption of meat and dairy and increase proportion of plant-based foods in average diet, through an evidence-based strategy that establishes which measures will successfully change behaviour, encompassing information provision, skills support, and encouraging greater accountability of business through clear and robust metrics and mandatory reporting. This might include investing in alternative proteins that could replace some animal products; and strengthening government procurement rules to ensure that taxpayer money is spent on healthy, local and sustainably sourced food: the UK public sector spends about £2.4bn a year on catering. [cxliii]

Ensure the new agricultural subsidy regime incentivises sustainable farming and protection, restoration and creation of UK habitats	Committee on Climate Change, [cxliv]National Food Strategy, [cxlv] WWF[cxlvi]	Guarantee the budget for agricultural payments until at least 2029 to help farmers transition to more sustainable land use that provides 'public goods'. This will keep payments at their current level of £2.4bn. Payments should aim to incentivise an ambitious transition to more sustainable farming practices and widescale protection, restoration and creation of habitats around the UK. They should also be used to develop and support alternative systems for producing animal feed

As well as domestic policy, it is important that UK supply chains for food productions are not supporting global deforestation or other land use change. An implementation gap remains between pledges on deforestation and conversion-free supply chains and tangible progress to reduce risky supply chains. Government could reduce this gap by introducing national legislation to eliminate deforestation.[cxlvii]

Oceans, marine and coast
Just as with land and agriculture, transforming current practices in fishing and marine habitats brings social and economic opportunities. Blue habitats (including but not limited to seagrass meadows, salt marshes, seaweed, marine and coastal areas) act as crucial reservoirs for long term carbon storage and offer numerous benefits that are essential for adaption including protection from flooding during storm surges and reducing rates of coastal erosion. WWF estimates that 100,000 full time jobs (mostly in renewable energy) could be created in marine activities designed to restore coastal areas and ecosystems in the sea.[cxlviii]

Bringing forward long-term investment in restoration should form part of a dedicated coastal conservation effort that will ensure that this type of natural capital plays a continued role as a carbon sink. Furthermore, a fully protected network of marine protected areas (MPA) covering a third of our seas (up from a quarter at present) could deliver net gains estimated at £10.5 billion and support up to 12,000 jobs in the tourism and recreation sector.[cxlix] A UK Climate Smart Fisheries Strategy would also be beneficial in setting out practical measures to decarbonise the shipping fleet and reduce potential damage to carbon stores in sea floor sediments that could be disturbed during trawling.[cl]

If the policies listed in above are put in place, as well as getting the farming and land use sector on track to decarbonising in time for our 2030 climate goals, it will also create significant benefits which can be maximised with the right policy framework. This includes:

New jobs in nature-based solutions:

- Modelling by WPI Economics found that an expanded programme of nature restoration had the potential to create 16,050 jobs in the 20% of constituencies likely to face the most significant employment challenges post Covid. These could be delivered in the short term if Government investment in these schemes is brought forward.[cli]

Food and diets:

- Plant-based diets have shown to reduce risk of heart disease, strokes, type 2 diabetes, lower blood pressure, reduce blood cholesterol and promote a healthy body weight.[clii]

  WWF estimates that a 50% reduction in red meat consumption in 2030 will have a monetized co-benefit of £8 billion from improved physical health, thereby reducing the strain on the NHS.[cliii]

Habitat restoration, protection and creation:

- The total value of benefits of investment in peatland restoration over a period of 100 years in terms of carbon sequestration and recreation are £20,801 per hectare, according to analysis by RSPB and Cambridge Econometrics.[cliv] Comparing these quantified benefits with the associated costs of restoring peatlands shows that for every £1 spent, £4.62 can be expected to be returned in economic and social benefits. The same report found that the total value of benefits of afforestation in the UK are £75,656/ha, with a cost benefit analysis of 2.79, meaning every £1 spent, £2.79 is returned in social and economic benefits from carbon sequestration, recreation and air pollution removal.
- UK soil contains about 10 billion tonnes of carbon, roughly equal to 80 years of annual greenhouse gas emissions. Intensive agriculture has already caused arable soils to lose 40 to 60% of their organic carbon. Soil degradation was calculated in 2010 to cost £1.2 billion every year.[clv] Reversing soil degradation and restoring fertility by 2030 is key to meeting 2030 climate targets.
- 20,000 new hectares of planting per year would generate around 5,000 jobs by 2030. The monetised co-benefits of woodland creation could add £10 million in benefits from air filtration, recreational value, improved physical health and flood management.[clvi]

Adaptation benefits from better protected and restored coastal and river habitats:

- The UK's coastal habitats are estimated to provide £4.5 billion on flood risk management benefits.[clvii]
- The Steart Marshes, which are managed by the Wetlands and Wildfowl Trust, contributes to the protection of 100,000 homes and businesses from flooding across the Severn Estuary, with an estimated value of £5 billion.[clviii]
- The Central Scotland Green Network is a national development which coordinates a range of public bodies and agencies in the restoration of natural environment in Central Scotland. An analysis of its benefits in 2016 suggested that it will result in a reduction in flood damage of £1.2 billion by 2050.[clix]

Health and social benefits from better agricultural and land use policy:

- In 2018, 28.1 million tonnes of carbon were sequestered and 1.3 million tonnes of other air pollutants were removed by nature in the UK.[clx]
- Increasing green and blue spaces in line with 2030 climate targets can increase the value of nearby properties. Living near publicly available green or blue spaces added £3,146 to the average property price in 2018.[clxi]
- Between 2007 and 2012 the total household food waste in the UK decreased by 15%. Households saved £6.5 billion. An additional £86 million was saved through avoided food waste disposal costs.[clxii] Reducing food waste in line with 2030 targets will increase these savings further.

- Increasing green and blue spaces in line with 2030 climate targets can improve health. A study in the Netherlands showed that every 10% increase in exposure to green space led to a reduction in the number of health symptoms experienced which was equivalent to being 5 years younger.[clxiii] Other studies also indicate that living within 5km of the coast has been associated with better mental health and that the UK economy could make £176m of health care savings per year from water-based recreation alone.[clxiv]
- Several systematic reviews have found that greater exposure to greenspace has positive mental wellbeing outcomes, including emotional wellbeing, reduced stress, improved resilience and a higher health related quality of life. Furthermore, the benefits are greatest for socioeconomically disadvantaged groups.[clxv] For example, the 20% of constituencies with the greatest labour market challenges contain 27% of the population that live in neighbourhoods that have a green deficit (i.e. people have low quality access to green space).[clxvi]

CIRCULAR ECONOMY

Worldwide, resources are being used at a rate that far outstrips the Earth's capacity to supply them. Moving to a circular economy, in which resources are used efficiently and kept in use as long as possible and waste is minimised, could have significant benefits by reducing pressure on the environment, improving the security and supply chains of raw materials and improving the value for money in creating more durable products. So far there has been little progress on the UK Government's 2018 *Resources and Waste Strategy* which seeks to put England on track to becoming a more resource-efficient nation. The UN has suggested that a sustainable level of overall resource consumption is between six and eight tonnes per person per year. At the moment the UK consumes twice that (14.7 tonnes).[clxvii]

WWF has previously called for a reduction in the UK's material footprint by 40% by 2030, which would bring the UK's domestic consumption in line with its proportional share of global sustainable material extraction and consumption[clxviii]. Green Alliance has called for an overall resource consumption target to be put in place and complemented by legally binding interim goals.[clxix]

To achieve these sorts of resource targets, a number of key consumer-facing policies that could help to make a substantial contribution towards the UK meeting its 2030 targets are listed below. This is mostly based on policies set out in the Committee on Climate Change's Sixth Carbon Budget pathway: we have also provided additional sources that support and develop these policy ideas further and in some cases model what the health, economic and social benefits would be.

Table 7: Summary of circular economy-related policies

Policy	Source	Description
Better standards for the things we buy so they last longer, can be repaired and are made with the	Committee on Climate Change,[clxx] Green Alliance,[clxxi] WWF[clxxii]	Ensure continuous improvement to the standards of all major consumer goods to ensure goods are made with the maximum recycled content and minimum critical material content, and are made to be repairable, durable and upgradeable.

minimum virgin materials		
Ban on biodegradable waste going to landfill	Committee on Climate Change,[clxxiii] WWF[clxxiv]	Ban biodegradable waste streams to landfill from 2025 (paper/card, food waste, garden waste, waste wood and textiles) across municipal and non-municipal waste collections. This would require consumers to separate food and garden waste for separate local collection.
Target higher recycling rates	Committee on Climate Change, WWF[clxxv]	The CCC recommends that England should achieve a 68% household recycling rate by 2030 , and Scotland and Wales should go beyond their current targets of a 70% recycling target by 2025. WWF has called for greater ambition on recycling rates of 75% for packaging by 2030 and eliminate 43% of plastic waste.

If the policies listed in Table 7 above are put in place, as well as getting the waste and resources sector on track to decarbonising in time for our 2030 climate goals, it will also help to create significant benefits which can be maximised with the right policy framework. This includes:

Addressing consumer needs:

- Products are more valuable if they can be re-formed or re-used in another way. Over time, products can be tailored to consumer needs, adjusting design and building in more longevity. Higher-quality goods can also save the average UK household at least £100 on their annual energy bills. [clxxvi]
- It could become lucrative to sell second-hand items. In the UK, electronic and electrical goods are worth 50% more if they are sold for reuse rather than recycling. However only 23% are suitable for reuse and only 2% are currently reused.[clxxvii]
- Qualitative research for the UK's Department for Environment Food and Rural Affairs shows that consumers are "annoyed" when devices don't last as long as expected, and they found that getting devices repaired was "too difficult". [clxxviii]
- There are benefits to be made to the wider economy that can in turn benefit the consumer. For example, re-using critical raw materials such as cobalt, lithium and certain minerals in a secondary market can reduce the need to import and the exposure of UK manufacturers to supply disruptions and delays.[clxxix]

Boosting employment:

- Expanding the circular economy could create 450,000 new jobs in the UK alone by 2035.[clxxx] Specifically, there could be 8.20 jobs in reuse and remanufacture per thousand tonnes of product and 5.10 jobs in recycling per thousand tonnes of material.[clxxxi] This could mean opportunities being created more evenly across the UK. For example, engineers at a biorefining plant in the North East, repairers and remanufacturers of machinery in the West Midlands and more recycling operatives, administrative jobs and purchasing managers required elsewhere.[clxxxii]

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