A GREEN RECOVERY

HOW WE GET THERE

GREENPEACE

'Nations will begin to emerge from lockdown and look to fire up their economies once again. When that happens it will be the duty of every responsible government to... rebuild in a way that will stand the test of time. That means investing in industries and infrastructure that can turn the tide on climate change. And it means doing all we can to boost resilience by shaping economies that can withstand everything nature throws at us.'

Boris Johnson, UK Prime Minister, April 2020 [1]

'Not only does climate action remain critical over the next decade, but investments in climate-resilient infrastructure and the transition to a lower-carbon future can drive significant near-term job creation while increasing economic and environmental resiliency. And with near-zero interest rates for the foreseeable future, there is no better time than the present for such investments.'

Pinner, Rogers and Samandari, Senior Partners, McKinsey, April 2020 [2]

1 https://www.bmu.de/en/topics/climate-energy/climate/international-climate-policy/petersberg-climate-dialogue/
2 https://www.mckinsey.com/business-functions/sustainability/our-insights/addressing-climate-change-in-a-post-pandemic-world

Introduction

The Covid-19 crisis has created challenges to our daily lives, communities and the global economy on a scale that would have been unimaginable only a few months ago. The deliberate and necessary government shutdowns of the world's major economies have also sparked a potentially disastrous global recession that will require a response on an unprecedented scale.

At the same time, the climate and nature emergencies have not gone away and are quietly getting worse. The current path towards at least 3°C of global heating threatens millions, if not billions of people's lives, homes, jobs and communities – especially those who are the least to blame for our predicament. Given that the global climate crisis threatens to be 'far lengthier and far more disruptive than what we currently see with the coronavirus',[3] it is a threat that the world cannot afford to ignore, either now or when it emerges from the pandemic and starts to reconstruct the global economy.

To stand the best chance of averting the potentially devastating impacts of both climate catastrophe and global recession, the UK government must put at the top of its agenda creating jobs, attracting private investment and boosting demand through an economy-wide recovery package. This needs to be compatible with delivering net zero greenhouse gas emissions before 2045. In the words of the UN Secretary General, we need to 'recover better'.[4] In practice there is no conflict between economy and environment. As a recent study by Oxford University Smith School said, 'there is strong evidence that green stimulus policies are economically advantageous when compared with traditional fiscal stimuli'.[5]

Done right, many of the investments and policy levers that will be key to tackling the climate and nature emergencies while driving economic recovery will also help to level up communities across the UK, stimulate local economies and improve public health and wellbeing. Better-insulated homes will be warmer and cut energy bills, as well as reducing emissions. Cleaner air will decrease the economic cost of

3 https://www.mckinsey.com/business-functions/sustainability/our-insights/addressing-climate-change-in-a-post-pandemic-world
4 https://news.un.org/en/story/2020/03/1059752
5 https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-01.pdf

air pollution and help save lives. Improved public transport will ease congestion. Better urban design and increased investment in broadband will minimise commuting time. A sustainable food and farming system will improve people's diets, boosting physical and mental health.

Moreover, such policies are likely to receive widespread public support. A large majority of UK adults think the climate change crisis is as serious as that of coronavirus.[6] This is not confined to traditional liberal voices - younger Leave voters support UK action on greenhouse gas emissions reduction targets the same as or stronger than those in the EU.[7]

As a member of the G7 and host of COP26, the next global climate change conference, the UK has a unique opportunity to lead the world in the green recovery and demonstrate how climate-proofed infrastructure and high environmental standards can lead to greater prosperity and wellbeing for all. The UK also has a once-in-a-generation chance to lay out and champion on the world stage a vision for new and innovative forms of international cooperation and funding – between individual countries and via multilateral institutions – to ensure that the path out of the Covid and climate crises in all countries is sustainable, equitable and resilient.[8]

Britain has been the birthplace of some of the world's greatest innovations and feats of engineering, and can boast cutting-edge entrepreneurship. Building on our world-leading offshore wind industry, our legal commitment to net zero emissions and our successful coal phaseout, an ambitious green recovery programme can inspire and pioneer a modern revolution that changes the way the world works in a way that benefits everyone. A bold UK green recovery programme would help boost global zero carbon markets, making the transition more accessible for all. It would put Global Britain – Britain as a force for good in the world – firmly into practice.

6 https://www.bbc.co.uk/news/science-environment-52488134

7 https://www.unchecked.uk/research/attitudes-of-younger-leave-voters-regulation-deregulation/

8 See the Glasgow Action Plan, backed by over 60 climate and development groups, outlining the action the UK government must take nationally and internationally to lead on the world stage in advance of COP26 https://static1.squarespace.com/static/58b40fe1be65940c-c4889d33/t/5e5fb6d2fb61a745961d95e4/1583331080712/TCC+and+Bonds+Glasgow+Action+Plan+04%2F03%2F20. When it comes to international support for the coronavirus recovery specifically, the UN Conference on Trade and Development has urged the establishment of a $2.5 trillion emergency fund, which it hopes will help countries to continue their progress towards the UN Sustainable Development Goals.

Overview

1

The Green Recovery

Government measures to revive the economy should build on the UK's existing industrial strengths and skills base, generate employment and offer significant multiplier effects while being mindful of the long term shape of the economy. They should also unlock private investment, level up 'left behind' regions, and deliver a wide range of co-benefits such as improved public health. They should also align with the Paris Agreement targets and delivery of net zero emissions.

Four priority areas for UK government action that would meet these requirements are:

Redesigning the transport system

Making UK buildings fit for the 21st century

Delivering a clean power system

Supporting nature & creating a circular economy

Below we set out the specific policy, spending and tax measures that need to be delivered in unison for each of these areas to maximise the economic, social and environmental benefits of the post-Covid response.

All four of these priority areas should be viewed as intertwined, with successful action in one area being dependent on actions happening in the others. Our future homes not only need to be highly insulated to be warmer, more efficient and cheaper to run, but they must also support the clean power transition by having solar panels on the roof and using power for renewable heating. Our future electric transport system will be as dependent on an upgraded, smart and flexible grid as it will be on offshore wind and solar generation; and in return, more electric vehicles (EVs) will help provide extra storage capacity for renewable energy. Transitioning our power generation to renewables will give us clean electricity that can not only

power our homes, offices and industries, but also be used to produce green hydrogen that will keep our power system running when there is no sun or wind and will help tougher-to-reform sectors such as shipping and steel clean up their footprints. All relevant government departments should therefore work together on these priorities in a coordinated way, and they should be approached together as a whole – with a just transition to a fair and sustainable future as the guiding principle.

Unless otherwise specified, all recommendations below are applicable UK-wide, with responsibility for delivery sitting with the Westminster government or devolved nations as appropriate.

Levelling Up

In the wake of the Covid crisis, hundreds of thousands of people across the UK could lose their jobs as a result of the necessary restrictions on economic activity and the shrinking of many sectors. At the same time, a successful green recovery will create a huge number of new skilled jobs across the country in a range of emerging and expanding low carbon industries. These new jobs could help secure the long term economic security of thousands of households, while boosting GDP, increasing private investment and tackling the climate emergency. However, many of those at risk of unemployment at present are in sectors that require few formal qualifications and offer little in-work training. Therefore a proactive approach is needed now, with support for significant reskilling and training in order to help the workforce transition, to increase incomes and to boost productivity.

As part of this, devolved nations, city mayors and local authorities should be empowered to design and deliver just transition strategies that fit with specific local and regional needs. They should be given extra powers and resources to work with unions, trade associations and business groups such as the Confederation of British Industry to aid skills development, retraining and local investment – especially in places where many people are employed in carbon-intensive industries or their support industries. For example, while a faster transition to EVs through a phaseout of new petrol and diesel cars and vans by 2030 could deliver employment growth to the auto industry compared to a later date, 11% of current jobs in the sector are specific and non-transferable. A specialist programme of retraining and reskilling in EV assembly and manufacture will be required to address this issue.[9] Similarly, growing numbers of skilled workers from the oil and gas sector are already being reemployed in sustainable industries – for example, over a third of the offshore wind industry's marine engineers used to work in oil and gas.[10] However, significant specialist retraining and re-skilling of oil and gas sector workers with less transferable skills will now be required at pace, especially in the wake of the oil price crash and thousands of associated job losses

9 https://www.wwf.org.uk/updates/wwf-2018-electric-vehicles-report
10 https://www.telegraph.co.uk/business/2016/09/11/former-north-sea-oil-workers-are-finding-a-second-wind-in-renewa/

that are now forecasted.[11] Over the next three years, as a starting point, the proposed Shared Prosperity Fund of £2.16 billion per year should be at least doubled to support tailored just transition programmes of this kind.[12]

The government should also explore delivering a new green jobs and training guarantee programme, as recently proposed by the Social Market Foundation.[13] This would ensure that those who cannot otherwise find employment after the lockdown get a job and are paid at least the national living wage. 20% of the working week could be spent on training and education, with a particular emphasis on placements that help fill the low carbon skills gap in key areas such as home insulation, as identified by the Committee on Climate Change last year.[14]

11 https://www.ft.com/content/d9ae865b-fe55-4727-a935-589c0fe27976
12 Reference on the Shared Prosperity Fund: https://commonslibrary.parliament.uk/research-briefings/cbp-8527/. This ask is supported by 8 environmental and development groups: https://www.greenpeace.org.uk/wp-content/uploads/2019/08/Government-Investment-for-a-greener-and-fairer-economy-FINAL-30.08.19.pdf
13 http://www.smf.co.uk/smf-media-release-guarantee-green-jobs-for-coronavirus-unemployed/
14 https://www.theccc.org.uk/2019/02/21/uk-homes-unfit-for-the-challenges-of-climate-change-ccc-says/

Recovery Packages

2

Clean Transport

Policy Priorities

1 ***Speed up the transition to electric vehicles,*** creating thousands of new jobs and increasing export opportunities, building on the UK's expertise in lightweighting, battery management and transmission systems. The Department for Transport (DfT) should commit to banning the sale of new petrol and diesel cars and vans by 2030, increase public procurement of electric vehicles, and mandate local authority leadership in rolling out charging infrastructure. The government should collaborate with vehicle manufacturers, unions and local authorities to deliver a production facility for vehicle battery manufacture.

2 ***Expand, electrify and increase the affordability of public transport,*** to enhance connections outside of the South East, increase access to employment opportunities and ease congestion. The Treasury should significantly increase investment in buses and trains, while clawing back the vast majority of the £133 billion currently allocated for road building and HS2. The DfT should realign government policies to enable a major modal shift away from private vehicle use, including providing free public transport as far as possible, starting off with free bus travel, and setting minimum standards of public transport provision.

3 ***Fundamentally redesign urban transport*** to prioritise walking and cycling, improving public health and delivering clean air. The Treasury should increase funding for walking and cycling infrastructure to at least £6 billion over the next five years. Funding should be raised further via a bold new DfT Cycling and Walking Investment Strategy, with an aim to increase spending on walking and cycling to levels seen in the Netherlands.

'I must be the first transport secretary in history who celebrates the idea that there are fewer cars on the road.'

Grant Shapps, UK Transport Secretary, April 2020 [15]

The transport sectors of walking and cycling, vehicle electrification and public transport are prime candidates for measures to stimulate a green recovery – through infrastructure construction, new vehicle production lines, and the scaling up of public transport capacity. They thus provide opportunities both for immediate projects to get the economy moving, and for innovation and development of new industries, which will stimulate private investment and create longer-term skilled employment.

At the same time, the UK's lockdown has given us cause to reflect on the impact of transport on our quality of life and the potential to reimagine a transport system that works for people's health, wellbeing, the economy and the climate. Nitrogen dioxide air pollution levels have dropped by 60% in some cities compared with the same period last year[16], while we have become painfully aware of new evidence showing that air pollution is associated with higher death rates in people with Covid-19.[17] Calmer, less congested roads have created more space for walking and cycling, giving a flavour of what a redesigned transport network might look like.

In response to the pandemic, authorities in cities such as Milan, Paris and London have already begun to imagine their cities differently. Milan has announced that 22 miles of streets will be transformed over the summer, with a rapid, experimental citywide expansion of cycling and walking space[18], and the deputy mayor has said 'we have to reimagine Milan'.

15 https://www.forbes.com/sites/carltonreid/2020/04/21/legal-bid-launched-to-stop-uk-governments-27-billion-road-building-plans/#739bacbf1609
16 https://www.bbc.co.uk/news/uk-england-52202974
17 https://www.theguardian.com/environment/2020/apr/07/air-pollution-linked-to-far-higher-covid-19-death-rates-study-finds
18 https://www.theguardian.com/world/2020/apr/21/milan-seeks-to-prevent-post-crisis-return-of-traffic-pollution

Paris is designating 400 miles of cycleways to support safe, socially distanced travel,[19] bringing forward an existing plan to make every street cycle-friendly by 2024. London, too, will be closing large areas to cars and vans to increase space for people to walk and cycle safely.[20] Similar progress could be achieved in other towns and cities across the UK by a combination of proactive short term action by local leaders, reallocation of powers at the local level to deliver active travel solutions in an integrated way, and a shift in the criteria for central government and devolved nation capital allocation away from roads and towards active travel.

Meanwhile, the essential role of public transport in reliably meeting the travel needs of tireless key workers has been highlighted. Yet the relative cost of public transport compared with car travel has increased progressively since 2010.[21]

This reset moment has come at a critical time for the sector, which already faced major challenges that needed to be addressed. Prior to the coronavirus crisis, the transport sector was responsible for the largest share of carbon emissions across the economy – and its contribution was rising. It was also the main cause of 98% of the UK's air pollution hotspots.[22] At the same time, the UK's car industry was already being pushed to rethink its approach and head towards electrification before the pandemic, with consumers starting to shift their purchases away from diesel vehicles in particular, in recognition of their public health costs.[23] This trend means that the need to control emissions and pollution can be aligned with Covid recovery opportunities, because private investment to support the transition to EVs was already becoming necessary even before the pandemic struck.

Rather than responding to the crisis by rolling back fuel efficiency and air pollution standards in order to protect petrol and diesel vehicle production,

19 https://www.forbes.com/sites/carltonreid/2020/04/22/paris-to-create-650-kilometers-of-pop-up-corona-cycleways-for-post-lock-down-travel/#2a988bbc54d4

20 https://www.theguardian.com/uk-news/2020/may/15/large-areas-of-london-to-be-made-car-free-as-lockdown-eased

21 https://www.racfoundation.org/data/cost-of-transport-index

22 https://greenallianceblog.org.uk/2019/12/19/dear-boris-please-give-us-clean-transport/

23 Already, before Covid-19 struck, as CNN put it "established carmakers around the world [were] ripping up their business models in the hope of adapting to a new world in which electricity replaces gasoline and diesel". https://edition.cnn.com/interactive/2019/08/business/electric-cars-audi-volkswagen-tesla/

as some in the industry have tried to argue, a more economically and environmentally resilient route would be to step up vehicle electrification across the UK.[24] Indeed, this is the only viable future for volume vehicle production. If the UK industry is to remain vibrant, it will need to accelerate this process in order to grab a larger share of the global market, while receiving some tailored government support to protect workers who are particularly exposed in the short term. Despite increasingly competitive battery prices, driving ranges and charging infrastructure technologies, government support for EVs is particularly critical at the moment, given an anticipated drop in overall vehicle sales as a result of the global lockdown.[25]

A firm target and accompanying policies and regulations to ensure that all new cars and vans are electric by 2030 would not only provide around 30% of the emissions reductions needed to keep the UK on track towards its net zero target,[26] but would also provide a significant boost to the UK economy. It would attract major private-sector investment, putting the UK in a position to make up to 1 million EVs per year.[27] The advantage conferred on the UK by being the first major nation to move should deliver employment growth compared to a scenario where the country moves at the speed of the average country. Furthermore, EV roll-out across the UK would support a smart and flexible power grid. National Grid envisages vehicle batteries supporting grid resilience at times of shortage, a mechanism that could at a conservative estimate deliver 10GW of capacity,[28] equivalent to roughly a fifth of current peak winter demand.

Although electrifying our vehicle fleet is essential, even electric vehicles produce particulate pollution and contribute to congestion, raising business costs. Reducing traffic levels overall is therefore a desirable objective. Coronavirus has also reinforced the reality that the car is no longer king when it comes to the UK's overall transport needs. Transport experts are already projecting a lasting fall in overall traffic levels after the crisis, as

24 https://www.theguardian.com/business/2020/mar/27/carmakers-accused-of-using-covid-19-weaken-environmental-laws
25 https://www.greentechmedia.com/articles/read/electric-vehicle-sales-set-to-crash-in-2020-as-coronavirus-bites-and-oil-stays-cheap
26 https://www.green-alliance.org.uk/acting_on_net_zero_now.php
27 https://www.wwf.org.uk/updates/wwf-2018-electric-vehicles-report
28 http://fes.nationalgrid.com/media/1409/fes-2019.pdf

people adjust to new remote working technologies and companies recognise the potential for greater flexibility to increase efficiency. These factors call into question some of the government's existing transport infrastructure commitments – particularly the £27 billion road building programme scheduled for the next five years.[29] The AA and the government's climate change adviser recently concluded that public money would be better spent elsewhere.[30] Other experts have also called into question the value for money of the £106 billion HS2 project.[31]

The Prime Minister has set out that investment in infrastructure will be key to his vision of making the UK the 'cleanest, greenest' country on Earth.[32] Areas in which investment is required across the country include public transport and walking and cycling to support the objective of reducing overall traffic levels, while boosting access to job opportunities and improving public health. These forms of transport are also vital for maximising the impact of the post-Covid recovery package, as good public transport connections have been linked to increased wages and productivity.[33] It is especially important for people who may face unemployment as a result of the coronavirus crisis, people on lower incomes, and those who live in rural areas, for whom getting to work or to job interviews is currently much more challenging and the costs of private vehicle ownership may be too great. Comprehensive, reliable, sustainable and affordable public transport options for all are a foundation for levelling up communities across the country and promoting widespread economic prosperity as we emerge from the inevitable post-coronavirus recession.

Finally, extensive walking and cycling infrastructure is also critical for public health and wellbeing. At present, physical inactivity costs the UK £7.4 billion per year and is responsible for one in six deaths.[34] Road space in urban areas should therefore be preferentially allocated away from private

29 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/872252/road-investment-strategy-2-2020-2025.pdf
30 https://www.bbc.co.uk/news/science-environment-52371140
31 https://www.ft.com/content/307e3606-3ab7-11ea-a01a-bae547046735
32 https://www.energylivenews.com/2019/12/13/boris-johnson-pledges-to-make-britain-cleanest-greenest-country-on-earth/
33 https://www.centreforcities.org/reader/delivering-change-making-transport-work-for-cities/transport-essential-growth-cities/
34 https://www.gov.uk/government/publications/physical-activity-applying-all-our-health/physical-activity-applying-all-our-health

motor vehicles and towards the lowest-energy types of transport, and those which are healthiest – prioritising walking and cycling, including e-bikes and e-scooters. As the Transport Secretary Grant Shapps recently acknowledged, 'public transport and active travel will be the natural first choice for our daily activities'.[35] For these reasons, government infrastructure investment in these areas must begin immediately.

35 https://www.bbc.co.uk/news/science-environment-52064509

Policy Measures

- Require minimum standards for public transport service delivery – for example, ensuring that every town has at least an hourly regular bus service, operating seven days a week along major roads and to nearby villages.

- Deliver a national bus strategy, setting out a clear plan to ensure that all new buses are zero-emission from 2025.

- Allow local authorities, passenger transport executives and city mayors to regulate bus services in major urban areas sufficiently to allow coordination, stability, delivery of an effective network, and single ticketing (such as the London Oystercard) as appropriate if fare charging is maintained.

- Reallocate local powers to city mayors in England so that plans for strategic transport infrastructure can be integrated across cities.

- All UK mayors and local and regional authorities should rapidly redesign roads to create more space for walking, cycling and micro mobility. Wider pavements, protected cycle tracks and measures to tackle rat-running traffic can be introduced straight away, and can then be transitioned into permanent infrastructure over the long term, once additional resources from national government have been provided.

- Local authorities and mayors in all major urban areas should create networks of low-traffic neighbourhoods, or 'Mini-Hollands',[36] learning from the successful example of the Walthamstow scheme.[37] This involves significantly restricting through traffic in residential and shopping streets by means of bus gates, bollards and planters, and

36 https://londonlivingstreets.com/low-traffic-liveable-neighbourhoods/
37 https://londonlivingstreets.com/2019/07/11/evaporating-traffic-impact-of-low-traffic-neighbourhoods-on-main-roads/

creating area-wide networks of direct walking and cycling routes for all ages and abilities, including sufficient cycle storage throughout towns and cities. Pedestrians and cyclists should also be given priority along main roads by widening pavements, introducing cycle lanes, removing car parking spaces and introducing more seating, trees and planters.

- Adjust speed limits in urban areas to 20mph by default, with 30mph being allowed only as an exception along main roads where segregated cycling lanes are in place.

- Update legislation by 2021 to support safe use on roads of micro mobility options such as e-scooters.

- Ban the sale of new cars and vans with petrol and diesel engines by 2030.

- Ban the sale of new fossil-fuelled Heavy Goods Vehicles (HGVs) by 2040 and the sale of HGVs requiring on-board diesel-powered cooling by 2025. Require compulsory CO2 emissions cuts of at least 40% for new diesel-powered off-road machinery and construction equipment by 2030.

- Require distribution network operators and local authorities to identify suitable electric vehicle charging sites where grid costs will be low, while enabling local authorities to recoup costs as necessary.

- Require all new commercial and public developments with parking to have a minimum of 30% of spaces with charging points. All existing public parking facilities (including local authority and commercially operated public car parks, as well as those serving supermarkets, shopping centres and other commercial developments) must also be required to provide at least 10% of spaces with charging points by 2022. These are initial targets that may need adjustment depending on how the car market develops.

Investment & Spending

- Rapidly increase funding in England to at least £6 billion over the next five years, in order to get on track to reach the existing target of doubling cycling and increasing walking by 2025.[38]

- Building on this increased local capacity, publish a bold new Cycling and Walking Investment Strategy for England with increased ambition, seeking to raise investment further to around £2 billion per year, in order to roll out permanent walking and cycling infrastructure on levels equivalent to countries such as the Netherlands, where active travel levels are higher.[39] The government's recent announcement of a £250 million emergency active travel fund, as the first stage of a £2 billion investment in walking and cycling, is a good step forward.[40] However, it is only a third of the minimum required over the next five years, so it needs to be supplemented.

- Provide funding for a loan scheme to support the purchase of electric bikes, to help those who are less able to travel to work using conventional bicycles.

- As far as possible, make public transport free of charge, starting off with bus travel and prioritising those on the lowest incomes. In England the current cost of making all bus travel free of charge would be £3 billion per year. This is a significant amount, but it is less than the £5 billion raised annually in France by the business payroll levy which directly supports local public transport services.[41] If business taxes are not felt to be the right choice at this time, redirecting cash from the £106 billion HS2 project, which would deliver far less in terms of everyday connectivity, would be an option.

38 https://www.cyclinguk.org/article/chancellors-budget-fails-get-cycling-done
39 Transport for Quality of Life, 2019, Segregated cycleways and e-bikes, Friends of the Earth https://policy.friendsoftheearth.uk/insight/segregated-cycleways-and-e-bikes-future-urban-travel
40 https://www.gov.uk/government/news/2-billion-package-to-create-new-era-for-cycling-and-walking
41 https://policy.friendsoftheearth.uk/sites/files/policy/documents/2019-02/free-buses-under-30s.pdf

- Make significant extra funding available to support the expansion of local and regional bus networks, in line with the minimum standards for public transport service delivery outlined above. This funding will be needed (in addition to the £3 billion per year to make bus travel free) to assist with the costs of driver salaries, fuel, infrastructure and new bus purchases.

- Provide funding of at least £184 million per year to switch buses and coaches across the UK to zero-emission power.[42] The UK has a significant technological lead in this sector, with at least two companies at the cutting edge.[43]

- Provide sufficient annual funding to expand and electrify the UK's railways, particularly in regions beyond the South East. This should include confirming and building on the £500 million pledged during the election to reverse Beeching closures, and the amounts pledged in the March 2020 Budget (£4.2 billion for city region transport settlements; £1 billion through the Transforming Cities Fund; and £20 million for a Midlands Rail Hub).

- Ensure that the full budget of £530 million recommended by the Committee on Climate Change (comprising a combination of both public and private funding) is available for development of the public charging network to 2030.

42 The £184 million per year is an estimate based on the following calculation, although inevitably approximate. Details of a grant from the government to Transport for London show that the additional cost of purchasing a new electric bus, over and above the cost of a conventional diesel one, is currently about £55,000: https://www.mayorwatch.co.uk/government-awards-london7m-for-new-electric-buses/. Extrapolating this to the 35,000 buses in England, 2,458 buses and coaches in Wales, 12,000 in Scotland and 1,383 in Northern Ireland implies that approximately £2.8 billion of extra funds would be needed to replace the entire bus fleet with electric buses as they reached the end of their service lives (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/774565/annual-bus-statistics-year-ending-mar-2018.pdf, https://gov.wales/sites/default/files/statistics-and-research/2019-03/public-service-vehicles-buses-and-taxis-april-2017-to-march-2018_0.pdf, https://www.transport.gov.scot/media/33814/sct01171871341.pdf table 1.29 and https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-transport-statistics-2017-2018.pdf p8). The average age of a bus is 7.6 years (see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/666759/annual-bus-statistics-year-ending-march-2017.pdf), so an assumed lifetime of 7.6 x 2 = 15.2 years means that the total replacement cost would average £2.8 billion/15.2 = £184 million per year. There are clear air quality reasons for wanting to front-load this cost and target support towards areas of problematic air quality in the first instance, so the £184 million per year amount should be seen as an absolute minimum required over the next three to five years. This cost should decline over time as the price of electric buses falls. Note that this calculation makes no allowance for fuel savings or, conversely, for costs of charging infrastructure. Both numbers will be significant but are very difficult to calculate because of variable local circumstances.

43 Wright Bus https://www.fleetpoint.org/hydrogen-vehicles/hydrogen-buses/vision-to-bring-3000-hydrogen-buses-to-the-streets-of-the-uk-announced/ and Arrival https://arrival.com/

- Ensure that there is no unnecessary delay in the spending of the £500 million announced in the March 2020 Budget for the roll-out of a fast charging network along key transit routes over the next five years.

- Maintain the plug-in car grant which gives money off the purchase of a new EV, as announced in the March 2020 Budget.

- Set purchasing guidelines for local authorities that 90% of their new cars should be electric by 2025, and 90% of their new vans should be electric by 2027.

- Require all new cars entering the Whitehall ministerial fleet to be electric by 2022.

- Work with vehicle manufacturers, unions, devolved nations and local authorities to encourage investment in a UK vehicle battery production facility.

- Cancel the vast majority of projects in the Road Investment Strategy 2 in England, with the guiding principle that public money should only be spent on genuinely improving road safety or on maintenance, not on increasing overall road network capacity. This would free up most of the £27 billion allocated for the next five years, to be redirected towards public transport, active travel and broadband investment.[44]

- Cancel the £106 billion HS2 project, as it no longer delivers value for money or aligns with the UK's priority travel needs in a post-coronavirus world.

44 A diverse range of groups from academics to architects to the AA agree with this proposal: https://www.bbc.co.uk/news/science-environment-52137968

Tax Options

- Make the most of the low oil price to unfreeze and gradually increase fuel duty over the next decade – the freezing of this tax has cost the Treasury £46 billion between 2011 and 2017[45] – with short term exemptions for those in rural areas where public transport is non-existent or less available. Monies raised should be allocated to bodies whose remit is to fund measures to increase public transport use and active travel.

- Mandate a workplace parking levy in town and city centres, generating cash for upgrades to cycling, walking and public transport facilities.

- Increase Vehicle Excise Duty[46] for high-emitting cars and vans by £300 per year, every year, with a sliding scale of lower duty levels for lower-emitting vehicles.

- Maintain the exemption of zero-emission cars and vans from Vehicle Excise Duty, as announced in the March 2020 Budget.

45 https://greenerjourneys.com/wp-content/uploads/2018/06/the-unintended-consequences-of-freezing-fuel-duty-june-2018.pdf

46 Vehicle Excise Duty is an annual tax on most vehicles (certain specific classes such as electric vehicles, emergency vehicles and vehicles used by disabled people are exempt). It is levied, broadly speaking, according to the vehicle's emissions (cars registered after 1 March 2001, with a higher rate in the first year and vehicles registered after 1 April 2017 paying a flat rate thereafter, though their first-year rate is higher than that for older vehicles), engine capacity (motorcycles and older cars and vans) or weight (heavy goods vehicles), or at a flat rate (most vans). See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873006/V149-Rates-of-vehicle-tax-from-1-april-2020-for-cars-motorcycles-light-goods-vehicles-and-private-light-goods-vehicles.pdf, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770275/v149x1-rates-of-vehicle-tax.pdf, https://www.autocar.co.uk/car-news/advice/car-tax-what-you-need-know-about-vehicle-excise-duty and https://www.parkers.co.uk/vans-pickups/advice/van-pickup-tax-guide/

Green Buildings

Policy Priorities

1 ***Kick-start a nationwide home and public sector energy efficiency programme,*** starting with fuel poor households and social housing, alongside providing clarity on how able-to-pay homeowners will be required to meet efficiency standards. This will unlock billions in private investment, create thousands of skilled jobs across the UK and help end fuel poverty. The Treasury should confirm and add to existing manifesto spending commitments on energy efficiency and low carbon heating, and establish incentive structures to encourage more private-sector investment – especially by able-to-pay households.

2 ***Require all new buildings to support a net zero emissions future,*** increasing export opportunities through the UK's specialism in green building design and architecture, and saving owners of new homes hundreds of pounds on annual energy bills. The Ministry of Housing, Communities and Local Government Future Homes Standard should introduce regulations requiring the performance of all new buildings to be equivalent to Passivhaus standard by 2023, including compulsory installation of solar panels. All new buildings should be required to reach net zero energy for all uses by 2030.

3 ***Establish and sufficiently fund a new Warm Homes Agency*** to provide market confidence and encourage private investment by supporting, enforcing and guaranteeing the delivery of targets and regulations for building efficiency and low carbon heating. The Treasury should provide sufficient funding to enable the Agency to fulfil all of its functions effectively.

'[We need to] set a different course towards a higher skilled, higher waged, higher productivity recovery... [One option is] replacing the 25 million gas boilers, which we need to replace in the next 10 years or so anyway if we have any chance of meeting our carbon targets... [the project is] quite labour intensive, skill intensive, and... dispersed around the country.'

Sir John Gieve, Former Deputy Governor for Financial Stability of the Bank of England, April 2020 [47]

Covid-19 has brought to wide attention the precarious standard of living of the UK's low-income households, despite many playing a critical role in helping to keep the country functioning. One of the challenges for low-income households is the cost of heating and powering their homes. It is a particularly acute issue in the UK because the country has the least energy-efficient housing stock in Western Europe,[48] with one in eight people – one of the highest proportions in Europe – living with burdensome housing costs.[49] Poor housing quality, to which low energy efficiency is a major contributor, is known to contribute to poor health. The cost to the NHS of health conditions made worse by poor housing is estimated to be between £1.4 and £2.0 billion per year in England alone, with the cost of productivity loss (including consequent lost education and employment opportunities) potentially as high as £18.6 billion.[50] Broad coalitions of civil society, business groups (including the Confederation of British Industry) and government advisors (including the UK's National Infrastructure Commission[51]) have called for a step-up in energy efficiency action on UK housing stock because of the social and economic benefits it brings by reducing expenditure on heating.[52] This not only addresses fuel poverty but also frees up money to be spent in other sectors, as well as improving

47 https://www.bbc.co.uk/sounds/play/m000hfqn
48 https://www.e3g.org/news/media-room/17000-people-in-the-uk-died-last-winter-due-to-cold-housing
49 https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics#Housing_affordability
50 https://www.bre.co.uk/news/New-BRE-Trust-report-shows-poor-quality-homes-in-England-cost-the-NHS-14bn-per-year-and-wider-society-186bn-1161.html
51 https://www.nic.org.uk/news/mps-highlight-need-for-swift-action-to-boost-energy-efficiency-of-uk-homes-and-workplaces/
52 https://www.theeeig.co.uk/facts/

public health. Moreover, building energy efficiency has long been recognised as a key feature of ensuring energy system resilience, helping to reduce energy imports and vulnerability to disruption,[53] and making housing better adapted to a future of hotter summers. Increased action in this area would also go a significant way towards addressing the climate emergency, given that homes are currently responsible for 19% of the UK's emissions.[54]

In addition to its significant public health, energy security and climate-related benefits, government support for improving the UK's building stock is a very attractive option as part of an economic recovery package. For housing, the government has an energy efficiency target for all homes to reach Energy Performance Certificate (EPC) C or above by 2035. There are strong arguments that the target needs to be more ambitious, but to begin with the top priority must be to get moving on measures that will actually start the process of delivery. At present, only around 30% of UK homes meet the EPC C standard, leaving around 19 million homes to upgrade over the next 15 years – equivalent to around 1.3 million homes per year.[55] The first years of the programme are estimated to require the creation of an additional 220,000 jobs across the UK.[56] Moreover, it has been estimated that the Treasury would receive £1.27 in tax revenue for every £1 invested.[57]

The housing upgrade programme will require jobs to be created in all regions of the UK – the work cannot be done remotely or from overseas call centres. This means that investment in the programme makes perfect sense for a country recovering from an economic shock. Immediate job creation can be supported for builders, joiners, plasterers and roofers who may be facing unemployment as a result of the oncoming recession. This can be supported through prioritising retrofitting of social housing, where it is easier to coordinate 'shovel ready' programmes of works across multiple flats and houses at the same time, aided by local authority oversight.

53 http://www.ukerc.ac.uk/publications/building-a-resilient-uk-energy-system-working-paper.html
54 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/875485/2019_UK_greenhouse_gas_emissions_provisional_figures_statistical_release.pdf
55 https://www.green-alliance.org.uk/reinventing_retrofit.php
56 https://parityprojects.com/net-zero-housing-workforce/
57 http://www.energybillrevolution.org/media/big-boost-in-energy-efficiency-investment-to-save-uk-households-4-95-billion-a-year/

Beyond addressing the short term unemployment gap, there is a wider skills gap across the sector that needs to be filled through a large-scale programme of retraining and reskilling, delivered by empowered and properly funded local authorities, in collaboration with local businesses and skilled experts. Additional private investment in skills can be encouraged by clarity about the framework that the government will adopt to ensure that its EPC C efficiency target will be delivered for homes beyond social housing and those of low-income households. This will require a major intervention in the UK's buildings market, which to date has failed to drive the necessary private investment to deliver essential improvements in energy efficiency. To make the policy framework for the able-to-pay housing sector effective, a new approach to delivery is needed – for example, through the establishment of a Warm Homes Agency, staffed by people with specialist skills and experience on the ground in the housing sector. The Agency (or equivalent) could learn from previous experiences where there was a struggle to deliver value for money or to encourage homeowners to retrofit at scale. It could work with local authorities, private developers, builders, landlords and householders to map out necessary retrofitting solutions appropriate to the local area; manage or support local skills development programmes; and oversee and guarantee the quality of delivery against government standards through regular inspections and enforcement. This approach could also support greater innovation, and the Agency could play an active role in sharing learning between areas.

Alongside the improvement of the existing housing stock, within the next few years new buildings should be built to a standard that will enable net zero energy consumption for all uses. This will stimulate private investment and act as a catalyst for the development of more innovative and effective approaches to design and construction – both of which will be in global demand, especially for commercial buildings, as we move to net zero emissions across the world. Contrary to the claims of big housebuilders, the additional costs of implementing such standards are relatively low. The estimated cost of implementing a zero carbon homes standard (a slightly lower standard than net zero energy) is below £5,000 for a semi-detached

house, and under £3,000 for a flat.[58] This can often be reflected in a drop in the value of land for residential development. This is because house prices are determined by what the population can pay, and land prices vary according to what housebuilders can afford. Thus a mandatory zero carbon standard could end up reducing land prices, and not necessarily increase house purchase prices, provided that the right protections are in place for consumers.[59]

When it comes to decarbonising the UK's heating systems, the government needs to lay the groundwork now. Providing policy clarity will immediately unlock more private investment, enabling projects to be 'shovel ready' within the next few years. Known solutions must be scaled up (heat pumps for buildings not connected to the gas grid, district heating), promising technologies must be trialled at scale (large-scale heat pump roll-out, hydrogen/hybrid systems), and research and development work on new alternatives must be increased. Large-scale trials across a range of geographical regions can also serve as an immediate stimulus, getting construction activity going in those areas and on the chosen technologies as soon as possible.

58 http://www.zerocarbonhub.org/sites/default/files/resources/reports/Cost_Analysis-Meeting_the_Zero_Carbon_Standard.pdf
59 https://blogs.lse.ac.uk/politicsandpolicy/how-to-bring-down-house-prices-in-london/

Policy Measures

- Set out a clear plan for how homes in the private rented sector and homes of owner-occupiers who are not on low incomes will be obliged to meet the government's goal of all homes reaching EPC Band C by 2035 or sooner. This will stimulate innovation, boost skills development and unlock private investment in the expansion of the retrofitting and low carbon homes market.

- Ensure that the plan includes an upgrade to the statutory targets for energy efficiency of homes in the private rented sector from the current level of EPC Band E by 2030, to EPC Band C by the same date. The plan should also require a strengthening of building standard regulations for owner-occupiers in England and Wales in line with those in Scotland, requiring that by 2024 at least 10% of costs going towards major upgrades to improve homes (over and above basic maintenance) must be directed towards energy efficiency measures to meet EPC Band C (if not already met). There will need to be further measures to support upgrading of existing homes, drawing from innovation across many parts of the UK.

- Introduce regulations to ensure that all new homes and commercial buildings are built to a standard equivalent to Passivhaus by 2023, including compulsory installation of solar panels, while ending the installation of fossil-fuel heating. Further regulation should require all new buildings to be net zero energy for all uses by 2030.

- Require all new homes with off-road parking to have a smart electric charging point (ie one that is able to adjust charging times depending on supply pressures/surplus) and ensure that all home charging units are smart as soon as possible.

- Introduce mandatory whole-life carbon assessments for all new building developments from 2025, with a view to minimising use of materials with a high carbon footprint. This should provide demand-side stimulus

for the growth of low-emission manufacturing processes for traditionally high-emission materials such as steel and cement, and encourage the use of timber.

- Establish a programme of large-scale heating trials with the aim of helping to decarbonise building heating systems. The trials should include both low carbon electricity, and systems which include hydrogen.

- To support private investment by building owners and businesses in the efficiency supply chain, set up and provide sufficient funding for a powerful new Warm Homes Agency. The Agency's mission should be to ensure the delivery of a decent standard of heating and energy efficiency in homes across the private and rented housing sector by 2030, with a UK-wide remit, subject to discussion with the devolved nations. Specifically the Agency should:

  - Have a mandate to support and then enforce landlords and homeowners getting their properties to the required energy efficiency standard.

  - Mandate and support local authorities to produce a plan to meet energy efficiency targets and promote zero carbon heating options in their area.

  - Develop and fund a skills development programme, working in collaboration with trade bodies and local authorities to raise the number of people employed in, and the overall standard of skills across, the insulation and zero carbon heating sectors.

  - Use central government funding to enable delivery (see below).

  - Be given enforcement powers and funding to hold to account individuals/firms that fail to meet agreed standards.

  - Oversee the large-scale heating decarbonisation trials and ensure that learning is incorporated into a wider strategy, to determine which solutions should be rolled out in which geographical areas.

Investment & Spending

- To deliver the target of making all homes energy-efficient to EPC Band C, over the next five years fulfil and build upon existing policy commitments and manifesto funding pledges in this area. The £745 million per year promised in the Conservative manifesto costings document for energy efficiency in social housing and lower-income households must be confirmed.[60] This will support immediate skilled job creation in the building retrofit sector, helping to close the unemployment gap for builders. At least £500 million extra per year is also likely to be needed for a package of measures including incentives to encourage energy efficiency investment by able-to-pay households (e.g. zero-interest loans plus tax-neutral stamp duty rebates).[61] Together, these investments would leverage a further £3.5 billion of private investment per year into the energy efficiency sector, in addition to the £700 million currently invested.[62]

- Invest an additional £300 million per year to innovate deep energy efficiency approaches such as Energiesprong[63] and Passivhaus.[64]

- Confirm the £2.9 billion over the next five years pledged in the election manifesto for improving energy efficiency in schools and hospitals, to boost momentum in energy efficiency sector supply chains.

- Confirm and build on the March 2020 Budget announcement of spending to support low carbon heating solutions. The Renewable Heat Incentive is being extended for another year until March 2022. Beyond that, the government has committed to introducing three packages to sustain support for heat decarbonisation over the

60 https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5ddaa257967a3b50273283c4_Conservative%20 2019%20Costings.pdf
61 E3G's calculations based off the Energy Efficiency Infrastructure Group's original report, with reference to the latest announcements in the Conservative manifesto costings document https://www.theeeig.co.uk/
62 https://www.theeeig.co.uk/
63 https://energiesprong.org/
64 https://www.green-alliance.org.uk/reinventing_retrofit.php

following two years: £50 million per year to support heat pumps and £135 million per year for green heat networks. A further commitment of approximately £135 million per year on biomethane heating (though this is as yet unconfirmed and subject to further consultation), must ensure an emphasis on developing waste feedstocks. Together, this amounts to around £320 million per year of government investment in low carbon heat. This is an important start, but needs to be increased by around another £2 billion per year to support the delivery of low carbon heat networks and heat pumps on the scale required and to unlock the benefits of additional private investment (which could amount to as much as £2.5 billion per year).[65]

65 E3G's calculations, based on Element Energy's work for the National Infrastructure Commission: https://www.nic.org.uk/wp-content/uploads/Element-Energy-andE4techCost-analysis-of-future-heat-infrastructure-Final.pdf

Smart Power

Policy Priorities

1 ***Make offshore wind the backbone*** of the UK's energy system by getting the country on track to delivering at least 40GW of total capacity by 2030, supporting thousands of jobs and unlocking major private investment. The Department for Business, Energy and Industrial Strategy (BEIS) should unblock policy bottlenecks and increase government investment in skills training, supply chain expansion and port infrastructure in the North East, Scotland and Wales.

2 ***Support a thriving onshore wind and solar*** sector to reignite domestic supply chains and increase local access to clean, affordable power. The Treasury and BEIS should improve and streamline the planning regime and support rooftop solar by means of procurement on public sector roofs and fiscal incentives, such as lower business rates to encourage private investment.

3 ***Upgrade the electricity grid*** to ensure a smart and flexible energy system, increasing UK energy security and strengthening the UK's specialism in advanced digital technology. The Treasury and BEIS should set ambitious targets and stimulate routes to market for renewable hydrogen, interconnection (physical links allowing the transfer of electricity across borders), battery storage and demand-side response. Ofgem's core mandate should be expanded to include supporting the delivery of net zero emissions, alongside protecting consumers.

'On renewable energy being an ideal place for governments to focus post-Covid stimulus programmes: 'It fits very nicely. You're killing two birds with one stone by providing new sources of renewable energy to decarbonise power, and also providing pension funds with stable revenues. I think if governments are going to do fiscal spending they're going to have more credibility directing it towards renewables and climate change initiatives than towards oil and gas.'

Paul Flood, Portfolio Manager at Newton Investment Management, April 2020 [66]

Renewable power generation already supports tens of thousands of jobs across the UK, has the potential to attract billions of pounds in private investment and export contracts, and is vital for tackling climate change. The rapid falls in the costs of solar and wind power over the last few years, as a result of innovation and economies of scale, mean that the sector will continue to expand globally as most of the world decarbonises in line with the Paris Agreement. This makes renewable generation a source of increasingly good returns on investment as it outcompetes new fossil fuel capacity. The International Renewable Energy Agency recently forecasted that investing in renewable energy would increase jobs in the sector to 42 million globally by 2050 (four times today's level) and deliver global GDP gains of $98 trillion above a business-as-usual scenario by the same date by returning between $3 and $8 on every dollar invested.[67]

Renewables are also now the cheapest form of electricity generation, offering the possibility of lower household bills, and are popular with the public. The Contract for Difference (CfD) auction mechanism means that all

66 https://www.independent.co.uk/news/business/analysis-and-features/coronavirus-oil-gas-industry-climate-change-renewable-energy-a9453756.html
67 https://www.theguardian.com/environment/2020/apr/20/green-energy-could-drive-covid-19-recovery-international-renewable-energy-agency

the more mature technologies can be delivered through private investment with little additional cost (or even with a reduction in cost) to the consumer. Smart and flexible grid technologies have advanced to the extent that we can be confident in the security – as well as the value for money – of a completely renewable power system in the future. Such a system would be able to provide us with clean transport via electric vehicles and clean heating of our buildings via heat pumps, all supported by a flexible grid which could both deliver electricity and store it on either a short or a long term basis to overcome the inevitable variability of renewable generation. So clean renewable electricity is the centrepiece of our future energy system.

However, the coronavirus crisis is already starting to threaten renewable energy development and private investment globally, as a result of a drop in electricity demand following national lockdowns and supply chain issues resulting from forced factory closures.[68] This could put jobs at risk, limit growth opportunities and hamper progress towards meeting national climate targets. The best way to increase the UK's resilience to this threat is by providing government policy certainty for investors, with a clear route-map for delivering the roll-out of large-scale renewable and flexible grid technology throughout the 2020s. This would stimulate greater supply chain investment in the UK in the short term, and act as a platform for sustained economic activity over the long term – in turn, supporting greater UK energy security.

To deliver this vision and capitalise on the opportunities for innovation and growth in this low carbon sector, the government must commit to ensuring at least 80% of the UK's power is generated from renewables by 2030 (with wind and solar at three times current levels); to enabling the expansion of new markets for existing flexibility technologies across the country; and to stimulating investment in emerging technologies such as renewable hydrogen.

68 https://www.cnbc.com/2020/04/06/the-coronavirus-is-hitting-renewable-energy-supply-chains-factories.html

Policy Measures

- In addition to the Conservative Party manifesto pledge of 40GW of total offshore wind generation by 2030, publicly commit to targets for total generation of at least 40GW of solar and 30GW of onshore wind by 2030. [69]

- Take a more strategic approach to offshore wind grid infrastructure, including increasing the number of grid connections to land shared between several offshore wind farms. This will save costs, minimise onshore impacts by requiring fewer substations to be developed, and reduce planning delays.

- Give clear priority to offshore wind as a use of the seabed, ahead of oil and gas extraction, aggregate dredging or fishing, and require the Crown Estate and Crown Estate Scotland to designate substantially more seabed for offshore wind than currently proposed.

- Mandate the Ministry of Defence (MoD) to procure offshore wind-compatible radar technology, and increase cooperation across the MoD, BEIS, the DfT, the aviation sector and other stakeholders so that by 2030 all surveillance capabilities include wind farm tolerance as standard and are commercially viable for aviation. Solving this challenge could put the UK in a position to secure global exports.

- Streamline the planning regime for all renewables across the UK, to optimise opportunities for developing new low cost energy projects while avoiding harm to wildlife or important landscapes.

- Expand Ofgem's core mandate to include supporting the delivery of net zero emissions, alongside protecting consumers.

69 https://www.greenpeace.org.uk/wp-content/uploads/2019/08/Filling-the-gap-report-Feb-2019-1.pdf

- Set out a clear policy for transforming the electricity grid so that, by 2030, it can deliver a reliable, flexible system with 80% renewable generation and additional power use by electric vehicles and renewable heat systems. This should include goals of around 15GW of interconnection, 38GW of storage and 18GW of demand side response (DSR) capacity by 2030. Clarifying this ambition will help to drive more private sector investment. The policy should also ensure fair market access and the removal of barriers to large-scale deployment for interconnection, storage and DSR technologies.

Investment & Spending

- Support a strong pipeline of onshore wind, solar and offshore wind projects throughout the 2020s by ensuring that the planned CfD auctions go ahead without delay, at least every two years, and that no capacity limits are placed on any of the competing technologies.

- For offshore wind, at least 4.5GW of projects per year should be contracted at the next auction, expected to conclude in the second half of 2021, and annual build-out levels should be increased even further in auctions beyond that. Throughout the 2020s, around 2GW per year or more of onshore wind, and around 4GW per year of solar should be contracted.

- Update the Offshore Wind Sector Deal to increase ambition and unlock bottlenecks, including: significant additional skills investment and training, especially to support workers transitioning from North Sea oil and gas; direct government investment to expand and improve docks and fabrication yards across the UK, particularly along the North East and Scottish coastlines, and in South Wales as floating

offshore wind develops (without such development we may end up with too few ports large enough for the next generation of turbines); and government grants or loans for medium-sized companies looking to invest in new infrastructure to expand or in upgrades to keep pace with technological advances.

- Establish a new initiative with a similar function to the previous Offshore Wind Investment Organisation, with a remit to help investors navigate the investment landscape across local, regional and national initiatives and stakeholders, and to leverage new funding opportunities under initiatives such as the proposed Shared Prosperity Fund and funding streams established under the sector deal. This will help unlock more private investment in enabling infrastructure, such as port upgrades and expansion, so that the offshore wind industry can expand on the scale needed.

- Mandate (and where necessary provide additional funding for, through capital loans) the procurement of solar installations on the roofs of all public sector buildings where feasible, enabling operational cost reductions and improved taxpayer value for money, while boosting sector deployment. Quick action here could deliver private investment rapidly, supporting the recovery.

- Help create routes to market and provide targeted research and development and innovation funding for floating offshore wind and emerging tidal and wave power technologies – drawing from, but not limited to, the £557 million committed for CfDs.

- Support direct government (or National Grid) contracting of interconnection, storage and DSR flexibility technologies.

- Introduce innovative policy and funding mechanisms to stimulate markets and support technological development and cost reduction for renewable hydrogen. Renewable hydrogen capacity would make

use of excess renewable electricity generation and enable challenging sectors such as shipping and industry to decarbonise. Support should be prioritised for the installation of electrolysers, which use electricity to produce hydrogen from water, especially along the east coast, where much power from offshore wind comes ashore and where there are nearby industrial facilities that could use the hydrogen, offering opportunities for economies of scale.

- Avoid further investment in nuclear energy, which drains policy attention and time away from more deliverable and cost-effective solutions.

- Immediately stop all new support for fossil fuels (coal, oil and gas) overseas (via UK export finance (UKEF) and official development assistance (ODA)), and phase out existing investments by 2021.

- UKEF and ODA funding should be used to scale up support overseas for sectors that will be growing in the 21st century clean economy, such as renewable and efficient energy systems, and thereby to help deliver universal access to energy. This action will support UN Sustainable Development Goal 7, as well as in many cases providing a stimulus to the UK economy by supporting private investment in British companies delivering clean energy.[70]

70 https://static1.squarespace.com/static/58b40fe1be65940cc4889d33/t/5e5fb6d2fb61a745961d95e4/1583331080712/TC-C+and+Bonds+Glasgow+Action+Plan+04%2F03%2F20

Tax Options

- Support significant expansion of rooftop solar installations, which would benefit UK smart grid capability as well as contributing to decarbonisation. This expansion should be supported in particular through fiscal incentives (e.g. lower business rates) to encourage private investment in rooftop solar on businesses.

- Apply the 'polluter pays' principle and make users pay for the CO2 they put into the atmosphere by raising the carbon floor price in the energy sector, which currently stands at £18/tonne CO2. The existing policy of raising the price to £70/tonne CO2 in 2030 should be implemented as far as is required to decarbonise the energy sector, including incentivising grid balancing technologies. The money raised must be channelled into reducing the impact of the price rises on the less well-off, for example by delivering greater home energy efficiency.

- Some of the additional government investments now needed in the clean energy system could be funded by savings made by phasing out all subsidies for oil and gas production, including transferable tax credits and other tax breaks introduced over the last 10 years.

Nature & a Circular Economy

Policy Priorities

1 ***Significantly restore and enhance nature and wildlife,*** supporting thousands of jobs, unlocking private investment and protecting homes from flood risks. The Treasury should add to the existing manifesto and March 2020 Budget spending commitments on nature enhancement, flood and coastal resilience and marine protection, to invest at least £2.5 billion per year. £2.6 billion per year should also be maintained for the new Environmental Land Management scheme until at least 2027, to support sustainable agricultural livelihoods.

2 ***Establish world-leading environmental legislation,*** to leave the environment in a better state for the next generation, create thousands of jobs and stimulate private investment. The Environment Bill should enshrine ambitious and legally binding short and long term targets across a comprehensive range of environmental areas.The Fisheries Bill should introduce a new system to allocate fishing quota on the basis of environmental protection and local job creation, to boost coastal livelihoods.

3 ***Get the UK on track to a zero-waste economy,*** supporting innovation and jobs and unlocking private investment in efficient product design and sustainable waste infrastructure (recycling, reuse and repair). The Environment Bill should set binding waste minimisation targets, including halving the use of single-use plastics by 2025. Defra should rapidly implement a Deposit Return Scheme for drinks containers of all materials and sizes, and Extended Producer Responsibility to ensure that plastic and other material producers pay the full costs of managing materials after use. The Treasury should allocate £1 billion to leverage faster private investment in waste reduction and genuine recycling infrastructure – not incineration.

'The transition to a climate-neutral economy, the protection of biodiversity, and the transformation of agri-food systems have the potential to rapidly deliver jobs, growth, and improve the way of life of all citizens worldwide, and to contribute to building more resilient societies.'

The Ellen MacArthur Foundation, May 2020 [71]

The coronavirus lockdown has made clearer than ever the importance of access to nature for our mental and physical wellbeing. Restoring green space in urban areas is especially beneficial in terms of mental health, which is an increasingly acute issue facing young people. Defra estimates that if everyone had access to green space, the savings to the health system could be £2.1 billion per year.[72]

At the same time, we are facing a nature emergency that requires a UK-wide programme of recovery, restoration and protection projects on land and at sea to avoid further catastrophic losses of wildlife and biodiversity. Tackling the nature emergency also requires us to significantly reduce our use of natural resources, as well as generating much less waste (such as plastic pollution), in order to minimise destructive impacts on rural and marine environments. Radical action is required now to ensure that the planet remains a safe place for everyone to inhabit.

Action in all of these areas is popular with the public and many of the measures required, from large-scale but sensitive tree planting through to marine habitat protection, expanding natural flood defences and creating more recycling infrastructure, would create new jobs in a range of locations. These measures would therefore provide opportunities to secure and stabilise incomes during the oncoming post-coronavirus recession, while extending

71 https://www.ellenmacarthurfoundation.org/news/the-foundation-joins-greenrecoverys-call-for-mobilisation
72 http://researchbriefings.files.parliament.uk/documents/POST-PN-0538/POSTPN-0538.pdf

the UK's skills base in sustainable resource use and ecosystem services. For example, supporting a transition to a circular economy[73] could create four times as many jobs in repair, rental and recycling as in standard waste treatment and disposal, with many of these jobs being focused around North East England and the West Midlands. Around £10 billion in additional profits could be generated through resource-efficient manufacturing.[74]

The dual benefit of nature restoration – providing an instant boost to the economy through job creation, while supporting long term resilience – is being recognised increasingly by other countries around the world. For example, New Zealand has recently allocated nearly NZ$1.1 billion to environmental restoration projects, focused on waterways, wildlife, and controlling invasive species, which are expected to create around 11,000 jobs.[75] An equivalent proportion of spending in the UK, relative to the size of our economy, would be an investment of around £7.7 billion.

Once lockdown eases, nature restoration projects will also support additional revenue generation through nature and wildlife tourism.. For example, the Scottish Government estimated several years ago that wildlife tourism in Scotland brings in an annual net revenue of £65 million and creates the equivalent of 2,760 full-time jobs.[76] These economic benefits will only increase across the UK – extending into some of the most remote rural areas – as further wildlife and nature enhancement projects go ahead.

Finally, public spending on nature restoration and enhancement could leverage private investment by encouraging the emergence of complementary markets. The Green Alliance and National Trust make proposals in this area, for example from farmland environmental goods and services.[77]

73 Circular Economy is defined by Ellen MacArthur Foundation as "entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system" https://www.ellenmacarthurfoundation.org/circular-economy/concept
74 https://www.green-alliance.org.uk/resources/Building_a_circular_economy.pdf
75 https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12331721
76 https://www2.gov.scot/News/Releases/2010/06/16110712
77 https://eprint.ncl.ac.uk/file_store/production/257290/6FA2E24B-A361-4017-985F-21606360DBFE.pdf

Policy Measures

- Design and deliver a programme to plant at least 700 million trees across the UK (following discussion with devolved nations) by 2030, ensuring that species are suitable for local habitats and ecosystems.

- The Westminster government and devolved nations should work together to implement a peatland restoration plan aiming to get all degraded peatland back to favourable conservation status by 2030. Work should start immediately with 're-wetting' of upland bogs that have been degraded by drainage, supporting immediate job creation.

- Introduce via the Fisheries Bill a new approach for distributing existing and new fishing quota, which should be done exclusively on the basis of whether fishing vessels deliver environmental, social and local economic benefits. This would guarantee greater job creation in UK coastal communities, boost new entrants to the industry, support innovation and investment in sustainable fishing methods, and likely deliver a larger share of opportunities to the existing inshore fleet – which currently has access to only 2% of UK quota.[78]

- Set ambitious and legally binding short and long term targets across a comprehensive range of environmental areas in the returning Environment Bill. This should include a target to halve the use of single-use plastics by 2025. Setting this and other targets would provide immediate incentives for innovation in environmental protection – in turn unlocking private investment. For example, the single-use plastics target would encourage greater investment in product resource efficiency and design.

- End approvals for new incineration (also called energy-from-waste) facilities and prevent the replacement or upgrade of old plants that are near retirement, in order to support an overall reduction

78 https://unearthed.greenpeace.org/2018/10/11/fishing-quota-uk-defra-michael-gove/

in incineration. This would send a market signal to support more sustainable solutions for resource use, including reduction of material use, reuse, repair and recycling.

- Ensure that the upcoming Extended Producer Responsibility scheme for packaging is designed in such a way as to drive reuse and better product design as well as achieving full cost recovery.

- Implement a Deposit Return Scheme for drinks containers of all materials and sizes as soon as possible, thereby creating a clean recycling stream which will help meet domestic demand for recycled PET. This can be used for food packaging.

- Commit to delivering at least 70% recycling of household waste by 2030.

Investment & Spending

- Confirm and maintain funding of £2.6 billion per year until at least 2027 for environmental land management and nature restoration, to deliver on the 'public money for public goods' commitment for UK agriculture, support a shift towards agro-ecological farming while maintaining rural livelihoods, and ensure no net loss to habitats within predominantly agricultural landscapes across the UK.[79]

- Provide at least an additional £800 million per year over the next three years on projects to enhance existing habitats and create new ones (including reforestation) across the UK.[80] In England, the delivery of projects should at a minimum be in line with the targets set out in the government's 25 Year Environment Plan.[81] The one-off nature recovery funding announced in the March 2020 Budget (£25 million Nature Recovery Network Fund, £10 million Natural Environmental Impact Fund and £640 million Nature for Climate Fund) should be reconfirmed and built upon to meet the £800 million per year total.

- Provide at least £1.8 billion per year over the next three years for flood and coastal resilience projects across the UK. This should include reconfirming and building upon the one-off funding over six years announced in the March 2020 Budget (£2.6 billion extra for flood and coastal defence and £200 million for a place-based resilience programme).[82]

79 Assessing the costs of environmental land management in the UK: A report for the RSPB National Trust and Wildlife Trusts in 2017 https://nt.global.ssl.fastly.net/documents/assessing-the-costs-of-environmental-land-management-in-the-ukfinal-report-dec-2017.pdf

80 Figure calculated on the basis of a report produced for WWF in 2019 (contact Greenpeace for contact details of report commissioner at WWF). This estimates at £1.6 billion the annual costs of achieving monetisable (costed) 25 Year Environment Plan targets that can be delivered through the Environmental Land Management scheme. Some of these actions will be included in the actions costed at £2.6 billion per year to restore UK habitats. However, the £1.6 billion estimate is for agricultural land in England only, and around two-thirds is for action to reduce soil degradation and water pollution which will enhance aquatic, farmland, marine and soil habitats, but mostly indirectly. Furthermore, it did not prove possible for the report author to calculate the cost of delivering some 25 Year Environment Plan targets, such as cutting ammonia emissions. To be conservative and avoid double counting, while at the same time accounting for the need to extrapolate costs for the whole of the UK, not just England, we take 50% of the £1.6 billion per year estimate to meet the government's objectives to enhance nature for future generations.

81 https://www.gov.uk/government/publications/25-year-environment-plan

82 Current spending on flood and coastal resilience is around £800 million per year (https://www.gov.uk/government/statistics/funding-for-flood-and-coastal-erosion-risk-management-in-england). The National Infrastructure Commission estimates that, based on the level of resilience needed under a 4°C temperature rise, approximately £1 billion extra funding a year is required to support the Environment Agency with domestic adaptation (https://www.nic.org.uk/wp-content/uploads/Flood-modelling.pdf). A 4°C temperature rise would clearly be catastrophic and should be avoided at all costs, but we judge this additional resilience spending to be necessary nonetheless to aid preparedness.

- Boost jobs in marine and coastal protection by providing £70 million per year for the expansion, protection and management of the UK's entire network (350+) of Marine Protected Areas (MPAs), including monitoring and enforcement costs, to ensure that MPAs covering at least 30% of UK waters are fully or highly protected by 2030;[83] providing £9 million over the next three years for the establishment, monitoring and maintenance of seagrass, saltmarsh, mudflat and oyster bed restoration sites; and confirming £45 million per year of funding for sustainable fisheries management from the end of the post-Brexit transition period.[84]

- Redirect £1 billion from the Waste Infrastructure Delivery Programme towards supporting innovation in reuse, repair, efficient and sustainable product design, domestic recycling and reprocessing infrastructure, as opposed to energy from waste projects and other downstream waste activities. The £1 billion should be spent over the next three years to speed up infrastructure investment, rather than over a longer period, as is currently envisaged. As part of this, the government should allocate a new £400 million starter fund to support the UK to transition to a circular economy, including resource-efficient business models, thereby unlocking significant private investment.[85]

83 Extrapolation to UK MPA network, based on management cost estimates for MPAs in North Devon in: Eftec & ABPmer (2018) Assessment of management costs for Marine Protected Areas in North Devon, Report to WWF UK, 2018

84 This sum would maintain existing EU sustainable fisheries funding of approximately £40 million per year, plus additional funds to improve monitoring and enforcement and reduce bycatch. Based on calculations in 2019, the allocation of EU fisheries funding to the UK is effectively €304 million over seven years. https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/15-1077 https://academic.oup.com/bioscience/%20article/62/10/900/238172 and https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/798829/20190430_MMO1135_Identifying_sites_for_habitat_creation_datalayers_Report_a.pdf

85 https://www.green-alliance.org.uk/resources/Building_a_circular_economy.pdf

Encouraging Investment

3

Many of the green recovery measures detailed in the recovery packages will work to reignite the economy and boost demand by leveraging private investment in zero carbon infrastructure and technologies. To ensure that investor confidence in such infrastructure and technologies is not undermined by negative market signals, specific regulatory and policy measures must be taken.

Company Rescue Packages

Any short term financial rescue packages for companies in response to the coronavirus outbreak should be granted only on strict conditions that are compatible with a green recovery. This is particularly important given that the sectors in which companies are asking for bailouts include some of the most polluting industries, such as aviation and fossil fuels, with billionaire business owners asking for taxpayer money to prop them up in order to continue with business as usual once the crisis has ended.

Specifically, any financial rescue packages should align with the following principles, so as to complement rather than undermine the creation of favourable market conditions for a green recovery:

- ***Put people and workers first.*** Companies receiving bailouts must suspend dividends and executive bonuses until state-backed loans have been repaid in full; they must ensure all workers maintain a full and secure income for the duration of the crisis; and government and industry must support workers in high-carbon industries to reskill and find good, well-paid jobs in sustainable sectors, such as those outlined above.

- ***Protect the environment.*** Any polluting sectors or companies should be required to take immediate steps to align with the Paris Agreement temperature targets, and to develop a longer term plan to decarbonise, without reliance on offsetting.

➡ ***Account for public spending on rescue packages.***
Companies receiving bailouts should be required to report publicly on their spending of the funds they have received.

Trade

Business confidence to deliver clean investment will flow from high standards, including those imposed on international competitors. Accordingly, any future trade deals must maintain and enhance existing environmental standards, minimise the environmental footprint of trade, and make trade terms explicitly subject to environmental and human rights commitments.

Finance

To further maximise private investment flows, broader financial regulations and incentive structures must align with the net zero ambition, rather than working against it. The Treasury and Bank of England must therefore make the following adjustments to create the best enabling environment for the measures set out above.

The Treasury should…

➡ Require all UK-regulated financial institutions to have a transition plan in place by the end of 2021 to meet the objectives of the Paris Agreement, extending across firms' global practices:

- The Treasury should present this as a requirement for UK-regulated financial institutions to develop plans to align credit and investment portfolios with the Paris Agreement within a

science-based timeline. UK financial regulators should then oversee mandatory reporting on these transition plans and their implementation.

- The plans must cover all sectors of the economy, not just those relating to fossil fuels, because implementing the Paris Agreement requires a whole economy transformation. They must also address issues such as land use change and deforestation.

- The plans must take into account the whole global activities of the institutions concerned, including all their portfolios (asset management, investment and lending, including both project and corporate loans) and financial services such as advisory services and raising of capital for clients.

➡ Present a report to Parliament each year, informed by Bank of England analysis, on the level of embedded carbon in UK-regulated financial institutions and the effectiveness of the institutions' plans to meet the objectives of the Paris Agreement. These reports should highlight where financial institutions' levels of embedded carbon are too high and/or their plans to meet the objectives of the Paris Agreement are inadequate. Where this is the case, the Treasury should mandate institutions to reduce their climate exposure and improve their plans accordingly.

➡ Expand the Bank of England's mandate to include climate and nature protection as a core priority.

➡ Set up a Climate Infrastructure Bank to provide an institution dedicated to leveraging private investment to speed up the transition to net zero, while levelling up the UK.

The Bank of England should…

- Supervise the creation of UK-regulated financial institutions' climate transition plans, as described above.

- Mandate companies and financial institutions to expose climate risks, through mechanisms such as mandatory climate risk disclosure.[86]

- End support for fossil fuel companies through corporate bond purchases. Recent reports suggest that the Bank has been preparing to continue with business as usual in this regard, implying that much of its climate-related rhetoric so far has had limited impact in practice.[87]

86 https://www.edie.net/news/7/Will-2020-be-the-year-of-mandatory-climate-disclosure-/
87 https://www.theguardian.com/business/2020/apr/16/bank-of-england-failing-climate-with-covid-19-stimulus-programme-oil-firms-debt-bond-governor

4

Funding

Borrowing

The historically low interest rates favour continuing significant government borrowing, as many commentators across the political spectrum have now observed. One Conservative MP has suggested that the government should issue sovereign green gilts to help finance the clean infrastructure programmes necessary for the recovery.[88] Rather than the conventional method of borrowing on the international markets, an alternative approach could be to change the tax status of ISAs for the purchase of green stimulus funding. Changes could also be made to pension rules. Together, the two measures could raise £100 billion and allow people to choose to have a stake in the green recovery.[89]

Infrastructure Spending

One of the features of the coronavirus pandemic is that it has recast expectations of public behaviour, especially travel. This, coupled with the need to consider the compatibility of new infrastructure with net zero emissions and the requirement to restore and enhance nature, calls into question some existing government infrastructure projects. In particular, the value for money of the £106 billion HS2 project and the £27 billion Road Investment Strategy 2 is now highly questionable, as is the strategic rationale for developments to support the construction of new airport runways, such as at Heathrow. These projects should be cancelled and the funds substantially redirected to support the green recovery measures set out above.

88 https://www.cityam.com/coronavirus-recovery-is-perfect-timing-for-a-uk-green-bond/
89 https://www.taxresearch.org.uk/Blog/2019/12/06/funding-the-green-new-deal-how-we-could-save-for-the-planet/

Taxes

Sector-specific taxes, some of which are identified above, will be useful to help provide a balance of incentives while raising revenue from more polluting industries. However, environmental taxes are not silver bullets and need to be used carefully, alongside a wider package of measures to support an equitable transition.

The government will need to identify fair fiscal routes to raise money in the long term. So in addition to the fiscal measures outlined in the sector-specific chapters above, the government should explore the development of additional carbon taxes across the economy. According to the Grantham Research Institute, the introduction of differentiated 'polluter pays' taxes could raise around £20 billion per year until 2030, and could reduce the need for subsidies in some areas.[90] However, this approach needs to be applied in the right way. As an example, the EU Emissions Trading Scheme (EU ETS) puts a carbon price on the industry and energy sectors of our economy and indications are that a version of this pricing will be continued after Brexit. In the energy sector, the EU ETS price is buttressed by the UK carbon price support, which has done an important job in helping the UK phase out coal power.[91]

A carbon tax in any sector needs to be both fair and effective in driving change and lowering emissions. There may also be other objectives, such as stimulating investment in alternative technologies or encouraging or discouraging particular behaviours. Fairness and effectiveness of carbon taxation require that those affected be in a position either to pay or to change their behaviour so as to avoid the tax. Failure to ensure this can lead to unjust outcomes. For example, to those unable to insulate their homes or switch to lower-carbon forms of heating, a carbon tax on heating fuel would effectively be a tax on keeping warm and would likely penalise those who are

90 http://www.lse.ac.uk/GranthamInstitute/publication/how-to-price-carbon-to-reach-net-zeroemissions-in-the-uk/
91 https://www.carbonbrief.org/guest-post-what-the-uk-can-learn-from-carbon-pricing-schemes-around-the-world

already in fuel poverty. In some cases, for example new housing or new fossil-fuelled vehicles, emissions reduction is best (although not exclusively) delivered by regulation because we know that for purchasers, capital price is generally the critical issue rather than running costs, which is where the greatest carbon impacts lie. However, there may be more scope for applying carbon taxes to business. Well-designed carbon taxation will almost certainly take its place as one of a series of policy measures applied to any particular sector, with tax revenue being spent on measures that help deliver solutions, for example vehicle fuel taxes being spent on public transport. Another example would be aviation, where a frequent flier levy – which would impose the highest taxes on those who fly frequently and have the largest carbon impact – would work alongside demand constraint and a ban on new runways. Finally, some carbon taxes will expose industry sectors to international competition where producers overseas are not paying for the pollution they create. Under these circumstances, the UK will need to impose border taxes to penalise imports and provide a level playing field. However, the political challenges of such a proposal are significant when set against conventional rules and mindsets around trade, so carbon border taxes may need to be first imposed in specific sectors such as steel before being rolled out more broadly.[92]

In conclusion, although there are substantial opportunities for carbon taxation to raise revenue for the government in the economic recovery phase, this would best be done as part of a package of measures which take full account of fairness, internationalism and effectiveness in terms of changing behaviour. The fiscal measures outlined throughout this report have been identified because they work together with the other policies, regulations and government investments proposed in those areas to support a fair zero carbon transformation while contributing to the post coronavirus recovery. The aviation, shipping, industrial and business energy use sectors are likely to have greater scope for carbon taxation, given that in these sectors a fiscal incentive structure to drive innovation would be particularly beneficial at this stage and the risk of adverse effects on vulnerable consumers would be lower than in other sectors.

92 https://www.euractiv.com/section/energy-environment/news/jury-is-still-out-on-eus-carbon-border-tax-hogan-says/

'It seems to us entirely unrealistic to expect that when the virus is contained, we can return to the world as we knew it only three months ago. The trauma experienced by societies around the world is not dissimilar to that caused by the First or the Second World Wars. Both changed the social and political order in an irresistible way. The pandemic is in effect the first systemic ecological crisis in modern times to have an immediately visible and profound economic cost. Those who warned that climate change could produce such or worse shocks in the future now have a vivid demonstration of how large the risks are.'

Arnaud Marès, Citi's Chief European Economist, April 2020 [1]

1 https://www.telegraph.co.uk/business/2020/04/29/green-deals-best-way-turbo-charge-economic-recovery-covid-19

#greenrecovery

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