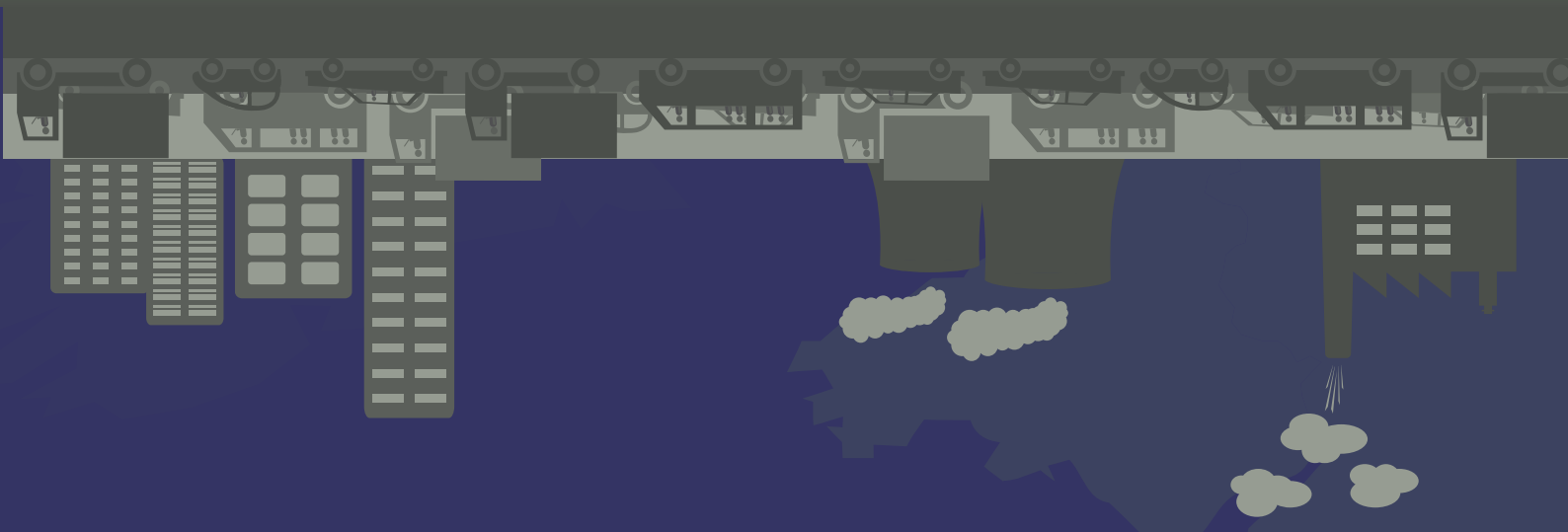
IPPR Environmental Justice Commission

FASTER, FURTHER, FAIRER

PUTTING PEOPLE AT THE HEART OF TACKLING THE CLIMATE AND NATURE EMERGENCY



Interim report of the IPPR Environmental Justice Commission

May 2020

ABOUT IPPR

IPPR, the Institute for Public Policy Research, is the UK's leading progressive think tank. We are an independent charitable organisation with our main offices in London. IPPR North, IPPR's dedicated think tank for the North of England, operates out of offices in Manchester and Newcastle, and IPPR Scotland, our dedicated think tank for Scotland, is based in Edinburgh.

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https://www.ippr.org/environment-and-justice

This paper was first published in May 2020.

The progressive policy think tank

THE IPPR ENVIRONMENTAL JUSTICE COMMISSION

The IPPR Environmental Justice Commission (EJC) is a landmark initiative building on IPPR's award winning work on environmental breakdown and its Commission for Economic Justice. The commission is co-chaired[1] by Caroline Lucas and Laura Sandys, and they are joined by commissioners drawn from business, activism, academia, civil society, and trade unionism.

The central aim of the commission is to develop a positive vision and a plan to tackle the climate and nature crises by bringing about an economic transformation, building resilience and realising the substantial opportunities to address underlying economic and social inequalities. As the UK and countries around the world seek to recover from the havoc wreaked by Covid-19, minds will focus on how to rebuild the UK's economy to ensure it is stronger and more resilient, making the work of the commission ever more essential.

The commissioners start from the view that people must be at the heart of the transformation to a net zero economy and the restoration of our natural world. This transformation must build an economy that is vibrant and successful through investment in future facing businesses; that is resilient in the face of future global shocks; that prepares all citizens for the future world of work; that addresses the in-built inequity and social injustice of our current economic model; and that enhances the health and wellbeing of all our citizens.

The commission is putting people at the centre of its work by holding deliberative democracy events and citizens juries to draw on the practical knowledge, experience and wisdom of people in diverse places around the UK. The transition will need to be handled differently in different places and we want to connect local experience with the bigger national policymaking picture, as we seek to understand how national ambitions and policies need to be shaped for distinct communities. The commission also recognises that there are other important and distinct communities including the young, the vulnerable and minority groups which must also have an active role in shaping policy.

The commission has deliberately chosen to work with communities that will face unique challenges as a result of the transition. We believe that combining the insights from this work, together with the policymaking expertise of IPPR, will provide a unique contribution to the public policy debate, in turn supporting a more rapid and fair transition across the UK.

In addition to working with local communities, the commission is also engaging with politicians and policymakers of all political parties, experts and academics, civil society, workers and trade unions, businesses and business groups, local government and communities, and climate activists. Through a major programme of communications, events and stakeholder engagement the commission aims to contribute to both public debate and public policy on the economy, society, and the environment.

1 Ed Miliband stepped back from the Environmental Justice Commission upon being appointed the Labour party's shadow secretary of state for business, energy, and industrial strategy.

THE ENVIRONMENTAL JUSTICE COMMISSION'S APPROACH

The vision, ideas, and policies that the commission puts forward:

- **will be big and bold:** the commission will set out the bold policy action needed for the UK to tackle the climate and nature crises, transform its economy, and realise the substantial opportunities to address underlying economic and social inequalities
- **will ensure the transition is owned and driven by communities**: people must be at the heart of the economic transformation, which must be shaped by those most affected
- **capture the real opportunities for a better life for everyone:** bold action can provide enormous benefits for communities, through the creation of green jobs, improved health, quality of life and wellbeing, and ensuring a just transition in the UK. The transition must prioritise the public's wellbeing and security, and new opportunities for those who risk losing out
- **enable the UK to show leadership on the climate and nature crises, and a just transition:** at the next Conference of the Parties (COP26) on climate due to be hosted in the UK and the biodiversity COP in China, the UK can inspire other countries by designing a modern, green and fair economic model
- **help build public support for reform:** the transformation to a fair and green economic model that is fit for the future will need to command widespread public support. This will require new channels for accountability and public mobilisation.

WHAT THE ENVIRONMENTAL JUSTICE COMMISSION WILL DELIVER

Our final report will offer:

- a realistic and optimistic vision and set of policies for a fair and green economy that is fit for the future
- a list of immediate actions that the government must take to set us on the right pathway with policies that must stop or must be accelerated, and new actions that must be taken
- a timetable and roadmap of what must be put in place to meet the challenges of the climate and nature emergency

The commission's final report will be published in early 2021.

Find out more at: https://www.ippr.org/environment-and-justice/

NOTE

The IPPR Environmental Justice Commission presents this interim report in order to stimulate vital public debate. Individual members of the commission agree with the broad thrust of the arguments made in this report, but they should not be taken to agree with every word. Commissioners serve in an individual capacity, and this report should not be taken as representing the views of the organisations with which they are affiliated.

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This report has been prepared by Caroline Lucas, and Laura Sandys (chairs of the commission), Luke Murphy (head of the commission), and the core team at IPPR: Tom Hill, Joshua Emden, Ali Plummer, Carsten Jung, and Jonathan Webb.

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FOREWORD

CAROLINE LUCAS MP AND LAURA SANDYS

Co-chairs of IPPR's Environmental Justice Commission

We are proud to be co-chairs of this important commission that aims to develop an optimistic vision and set of policies to transform our economy and society so that they are climate and nature safe, forward-looking and fairer, and so that no community is left behind and all citizens enjoy a better quality of life.

The UK's legally binding commitment to achieve net zero by 2050, together with its commitments to protect and restore the environment, have outlined the scope of "what" we need to do to address the accelerating climate and nature emergency. While there is robust debate about whether these ambitions are fast or deep enough, it is a focus on "how" we decide to implement the necessary policies to meet these ambitions that is now both crucial and urgent, and that the work of this commission seeks to address.

> ***Never has there been greater realisation by the citizens of this country that government's prime responsibility is to keep the public safe from the major shocks, challenges and threats to our society.***

Never has there been greater realisation by the citizens of this country that government's prime responsibility is to keep the public safe from the major shocks, challenges and threats to our society. Going forward, citizens will hold governments responsible as to whether they prepare for, mitigate and protect the public from both expected and unexpected forms of destructive risk.

As we move through this pandemic, and seek to transition from stabilisation to recovery, it is vital that the economy and society we rebuild is not a return to business as usual. Governments cannot claim that the climate and nature crisis is unexpected nor that they are unaware of its destructive potential. It is incumbent on all of us to act now, not with a vision of hair shirts but one of building a new fairer society, with dynamic businesses that are future fit, providing fulfilling jobs, a much healthier public and a thriving natural environment.

The good news is that decarbonising our economy and restoring nature offers us the opportunity to fix an economic model that is not only driving environmental damage, but failing the vast majority of people across the UK as the fallout from Covid-19 has so brutally exposed.

To reach a zero carbon economy demands a fundamental rethinking of the UK's economic model – from consumption driven to resource productivity, from a narrow to a broader assessment of success, and investing in what the public

value. Moving beyond bottom line, GDP metrics of "success" will be challenging for some, but without a clear reappraisal of what really matters to the public we will not deliver a just transition to a zero carbon economy, nor capture the renewal of 'community spirit'.

Indeed, people must be at the heart of this transformation, and those most affected by change must be the ones to drive it. Their wellbeing and security must guide all policies, not least because if economic and social change is not designed around their needs, they essentially have a veto on policies to address the climate and nature crises. Throughout this commission, we have committed to listen, learn and shape our recommendations around the public with particular focus on those communities, employees and businesses that will be most impacted. We cannot repeat the mistakes made in the past of leaving communities behind and abandoned as they and their industries are permanently "furloughed".

> ***The UK has the opportunity to raise ambition and secure greater action on climate and nature around the world – but this will depend on our action here at home.***

As the host of the next international climate summit (COP 26) the UK has the opportunity to raise ambition and secure greater action on climate and nature around the world - but this will be dependent on our action here at home. That means we have a responsibility to articulate a powerful, positive and inclusive model for our future societies – not incremental but transformative.

We hope that this commission can make a strong contribution in setting out this new model - the opportunity afforded by COP 26 to reset our societies is one we cannot afford to squander.

SUMMARY

The Environmental Justice Commission was founded with the recognition that action to address the climate and nature crises need not be about staving off the worst, but can instead be about imagining a better world which we can build together. A future where people and nature can thrive, centred on good jobs and meaningful work, low carbon businesses, and where inequalities are reduced and opportunities offered to all. A future where progress is measured by the quality of life, security and wellbeing of all citizens as well as the health of our natural world.

It is the view of the commission, however, that not only is time running out to address the disaster of the climate crises and the degradation of nature, but that there is also a deficit of positive ambition about what transforming to a clean, healthy and environmentally rich economy could mean to citizens here and abroad. The commission aims to provide this ambition by articulating a vision for a renewed economy and a clear pathway of action of how to get there, through a rapid and fair transition which puts people at its heart.

This interim report of the IPPR Environmental Justice Commission finds that to act with the ambition and at the scale that the climate and nature emergency demands, requires a new approach. An approach where we take faster action to tackle the climate and nature crisis, go further in the transformation of our economy and deliver a fairer transition for all. Central to the ethos of the commission is the recognition that there is an inextricable link between addressing the climate and nature emergency and tackling economic and social injustice.

> ***As the UK seeks to recover from the Covid–19 crisis, it is vital that we do not move from one crisis and accelerate headlong into another.***

As the UK seeks to recover from the Covid-19 crisis, it is vital that we do not move from one crisis and accelerate headlong into another. Moreover, action to address the climate and nature crises can help the UK to recover better with a stronger economy, that is fairer and more resilient. There are enormous benefits to investing in projects up and down the country which will bring economic, social and environmental benefits from upgrading our housing stock to infrastructure for walking and cycling.

This report begins with a vision that sets the ambition for the transformation of our economy and society; next it outlines some of the key challenges which stand in the way of realising this; it then proposes a policy framework by which all policy action should be measured; and outlines some key initial policies to catalyse the new approach that is required.

VISION

Our vision is of a vibrant, healthy society, and a clean, innovative economy, driven by the key principle of fairness. To realise this ambition, we envisage a transformation that is both rapid and fair and that places people at its heart. It will require a fundamental change to our economic, democratic and societal model: a programme of renewal.

We want to build a net zero economy where are all citizens are able to thrive alongside nature. The transition will have been one where the impacts and opportunities have been fairly shared and people will have had a meaningful say in the decisions that affect them. Support will have been provided for those citizens and communities most impacted, as well as the most vulnerable, allowing them not just to survive but thrive.

At the heart of this new economy will be the promotion of citizens' wellbeing. Health, quality of life, and the positive impacts of a thriving environment will all be driven through strong climate and nature policies with ambitious targets to deliver clean air, warm homes, access to open spaces, and healthy diets. Our homes will be largely powered and heated by renewable energy, much of it decentralised and all of it smart. Sustainable public transport will be abundant, electric vehicles available for those that need them and take-up of cycling and walking increased.

We envisage this transformation being driven by citizens and communities across the country. The skills, tools and imagination needed to realise a future where both people and nature thrive lies within the communities across the UK with varied and diverse needs and cannot be developed centrally. Power and resources must be devolved to enable tailored and nuanced plans to emerge, liberating people to take decisions close to home.

We want a pro-active and purposeful industrial strategy that provides support for the transition to climate and nature safe methods of production, manufacturing, resource utilisation and sustainable consumption. We want the UK's low carbon goods and services sector to be world-leading, with successful new businesses creating jobs across the country. Dirty industries will be a thing of the past. This will require support and training for employees with new skills, new job opportunities and new protections. It will mean everyone has the opportunity for good and fulfilling work; a decent income which supports a good quality of life; and time for leisure and care.

We wish to transform the role of the 'consumer' to active 'economic citizens', who with new rights and responsibilities can shape the transition to a decarbonised economy. Ownership and decision-making will be more broadly shared in this new economy. Socially owned, mutual and cooperative enterprises of various kinds will flourish.

Nature must be thriving, after its accelerated decline over the past three decades, bringing a multitude of benefits from improving physical and mental health, to supporting our marine ecosystems. Everyone, no matter where they live, will have access to wild spaces, improving mental and physical health. Done right, climate action will help us preserve nature, and restoring nature will help us mitigate and adapt to climate change, while improving the population's mental and physical health.

At the heart of all that we are proposing are the public and all our proposals will be informed, validated, and shaped by the wide public engagement that is central to this commission.

KEY CHALLENGES

This vision is within reach. But to realise it, several key challenges must be overcome.

The UK must guarantee no one is left behind and provide opportunities for all

Fairness must be at the heart of every policy, every decision and every action taken as part of the transition. Not only must action on climate and nature not exacerbate existing economic and social injustices, it can help address them.

The UK must not repeat the mistakes of the past, and instead ensure a fair transition developed and led by all those affected. The transition must be carried out in partnership between workers, trade unions, businesses, local communities and those that are already disadvantaged yet also most at risk. This time, we must leave no-one behind. The costs of the transition must also be fairly shared. The transition must achieve fairness across the generations, ensuring that young and future generations do not pay the price of past mistakes. Those communities exposed to current and growing climate impacts, from flooding to wildfires, must be protected. We must also ensure fairness and climate mitigation abroad, avoiding simply 'offshoring' emissions or imports from countries with lower environmental standards.

A transformation that is rapid, fair, builds resilience, and puts people at its heart will yield significant benefits beyond addressing the impacts of the climate and nature crises. This includes creating plentiful jobs, building sustainable and fair supply chains and leading green industries, raising living standards for the poorest households and communities in every region, improving the quality of life of all citizens, cleaner air and healthier lifestyles, the restoration of and greater access to nature, and more resilient communities. But all of these opportunities must be fairly shared and that will require concerted action.

The UK must get its own house in order

Our ambition is for the UK to be a world leader in transitioning to a zero carbon economy where nature is protected and restored. As host of the international climate summit, COP 26, we want the UK to lead by example offering world leading ambition in terms of targets for both climate and nature backed up by equally ambitious policies to meet them. The UK has made real progress in recent years in reducing its territorial greenhouse gas emissions (GHGs) (those produced in the UK). Since 1990, GHGs have decreased by approximately 40 per cent. Moreover, there are significant policy successes which can be learnt from and built upon such as offshore wind and energy efficiency programmes in Scotland and Wales.

However, despite setting more ambitious targets to reduce emissions to net-zero by 2050 and restore nature, the UK's overall progress towards them and policy action to realise them is inadequate. At present, the UK is set to miss its legally binding fourth and fifth carbon budgets and is also failing to make progress on international targets on halting and reversing biodiversity loss. The Scottish and Welsh governments also have their own targets (a 75 per cent reduction by 2030, 90 per cent by 2040, and net zero by 2045 in Scotland and a 95 per cent reduction by 2050 in Wales), as do hundreds of local authorities, but few have matched laudable ambition with the level of policy detail and commitment to turn rhetoric into reality. In addition, when we look beyond territorial emissions to consumption emissions which include goods consumed in the UK but produced elsewhere the UK's footprint is noticeably higher. Indeed, the UK's consumption emissions in the 1970s were just 0.2 per cent higher than our territorial emissions, whereas they are 37 per cent higher today. Moreover, too many inconsistencies and contradictions remain in the UK's approach to reducing emissions and tackling the nature crisis. Most significantly, its current plans for further oil and gas extraction risk undermining all decarbonisation efforts, although the future of the north sea

has been brought into question following the recent falls in the oil price linked to Covid-19 and the supply war between the major oil producers.

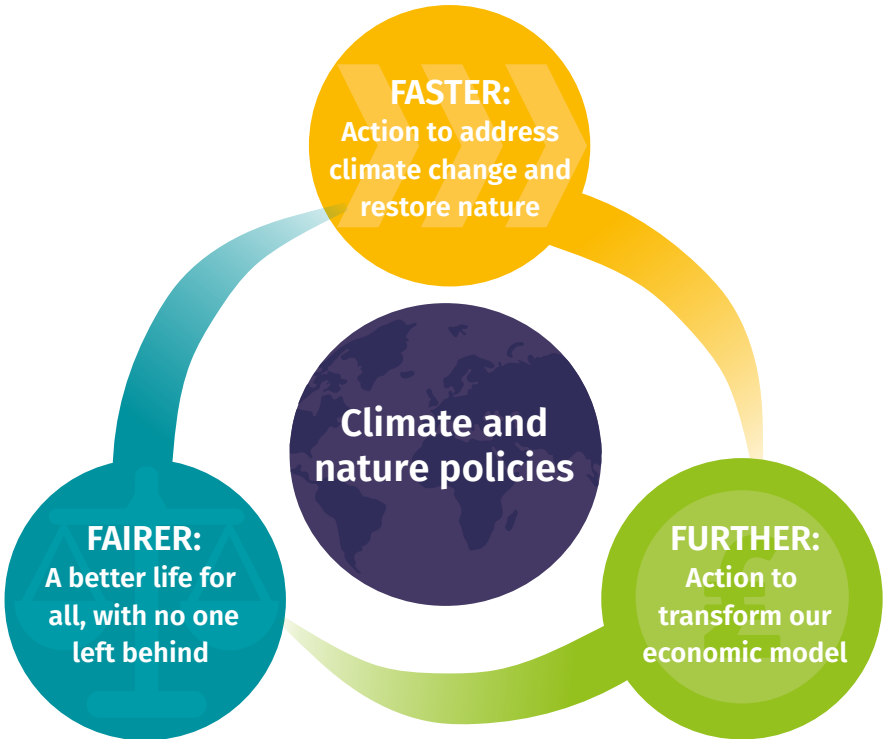
The UK must transform its economic model

Realising the prize of our vision - from raising the quality of living for all, addressing economic and social inequalities, to protecting and restoring our climate and natural world – will require a transformation of the UK's economic model. Over recent decades, we have increasingly relied on an economic model which degrades our climate and nature and that also fails to deliver for great swathes of the population, delivering neither improved quality of life nor fairness. Such a transformation will require an end to economic short-termism and the maximisation of economic efficiency over the resilience of communities - the impacts of which have been laid bare by Covid-19. It will also require greater emphasis on resource efficiency and circular economy approaches as opposed to the maximisation of consumption. Continuing on our current path in the face of an even bigger threat would lay the UK and the world open to unprecedented levels of risk.

A FRAMEWORK FOR TRANSFORMATION

This report, the first from IPPR's Environmental Justice Commission, argues that the change required demands a new approach to tackling the climate and nature crises that is faster, goes further, and has fairness at its heart. Faster action in addressing the climate and nature crisis, action that goes further in transforming our economic model and action that is fairer to ensure no one is left behind and secure opportunities for all.

These three principles form the framework that will guide the commission's work. Critically, these three principles must shape all policy decisions and programmes, together. Action to address climate change and to restore nature can and must simultaneously improve lives and offer opportunities for all in a thriving economy – leaving no-one behind. Just as addressing the climate and nature emergency can tackle social injustice; without fairness at its heart, we will not achieve the transformation required. These principles are inextricably linked.



KEY RECOMMENDATIONS

The recommendations of this interim report primarily focus on how best the UK government should govern its new approach to the transition, structure decision making and targets. It outlines the initial steps that should be taken to catalyse a new approach that goes faster, further and is fairer. In its final report, the commission will be setting out ambitious proposals and a roadmap to tackle the climate and nature crises and secure a fair economic transformation.

Targets and ambitions

The UK should seek to decarbonise much faster over the next decade if it is to make the most of the opportunities, act prudently on the risks, minimise the costs of the transition, and meet its extra responsibility in relation to the climate and nature crises. Early action could yield substantial economic and societal benefits through the creation of jobs, new industries and better health outcomes, while delayed action could increase costs. The risks of climate and environmental breakdown are substantial to the UK and globally from flooding to extreme weather making early action not just beneficial but essential. From an international perspective, moving faster would better recognise the UK's historic contribution to climate change and our enhanced capacity to act. Failure to do so leaves a larger part of the remaining carbon budget for other countries and to future generations within the UK.

Demonstrating a 'fast transition' to net zero would provide a positive influence abroad and encourage other countries to also expand their own ambitions. Through more ambitious action the UK could and should also achieve net zero ahead of 2050,[2] which would also reflect and recognise the UK's 'fair share' based on its historical emissions. If the UK government is unwilling to bring forward its net zero target, at a minimum, the UK government should be setting more ambitious interim targets and deploying the necessary resources to meet its current targets. ensuring a desirable path to net zero. Any action the government takes to strengthen its targets must also be cognisant of the fact that the Committee on Climate Change (CCC) is due to make its recommendations for the UK's sixth carbon budget (2033-37) in December of this year.

> **The UK government must, at the very least, make its domestic ambition over the next decade align with 1.5°C and net zero, which must be achieved entirely through domestic action, without the use of international credits. As host of the climate summit, COP 26, the UK's action will be all the more important in catalysing increased global ambition on climate and it should use its nationally determined contribution (NDC) ahead of the COP to demonstrate its ambition. Such a decision should be timed to support the UK's diplomatic strategy for ambition raising through COP 26 in order to secure commitments by other countries to raise their NDCs. To ensure the UK's NDC is consistent with its net zero target and 1.5°C, estimates suggest that the government will need to reduce emissions by circa 66–69 per cent by 2030 at the very least,[3] an increase from the current equivalent 61 per cent[4] in the current fifth carbon budget (2028–2032).[5] However, the scale of emission reduction will need to be more significant still if the UK is to contribute its fair share towards international emissions reductions based on its historical emissions record.**

2 As set out later in the report, the 2050 target could be accelerated through a more ambitious switch away from high-meat diets, more constrained growth in aviation demand and more ambitious changes to land use.

3 Or 62 to 65 per cent while the UK is still in the EU's Emissions Trading Scheme (ETS).

4 Equlivalent to 57 per cent while the UK is still in the EU's ETS.

5 The baseline set out in the government's legally binding fifth carbon budget would mean a 57 per cent reduction from the 1990 baseline. However, because of the way UK emissions are currently accounted for, the 57 per cent figure would translate to an actual emissions reduction of 61 per cent when the UK leaves the EU's ETS. For further explanation on this point, see here: https://www.climatechangenews.com/2020/02/27/credible-cop26-uk-needs-plan-climate-plan/

The UK's response to the climate and nature crises must go also go further and take into account both its consumption emissions[6] and global environmental footprint. This would ensure that the UK does not shift the burden of its consumption to other countries, export its environmental footprint, or import products with standards that would not be accepted at home. Any targets on consumption emissions would need to be handled with care in order to avoid any perverse incentives or unforeseen consequences. However, reducing consumption emissions must be factored into any UK plan to decarbonise.

The UK government should commit to a target on consumption emissions as part of its wider net zero strategy. The government should seek advice from the independent Committee on Climate Change (CCC) on the best means of doing so and whether the adoption of a legal target is desirable and viable. We recommend that the devolved nations should follow the same approach.

The UK government should include a target for its global environmental footprint within its current Environment Bill. The government should also establish a mandatory due diligence mechanism to reduce the UK's global footprint. Such a commitment and mechanism would require UK business to assess risks from all environmental impacts of their supply chains through a due diligence law.

Institutions and plans

To drive through the policy change required across the whole of the economy will require a coordinated approach across government at every level. Moreover, a fair transition must be put at the very heart of government policy not just to mitigate risks, but to make the most of the substantial opportunities the transformation brings to address underlying economic and social inequalities.

To drive through the policy change required across the whole of the economy, we recommend that the UK government should establish a Net Zero and Just Transition Delivery Body[7] (NZJT) led by the Department for Business, Energy, and Industrial Strategy and include representatives from other government departments such as the Treasury and the Department for Work and Pensions, local authorities and metro mayors, trade unions, the industrial sector, financial institutions, civil society and the National Infrastructure Commission. The body will be responsible for developing and delivering a national Net Zero Delivery Plan (see below) which must be centred around a just transition. We recommend that the devolved nations should follow the same approach (though Scotland already has a Just Transition Commission).

We recommend that the NZJT should be responsible for developing a Net Zero and Just Transition Delivery Plan. This plan will intergrate various departmental plans across government to ensure there is a coherent and fair approach to achieving decarbonisation. Moreover, learning from the approach taken in Sweden through the 'Fossil Free Sweden' initiative[8], we recommend that there should be a requirement to develop a roadmap for every sector with each containing the timelines, proposals and commitments for how each sector will achieve net zero in a fair way with mitigation and transition plans. We recommend that the devolved nations should follow the same approach.

6 The consumption-based approach captures direct and lifecycle GHG emissions of goods and services (including those from raw materials, manufacture, distribution, retail and disposal) and allocates GHG emissions to the final consumers of those goods and services, rather than to the original producers of those GHG emissions.

7 See Allan et al (2020) for more detail: https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-01.pdf

8 The Fossil Free Sweden (FFS) initiative was launched by the Swedish Government ahead of the COP 21 climate change conference in Paris in 2015. The FFS has encouraged business industries to draw up their own roadmaps as to how they will be fossil free while also increasing their competitiveness. For more, see: http://fossilfritt-sverige.se/wp-content/uploads/2018/02/roadmap_for_fossil_free_competitiveness.pdf

We also recommend that the NZJT should work in lockstep with similar bodies at the regional level. These bodies should bring people together in a partnership model, and ensure everyone's voice can be heard. They should involve all relevant stakeholders including metro mayors, local authorities, trade unions, LEP representatives, local community representatives, civil society, local businesses, and businesses interested in investing in the region. This will require the establishment of new social partnerships at both firm and sector levels to manage the transition. To secure a truly fair transition, participants must represent the full diversity of communities up and down the country, ensuring the vulnerable, disadvantaged and minority groups are at the heart of the transition. We recommend that the devolved nations should follow the same approach.

Investment for building back better

Moving much faster will involve rapidly scaling-up investment, greater ambition in relation to behavioural change, and policies to better incentivise low-carbon living while also enhancing people's quality of life. But even on its own terms the government is set to miss its own current targets due to insufficient investment and policies aligned with securing net zero.

Even under projections by the Office for Budget Responsibility (OBR) that have been criticised for being too optimistic, unemployment is expected to be at 10 per cent in Q2 this year (OBR 2020). This might end up being even more severe if some restrictions stay in place for longer than that, as is likely. The result of this will likely be a much higher unemployment rate. As the Committee on Climate Change have advised, actions towards net-zero emissions will 'help rebuild the UK with a stronger economy and increased resilience' (CCC 2020). In the first instance, this investment can be targeted at projects that are job-rich, shovel-ready and help achieve the government's wider ambition of levelling up.

We recommend that the UK government sets out an ambitious recovery package that accelerates progress towards net-zero and the restoration of nature, and also helps achieve its objective of 'levelling up' the economy. As part of this package, the largest possible investment should be directed towards the delivery of zero carbon infrastructure and the restoration of nature. Previous estimates by IPPR have shown that there is currently a £33 billion annual public investment gap between the UK government's planned investments and its stated goals for decarbonisation and the restoration of nature. This must be the minimum ambition for investment in climate and nature as part of the recovery package and in the first instance it can be targeted at projects that are job-rich and shovel-ready. Possible appropriate measures include investment in home retrofits, tree planting and supporting reskilling and retraining. Through its public investment and a well-designed policy environment, the government must also seek to maximise investment from the private sector. Greater private investment can be leveraged as a result of a better coordinated public policy response which the Net Zero and Just Transition Delivery Body outlined above will help to achieve.

As part of the recovery package, a national Just Transition Fund should be established as part of regional economic development funding to help the drive towards a net zero economy and to ensure those negatively disrupted are given the resources and support to succeed in the future. The UK government should capitalise the fund with an initial downpayment of £5 billion. Funds should flow to the areas of the UK with the greatest need for just transition, and should be – where applicable – transferred to the devolved administrations and where possible, passed down from there to local authorities and communities.

Policies consistent with 1.5°C

The recent decision by the High Court which found that the government had failed to consider whether the Heathrow expansion was consistent with its commitments under the Paris Agreement (Court of Appeal 2020) has profound implications for all government policy at every level.

> **In light of the decision on Heathrow by the High Court, we recommend that the UK government, devolved nations and local government review and audit all projects, policy, investments, regulations and legislation to ensure they are in line with the UK's obligations under the Paris Agreement[9]. When making any future infrastructure or development policies, it is essential that the climate change and broader environmental implications of these policies have undergone transparent analysis and consideration.**
>
> **We recommend that the Green Book – the Treasury's guide to spending decisions which is used across Whitehall – be updated to ensure that all guidance fully reflects the government's own net zero target and the UK's commitment to the Paris Agreement. This will require the broader social and environmental impacts and benefits of all infrastructure projects be properly assessed.**

Oil and gas extraction is the area of policy that is most clearly inconsistent with the UK and Scottish government's net zero targets and the Paris Agreement goal which requires that all Parties make financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. The High Court decision has reinforced this inconsistency. If all countries were to exploit their reserves in the way that the UK has signalled is its intention then we would rapidly blow the remaining carbon budget. At the same time, the Covid-19 crisis has forced the debate on the future of the oil & gas industry to the forefront of policymaker's priorities as a sustained drop in the oil price during the crisis poses a serious risk to workers in the sector and the survival of the industry as a whole.

> **In the near-term, we recommend that the UK and Scottish government's must place immediate priority on securing a just the transition for workers in the oil & gas sector to other industries where their skills will be transferable and highly valued, such as in the development of Carbon Capture and Storage (CCS), hydrogen transportation and storage and offshore wind. We further recommend that the UK and Scottish governments must end the policy of maximising the economic extraction of oil and gas. This will require an amendment to the Infrastructure Act 2015. Both governments should instead ensure that their policy approach to fossil fuel extraction is fully compliant with their respective net zero targets and the Paris Agreement goal of 1.5°C. In addition, the UK government should, in concert with the Scottish government, review all subsidies for oil and gas extraction, including tax breaks and seek to refocus any available funding on securing a just transition for workers.**

9 Article 2 1: This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. 2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

FORGING A NEW PATH

Delivering the economic transformation that the recovery from Covid-19 and the climate and nature crises demands will require a whole-economy approach. All policies going forward must be shaped by the three principles outlined in the framework above - address climate change and restore nature; improve lives and offer opportunities for all in a thriving economy – leaving no-one behind: and help transform the economy. These principles are inextricably linked.

The recommendations of this interim report primarily focus on how best the UK government should govern its new approach to the transition, and structure decision making and targets. In the coming months and in its final report, the commission will be setting out ambitious proposals, laying out a roadmap to go faster, further and fairer. Taken together, these would achieve the following:

1. **Transform our economic model**: Our economic model must place environmental and human sustainability, resilience and people at the heart of economic health. Meeting the climate and nature emergency requires ambitious climate targets, new legislation to ensure our environmental footprint is brought within sustainable limits, and new economic metrics which go beyond the measurement of economic growth alone and place value on nature and wellbeing.
2. **Finance the green economy:** A transition that delivers for climate, nature, and people will require finance to be invested on an unprecedented scale into new solutions for a green economy. Both public and private finance will play a key role in getting us there - with new roles for both fiscal and monetary policy. There is considerable work still required to determine how best to fund the transition to net zero.
3. **Support sustainable industries and create high-skill, high-wage jobs:** A proactive and purposeful industrial strategy must support the transition to climate and nature safe methods of production, manufacturing, resource utilisation, and consumption. Subsidises for sectors of the economy that have a high carbon footprint must be replaced by significant investment in innovation and new technologies to support them to decarbonise.
4. **Build an education and skills programme for a zero carbon economy.** The commission is exploring what reforms are needed to education and skills to ensure that we can progress the transition across the existing workforce in carbon intensive industries, but also ensure the UK has the necessary skills in the workforce of the future.
5. **Deliver a new 'green social contract':** Covid-19 has exposed the insecurity of work for many. In the aftermath of this public health crisis and to secure a just transition in respect of the climate and nature crises, we must reassess the 'social contract'. The commission is exploring the role of the institutions needed to embed the idea of a 'green social contract', Consideration will also be given to the financial support required as part of economic development funding to support the drive to a low carbon economy and mitigate against the negative impacts of decarbonisation. It will also consider income and job guarantees for workers, improvements in collective bargaining and trade union rights and support for worker ownership models. New powers to organise and ensure worker voice is at the heart of transition are vital, as will be the involvement of the self-employed and workers in the gig economy.
6. **Deliver warm homes for all:** The commission is exploring the best means to decarbonise heating from buildings and deliver a dramatic roll out of energy efficiency measures across the country, delivering warmer homes, lower energy bills and creating jobs in every region. While the housing sector has in recent years expanded its capacity to build new homes that meet high energy standards, retrofitting the existing housing stock and decarbonising heat remains the biggest challenge for the housing sector.

7. **Decarbonise mobility:** The UK's transport infrastructure contributes significantly to the UK's total greenhouse gas emissions. At the same time, transport is essential to our everyday life. People rely on infrastructure networks to access the labour market and everyday services. The commission is exploring the best means of investing in – and, as importantly, making accessible – sustainable forms of transport and zero-carbon vehicles. This will include policies to reduce car-use and free or significantly subsidised public transport. The benefits of such a programme will reach far beyond just climate but will also include significant improvements in air quality and health outcomes.
8. **Transfer power to communities:** Covid-19 has revealed the strength of solidarity and depth of generosity in communities across the UK. Solutions for a sustainable future for climate and nature lie in these very communities all of whom have varied and diverse needs, and cannot be developed centrally. There is no one-size-fits-all approach. Power and money must be devolved to enable tailored and nuanced plans to emerge, and to enable communities to take control of the decisions that will affect them. This must include new forms of deliberation for policymaking including citizens juries and assemblies as well as digital tools. Vulnerable, disadvantaged and minority groups who have been previously left out of policymaking must be at the heart of this new approach.
9. **Repair our natural environment:** Repairing nature and biodiversity must be a priority for the benefit of our wider economy, for climate and for the health of our citizens. Doing so will require a reshaping of land use and agriculture and the restoration of our oceans, to provide both environmental and health benefits to our citizens. The commission is exploring how best to achieve agricultural reform, nature based solutions, healthier diets and improvements in the quality and availability of affordable food, and the reconnection of people with nature. As part of the work on agriculture, the commission is reviewing the supply chains and labour market that underpin our food system.
10. **Lead the world:** As the host of COP26 in 2021, the UK must increase its domestic policy ambition significantly in order to be a credible example to the rest of world and leverage greater ambition and delivery from other developed countries. However, as the fifth-largest contributor to the stock of greenhouse gas emissions and given its unsustainable global environmental footprint, the UK also has a responsibility to make a broader contribution. The commission is exploring the contribution the UK should be making in terms of finance to the Green Climate Fund, for example, to fund mitigation, climate adaptation and resilience as well as support for loss and damage. The commission will also examine the role of UK export finance and trade, as well as the role of sharing innovation and technology.

INTRODUCTION

This interim report of the Environmental Justice Commission sets out the case for a new approach to tackling the climate and nature emergency. It argues that progress in tackling these 'long crises' – despite one-quarter of a century worth of summits at the global level and ground-breaking climate legislation and targets here in the UK – has been too slow, piecemeal, and unfair.

It also argues that one of the central reasons for this has been the failure to recognise that it is our economic model which is unsustainable, and that needs to change.

This report sets out how the UK can go faster, further, and deliver a fairer transition. It concludes by setting out the agenda for the commission over 2020 and into 2021.

- **Chapter 1: The state we're in** sets out the scale of the climate and nature crises, the impacts on people in the UK and abroad, and describes how the poorest are least responsible yet the most vulnerable to the impacts of these crises.
- **Chapter 2**: **Fairness and opportunity** demonstrates that the policy *response* to addressing the climate and nature crises must involve a 'just transition' to mitigate the risks, and to realise the substantial opportunities that a zero carbon, nature abundant future could yield.
- **Chapter 3: Getting the UK's house in order** examines the UK's progress in addressing the climate and nature crises, and finds that while some progress has been made, overall the UK's approach is inadequate. It argues for the UK to go faster and further than ever before.
- **Chapter 4: Transforming our economic model** argues that the only way to successfully increase and act on domestic and international ambitions to limit global warming to 1.5°C, tackle the declines in nature, and deliver a good quality of life for all is to bring about a transformation of our economic model.
- **Chapter 5: Recommendations and where next?** makes some immediate recommendations on the ways in which the UK could deliver a new approach to the climate and nature crises that is faster, goes further and is fairer, before setting out the areas that the commission is assessing and the proposals we are exploring over the course of 2020 and into 2021.

The commission's recommendations for reform will be set out in its final report in early 2021.

1.
THE STATE WE'RE IN

Our society, economy, and individual wellbeing depends on a healthy planet. It underpins everything we collectively produce and consume and we rely on it for food, energy, minerals, clean air and clean water, and to help maintain our health and wellbeing.

Our vision for the future is one in which economies and societies around the world have been brought within sustainable limits, where nature has been protected and restored and all citizens have the opportunity to thrive.

Yet the world is some way from realising this vision. It is instead in the midst of a compounding climate and nature crisis. This crisis is comprised of 'long emergencies', which largely began in the mid-1900s[10] and are getting more pressing and urgent as time goes on (Berners-Lee 2019). Crucially, while this crisis will impact everyone, it will disproportionately affect the poorest and youngest communities around the world, who are least responsible for causing it in the first place.

This chapter briefly sets out the scale of the climate and nature crisis before describing how the poorest are least responsible yet most vulnerable to the impacts of this crisis.

THE STATE OF THE CLIMATE CRISIS

Global temperatures are changing at a rate that is unprecedented within human history.[11] The average temperature of the planet has already increased by around 1°C since before the industrial revolution (Met Office nd). As figure 1.1 shows, even allowing the planet to heat by 2°C is much worse than a 1.5°C increase and severely affects the natural systems upon which human life depends.

10 If not much earlier for nature.

11 Global temperatures have been stable for roughly the last 10,000 years. This period has been highly conducive to human development and it is not a coincidence that our civilisations have flourished within this period.

FIGURE 1.1: THE IMPACTS OF A 2°C TEMPERATURE RISE ARE SIGNIFICANTLY WORSE THAN AN INCREASE OF 1.5°C

A comparison of the impacts of a 1.5°C rise in temperatures with a 2.0°C rise in temperature.

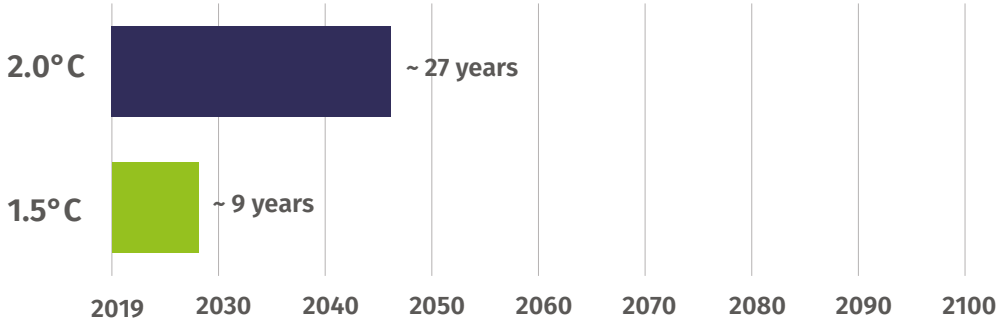
	1.5°C	2°C	
ECOSYSTEMS Amount of Earth's land area where ecosystems will shift to new biome	7%	13%	1.86x WORSE
PERMAFROST Amount of arctic permafrost that will thaw	4,800,000 km²	6,600,000 km²	38% WORSE
CROP YIELDS Reduction in maize harvests in tropics	3%	7%	2.3x WORSE
CORAL REEFS Further decline in coral reefs	70-90%	99%	UP TO 29% WORSE
FISHERIES Decline in marine fisheries	1.5 million tonnes	3 million tonnes	2x WORSE
EXTREME HEAT Global population exposed to severe heat at least once every five years	14%	37%	2.6x WORSE
SEA-ICE-FREE ARCTIC Number of ice-free summers	At least one every 100 years	At least one every 10 years	10x WORSE
SEA LEVEL RISE Almount of sea level rise by 2100	0.40m	0.46m	15% HIGHER
SPECIES LOSS: VERTEBRATES Vertebrates that lose at least half of their range	4%	8%	2x WORSE
SPECIES LOSS: PLANTS Plants that lose at least half of their range	8%	16%	2x WORSE
SPECIES LOSS: INSECTS Insects that lose at least half of their range	7%	18%	3x WORSE

Source: World Resources Institute's explanation of SP15 (Levin 2018)

The current business as usual scenario means the world is currently on track to deliver a 3°C rise in temperatures which would have catastrophic impacts worldwide (Hausfather and Ritchie 2019).

FIGURE 1.2: THE WORLD ONLY HAS AROUND A DECADE AT THE CURRENT (2018) RATE OF GLOBAL EMISSIONS BEFORE EXCEEDING THE CARBON BUDGET FOR STAYING WITHIN THE 1.5°C THRESHOLD. TO STAY WITHIN THE 2.0°C BUDGET IT IS JUST UNDER 30 YEARS.

Carbon countdown: Years of remaining emissions for a likely chance (66 per cent) of staying within 1.5°C or a 2.0°C temperature rise



Source: Authors' analysis of Le Quéré et al 2018, Boden et al 2017 and IPCC 2018

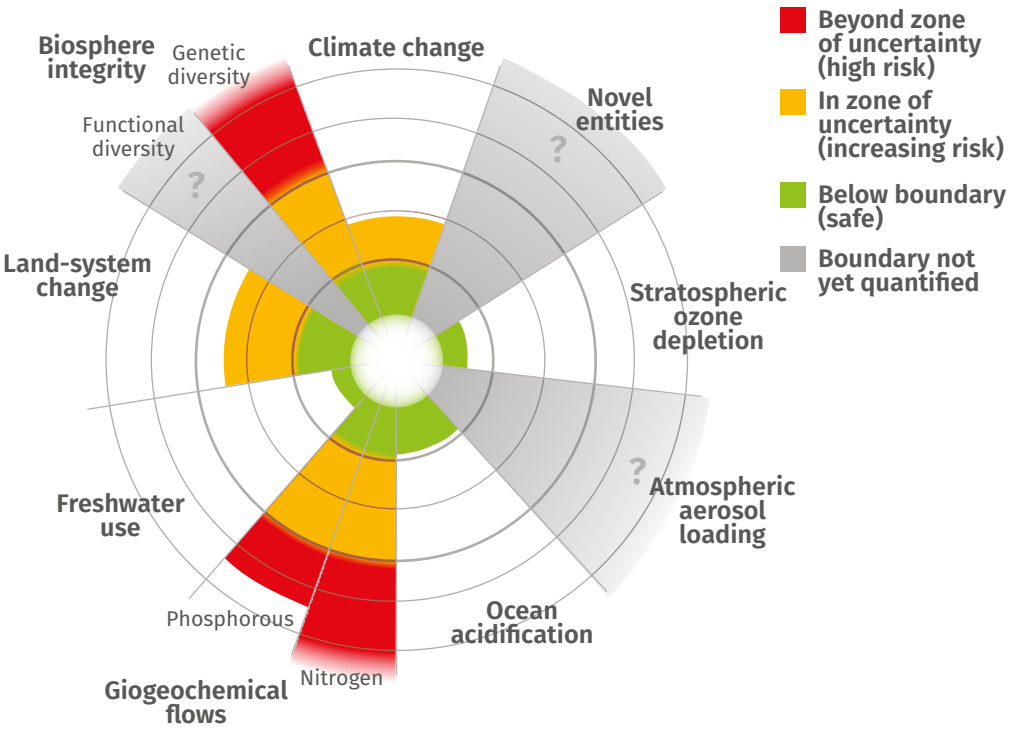
The challenge is already much harder than it would have been had significant action begun at the turn of the millennium. The longer that significant action is delayed the more drastic the level of emission reductions that are required.

THE STATE OF THE NATURE CRISIS

Human activity and consumption are also having unprecedented impacts on the natural world beyond a changing climate. This year, it is estimated that demand for the Earth's natural resources will outstrip what the Earth is capable of regenerating by approximately 75 per cent (Global Footprint Network 2019). This activity is taking a heavy toll on biodiversity too, with scientists arguing that we are entering the sixth mass extinction event (Ceballos et al 2017), with 1 million species at risk of extinction (IPBES 2019). This activity also puts our own survival at risk as it begins to exceed the nine 'planetary boundaries' that constitute a "safe operating space for humanity" (Stockholm Resilience Centre 2019).

FIGURE 1.3: ONLY THREE NATURAL SYSTEMS SIT WITHIN A SAFE OPERATING SPACE, WHILE FOUR HAVE BEEN DISRUPTED AND THE CONDITION OF THE REMAINING TWO IS UNKNOWN

The Planetary Boundary Framework of the Stockholm Resilience Centre



Source: Steffen et al 2015, modified from Rockström et al 2009

Breaching these planetary boundaries is dangerous in two main ways. Firstly, given the high degree of interdependence between natural systems, pushing one natural system into an unsafe space risks doing the same to others. Second, breaching even one boundary risks triggering a 'tipping point' that could cause abrupt and possible irreversible change to the natural systems on which we depend (Laybourn-Langton et al 2019a; Rockstrom et al 2009).

THE POOREST HAVE CONTRIBUTED LEAST TO THESE CRISES BUT ARE MOST VULNERABLE TO THEIR IMPACTS

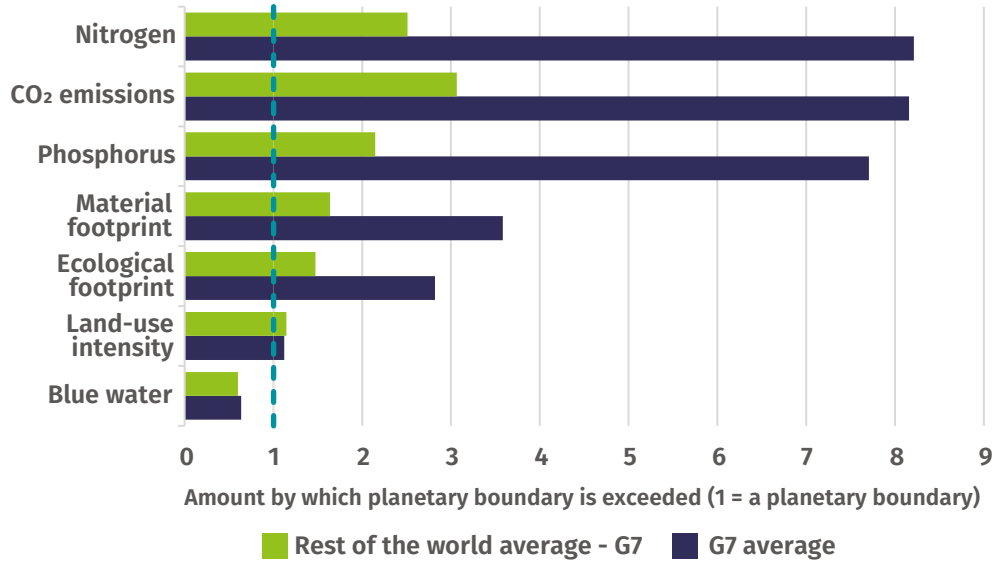
To inform the fairest possible response (discussed in chapter 2), we must recognise that the causes and the impacts of these crises are rooted in economic inequality (see chapter 4). The poorest and youngest communities at home and abroad are least responsible for, but most vulnerable to, the effects of the climate and nature crises.

UNEQUAL RESPONSIBILITY

The climate and nature crises have historically been driven disproportionately by the economic activities of the wealthiest countries and more still by the wealthiest people within those countries (Oxfam 2015). As of 2017, the UK had emitted about 4.6 per cent of the world's historic fossil fuel and industry emissions, making it the fifth biggest contributor after the US, China, Former Soviet Union, and Germany (Le Quéré et al 2018; Boden et al 2017; Ritchie 2018). Though the UK's contribution today is smaller, the discrepancy when comparing all countries still remains. As figure 1.4 shows, the richest countries in the world have by far the biggest impact on resource consumption. Expressed as a per capita average, the G7 consumes almost four times as much phosphorus and nitrogen, emits nearly three times as much CO_2, and has almost double the material footprint as the rest of the world.

FIGURE 1.4: THE RICHEST SEVEN COUNTRIES IN THE WORLD HAVE A MUCH LARGER AVERAGE PER CAPITA FOOTPRINT THAN THE REST OF THE WORLD

Per capita consumption of each planetary boundary, where a value greater than 1 means the boundary is exceeded



Source: IMF 2019; O'Neill et al 2018, adapted by IPPR

Unequal responsibility within the UK

This pattern is mirrored within the UK where the poorest communities contribute the least to the national carbon footprint. Data from Leeds University's Sustainability Research Institute (SRI) reveals that the highest income earners have a carbon footprint that is 42 per cent higher than the lowest earners (figure 1.5). The only reason this gap is not larger is that lower income earners spend over three times more than the richest earners as a proportion of their income on their home heating, the majority of which comes from the gas grid, due to living in energy inefficient homes (Emden et al 2018; Barrett et al 2018).

Heating aside, the data highlights how wealthier families generate many more emissions from private transport, air travel and consumables.[12] Indeed, according to the government Office for Science, 40 per cent of the lowest fifth of households by income have no access to a car at all (GOS 2018) and, in 2014, 70 per cent of flights were taken by just 15 per cent of the population – a group in which higher income earners were much more concentrated (Campaign for Better Transport 2016; DfT 2014).

The highest income earners in the UK have a carbon footprint that is

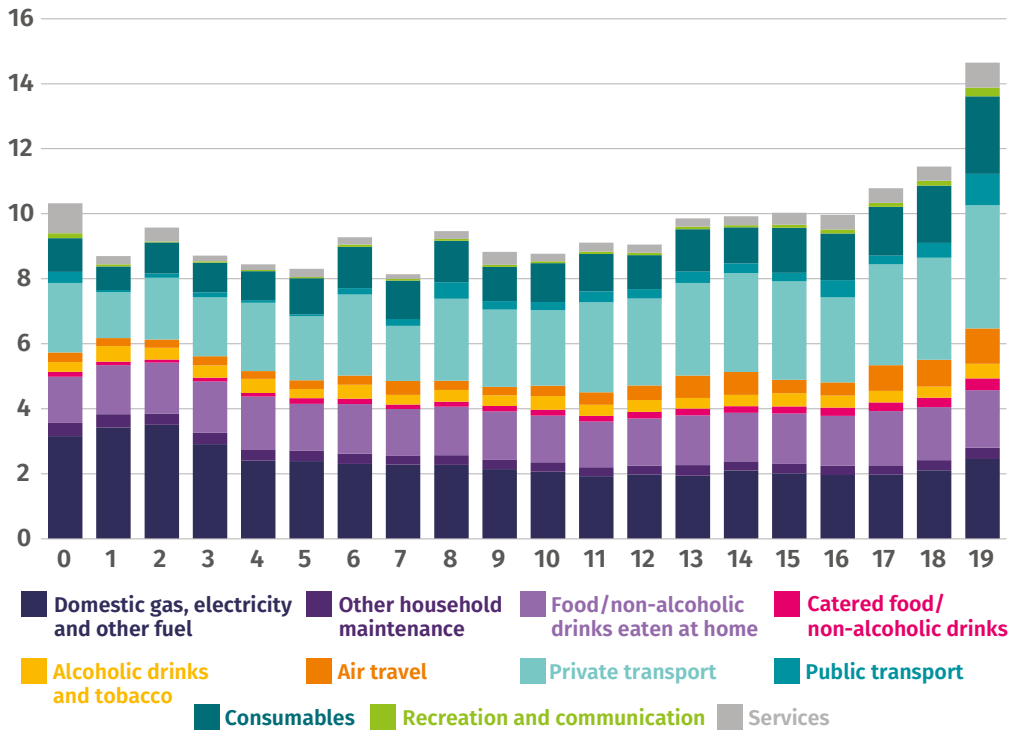
42 per cent

higher than the lowest earners

Source: University of Leeds Sustainability Research Institute 2019

FIGURE 1.5: POORER PEOPLE IN THE UK HAVE A LOWER CARBON FOOTPRINT THAN THE RICHEST[13]

Consumption emissions (CO_2eq) per capita split by income across 20 quantiles and by activity (2016 data)



Source: University of Leeds Sustainability Research Institute 2019

12 Such as clothing, furniture, electronics, white goods, and toys.

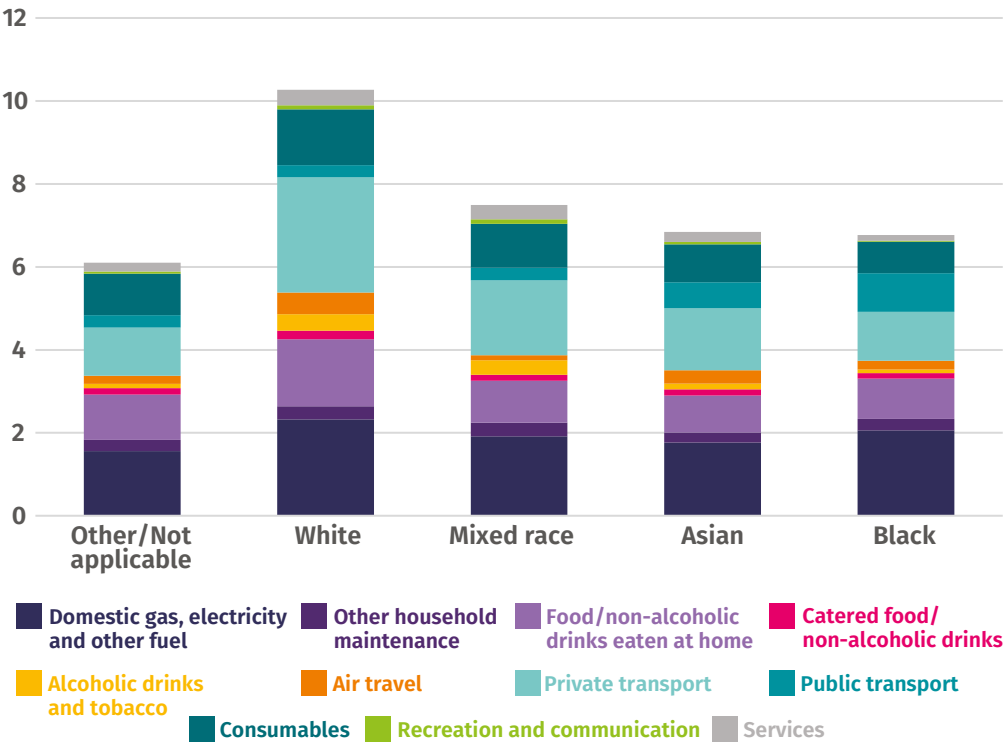
13 Data table for graph available on request – underlying data from licensed UK Data Archive.

This pattern can also be seen in the UK's wider environmental footprint. Imported products to richer countries and regions like the US and Europe have embedded environmental impacts such as air pollution or degradation of land that are not included in environmental targets in the countries demanding these products (Kenner 2015).

Disparities are also revealed when analysing carbon footprint data by ethnicity (see figure 1.6), which is also closely linked to poverty. Indeed, ethnic minority communities are concentrated among the lowest income households that are least likely to own a car (EHRC 2018; GOS 2018).

FIGURE 1.6: THERE IS A LARGE VARIATION IN THE CARBON FOOTPRINT OF ETHNIC GROUPS IN THE UK[14]

Consumption emissions (CO2e) per capita split by ethnicity and by activity (2016 data)



Source: University of Leeds Sustainability Research Institute 2019

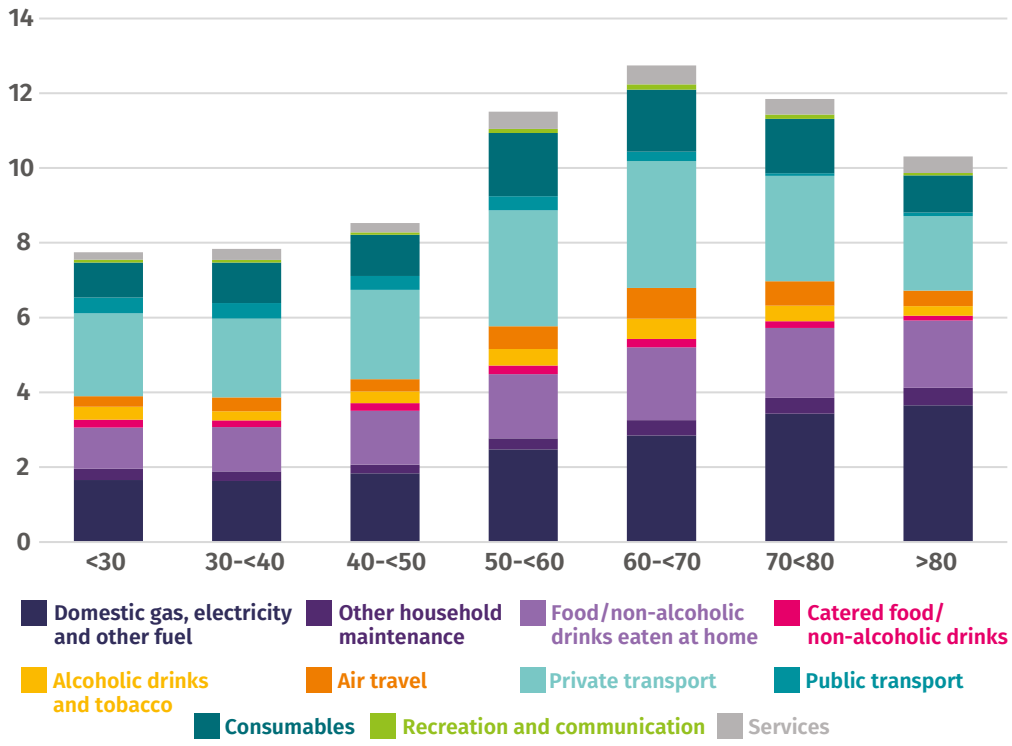
There is also an intergenerational divide

There are also inequalities which span across age groups in the UK, with those aged between 60 and 70 having a carbon footprint 63 per cent higher than those under 40 and 65 per cent higher than those under 30. As figure 1.7 shows, this is driven by increased public, private and air transport use and increased heat demand in part because older generations are more frequently the only occupants heating their homes. However, as has been widely reported, the inequality in footprints is expected to be particularly acute among the current younger generations as they are expected to be worse off than their parents (Laybourn-Langton et al 2019b).

14 Data table for graph available on request – underlying data from licensed UK Data Archive.

FIGURE 1.7: PEOPLE IN THE UK UNDER 40 HAVE A MUCH LOWER FOOTPRINT THAN THOSE AGED BETWEEN 50–80[15]

Consumption emissions (CO2eq) per capita split by age group and by activity (2016 data)



Source: University of Leeds Sustainability Research Institute 2019

UNEQUAL IMPACTS

The consequences of failing to tackle the climate and nature crises will affect everyone at home and abroad. From flooding and coastal change, to health risks from heatwaves, to risks to public water supplies and impacts on food supplies, it will be hard for anyone to escape the impacts of these crises. However, it also true that these crises will disproportionately impact the poorest.

Research has shown that the poorest countries and communities around the world are already experiencing substantial developmental penalties as a result of hotter temperatures which will in turn increase the wealth gap between rich and poor nations (Diffenbaugh and Burke 2019). Furthermore, extreme weather events are pushing 26 million people into poverty every year, by worsening malnutrition and further limiting access to scarce resources (Laybourn-Langton et al 2019a).

Despite being better equipped than many countries, the UK will not be immune to either the impacts or their disproportionate affect on its poorest communities. As we explore below,[16] there will be particular impacts on certain communities

15 ibid

16 The Committee on Climate Change has set out in detail the impacts of climate change on all parts of the UK economy and society including the natural environment and assets; infrastructure; people and the built environment; business and industry, international dimensions; and cross-cutting issues. Here we draw out some particular examples of where the impacts of climate change will fall unequally. For more information on the CCC's work, see here: https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/ccra-chapters/

including those that will be affected by extreme weather events such as flooding. These communities will require particular support in terms of adaptation.

Impacts on our health

The World Health Organisation (WHO) has estimated that the climate crisis is expected to cause approximately 250,000 additional deaths per year between 2030 and 2050 due to direct heat exposure and systemic effects such as increased disease and malnourishment (WHO 2014). In 2017, 157 million more people from the global population were experiencing heatwaves than in 2000, creating a serious health burden and costing an estimated 153 billion work hours (Watts et al 2018).

The risk to life is more severe in poorer countries. In some of the middle income and poorest regions of the world, baseline temperatures are already exceptionally high leading to fears that by the end of the century the combination of high temperatures and high humidity could create potentially fatal conditions in areas like South Asia, the Persian Gulf and North China (Matthews 2018; Matthews 2010).

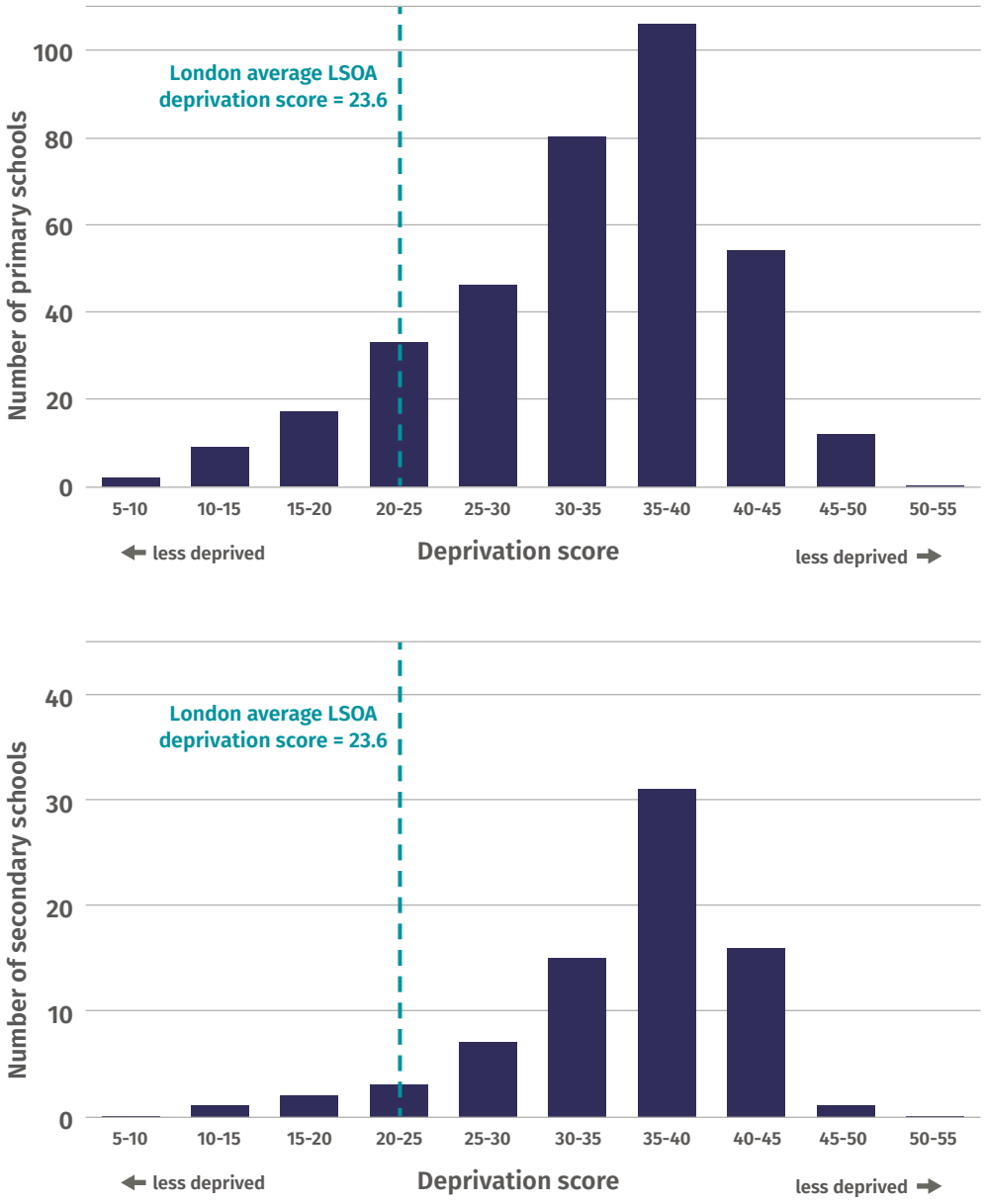
In the UK, the CCC found that around two thousand people across the UK died as a result of the 2003 heatwave (CCC 2019a). Moreover, risks to health, well-being and productivity from high temparatures have been highlighted as one of six priority risk areas when it comes to the need for adaptation (CCC 2017).

Worringly, given the impacts of the Covid-19 crisis, there is also evidence to suggest that global heating can also contribute to pandemics. For example, the loss of habitats can displace various animal species increasing the likelihood of spillover of pathogens between them. In addition, rising temperatrures can also create sympathetic conditions for the spread of some infectious diseases such as malaria (McKinsey 2020).

Human activity also contributes directly to unequal environmental health outcomes. Taking air pollution as an example, in the UK there is a clear correlation between NO_2 concentrations – predominantly from road transport – and local deprivation. Indeed, studies have shown that air pollution disproportionately affects primary and secondary schools in more deprived areas as figure 1.8 shows (Brook et al 2017).

FIGURES 1.8: PRIMARY AND SECONDARY SCHOOLS WITH A HIGHER DEPRIVATION SCORE ARE MORE AFFECTED BY AIR POLLUTION

Primary and secondary schools most affected by air quality pollution in the context of deprivation



Source: Brook et al 2017

Within the US, too, the African-American and Hispanic communities are exposed to 56 per cent and 63 per cent[17] more $PM_{2.5}$ pollution than the national average (Tessum et al 2019). Within the UK, research has shown that black communities are also disproportionately exposed to high levels of air pollution (Students Organising for Sustainability 2018).

17 Adjusted for consumption.

Impact on where we live

The poorest people, including marginalised communities, especially those living in developing countries (Closset et al 2019) and women and children (DoH 2001), live in areas that will be hit hardest by the climate and nature crises. For example, over the last 30 years, people living in First Nations reserves have been found to be 33 times more likely to be displaced by wildfires than those living off-reserve (Minority Rights Group International 2019).

In the UK, flooding is a particularly acute challenge to people's homes, businesses and infrastructure with each new year of flooding costing billions to the UK economy in damage to properties and businesses and severe disruption to people's lives across the country (Environment Agency 2018). In fact, in 2019, Gwynedd Council instructed local residents of the Welsh coastal town of Fairbourne to evacuate due to rising sea levels, making it the first town in the UK to be decommissioned due to climate change (Wall 2019). By the 2080s, another 1.5 million households could join them if sufficient action is not taken (Carrington 2018; CCC 2018).

Despite the risks, a considerable number of properties continue to be built in areas that are at high risk of flooding and the number of properties on flood plains is set to almost double over the next 50 years (Environment Agency 2019). Recent research by the think tank Bright Blue has shown that many of these properties will be in flood insurance blackspots, ineligible to receive flood insurance through the government and industry Flood Re scheme (Bright Blue 2020). Flooding is also a particular risk to businesses in many parts of the UK. Risks will vary depending on the exposure and existing protections but businesses in coastal areas are one example of those that will face particular risks (CCC 2017).

However, in some cases, the people living in areas most at risk of extreme environmental shocks do so directly because of economic inequality. In England for example, there are many spatial overlaps between those most economically vulnerable to flooding and the neighbourhoods in which flooding is most likely (England and Knox 2016). In future, this presents a serious risk that poorer communities will increasingly be forced to live on land at risk of flooding as it becomes less valuable while they are priced out of other locations.

Impact on what we eat

It has been estimated that land degradation is affecting productivity in 23 per cent of the world's land area and between $235 billion and $577 billion in annual global crop output at risk as a result of pollinator loss (IPBES 2019). In 2017, extreme climate events – mainly drought – were major triggers of food crises in 23 countries with over 39 million food-insecure people in need of urgent assistance (FSIN 2018). Furthermore, unsustainable water consumption is combining with the climate crisis to mean that by 2050 over half of the world's population will experience water scarcity at least one month a year (Boretti and Rosa 2019).

The impacts of these threats are once again unequally distributed. Gender inequality is entrenched by threats to food systems since in many instances women are responsible for the farming of crops to feed families and earn an income (UNFCCC 2019c). The threat of food insecurity driven by these changes is also disproportionately more likely to affect some of the world's youngest countries, emphasising how the exposure to the climate and nature crises is also an intergenerational challenge (Yeboah 2018).

In the UK, extreme weather is already affecting British farms that already depend on high levels of subsidy to survive and this is likely to get much worse at higher levels of warming (Rhodes and Barbieux 2019; IPCC 2018). Pollinators are estimated to be worth £430 million per year (UK National Ecosystem Assessment 2011). However, studies have shown that between 1980 and 2013, one-third of wild

pollinator species have declined (Powney et al 2019). The cost of replacing bee pollination with hand pollination is estimated to be around £1.8 billion per year (Clayton and Hunt 2014). Finally, environmental degradation combined with poor supply chain management could reduce food quality, particularly for the poorest consumers who may be priced out of higher quality food, as more producers respond to soil degradation by intensifying fertiliser use (Fitzpatrick et al 2019).

Impact on our nature, wildlife and oceans

In recent decades, there has been an unrelenting loss of the UK's wildlife. Since 1970, the abundance and distribution of UK wildlife has declined; 41 per cent of species have decreased in abundance, and 15 per cent are now at risk of extinction (State of Nature, 2019). These declines are on top of decades of degredation and depletion of the UK's natural world (ibid). The health of the UK's countryside is in such a poor state that the UK has been described as "one of the most nature-depleted countries in the world" (RSPB 2016). There are clear justice aspects to this issue with social and economic deprivation often found to be highest in areas with low quality of natural capital, particularly in coastal districts, rural uplands, and urban areas (Mullin et al 2018).

In addition to the intrinsic value of nature in and of itself, there are also significant impacts on the UK economy of the loss of nature. For example, soil quality is known to be severely depleted (Environment Agency 2019b)[18] with estimated annual costs of degradation at £0.9–£1.4 billion. The costs of losing stored carbon in soil alone has been estimated at £566 million per year (CCC 2019b).

These impacts stretch beyond land and into our oceans where decades of mismanagement, pollution and exploitation has seen the degradation of the UK's natural resources. For instance, the UK has lost an area of seagrass the size of 47,000 football pitches, leaving many coastal environments lifeless (Unsworth 2019). Such degradation means these environments are unable to provide sufficient food or shelter and they then often become a source rather than a sink for carbon, rendering them unable to protect the coastline from flooding and erosion (ibid).

Such degradation also has economic and social impacts with these environments proving unable to provide fisheries with sufficient catches to support coastal communities and reducing their resilience in the face of climate change. Indeed, it is not a coincidence that coastal communities in the UK are also some of the most deprived areas in the country (NEF 2018).

Impacts on business and industry

Business and industry face growing impacts from climate risks. The risks include flooding, coastal erosion, loss of infrastructure, water scarcity, reduced access to capital, reduced productivity in terms of their employees, disruption to supply chains, and changes in demand (CCC 2017).

The risks to business in the UK from flooding is particularly acute in many parts of the UK. How exposed businesses are will vary from area to area depending on the strength of protections within their local community. The risks of flooding do not just relate to physical damage of property, but also risks to supply chains, impacts on staff and consumer demand (ibid). Moreover, a recent survey of chief financial officers across Europe by consultancy Deloitte found that a thorough understanding of climate risks by businesses is rare (Coppola et al 2019).

These risks to businesses stretch well beyond the UK's borders with international supply chains and global markets also exposed to extreme weather. For example, a report by the consultancy PwC commissioned by ASDA, the British supermarket

18 Though the government has never established a consistent benchmark to measure this.

chain, found that just 5 per cent of its fresh produce would not be affected by climate change (PwC 2020).

Political impact

Across the world, degradation of ecosystem services has been found to be a major factor causing poverty and social conflict (Millennium Ecosystem Assessment 2005). Research suggests that the climate crisis has already elevated the risk of conflict by more than 10 per cent in Africa (Carleton et al 2016; Youness 2015). and studies have suggested that up to 2 billion people could be forced into involuntary migration as a result of climate and environmental breakdown by 2100 (Cornell University 2017; Geisler and Currens 2017). The US Pentagon has described the climate crisis as a "threat multiplier", saying that it poses "immediate risks" to its national security (UNFCC 2014).

In the future, there is a danger that conflict and increased migration emanating from the climate and nature crises will fuel a form of radical and reactionary populism. For example, across Europe, some far right parties are beginning to link climate discourse with intolerance towards migration (Ruser and Machin 2019). In the UK, political responses to the climate crisis also risk fueling right-wing populism if the responses to the climate and nature crises are perceived to 'pile new burdens' (such as regressive funding initiatives) on those who are already 'economically inseure and politically excluded' (Lockwood 2019). As we discuss in chapter 2, this is one of the key reasons why a policy response that emphasises a fair transition that reduces inequalities and secures a better quality of life for all is so important.

2.
FAIRNESS AND OPPORTUNITY

Central to tackling the cimate and nature crisis must be a transition that is both rapid and fair. Fairness must be at the heart of every policy, every decision and every action taken. Not only must action on climate and nature not exacerbate existing economic and social injustices, it must help address them.

Crucially, it must be a transition not done to people, but developed and led by them, particularly those most affected. It must include workers, trade unions, businesses, local communities and those that are already disadvantaged yet also most at risk. This time, we must leave no-one behind. But leaving no one behind must not be the limit of our ambition, action on climate and nature must also offer opportunities for all.

This chapter explores how the policy *response* to addressing the climate and nature crises could, if managed well, provide an opportunity to both reduce inequalities and secure a better quality of life for all. However, if badly managed, it could cause substantial disruption to certain communities and also the poorest. Crucially, the intention is not to stymie the urgent need for policy action, rather to deliver it in a way that manages the risks and realises the significant rewards.

WHY WE NEED A JUST TRANSITION

Responding to the interlinked but separate challenges of the climate and nature crises and social inequality requires rapid, far-reaching and unprecedented changes in all aspects of society. The key term used to describe policy that matches environmental ambitions with fair treatment of those affected by these changes is that of a 'just transition'. First coined by trade unions and labour movements around the world, a just transition is defined as the need to provide and guarantee "better and decent jobs, social protection, more training opportunities and greater job security for all workers affected by global warming and climate change policies" (ITUC 2018).

Considering the impacts which policy will have on workers is of course a crucial component of a just transition. However, in order to be comprehensively fair, it is also critical to consider how the transition will affect everyone in the UK: how the costs and benefits of the transition should be fairly shared within the UK; how to ensure transitional policies produce positive outcomes for marginalised communities; how to avoid transitioning at the expense of developing countries; and, finally, how to ensure that a transition acts in the interests of young and future generations who will be most exposed to the effects of the climate and nature crises. When developing policy, all five components must be considered in order for a transition to be considered truly fair.

As we discuss below, not only are there many opportunities which can be realised from well-designed policy, but from a political and public perspective, it is arguably the only way that a transition of the urgency and scale that is required will succeed.

FAIRNESS WILL ACCELERATE THE TRANSITION, AND INJUSTICE WILL UNDERMINE IT

A transition that actively engages with people and puts them at the centre of policy decisions is the only way to have any sort of successful transformation of the economy. Even if transition policies are well-intentioned in principle, as the protests in France against President Macron's proposals for carbon taxes have shown, it is vitally important to be sensitive to the people at the heart of these changes. The error made by the French president was not the introduction of carbon taxes, but the fact that they were regressive and hit the poorest the hardest (Garman 2018). Communication and extensive *early stage* engagement are therefore central tenets of a just transition and must include not just government but all those people affected, including workers, trades unions, businesses, and communities.

However, so far, warning signs of poor engagement have started to emerge. In some cases, this has been a simple lack of communication. For example, a government survey recently found that 48 per cent of the public had "never heard" of renewable heating systems, with just 6 per cent claiming to "know a lot" (BEIS 2019b). In other instances, mismanagement of delivery has led to distrust or perceived hassle among homeowners. For example, the Bonfield review of 2016 found that around 10 per cent of all energy efficiency installations were incorrectly installed, requiring additional work and hassle to redo upgrades (Bonfield 2016).

Similar miscommunication has been seen in the agricultural industry. In the absence of considered government policy and coordination of relevant stakeholders, some have warned of a culture war that has started to emerge between farmers and campaigners who want to dramatically reduce meat consumption (Batters 2019; Newman 2019). This kind of hostility directly risks undermining efforts to implement environmental and social policy that is fair by creating political and cultural resistance. Instead, it is crucial for engagement to be widespread, respectful and empowering for those who will be most affected by the substantial transition challenges ahead.

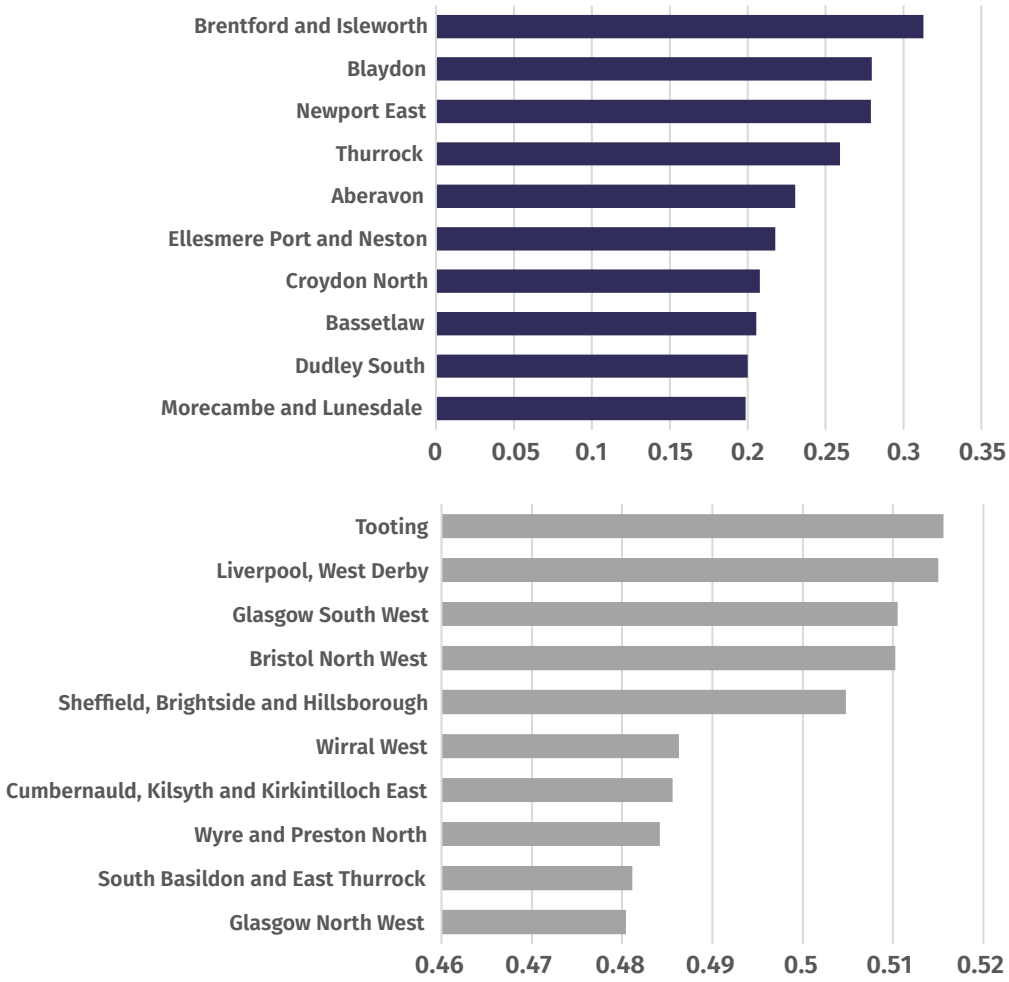
MANAGING THE RISKS - NO COMMUNITY LEFT BEHIND

Jobs that may be at risk as a result of decarbonisation policies are concentrated in already under-invested regions in the UK. As figures 2.1 and 2.2 show, the majority of constituencies with the highest proportion of greenhouse gas (GHG) intensive jobs in their area, fall outside of London and South East where wealth and investment is disproportionately concentrated (CEJ 2018). In absolute numbers too, according to IPPR analysis, from the top 10 regions most reliant on GHG-intensive industries,[19] around two-thirds of the over 446,000 jobs come from outside of London and the South East.

19 Taken here as the top-10 most GHG intensive industries.

FIGURE 2.1: MOST OF THE AREAS WITH THE HIGHEST PROPORTION OF GHG INTENSIVE JOBS ARE OUTSIDE OF LONDON AND THE SOUTH EAST

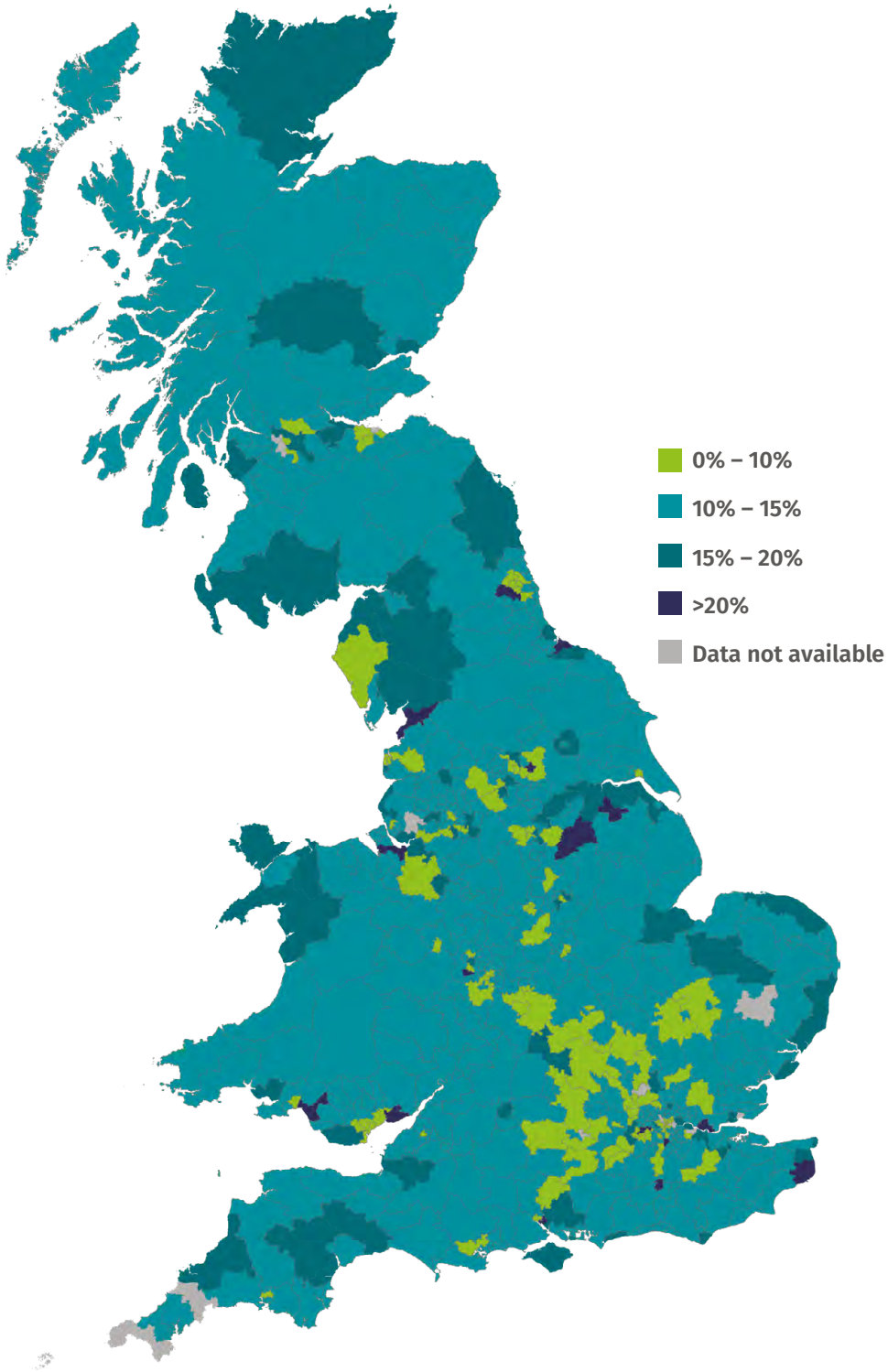
UK parliamentary constituencies with the highest proportion of jobs from top 10 and top 20 GHG emitting industries respectively



Source: BRES 2019, ONS 2019a, adapted by IPPR

FIGURE 2.2. THE CONSTITUENCIES WITH THE HIGHEST PROPORTION OF GHG INTENSIVE JOBS IN THEIR AREA GENERALLY FALL OUTSIDE OF LONDON AND THE SOUTH EAST

Map of parliamentary constituencies by number of jobs in top 10 most GHG intensive industries



Source: BRES 2019, ONS 2019a, adapted by IPPR

This is supported by research from LSE which suggests that the East Midlands, West Midlands, and Yorkshire and the Humber are the three regions with the highest proportions of jobs in sectors such as transport and manufacturing that could be at risk in the transition to a net zero economy (Robins et al 2019). Consequently, these regions face the dual threat of disproportionate risk to local employment combined with under-investment that limits their ability to prepare, manage or recover from such substantial industrial change.

The government has rightly said it wants to focus resources on reducing inequalities across the country – its so-called 'levelling up' agenda. Designing policy which takes into account the disproportionate risks for some areas and that seeks to maximise the opportunities will be crucial both to a successful transition and the fulfilment of the govenrment's aims around levelling up. Understanding what impact the fallout of the Covid-19 crisis will mean for jobs, regional disparities and levelling up will also be essential.

BADLY MANAGED TRANSITIONS FROM THE PAST

The UK does not have a good track record of managing industrial change well. From the 1970s onwards there were considerable job losses in traditional northern industries such as shipbuilding, textiles and clothing, steel, and coal. The absence of coherent industrial policy not only accelerated this process (Elliot 2016; Kitson and Mitchie 2014) but also left many skilled workers in the manufacturing sector a choice of accepting lower-paid work, or unemployment.

During the 1980s, as part of the government's economic 'reforms' 250,000 miners lost their jobs across the North of England. A combination of ill health (coal mining played a significant role in this) and job losses meant one in seven of all adults of working age in coalfield regions (the north of England, South Wales, North Derbyshire, Nottinghamshire, and North Staffordshire) were unemployed and no policy was put in place to help these workers find new employment. The decline in family incomes was so significant that it had knock on effects for local ecomomies, which coupled with the poor health of many miners, led to many of the coalfield regions recording much higher levels of deprivation. This has had a long term legacy – 43 per cent of all coalfield neighbourhoods are amongst the most deprived areas in Britain (Foden et al 2014).

Even where policies have been put in place to ameliorate the impacts of transition, their focus has often been on job numbers rather than job quality. The Dearne Valley is an example where the enterprise zone that ran from 1995 to 2005 was designed to regenerate areas which had suffered from deindustrialisation, but instead created jobs with lower skills and lower wages than had previously been available (Tingle 2011).

More recently, there have been some examples of successful managed change, such as Nissan diversifying to produce electric vehicles at its car manufacturing plant in Sunderland in part due to the North East being designated a Low Carbon Economic Area in 2010 (Arup 2017). However, these success stories have arguably been much more piecemeal and, despite the government's Industrial Strategy whitepaper focusing on place-based investment, it does not make any explicit mention of supporting workers in transition from high-carbon industries to climate-compatible ones (BEIS 2017).

AVOIDING CARBON LEAKAGE WITH GHG-INTENSIVE INDUSTRIES

Energy-intensive industries such as steel and petrochemical processing (Griffin et al 2016) will need to reduce emissions while facing existing pressures on their businesses such as complex international supply chains, comparatively high electricity prices in the UK (Cambridge Econometrics 2017; Johnston 2017; Grubb and Drummond 2018), global competition, high costs of fossil fuels, weak demand and (until relatively recently) a strong pound (disincentivising exports) (Cambridge Econometrics 2017). In part, these pressures have also meant that many sectors also risk falling behind international competition when it comes to a low-carbon transition. Research by LSE has shown that 13 out of the 15 largest industrial sectors in the UK are less effective at low carbon innovation than global competitors (Carvalho and Fankhauser 2017).

Without substantial policy support and a clear and funded path for innovation (TUC 2018), emissions abatement costs for these industries may either be passed on to consumers or prove too prohibitive, resulting in 'carbon leakage', where companies move to countries with weaker environmental and climate targets and regulations. This is doubly damaging as it does nothing to reduce emissions at a global aggregate level and also removes employment opportunities from the UK. Likewise, The UK should not be setting high environmental standards at home (for example, on agriculture or deforestation) only to then export our footprint and import environmentally damaging products from abroad.

ANY COSTS TO CONSUMERS MUST BE DISTRIBUTED FAIRLY

It is essential that the costs of the transition must be distributed fairly so that the poorest who are least responsible for causing the climate and nature crises do not end up paying disproportionately for the transformation required. However, current policy initiatives, insufficient as they are to meet the current net zero target, do not sufficiently consider potentially negative equity impacts. IPPR analysis, conducted in 2015, found that people within the lowest income decile – that is, the poorest 10 per cent of households – were spending 1.7 per cent of their income on energy policies. This is six times greater than those in the highest income decile, who contribute just 0.3 per cent of their income. While it is to be expected that lower-income groups spend a larger proportion of their income on energy bills, and therefore on energy levies, the trend is exaggerated because many low-income households actually pay a higher rate for their energy, due to their exclusion from the lowest available energy tariffs (Garman and Aldridge 2015). The poorest homes are also more likely to have energy efficient homes that further increases the cost of heating homes (NEA 2018).

The poorest 10 per cent of households spent 1.7 per cent of their income on energy policies in 2015, six times greater than those in the highest income decile, who contribute just 0.3 per cent of their income.

Source: Garman and Aldridge 2015

The resulting fuel poverty – the inability to afford to heat one's home – has been a persistent issue in the UK for years. This will have been brought into stark relief for many of these households during the Covid-19 crisis as the increased energy use as a result of staying at home, combined with the loss of income for many, will have likely hit those living in fuel poverty the hardest.

Currently, the energy company obligation – the flagship government policy to permanently tackle fuel poverty in England and Wales – fails to address this problem. In particular, energy efficiency upgrades are paid for through energy bills, which constitute a higher proportion of living costs for poorer homes than wealthy ones, rather than tax – where poorer households would be much less likely to fall within the tax bands that would fund the programme. Indeed, some energy customers are even asked by their suppliers to make a contribution to upgrades if the installation required is more expensive (Emden et al 2018).

FAIRNESS ACROSS THE GENERATIONS

Along with the poorest communities, younger and future generations have contributed the least to the climate and nature crisis (or not at all) but will disproportionately be exposed to its effects. A person of pensionable age (65 as of 2019) in the UK has a 2–4 per cent chance of being alive by 2050,[20] whereas a 16-year old has a 97 per cent chance of being alive by this time (Population.io 2019). If current leaders do not take sufficient action in the immediate future, then young and future generations will inherit a world in 2050 that is far more destabilised than the one experienced by their parents. However, as the examples below demonstrate, the current situation is being made worse not better.

Pension investments in fossil fuels entrench intergenerational divides

Pension funds epitomise how intergenerational injustice is hardwired into the economic system. They provide funding for projects, the returns from which older generations benefit and rely on, and over which younger and future generations have little or no say, including in fossil fuels. In 2017, in the UK, an average of 5.5 per cent of local council pension portfolios comprised of investments in oil, gas and coal projects valued at £16 billion in total (Mandel 2017). As of 2018, at least £82.7 billion worth of assets were managed by organisations and companies that do not formally consider climate change as a strategic risk and have no plans to align their reporting with the recently established Task Force on Climate-Related Financial Disclosures (TCFD) (EAC 2018). Failure to report properly risks tacitly allowing further investment into fossil fuels that not only contribute directly to global heating but, if the world is to stay within a 1.5°C limit, will also leave future generations saddled with stranded assets and billions of pounds of wasted capital. It is also important to note that the prosperity of many UK savers could also be at risk through a disorderly transition to net zero. With millions of savers invested in fossil fuel assets, in many cases unknowingly, there is a risk that their savings could be hit as fossil fuel assests lose value (Garman and Fox 2016). This further strengthens the case for these investments to be divested as swiftly and as methodically as possible.

Future generations have no legal rights in the UK

To force changes to the decision-making processes of government and business, in some countries, policymakers have been held to account by their judicial systems as legal cases have been launched that cite constitutional rights to enjoy nature 'in perpetuity', arguing that these apply to future generations. However, in the UK, there is no such constitutional provision. In fact, the Infrastructure Act of 2015 requires the maximum economic recovery from North Sea oil (Muttitt et al 2019). In other words, current legislation entrenches intergenerational inequality rather than provides the basis for protecting it. As IPPR has argued elsewhere, there is merit in following the Welsh government's approach by introducing a Future Generations Act as well as a future generations commissioner (Laybourn-Langton et al 2019b).[21]

INTERNATIONAL JUSTICE

Achieving a transition that is fair is a multi-dimensional challenge that also needs to be understood in terms of global supply chains (Robins 2018), which may not be immediately captured within country-level emissions reductions scenarios. As we discuss in chapter 3, the UK only has targets for territorial emissions rather than what are called 'embodied' emissions of products imported to the

20 Range accounts for differences between male and female life expectancy. Figures accurate as of October 2019.

21 Indeed, a cross-party backbench bill was introduced to parliament in March 2020 by Lord John Bird and Caroline Lucas MP. See: https://www.bigissue.com/latest/lord-john-birds-future-generations-bill-has-made-its-commons-debut/

UK but manufactured abroad. This is problematic from a justice perspective, as a government could effectively use accounting tricks to give the impression it is reducing emissions when in fact it is actually 'offshoring' them by importing GHG-intensive products and fuels from the global market. The same problem holds for environmental standards, where protections in the UK may often be stronger than the products imported from international markets.

There is already some evidence of policies that implicitly take advantage of these accounting tricks to circumvent UK environmental standards. For example, in 2018 around two-thirds of all renewable energy[22] used for electricity, heat, and transport came from bioenergy of some description (BEIS 2019a).[23] However, a large proportion of biomass is imported from the US Southeast where it is not sourced sustainably (Dogwood Alliance 2019). The effect of these unsustainable practices has been to damage biodiversity in a region that has been designated a biodiversity hotspot, increase air pollution in poorer communities where wood-pellet plants are situated, and to remove significant carbon sinks from the land (ibid; NRDC 2015). Yet, none of these environmental impacts, nor a substantial proportion of the lifecycle emissions (including from logging, land-use change, and methane) count towards the UK's carbon budgets, despite the area being the largest source of biomass for the UK market. This situation is particularly unjust when considering that, under current policy frameworks, research has shown that biomass lifecycles are far from being a carbon-neutral technology solution (Brack 2017).

Unethical supply chains for low-carbon technologies

As discussed in chapter 3, there are already serious ethical questions around the environmental impact of fossil fuel extraction in poorer, less climate resilient countries, to meet the demands of wealthier nations. However, it is important to recognise that even a transition away from fossil fuel extraction in developing countries currently still includes some ethically insupportable supply chains associated with the technologies intended to replace them.

For example, the increase in deployment of technologies such as solar PV, onshore and offshore wind and electric vehicles is associated with a substantial increase in demand for minerals like cobalt, lithium, and rare earth metals (Dominish et al 2019). Yet the majority of cobalt comes from the Democratic Republic of Congo where unscrupulous companies are reported to have used child labour to extract these minerals (Sanderson 2019). Ensuring that supply chains avoid such practices is a non-negotiable requirement of any just transition.

As another example, not only is bioenergy not truly carbon-neutral (as we discuss above), the implications of ramping up biomass consumption for as yet unproven technologies such as bioenergy with carbon capture and storage (BECCS) raises some important ethical challenges in its supply chains. For example, at a global level if BECCS were deployed on the scale assumed by many models, this would imply consuming up to half of global cropland, which would likely have severe impacts on global food security (Brack and King 2020). In addition, if natural forests are cleared to make way for tree plantations that regularly supply biomass (in BECCS or otherwise) it can take decades or even centuries for the initial release of emissions from land-use change to be reabsorbed (ibid). This inherently creates an issue of interegenerational inequity by building up a carbon debt now that will delay emissions reductions into the future.

22 Including biofuels.

23 IPPR analysis of BEIS 2018b

REALISING THE REWARDS - A MORE SUSTAINABLE AND EQUITABLE FUTURE

Public engagement and the involvement of all those people affected including workers, trades unions, businesses, and communities will be critical to the success or failure of any transition but the subject of conversation need not solely relate to mitigating negative consequences. In fact, the economic, social, and environmental rewards of a well-managed transformation of the UK's economy are substantial – so much so that, even if there was no crisis, it would be worth pursuing a policy programme based on a just transition on its own merits.

Benefits of climate impacts avoided

One of the most obvious and compelling economic benefits of addressing the climate and nature crises is that the cost of inaction is far greater than the costs attributed to tackling global heating (HM Treasury 2007; CCC 2019c). Inaction will also disproportionately impact the poorest communities in the UK and globally.

Plentiful jobs

Decarbonising the economy and restoring nature at pace will require one of the fastest and largest upskilling, reskilling, and training programmes the UK has ever seen. Even before the net zero target was adopted, a whole series of organisations were projecting substantial job creation across many different sectors in anticipation of a growing low-carbon economy. Though methodologies may differ, as table 2.1 shows, all projections point to the substantial potential for employment as a result of decarbonisation:

TABLE 2.1: THERE ARE MANY SECTORAL ESTIMATES FOR JOBS WHICH COULD BE CREATED IN THE LOW-CARBON ENERGY SECTOR

Publisher	Sector	Job estimate	Year
RenewableUK	Offshore wind	70,000	By 2023
IPPR	Heat networks	Up to 81,000	By 2030
Parity Projects	Energy efficiency	223,387	By 2030
Energy & Utility Skills	Smart meters	12,000	By 2020
Cogent Skills	Nuclear	35,000-60,000	By 2030

Source: Laine 2020; Energy & Utilities Skills 2017; Emden et al 2017; NSSG 2019

Building domestic supply chains and leading industries

The promise of numerous, high-quality jobs can only be realised by investing in domestic supply chains to ensure that new jobs come from within the UK. Achieving this requires identifying and incentivising the industries in which the UK may be able to develop a competitive advantage, thereby encouraging businesses to set up roots in the UK. To this end, the Committee on Climate Change (CCC) and consultancy Ricardo have previously identified several sectors within the low carbon economy where the UK has the potential to establish a dominant global market share including energy efficiency products, low-carbon power, low-carbon services such as finance and consultancy, low-emissions vehicles, infrastructure, and energy storage (CCC 2019c).

It will be important that new jobs created not only help support the government's levelling-up agenda but also create jobs in all sectors and all forms of companies. There are real opportunities for small and medium-sized enterprises (SMEs) in the transition to net zero but policy must ensure that bigger companies are not favoured at the cost of their smaller competitors.

Decarbonisation can also be seen as an opportunity to open up new frontiers in which more energy intensive industries can be much more competitive (Carbon Trust 2015). For example, investing in process and product innovation, could ensure the UK is able to access the first mover benefits of fewer global competitors and reduced or eliminated dependency on fossil fuels. Fledgling activities are already starting to emerge in the UK, such as the establishment of a research network to explore carbon-neutral steel in Wales (BBC 2019a) but a greater emphasis on 'directed technical change' could yield even more substantial benefits (Zenghelis 2019a).

A better deal for farmers

The common agricultural policy distributes payments according to farm size meaning that around 80 per cent of direct payments go to just 20 per cent of farmers. A just transition to a new agricultural policy would address this system by ensuring that farmers are paid a fair market value for the food they produce, while receiving payements for 'public goods' such as land management, protection of biodiverse areas, flood relief, and carbon storage, treating farmers as stewards of the land. In this regard, the principle of 'public money for public goods', proposed in the post-Brexit legislation by the UK government could help to resolve tensions over land use and treat farmers as key stakeholders in the transition.

A low carbon transformation driven by every region

A focus on a just transition could help to rebalance the distribution of power and funding toward the regions outside of London and the South East in pursuit of the UK government's 'levelling-up agenda'. The evidence suggests that many of the most attractive regions for investing in a low-carbon transition, whether tackling power, transport, heating or industrial emissions, rest outside the capital (Baxter and Cox 2017). For example, many regions have geographic, geological or historic assets that could be harnessed or repurposed, such as the salt caverns in Tees Valley that could suitable for hydrogen storage or mine-water from old coal mines in Durham County which could be suitable for low-carbon heating.

Furthermore, as research by IPPR has previously shown, regions outside of the South East and London have world-leading institutional capabilities through their universities and industrial clusters (Laybourn-Langton et al 2017). Finally, the need to address historic and chronic under-investment in transport links in the north of England also presents an opportunity to leapfrog existing modes of transport and focus on low-carbon options (Raikes 2019).

To realise these opportunities, local communities will not just need to be engaged but will also need to have a sense of ownership over future decisions. This will require further devolution of powers and, crucially, funding to provide regional authorities with the capacity to tailor decarbonisation strategies to the needs of their local area.

Improving living standards for the poorest

There are substantial opportunities to improve living standards for the poorest households and secure better a quality of life all, while also reducing costs and meeting the UK's net zero targets. For example, quality energy efficiency standards such as Passivhaus are both crucial to reducing carbon emissions by reducing demand, and can also deliver significant cost savings to households and warmer more comfortable homes. One pilot project in Portsmouth which deployed Passivhaus-standard energy efficiency upgrades to 111 flats reduced energy bills

by an average of £700 per year (Benton et al 2019), equivalent to over half the annual cost of a standard energy bill (Ofgem 2020).

In addition, transport, both in terms of the convenience of transport links and the cost of travel, is a significant determinant of poverty and broader measurements of wellbeing. Greater investment in low-carbon public transport links could significantly help contribute to improved financial situations and provide greater access to jobs, learning and local support services for the poorest (GOS 2018) while also improving quality of life for everyone. The shift to electric vehicles (EVs) also offers opportunities. At present, sales of EVs are rapidly increasing in terms of market share in the UK (Kane 2019) and global battery prices have fallen 85 per cent from 2010–18, but upfront costs are still higher than petrol or diesel equivalents (Goldie-Scot 2019). However, the total costs of ownership – including running costs and access to incentives – are now cheaper for EVs (Wappelhorst et al 2018). With the right policy incentives for upfront costs and investment in local charging infrastructure, government can ensure that EVs are affordable for everyone.

As an alternative to buying new cars, the movement towards transport-as-a-service (TaaS) models, such as car-sharing and car-hire from fleets, could also present a cheaper and zero-carbon method of travel. For example, one study in the US estimates that, by 2021, TaaS travel options could be four to 10 times cheaper per mile than buying a new car and two to four times cheaper than operating an existing vehicle (Arbib and Seba 2017).

Securing a better quality of life for all – cleaner air and healthier lifestyles

The chronic health effects from fuel poverty driven by high energy bills and inefficient homes is estimated to cost the NHS between £1.4 billion and £2 billion per year in England alone (Emden et al 2018). The economy-wide cost of air pollution, both to the NHS and the economy in terms of working days lost due to ill health is estimated at more than £20 billion every year (Emden and Murphy 2018). Investing in efficient and warm homes and both public and private low-carbon transport can all but eradicate these issues, thereby improving people's daily health, increasing labour productivity and decreasing cost and capacity pressures on the NHS.

Decarbonising the economy and restoring nature can also bring other substantial health benefits. It is estimated that people with good access to green space are more likely to take part in physical activity and are less likely to be overweight or obese (Coombes et al 2010). Reducing the sedentary population[24] by just 1 per cent could reduce morbidity and mortality rates valued at £1.44 billion for the UK (Natural England 2010) and have significant benefits to human health (Oja 2011).

Restoration of, and greater access to, nature and biodiversity

A key part of meeting net zero targets will involve natural climate solutions such as tree-planting that can both remove GHG emissions and, if done carefully, can have the additional benefit of preserving or restoring the health and biodiversity of local ecosystems (Cunnigham et al 2015; Brown 2019). Other more recently studied natural climate solutions such as seagrass, offer the exciting prospect of being substantial carbon sinks – up to 35 times faster than tropical rainforests – while also providing food and shelter for local marine life (WWF 2019).

Restoring areas like wetlands (RSPB 2020) and peatlands from being converted to agricultural land can also help to store carbon and, if driven by appropriate policy incentives and provide farmers with additional sources of income. In the case of peatlands for example, 16MtCO_2eq are released each year, largely due to decades of unsustainable land management practices (IUCN 2018). In the UK, only 22 per

24 Those engaged in little or no physical activity.

cent of peatlands are estimated to be in a natural or rewetted condition and, as a result, UK peatlands are estimated to emit 23.1MtCO_2eq per year (ONS 2019b). The costs of restoring 100 per cent of these peatlands is estimated at between £8 and £22 billion – but the benefits far outweigh the costs (ibid). Restoration of just 55 per cent of these peatlands is estimated to be worth between £45 and £51 billion over the next 100 years in net carbon benefits alone (ibid).

In addition, access to green space has been shown to bring a range of benefits including increased physical activity, reduced obesity levels, improved mental health and wellbeing, and increased life expectancy (Public Health England 2014). Access to good quality green space can also bring broader social benefits as well, bringing communities together and reducing isolation (ibid) as well as reducing crime levels and vandalism (Forest Research 2020).

More resilient, climate-safe communities

Many of the natural climate solutions available to policymakers in reaching net zero targets, will also have the effect of improving resilience. For example, wetland and peatland restoration and increased tree-planting can all help to reduce flood damage by regulating water flow and increasing absorption capacity of soil which can help to reduce flood damage (Johnstonova 2007; Hornigold 2017; Case 2016). Tree planting can help manage urban heating; for example urban woodlands have been found to have cooled 11 city regions – enough on a hot day to save £229.2 million in labour productivity an air conditioning costs in 2018 (ONS 2020).

In addition to reducing direct exposure to extreme weather events driven by climate change, there is also the opportunity to reduce systemic risks that may stem from dependencies on vulnerable international supply chains. For example, a greater focus on local, decentralised, renewable energy projects can reduce the UK's dependence on fuel imports (FoE 2018) like gas. Furthermore, a move away from high levels of meat and dairy consumption towards incentives for farmers to increase domestic supply of crops such as fruits, vegetables, nuts, and pulses (RSA 2019) would have multiple benefits, including more efficient land and water use, reduced GHG emissions from crops and transport emissions (due to fewer imported products) (ibid), and reduced dependency on imports from international food markets. Such support would also help avoid a potential culture war between farmers and campaigners as set out above.

3. GETTING THE UK'S HOUSE IN ORDER

Our ambition is for the UK to be a world leader in transitioning to a zero carbon economy where nature is protected and restored. As host of the international climate summit, COP 26, we want the UK to lead by example, offering world leading ambition in terms of targets for both climate and nature backed up by equally ambitious policies to meet them. We envisage the UK catalysing increased global ambition on climate and nature through the extent of its domestic ambition and action.

Fulfilling this vision will create huge opportunities at home and abroad. At home, a rapid and fair transition will allow the UK to make the most of the myriad of economic opportunities available from the low-carbon economy, creating high quality and well paid jobs, building world leading businesses and securing the opportunity to realise the government's ambition of levelling-up across the UK. Abroad, ambitious domestic action will both create space for the developing world and recognise the UK's historic contribution to carbon emissions and its unsustainable environmental footprint. The UK must also make its fair contribution in terms of finance to support action around the world to mitigate and adapt to the climate and nature crises and support other countries in the sharing of innovation and technology.

However, as we discuss in this chapter, in order to lead by example the UK must first set that example. Although some progress has been made, many inconsistencies and contradictions remain in the UK's approach to reducing emissions and tackling the climate and nature crises. Our conclusion is that the UK's progress so far has been inadequate and, going forward, we must proceed with much greater urgency and depth than is currently planned in rising to the climate emergency and to restore nature. Put simply, if the UK is to realise the rewards and avoid the risks of the climate and nature crisis, an incremental approach will not do.

PROGRESS HAS BEEN MADE BUT THE UK'S CURRENT PACE OF DECARBONISATION IS STILL INADEQUATE AND UNNECESSARILY COSTLY

Without stronger and more rapid near-term action, the CCC has warned that it will quickly become infeasible to decarbonise sufficiently to reach net zero GHG emissions by 2050 without significant additional costs and greater disruption to people's lifestyles (CCC 2019c).

The UK has made some progress in reducing its territorial greenhouse gas emissions (GHGs). Since 1990, GHGs have decreased by approximately 40 per cent. According to the CCC, this was delivered while growing the economy by 70 per cent (ibid).[25] Since 2000, the UK's carbon intensity has also decreased by an average of 3.7 per cent per annum – more than twice as fast as the global average and significantly faster than any other country within the G20 (PwC 2019).

25 Although there is no evidence that the decoupling of absolute emissions at the speed and scale required and GDP growth has been achieved.

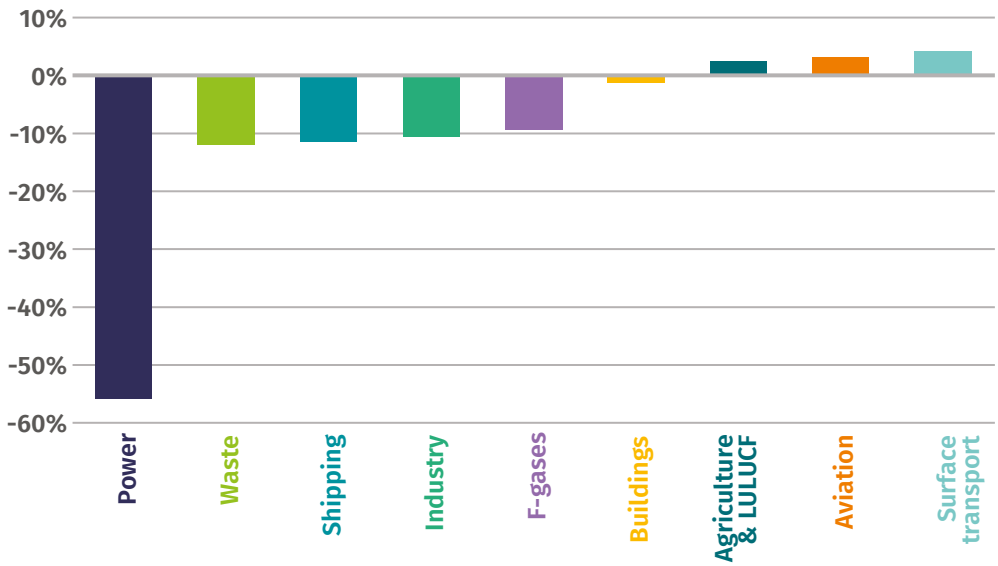
At a microeconomic level, progress can also be identified in specific sectors. For example, thanks to targeted policy in the form of Contracts for Difference, offshore wind has experienced substantial cost reductions and is now being deployed at a scale that brings with it job creation thanks to some (though importantly not all) components being manufactured in the UK (Energy & Utility Skills 2018). As recently as 2016, BEIS were projecting the cost of offshore wind would reach £100/MWh by 2025 (BEIS 2016). In the most recent auctions in 2019, the cost stood at £39.65/MWh (BEIS 2019c).

Examples of good practice are also to be found in Scotland and Wales where the nations have spent four times as much and twice as much respectively on energy efficiency programmes than in England (Milligan 2019). As a result, both nations offer relatively successful energy efficiency programmes designed to address fuel poverty, provide free advice, offer zero interest grants and loans and prioritise delivery of upgrades for low income areas (ibid).

However, the pace of decarbonisation is still inadequate and there is no evidence that the decoupling of absolute emissions (as opposed to emissions intensity) at the speed and scale required and GDP growth has been achieved. The vast majority of emissions reductions come from the power sector (see figure 3.1), largely as a result of phasing out coal – low-hanging fruit compared to the policy effort required to reduce emissions in other sectors.

FIGURE 3.1: MOST OF UK'S PROGRESS SINCE 1990 HAS BEEN ACHIEVED THROUGH THE DECARBONISATION OF THE POWER SECTOR

Trends in UK sectoral emissions (1990–2017)



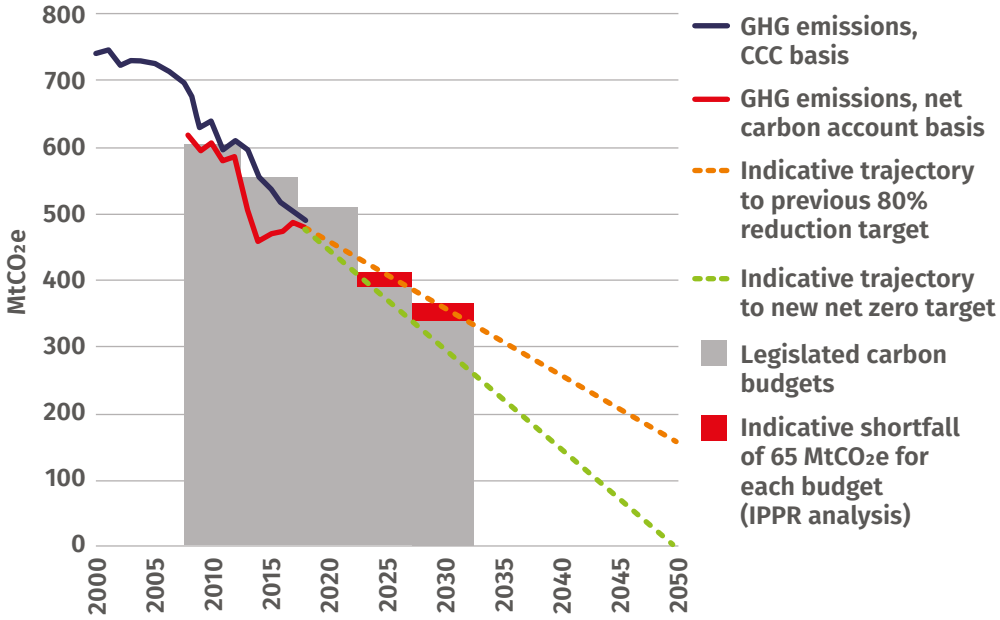
Source: The CCC's 2019 Progress Report to Parliament (CCC 2019d)

Looking ahead, as figure 3.2 shows, the UK is currently on track to miss its fourth and fifth carbon budgets by about 65 $MtCO_2e$ across each of the two budgets (CCC 2019d). Indeed, the CCC's overall conclusions in its report to parliament were damning: "many current plans are insufficiently ambitious; others are proceeding too slowly, even for the [now superceded] 80 per cent target" (ibid).[26]

26 Now historic; in June 2019, Theresa May's government committed the UK to net zero greenhouse gas emissions by 2050, up from the previous 80 per cent reduction against a 1990 baseline.

FIGURE 3.2: THE UK IS ON TRACK TO MISS ITS LEGALLY BINDING FOURTH AND FIFTH CARBON BUDGETS

According to the Committee on Climate Change, the policy gaps against the fourth and fifth carbon budget are around 65 $MtCO_2e$ across each of the respective budgets



Source: IPPR analysis of the CCC's 2019 progress report to parliament (CCC 2019d)[27]

THE UK'S RESPONSE TO THE NATURE CRISIS IS ALSO INADEQUATE

The UK is one of the most nature-depleted developed countries in the world. Despite being a signatory to the Convention on Biological Diversity (CBD), 41 per cent of species in the UK have decreased in abundance over the last 50 years and 15 per cent of species are threatened with extinction (State of Nature Partnership 2019). By the government's own reporting, the UK is on track to miss 14 of the 19 Aichi biodiversity targets it reports on, including on protecting threatened species and tackling unsustainable agriculture and fishing practices (JNCC 2019).

In response (albeit only for England), the government has laid its environment bill before Parliament. However, there are several problems with the bill. First, unlike the Climate Change Act, the bill does not include legally binding actions or binding interim targest to deliver the recovery of nature. Second, as currently designed, the newly proposed environmental watchdog, the Office for Environmental Protection will not operate entirely independently of ministers nor have robust enough powers to hold government to account. Third, the bill does not include a substantive commitment to non-regression of environmental law following the end of the transition period of the UK leaving the European Union. In fact, the bill affords ministers the discretion to overlook key principles of EU legislation such as the Precautionary principle that have been so fundamental to relatively high environmental standards (Harper 2020).

27 While the current trajectory appears to show the UK will meet its fourth and fifth carbon budget by the end of each period, to stay within budget, it will in fact have to meet the budget in the middle of each period, which it is not on course to do.

THE UK GOVERNMENT HAS ALLOCATED INSUFFICIENT INVESTMENT TO TACKLE THE CLIMATE AND NATURE CRISES

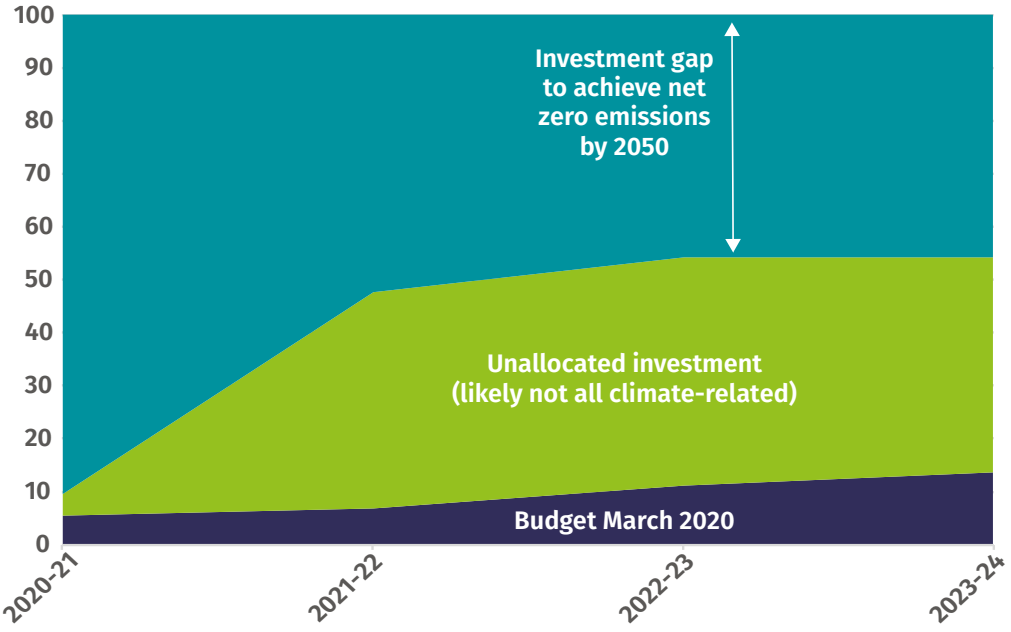
Despite the clear benefits, the government has not yet put in place the investment and policies needed to achieve its current net zero target. What is needed is nothing less than a step change in the scale of public investment in the green transition. As we set out in chapter 2, such an investment will help us secure a more sustainable, fair, and just economy and a better quality of life for all.

Building on analysis by the CCC and analysis by leading environmental NGOs, IPPR recently estimated that the UK government needs to invest an additional £33 billion per year to meet its net zero commitment by 2050 (Jung et al 2020). Though an average of £2.5 billion of annual additional climate investment per year was announced in the most recent budget, this figure still falls well short of the spending needed. In the budget, the government also commited to an additional £13 billion capital investment on average per year up to 2024/25,[28] but how much of this will be spent on climate and nature is yet to be determined. Moreover, the single biggest infrastructure commitment was an investment of £27 billion in a major roads programme, locking in the high-carbon infrastructure of the future.

So far, the sums that the government has committed have been insufficient. In almost all sectors, the government's election manifesto commitments are far below what is needed. The government's climate and nature commitments made in the budget make up on average less than 10 per cent of the spending that would be needed to actually achieve net zero by 2050 (see figure 3.2). Public investment commitments are increasing towards the end of parliament, but still make up only 14 per cent of what is needed by 2023/24.

FIGURE 3.3: THE GOVERNMENT'S ALLOCATED PUBLIC INVESTMENT OVER THIS PARLIAMENT IS LESS THAN 10 PER CENT OF WHAT IS NEEDED TO ACHIEVE NET ZERO EMISSIONS BY 2050

Additional public investment committed compared with that needed to tackle the climate and nature crises



Source: Committee on Climate Change 2019, Green Alliance et al 2019, Conservatives (2020), HM Treasury 2020. For more information about methodology see Jung et al (2020).

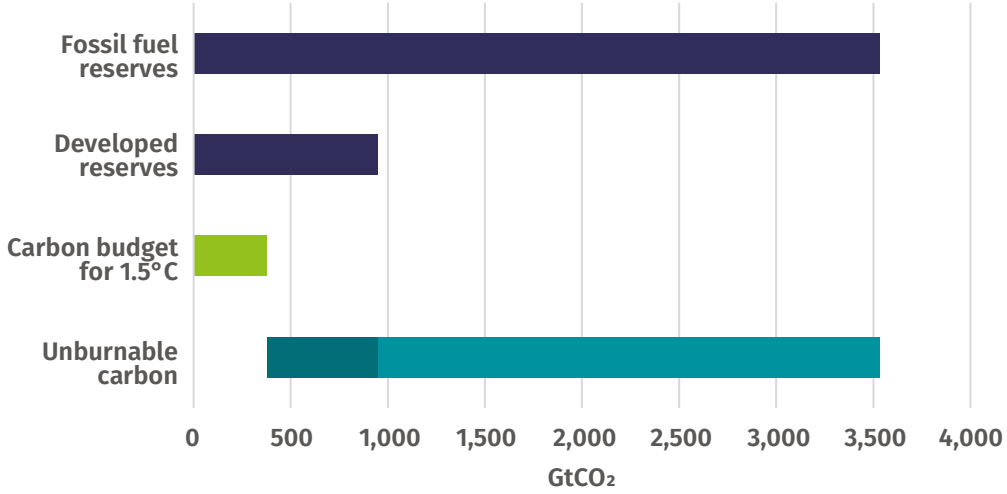
28 The 'unallocated' amount is based on figures in the HM Treasury March Budget document 2020 (table 2.2). It is the average of additional unallocated capital spending (based on new policy decision in the budget). It will be allocated in the upcoming spending review.

THE UK'S POLICIES ON FOSSIL FUEL PRODUCTION AND CARBON INTENSIVE INFRASTRUCTURE UNDERMINE ITS DECARBONISATION EFFORTS AND PUT FUTURE GENERATIONS AT RISK

Without phasing out fossil fuels, future generations will be saddled with the global heating effects of current burning of fossil fuels, redundant fossil fuel infrastructure assets and will be left to pick up the bill for billions of pounds of wasted capital. Indeed, there is currently enough oil, gas, and coal in the fields and mines already operating globally to, if burned, push the world far beyond 1.5°C of warming and consume a 2°C budget as well (Muttitt et al 2019).

FIGURE 3.4: THE WORLD NEEDS TO WRITE-OFF MOST OF ITS RESERVES TO AVOID MORE THAN A 1.5°C RISE IN GLOBAL TEMPERATURES

The global carbon budget for 1.5°C compared to fossil fuel reserves



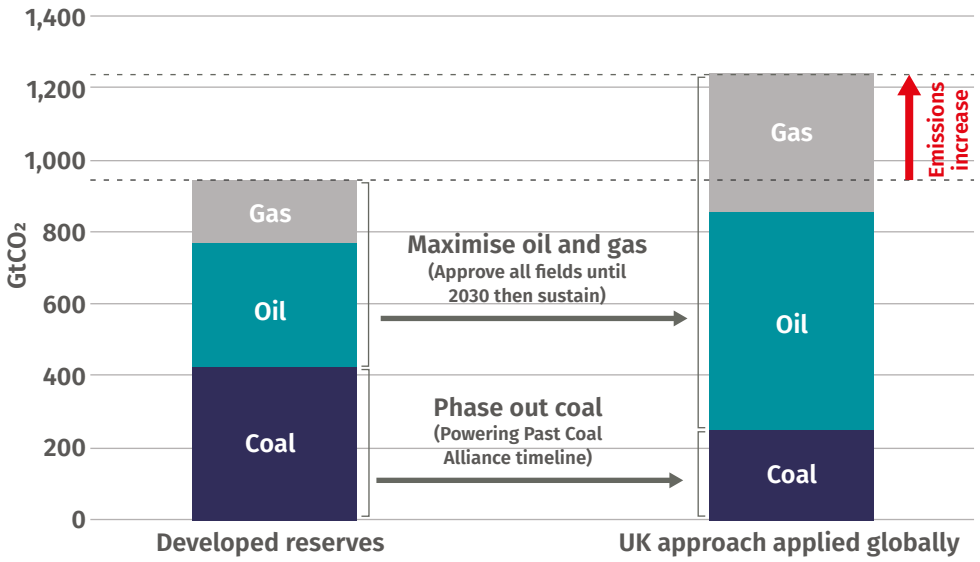
Source: IPPR analysis of data from BP Statistical Review of World Energy (BP 2019) and Muttit et al 2019

The UK's current policy approach to oil and gas extraction contributes to this problem in several ways and risks totally undermining its decarbonisation and wider environmental ambitions while putting future generations at greater risk. First, the City of London supports – either directly or indirectly – 15 per cent of global carbon dioxide emissions (Carbon Tracker 2019). In 2018, 28 per cent of FTSE 100 dividend distributions came from oil, gas, and mining (ibid).

Second, the UK has 5.7 billion barrels of oil and gas in already-operating fields; this already exceeds the UK's share in relation to the Paris climate goals. Despite this, the UK and Scottish government's legally binding policy of maximising the economic extraction of oil and gas could mean that extraction rises to a total of 20 billion barrels (Muttit et al 2019). Research suggests that if all countries took the same approach to fossil fuel extraction as the UK, then the production gap – the gap between what countries are planning to extract and what is allowable under 1.5°C of warming – would get even wider than it already is (see figure 3.5).

FIGURE 3.5: THE UK IS PROVIDING A BAD EXAMPLE IN TERMS OF POLICIES AROUND EXTRACTION OF FOSSIL FUELS

The impact on cumulative global GHG emissions from fossil fuels if all countries phase out coal while maximising oil and gas extraction



Source: Muttit et al 2019 (base data from Rystad UCube, IEA, World Energy Council, IPCC, Oil Change International)

The development of carbon capture and storage (CCS) technology is often seen as a way to continue investment in fossil fuel extraction by capturing tail-pipe GHGs, and it is essential to meeting most of the Committee on Climate Change's net zero scenarios. However, CCS technology is currently still in its commercial infancy and needs to be scaled up significantly if the UK is to meet its net zero targets.[29] In addition, while CCS is important for capturing emissions from gas power stations and industrial emissions, it does little to address the vast majority of oil demand – three-quarters of which comes from road and air transport (UKOG 2020).

Beyond oil and gas, the government's policies on infrastructure more broadly are not consistent with its net zero target or its obligations under the Paris Agreement. A recent decision by the High Court found that the government had failed to consider whether the Heathrow expansion was consistent with its commitments under the Paris Agreement (Court of Appeal 2020). It is essential, following this ruling, that government at all levels is taking into account the UK's obligations under the Paris Agreement and ensuring that all projects, investments, regulations, and legislation are aligned to to limiting global warming below 1.5°C.

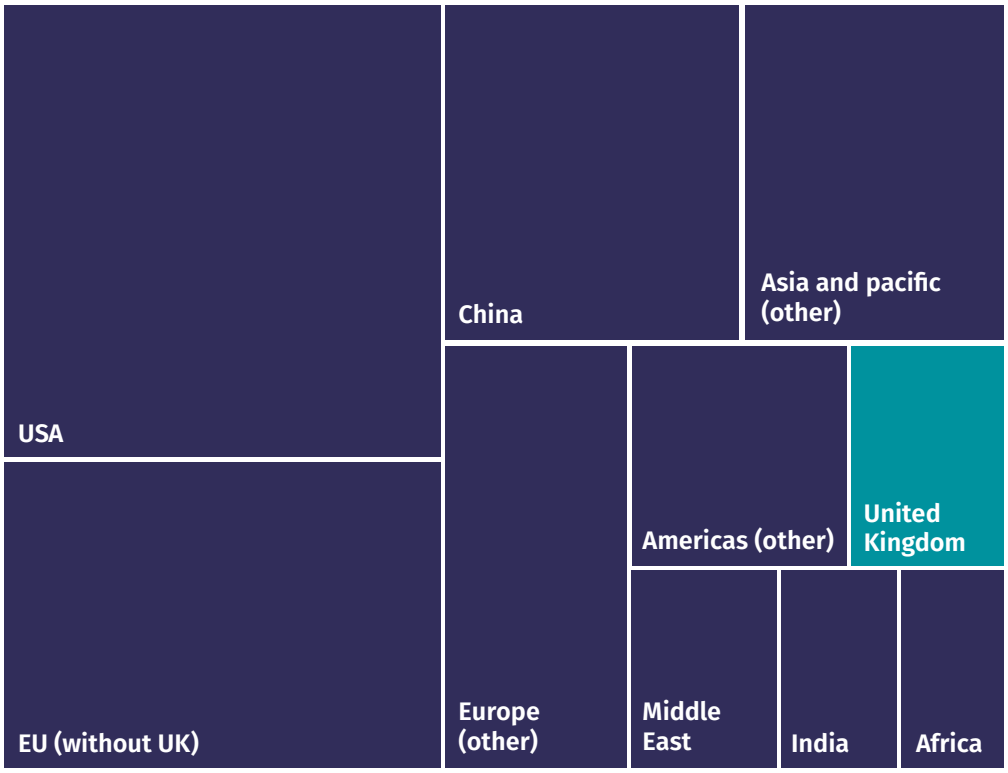
29 The UK currently has negligible extraction capacity with only a few pilots currently in operation (Global CCS Institute 2020), though there are plans to scale this up through the 2020s (ibid). By 2050, the Committee on Climate Change estimates that we are likely to need a capacity of between 20–51MtCO2 in order for the UK to meet its net zero targets (CCC 2019f).

THE UK NEEDS TO MEASURE ITS FULL CARBON AND ENVIRONMENTAL FOOTPRINT

As we discussed in chapter 2 (and shown in figure 3.6), the wealthiest countries like the UK have disproportionately contributed to historic GHG emissions and continue to have an outsized impact relative to their population. According to IPPR analysis of global historic emissions, the UK has already consumed about 4 times its fair share of the 1.5°C budget overall.[30]

FIGURE 3.6: THE UK IS THE FIFTH BIGGEST CONTRIBUTOR IN TERMS OF CUMULATIVE EMISSIONS[31]

Cumulative historical global carbon dioxide emissions, by country*



Source: Courtesy of Our World in Data (Ritchie 2018), with base data from CDIAC (Boden et al 2017) and the Global Carbon Project (Le Quéré et al 2018)
***Note: Global historical carbon dioxide emissions since 1870, including those associated with fossil fuel and industry but not those associated with land-use change.**

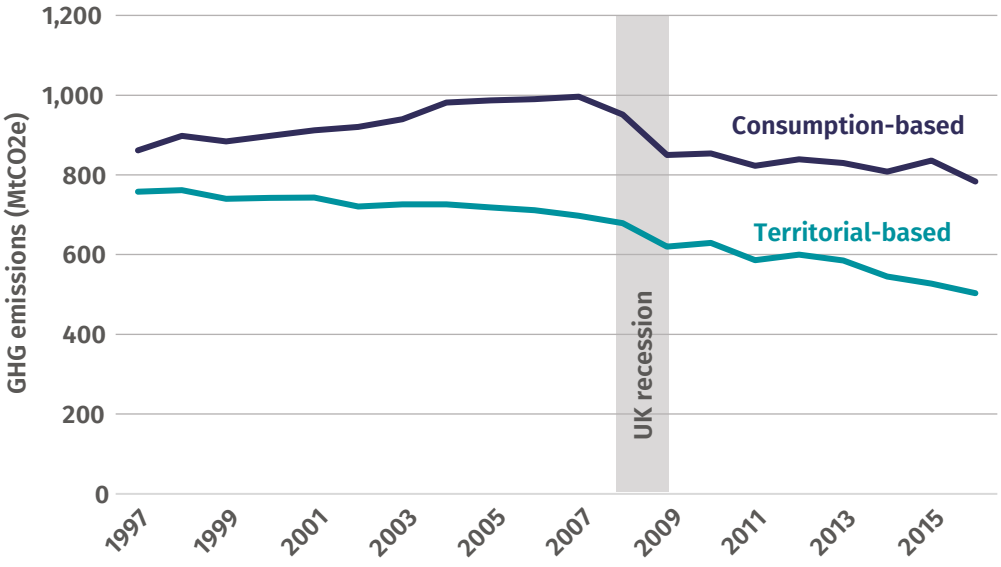
However, the impact that countries like the UK are having has actually been understated. This is because the government bases its decarbonisation targets on emissions produced in the UK (known as 'territorial emissions') and does not include goods consumed in the UK but produced elsewhere. As figure 3.7 shows, when taking a consumption based approach that includes these goods, the UK's footprint is noticeably higher. Indeed, the UK's consumption emissions in the 1970s were just 0.2 per cent higher than our territorial emissions, whereas they are 37 per cent higher today. This shift is largely a result of the process of deindustrialisation, through which the UK has switched to importing more of the products and materials that it consumes from abroad.

30 This is based on data from the research and data website,' Our World in Data', which suggested that the UK is responsible for about 4.4 per cent of historic emissions, combined with the remaining budget for a 66 per cent chance of staying within 1.5°C and adjusted for the UK's share of the global population.

31 The overall area of the chart represents total historic global carbon dioxide emissions, with each individual box respresenting a specific country or regions contribution to the total.

FIGURE 3.7: THE UK'S CONSUMPTION EMISSIONS ARE SUBSTANTIALLY HIGHER THAN TERRITORIAL EMISSIONS, EVEN WHILE BOTH HAVE DECLINED

UK consumption emissions against territorial emissions, 1997–2016



Source: CCC 2019d

if everyone in the world were to live like the average UK citizen, then we would need

2.5 planets

worth of resources to sustain us

Source: O'Neill 2018

Our consumption habits also have large environmental impacts. The UK uses an overseas area of more than half its size (a total of 13.6 million hectares) to supply our annual demand for just seven agricultural products including palm oil, soy, and cocoa. Furthermore, more than 40 per cent of this overseas land footprint is in countries that are at high risk of deforestation, or are considered to have weak governance or poor labour standards (Jennings et al 2017).

Analysis suggests that the UK is also disproportionately responsible for pushing natural systems beyond the safe operating space around the world. Leeds University's Good Life for All Within Planetary Boundaries project shows that the UK is currently transgressing five out of seven critical biophysical boundaries by between 250 and 820 per cent (O'Neill 2018). The evidence suggests that if everyone in the world were to live like the average UK citizen, then we would need 2.5 planets worth of resources to sustain us (ibid).

The UK's outsized carbon and environmental footprint is in part the result of the UK's much broader, historical impact on the world. As one of the originators of the first industrial revolution, the UK has played – and continues to play – an important role in disseminating its development model around the world. As we will discuss in chapter 4, from early mercantilism in the 15th century to industrial capitalism and our more recent financialised capitalism, the UK economic model, rooted in material extraction, has influenced the development process of many countries.

Even today, our investments continue to promote damaging environmental impacts abroad; for example, capital investment in the UK oil and gas industry

in 2017 was £5.6 billion, despite the UK's pledge to significantly reduce its carbon emissions. This investment was equivalent to about 3 per cent of the UK industry's total capital investment (Oil and Gas UK 2020; ONS 2020b).

If the UK is to play a constructive role in tackling the crises in climate and nature going forwards, then it will need to re-evaluate both territorial emissions that arise at home as well as consumptions emissions and environmental impacts from the imported materials and goods that it purchases from abroad.

GOING FASTER: THE CASE FOR ACCELERATING DECARBONISATION IN THE UK OVER THE NEXT DECADE

Even though the UK is not yet meeting even its previous 80 per cent reductions target, and, in the case of policy on oil and gas extraction, is actively making progress more difficult, many have argued that a net zero 2050 target is still inadequate and that the date should be moved forward to 2025 (Extinction Rebellion)[32], 2030 (the Green Party[33] and the Labour Party[34] – though in the latter's case it is an ambition), or 2045 (the Liberal Democracts[35] and a coalition of NGOs[36]) instead. There are several key reasons why this is the case.

The dependency on removal technologies for a net zero target is questionable

The development of carbon capture and storage (CCS) technology will be important to reducing emissions in the power sector and crucial to many industrial processes that would otherwise struggle to decarbonise. Indeed, the use of CCS is essential to the Committee on Climate Change's net-zero scenarios and it estimates that UK capacity will need to rise to between 75-175 MtCO2e by 2050 to meet the government's net zero target (CCC 2019f). At present CCS technology, while long-standing from a technical point view, is still commercially in its infancy largely because there has been a poor policy track record to scale it up.

By contrast, where CCS deployment is largely an issue of policy ambition, the CCC's scenarios also depend on carbon removal technologies that raise more serious ethical questions. While some removal options such as nature-based solutions will be desirable both for their GHG removal potential and their co-benefits of environmental restoration and climate adaptation, other technologies like bioenergy paired with CCS (known as BECCS), raise more concerns. While the CCC suggests BECCS could contribute to the removal of between 51-83MtCO2 per year by 2050 across a range of different sectors, it also cautions that the supply of biomass is limited and it will require rigorous national and global governance, monitoring and innovation to ensure that supply chains are sustainable (CCC 2019f). As we discussed in chapter 2, this has currently not proven to be the case meaning there is a real risk that the UK not only outsources its emissions by importing biomass but also saddles future generations with a carbon debt that will take a long time for tree plantations to payback..

Conservative assumptions on behavioural change

In addition to assumptions made around speculative technologies, a number of assumptions have also been made with regard to behavioural change. The CCC has said, for example, that further reductions could be achieved by a more ambitious switch away from high-meat diets, more constrained growth in aviation demand, and more ambitious changes to land use (CCC 2019c).

32 See: https://rebellion.earth/the-truth/demands/
33 See: https://www.greenparty.org.uk/assets/files/Elections/Green%20Party%20Manifesto%202019.pdf
34 See: https://labour.org.uk/manifesto/a-green-industrial-revolution/
35 See: https://www.libdems.org.uk/plan
36 See: https://www.greenpeace.org.uk/news/coalitions-call-for-nature-and-climate-change-to-be-put-at-the-heart-of-election-manifestos/

In coming to its judgement about the 2050 target, the CCC assume, however, that the shift away from high-meat diets will continue at its current pace, making no account for an acceleration as a result of public information campaigns or public health strategies which the government could implement.

Addressing misconceptions over the 'cost' of transition

The overall financial cost of reaching a net zero target has frequently been misrepresented in political debate. In particular, the cost of delivering on the net zero target cited at £1 trillion, was used to cast doubt on the value of pursuing decarbonisation (BBC 2019b). This characterisation is disingenuous for several key reasons.

First and foremost, the severity of the climate and nature crisis mean that, as both the CCC and the seminal 2007 Stern Review have concluded, the cost of inaction is far greater than cost of action (Stern 2007). The financial investment required to deliver net zero represents nothing more than an insurance policy for costs which are almost certain to arise and which will significantly dwarf the initial investment. The experience of Covid-19 is a warning of the potential impacts of the climate and nature crisis if countries fail to prepare and build resilience for the risks posed. Second, the predicted 1–2 per cent of GDP in capital investment required (for either a 2050 or 2030 target) falls well within the range of capital investment as proportion of GDP in the UK over the last 30 years, which spans from 15–24 per cent (CCC 2019c). If capital investment equivalent to 2 per cent of GDP were added to current levels of investment,[37] it would rise from 17.25 per cent to 19.25 per cent of GDP (The Global Economy 2020).

Third, these costs can change over time, and will decrease more if deployed more rapidly and at scale[38] (Ekins 2019). A coordinated response through public policy now will mean a cheaper transition in the long run (Zengalis 2019b), and the more support provided by the state for low-carbon innovation, the greater the savings (ibid). Fourth, cost estimates can often be conservative. As recently as 2016, BEIS were projecting the cost of offshore wind would reach £100/MWh by 2025 (BEIS 2016). In the most recent auctions in 2019, the cost stood at £39.65/MWh (BEIS 2019c). Fifth, there are substantial co-benefits, such as improved air quality, access to nature and greater biodiversity, which could partially or fully offset costs but are more difficult to quantify. Finally, while some of the costs will come from direct government investments, a substantial proportion of investment will need to come from the private sector (with the help of a well-designed policy environment).

There are substantial economic and societal benefits to early action

Not only is the debate over costs generally mischaracterised in political discourse, but research suggests that early action could in fact yield substantial economic benefits while still being within the CCC's cost estimates for 2050.

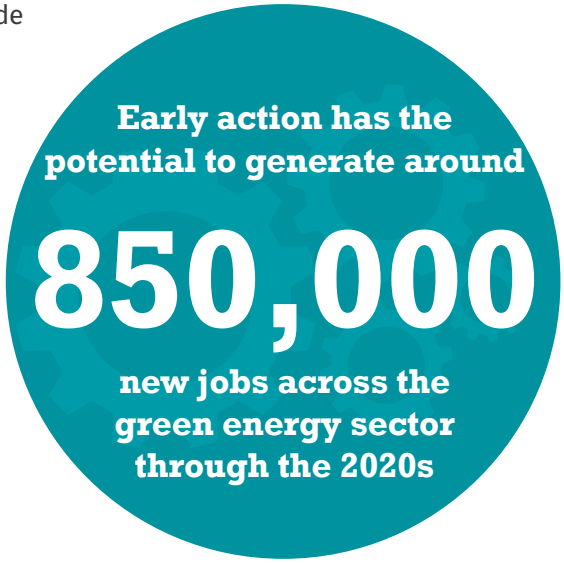
Research conducted by the University of Leeds' Sustainability Research Institute (SRI) suggests that energy-related emissions could be reduced by 77–100 per cent by 2030 with an investment of about 1.9 per cent of GDP each year (within range of the 1–2 per cent estimate by the CCC of investment required for 2050) – so long as significant activity begins immediately (Labour 2019). Importantly, this investment would be more than balanced by the resulting value added to the UK economy.

37 As at 2018.

38 In that the costs of these technologies over time are intrisincally linked with the way and speed at which they are developed.

According to Leeds SRI, for every £1 of capital investment made by the UK government, nearly £2 will be captured through increased tax revenues due to a more prosperous economy. This means that prioritising action now would result in a more prosperous UK between 2020 and 2030 and generate net benefits to the economy (after accounting for costs) of £800 billion by 2030 – equivalent to roughly seven times NHS England's annual budget (Fullfact 2019).

The Leeds SRI analysis suggests that private business would also benefit. With the right policies in place, net profits in the private sector could amount to as much as an extra £500 billion over the course of the decade, as a result of increased activity associated with delivering the transition. A more ambitious earlier transition to net zero would also give the UK a head start in accessing the $1.6–3.8 trillion global market that is expected to be spent on average in delivering the goals of the Paris Agreement (IPCC 2018).



Faster action would also result in a range of other significant benefits to people and communities. Early action has the potential to generate around 850,000 new jobs across the green energy sector through the 2020s. Importantly, this would be distributed around the whole of the UK, bringing substantial benefit to all regions. Low carbon infrastructure would also lead to a healthier UK, with the equivalent to an extra 23 days of life expectancy for everyone in the UK (ibid).

Earlier action is consistent with international fairness and will drive greater global ambition

From an international perspective, moving faster would better recognise the UK's historic contribution to climate change and our enhanced capacity to act. It also leaves a larger part of the remaining global carbon budget for other countries and to future generations within the UK. In addition, demonstrating a 'fast transition' to net zero would provide a positive influence abroad and encourage other countries to also ratchet up their own ambitions – especially in the run up to COP26 in Glasgow.

GOING FURTHER: THE CASE FOR REDUCING THE UK'S CONTRIBUTION TO CLIMATE AND NATURE CRISES OUTSIDE OF ITS TERRITORY

In addition to pursuing faster reductions in our territorial emissions, there is also a strong case for the UK to go further by enacting similarly ambitious policy in relation to its consumption emissions, how it approaches fossil fuel extraction, and its wider environmental footprint. This would help ensure that we reach net zero in terms of our fossil fuel extraction both here and abroad, do not shift the burden of our consumption to other countries, and that the UK is not exporting its environmental footprint and importing products with lower environmental standards in the UK.

As part of the Environmental Justice Commission's ongoing work, we will explore the ways in which targets on consumption and environmental impact could be built into trade policy. For example, one option could be to use 'border carbon adjustments' that impose preferential taxes or rebates on imports and exports depending upon the carbon intensity and environmental impact of their production. Additionally, export rebates could address the standards disadvantage faced by British exporters in international markets by providing a rebate to exporters based on the carbon cost or environmental impacts of the goods exported.

With regard to extraction, the UK and other governments around the world will need to find a way to agree on whose fossil fuel reserves can be burned and which reserves should be left in the ground. To do this in a fair way, institutions like Scotland's Just Transition Commission, but with far greater resources, will be crucial to protecting those working in the oil and gas sector.

Given the urgency of the climate and nature crises, the UK should take a lead by introducing policy that ensures that its progress towards net zero does not simply result in it displacing its impacts abroad and that it reigns in its participation in the race to exploit the remaining global fossil fuel reserves. Alongside our existing targets on territorial emissions, tackling our consumption emissions and phasing-out further fossil fuel extraction would provide a 'triple lock' on the UK's carbon emissions.

By doing this, the UK would take a genuine lead in tackling the climate and nature crises and would be going some way to accounting for the historic emissions that it has already contributed. By using its soft diplomatic power in this way, it will be initiating a global conversation that is both inevitable and urgent – about how we can ensure that most of the world's remaining fossil fuel reserves are left in the ground and how future carbon leakage can be prevented, so that global greenhouse gas emissions begin to decline at the pace that we all need.

But, as we explore in the next chapter, going further to transform our economic model will require more than just additional targets on consumption and fossil fuels. It will require a fundamental shift in how we run the economy delivered through a comprehensive plan for renewal.

4. TRANSFORMING OUR ECONOMIC MODEL

Our vision is of a vibrant, healthy society, and a clean, innovative economy, driven by the key principle of fairness. To realise this ambition, we envisage a transformation that is both rapid and fair and that places people at its heart. We want to build an economy where are all citizens are able to thrive alongside nature, with all but a few of the UK's greenhouse gas emissions eliminated and its environmental footprint radically reduced.

Realising the prize of our vision - from raising the quality of living for all, addressing economic and social inequalities, to protecting and restoring our climate and natural world – will require a transformation of the UK's economic model. Transformation is required because while policy changes which affect the behaviour of individual people, businesses or even sectors can make a contribution to tackling the climate and nature crises, without addressing the systemic issues which are hard-wired into our economic model, these measures will not add up to the degree of change that is required.

This chapter concludes that the only way to successfully increase, and act on, domestic and international ambitions to limit global warming to 1.5°C, build resilience, and tackle the declines in nature and deliver a good quality of life for all, is to bring about a transformation of our economic model.

OUR ECONOMIC MODEL IS DRIVING THE CLIMATE AND NATURE CRISES

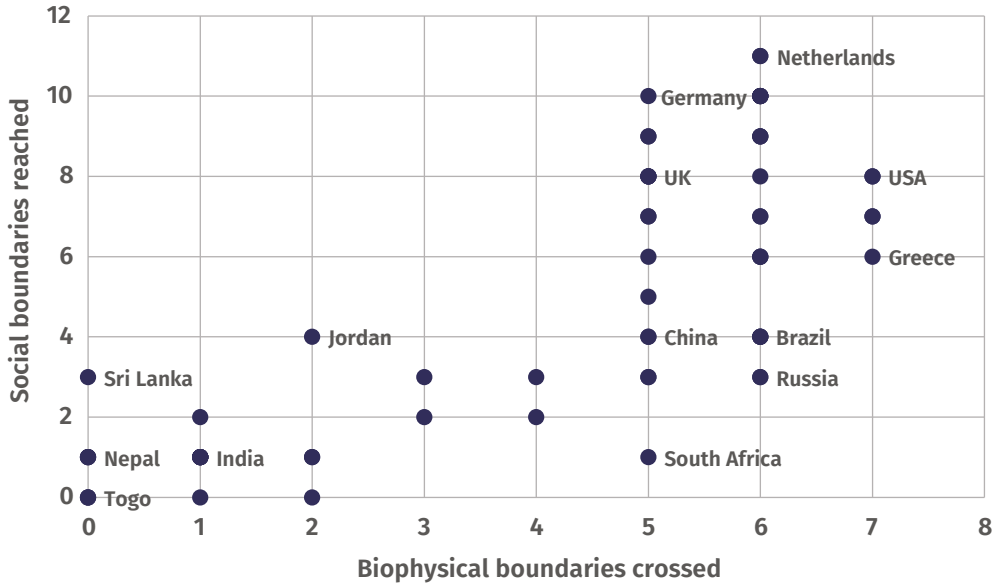
It is estimated that each year, human activity is, on average, consuming 75 per cent more ecological resources than nature can regenerate (Global Footprint Network 2018). Furthermore, it is estimated that 68 per cent of approximately 260 extreme weather events since 2011 have been made more likely or more severe by human economic activity (Carbon Brief 2019). This activity is driven by several key features of our economic model, each of which help to facilitate global heating and the degradation of our natural world (Laybourn-Langton et al 2019a; Laybourn-Langton and Hill 2019).

Economic and social progress has been achieved at the expense of the environment

Progress toward social goals in the UK and in other countries around the world has been shown to have had a negative impact on climate and nature, as figure 4.1 shows (O'Neill et al 2018). No country has been able to realise high social outcomes without causing untenable environmental damage. As discussed in chapter 3, the UK has made progress to an extent in 'decoupling' domestic economic activity from greenhouse gas emissions, but this trend is much less pronounced when considering 'consumption-based' emissions – those resulting from the production of goods and services imported from abroad (Defra 2019a). Moreover some evidence suggests that it may not be possible to decouple economic growth, as currently measured, from environmental degradation in the time left to address the climate and nature crisis (Hickel and Kallis 2019).

FIGURE 4.1. NO NATION HAS REALISED ALL SOCIAL OUTCOMES WITHOUT CROSSING ANY ENVIRONMENTAL BOUNDARIES[39]

Biophysical boundaries crossed vs social boundaries reached by country



Source: O'Neill et al 2018

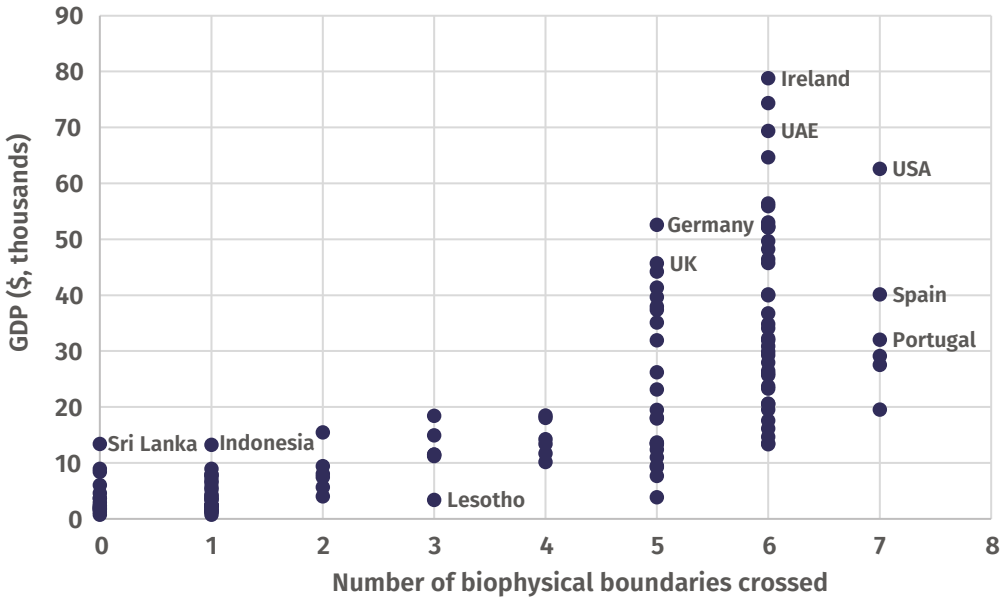
The overwhelming focus on maximising GDP drives the extraction of limited resources

The economy is geared towards maximising GDP – a short term measure of income – rather than long-term, sustainable prosperity. By focussing on a narrow measure like GDP to rate success, we perpetuate the myth that economic growth encompasses all other economic goals. GDP fails to distinguish who benefits from economic growth, making it a poor measure of the distribution of wealth (Colebrook 2018). Furthermore, GDP fails to take into account the use of environmental resources and, as figure 4.2 shows, there is a clear link between a country's GDP and the planetary boundaries which they have exceeded. Moreover, GDP does not measure economic and real value – not least in its failure to reflect non-market and other unpaid activity (much of it performed by women) (Szreter et al 2019) – as well as its inclusion of 'defensive' expenditure such as replacing a broken window or cleaning up after a natural disaster (Colebrook 2018).

39 For definitions of social and biophysical boundaries, and the data for each country visit: https://goodlife.leeds.ac.uk/countries/. Broadly social boundaries that each country wants to reach include goals such as sanitation, access to energy, education and democratic quality whereas biophysical boundaries are based on Rockström's environmental thresholds such as nitrogen and phosphorus use, CO_2 emissions and ecological footprint.

FIGURE 4.2: HIGH GDP IS MODERATELY STRONGLY CORRELATED TO UNSUSTAINABLE LEVELS OF CONSUMPTION

GDP per capita ($) (2018) vs biophysical boundaries crossed



Source: O'Neill 2018; IMF 2019

The value of nature is not taken into account in economic decision-making

Because nature is free, it is often taken for granted and exploited. By failing to take into account the benefits we get from a stable climate and nature, we create huge social and economic costs for ourselves. Only by valuing nature in both economic and social terms will we be able to understand the full consequences of the choices that are made. Recent work by IPPR North, for example, has shown how there is little or no accouting for the natural environment and its foundational role in the economy within strategic debates at both a city-region and a pan-Northern level (Longlands and Hunter 2019). In addition, the valuation of natural capital benefits and losses is also largely absent from cost benefit analysis and investment decision-making (ibid).

Too often the maximisation of profit is put ahead of environmental concerns

The acquisition and consumption of goods and services in ever greater quantities forms an essential component of many social and economic systems (Cross and Gary 2000). Indeed, the business strategies of many firms are predicated on rising levels of consumption (White 2002). According to one study, the responsibility for more than 60 per cent of global greenhouse emissions and between 50 and 80 per cent of total land, material, and water use is attributable to household consumption (Ivanova et al 2015).

Economic short-termism fails to account for effects of the climate and nature crises

Short-termism is endemic within political and corporate decision-making (Smith School of Enterprise and the Environment 2017) resulting in the prioritisation of short-term profits over environmental stability. This short-term approach is most starkly demonstrated by the fossil fuel industry. We have far more fossil fuel reserves on our balance sheets than can safely be consumed using currently deployed technologies (see chapter 3).

The finance system drives toward short-term profit maximisation rather than sustainable business models

There are structural flaws in the financial system that drive the crises in climate and nature but are fundamental to the methodologies by which businesses determine the attractiveness of investments. One example is the use of high discount rates. As IPPR has argued elsewhere (Laybourn-Langton et al 2019) the discount rate is a highly subjective tool used in cost-benefit analyses to estimate the speed with which the economic benefits of an investment may decline over time. A higher discount rate means that the benefits of a project are more likely to be short-term but also implicitly shows an ethical preference for current generations over future ones. This has meant that projects with high discount rates have ignored the long-term impacts on climate and nature in favour of short-term gain (Sampson and Shi 2018). For context, currently the UK government's standard discount rate – an indicator on which businesses can base their own investment decisions – within its Green Book[40] is 3.5 per cent for the first 30 years of a project (HM Treasury 2013). This is far higher than the proposed average discount rate of 1.4 per cent from the landmark Stern review (Stern 2007) into the effects of climate breakdown on the economy.

Our economic model focusses on maximising economic efficiency over the stability and resilience of communities

In the context of the environment, in the UK the fixation on economic efficiency has translated into a narrow view of large-scale infrastructure investments based almost solely on cost-benefit analysis. Around 90 per cent of infrastructure built over 100 years ago is still in use in the UK (Baptiste 2019). While this is a testament to its durability, much of it is now starting to experience new threats from extreme weather for which it is not sufficiently adapted. According to the CCC, there are key policy gaps in national preparations to climate-proof infrastructure such as for agriculture, natural systems, ports, airports and telecoms (CCC 2019e). Furthermore, though some progress is being made on flood defences (albeit still not enough) (ibid), the investment to replace or upgrade infrastructure has been insufficient (ICE 2018).

Beyond physical assets like housing, social infrastructure (such as the availability of public services and social networks) is also a key determinant of a community's vulnerability to climate breakdown (Preston et al 2014). For example, better-networked communities are more able to respond to, and recover from, the effects of extreme weather events (ibid). However, in the UK funding cuts driven by austerity have led to an erosion of the capacity and scope of public and local authority services. This in turn limits the capacity of the poorest communities who depend on these services (Centre for Cities 2019) to respond to and recover from the impacts of the climate and nature crises, for example by accessing temporary accommodation or housing benefits in the case of flooding (Citizens Advice 2020). According to the UK's National Audit Office (NAO), since 2010/11, central government funding of local authorities has been cut by nearly 50 per cent (NAO 2018). Despite these cuts, local authorities are still obligated to provide the same level of service. As the effects of the climate and nature crises cause more local economic disruption, the demand for local authority services will only grow (Corfe and Keohane 2017) at the very time they are being stripped of capacity.

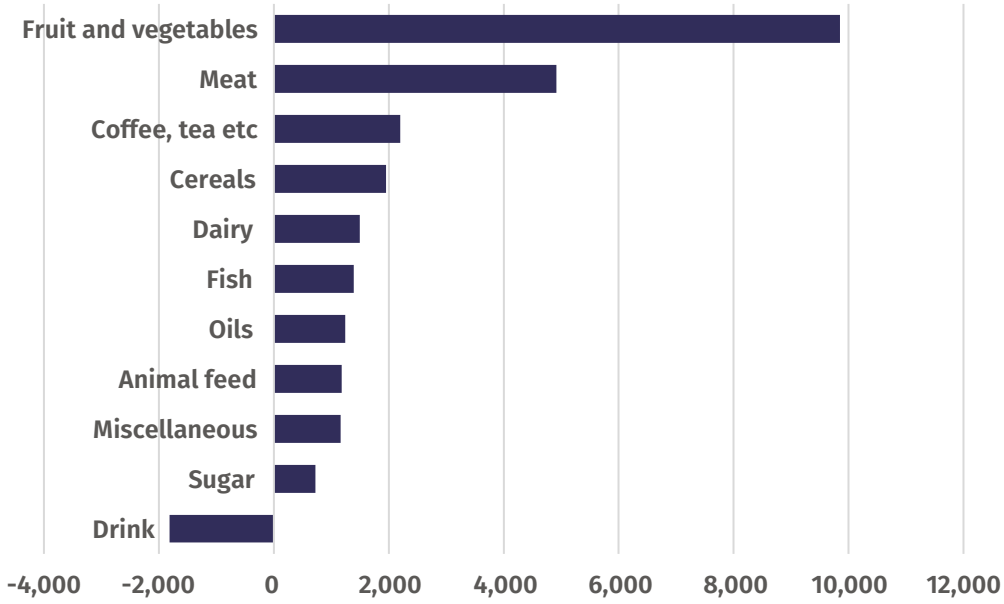
Finally, a less diversified economy that only depends on a small number of key industries also reduces the resilience of the poorest communities by exposing a greater proportion of local economies to disruption from environmental breakdown. This is particularly true for countries like India which already experience high temperatures, are highly populated, but have a high level of poverty, poor access to health and high dependency on agriculture (Kalisch 2014).

40 The Green Book is HM Treasury's official guidance on the appraisal of public investments.

The UK also suffers from its own lack of resilience to systemic effects. For example the UK does not have a self-sufficient food system and in 2016 imported just over half of total food consumed (European Union Committee 2018). The need to reduce meat and dairy consumption to remain in line with net zero targets (IPCC 2020) will further increase the UK's vulnerability to global food markets. This is because, as figure 4.3 shows, the UK is most dependent on fruit and vegetable imports which will need to be consumed in greater quantity as diets change.

FIGURE 4.3: THE UK IS MOST DEPENDENT ON IMPORTING THE TYPES OF FOOD SUCH AS FRUIT AND VEGETABLES THAT WILL NEED TO REPLACE MEAT AND DAIRY CONSUMPTION IN FUTURE DIETS

UK net food imports and exports by value and product type, 2018[41]



Source: DEFRA 2019 (adapted by IPPR)

Levelling-up is needed to help increase the resilience of all areas across the UK

The UK's economy is one of the most unequal in the developed world with democratic power, as well as wealth and income being concentrated in London and the South East (Raikes et al 2019). An unequal concentration of people and wealth in specific regions can put disproportionate pressure on local resources such as water and land. Whilst there will always be 'hotspots' for economic activity, a more economically equal UK could have benefits for resource use and consumption which in turn could help mititgate the impacts of longer term climate change. In addition, an investment strategy which recognises the importance of 'levelling up' could help to strengthen the resilience of all regions to extreme weather events.

Economy inequality reduces access to nature

Access to green space, and in particular good quality green space is not equal across the UK. Those living in deprived areas are least likely to have access to good quality green space and therefore have least access to the benefits that such spaces can bring (PHE 2014). Studies have also shown broader inequalies in access to a healthy environment. Those people living in disadvantaged areas of England are more likely to be exposed to poor air quality, poor water quality in rivers, be exposed to flooding, and live closer to industrial and waste management sites.

41 Negative values represent a net export.

Studies have shown that around 0.2 per cent of people living in the least deprived areas may experience four or more environmental conditions that are 'least favourable'. This rises to around 17 per cent for those people living in the most deprived areas in England (HM Government 2011).

THE UK'S ECONOMIC PROBLEMS GO BEYOND CLIMATE AND NATURE

The UK economy has some impressive strengths: employment levels are high, and we have a number of globally successful sectors, such as finance, aerospace, motor manufacturing, life sciences, new technology start-ups, and creative industries. But the problem is that there are not enough such sectors and too few people have been sharing in their successes.

In recent years, our economy has been growing, but most people are no better off than a decade ago. The 2010s were the weakest decade for average real earnings in 200 years. Over the last 40 years, only 10 per cent of national income growth went to the bottom half of the income distribution, while almost two-fifths went to the richest 10 per cent. The UK is the fifth most unequal country in Europe in terms of income, while inequality of wealth is even greater: 44 per cent of wealth is owned by just 10 per cent of the population. The huge growth in property values means that today's young people, many of them priced out of the housing market, are set to be poorer than their parents. The UK is Europe's most geographically unbalanced economy, with wide disparities between the nations and regions, and many once-thriving communities suffering economic decline. Many more people work in insecure jobs than in the past, with almost 1 million people on zero-hours contracts, and 15 per cent now self-employed. The prevalence of low pay means that a majority of people living in poverty are now in working households.

On investment, research and development (R&D), trade and productivity, the UK performs worse than most of our European neighbours, and has done for much of the last 40 years. It is hard to say the UK economy has been performing well; for many people, it is not working at all.

CEJ 2018

5. RECOMMENDATIONS AND NEXT STEPS

RECOMMENDATIONS

The recommendations of this interim report primarily focus on how best the UK government should govern its new approach to the transition, structure decision making and targets. It outlines the initial steps that should be taken to catalyse a new approach that goes faster, further and is fairer.

In its final report, the commission will be setting out ambitious proposals and a roadmap to tackle the climate and nature crises and secure a fair economic transformation.

Targets and ambitions

The UK should seek to decarbonise much faster over the next decade if it is to make the most of the opportunities, act prudently on the risks, minimise the costs of the transition, and meet its extra responsibility in relation to the climate and nature crises. As discussed in chapter 3, early action could yield substantial economic and societal benefits through the creation of jobs, new industries and better health outcomes, while delayed action could increase costs. The risks of climate and environmental breakdown are substantial to the UK and globally from flooding to extreme weather making early action not just beneficial but essential. From an international perspective, moving faster would better recognise the UK's historic contribution to climate change and our enhanced capacity to act. Failure to do so leaves a larger part of the remaining carbon budget for other countries and to future generations within the UK.

Demonstrating a 'fast transition' to net zero would provide a positive influence abroad and encourage other countries to also expand their own ambitions. Through more ambitious action the UK could and should also achieve net zero ahead of 2050,[42] which would also reflect and recognise the UK's 'fair share' based on its historical emissions. If the UK government is unwilling to bring forward its net zero target, at a minimum, the UK government should be setting more ambitious interim targets and deploying the necessary resources to meet its current targets ensuring a desirable path to net zero. Any action the government takes to strengthen its targets must also be cognisant of the fact that the Committee on Climate Change (CCC) is due to make its recommendations for the UK's sixth carbon budget (2033-37) in December of this year.

42 As set out later in the report, the 2050 target could be accelerated through a more ambitious switch away from high-meat diets, more constrained growth in aviation demand and more ambitious changes to land use.

The UK government must, at the very least, make its domestic ambition over the next decade align with 1.5°C and net zero, which must be achieved entirely through domestic action, without the use of international credits. As host of the climate summit, COP 26, the UK's action will be all the more important in catalysing increased global ambition on climate and it should use its nationally determined contribution (NDC) ahead of the COP to demonstrate its ambition. Such a decision should be timed to support the UK's diplomatic strategy for ambition raising through COP 26 in order to secure commitments by other countries to raise their NDCs. To ensure the UK's NDC is consistent with its net zero target and 1.5°C, estimates suggest that the government will need to reduce emissions by circa 66–69 per cent by 2030 at the very least,[43] an increase from the current equivalent 61 per cent[44] in the current fifth carbon budget (2028–2032).[45] However, the scale of emission reduction will likely need to be more significant still if the UK is to contribute its fair share towards international emissions reductions based on its historical emissions record.

The UK's response to the climate and nature crises must go also go further and take into account both its consumption emissions[46] and global environmental footprint. This would ensure that the UK does not shift the burden of its consumption to other countries, export its environmental footprint, or import products with standards that would not be accepted at home. Any targets on consumption emissions would need to be handled with care in order to avoid any perverse incentives or unforeseen consequences. However, reducing consumption emissions must be factored into any UK plan to decarbonise.

The UK government should commit to a target on consumption emissions as part of its wider net zero strategy. The government should seek advice from the independent Committee on Climate Change (CCC) on the best means of doing so and whether the adoption of a legal target is desirable and viable. We recommend that the devolved nations should follow the same approach.

The UK government should include a target for its global environmental footprint within its current Environment Bill. The government should also establish a mandatory due diligence mechanism to reduce the UK's global footprint. Such a commitment and mechanism would require UK business to assess risks from all environmental impacts of their supply chains through a due diligence law.

Institutions and plans

To drive through the policy change required across the whole of the economy will require a coordinated approach across government at every level. Moreover, a just transition must be put at the very heart of government policy not just to mitigate risks, but to make the most of the substantial opportunities the transformation brings to address underlying economic and social inequalities.

43 Or 62 to 65 per cent while the UK is still in the EU's Emissions Trading Scheme (ETS).

44 Equivalent to 57 per cent while the UK is still in the EU's ETS.

45 The baseline set out in the government's legally binding fifth carbon budget would mean a 57 per cent reduction from the 1990 baseline. However, because of the way UK emissions are currently accounted for, the 57 per cent figure would translate to an actual emissions reduction of 61 per cent when the UK leaves the EU's ETS. For further explanation on this point, see: https://www.climatechangenews.com/2020/02/27/credible-cop26-uk-needs-plan-climate-plan/

46 The consumption-based approach captures direct and lifecycle GHG emissions of goods and services (including those from raw materials, manufacture, distribution, retail and disposal) and allocates GHG emissions to the final consumers of those goods and services, rather than to the original producers of those GHG emissions.

To drive through the policy change required across the whole of the economy, we recommend that the UK government should establish a Net Zero and Just Transition Delivery Body[47] (NZJT) led by the Department for Business, Energy, and Industrial Strategy and include representatives from other government departments, local authorities and metro mayors, trade unions, the industrial sector, financial institutions, civil society and the National Infrastructure Commission. The body will be responsible for developing and delivering a national Net Zero Delivery Plan (see below) which must be centred around a just transition. We recommend that the devolved nations should follow the same approach (though Scotland already has a Just Transition Commission).

We recommend that the NZJT should be responsible for developing a Net Zero and Just Transition Delivery Plan. This plan will intergrate various departmental plans across government to ensure there is a coherent and fair approach to achieving decarbonisation. Moreover, learning from the approach taken in Sweden through the 'Fossil Free Sweden' initiative[48], we recommend that there should be a requirement to develop a roadmap for every sector setting out how each will achieve net zero in a fair way. Each roadmap should contain the timelines, proposals and commitments for how each sector will achieve net zero in a fair way. We recommend that the devolved nations should follow the same approach.

We also recommend that the NZJT should be supported by similar bodies at the regional level. These bodies should bring people together in a partnership model, and ensure everyone's voice can be heard. They should involve all relevant stakeholders including metro mayors, local authorities, trade unions, LEP representatives, local community representatives, civil society, local businesses, and businesses interested in investing in the region. This will require the establishment of new social partnerships at both firm and sector levels to manage the transition. To secure a truly just transition, participants must represent the full diversity of communities up and down the country, ensuring the vulnerable, disadvantaged and minority groups are at the heart of the transition. We recommend that the devolved nations should follow the same approach.

Investment for building back better

Moving much faster will involve rapidly scaling-up investment, greater ambition in relation to behavioural change, and policies to better incentivise low-carbon living while also enhancing people's quality of life. But even on its own terms the government is set to miss its own current targets. As outlined earlier in this report, IPPR has previously estimated that the government needs to invest an additional £33 billion per year just to meet its own 2050 net zero target. But so far less than 10 per cent of this investment has been committed. There is now a huge opportunity to ensure the recovery fills this gap, while at the same time ensuring the needs of re-building post-Covid are met.

Under projections by the Office for Budget Responsibility (OBR) that have been criticised for being too optimistic, unemployment is expected to be at 10 per cent in Q2 this year, assuming a three-month lockdown (OBR 2020). This might end up being even more severe if some restrictions stay in place for longer than that, as is likely. The result of this will likely be a much higher unemployment rate.

As the Committee on Climate Change have advised the government, actions towards net-zero emissions will 'help rebuild the UK with a stronger economy and increased resilience' (CCC 2020).

47 See Allan et al (2020) for more detail: https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-01.pdf

48 The Fossil Free Sweden (FFS) initiative was launched by the Swedish Government ahead of the COP 21 climate change conference in Paris in 2015. The FFS has encouraged business industries to draw up their own roadmaps as to how they will be fossil free while also increasing their competitiveness. For more, see: http://fossilfritt-sverige.se/wp-content/uploads/2018/02/roadmap_for_fossil_free_competitiveness.pdf

CRITERIA FOR A GREEN RECOVERY

Criteria 1: Sufficient scale. Investment in a green recovery will need to be big enough to reverse the scarring effect left by the Covid-19 crisis and stimulate substantial job opportunities for people who have been made unemployed because of the crisis.

Criteria 2: Environmental benefits. The investment package overall must put the UK on a path to net zero and the restoration of nature. All judgements on investment should be grounded in the environmental benefits and emissions savings they can achieve.

Criteria 3: Promote local sustainable production and consumption. For instance, a shift to more localised production and community wealth building can make consumption less resource-intensive, reduce commuting and increase overall wellbeing. These might include investment which build on community-led initiatives (some of which may have emerged in response to Covid-19) that strengthen local economies. These will also help generate the social infrastructure needed for a net-zero and nature friendly economy.

Criteria 4: Resilience benefits. Investment should prioritise projects that have a clear benefit to both mitigation and adaptation efforts to ensure the UK is well prepared for future threats including from global heating such as extreme weather events.

Criteria 5: Jobs creation. There must be investment in projects with the potential for high-quality, well-paid jobs. This should consider both the 'core' workers needed to deliver a project, but also jobs created through second round effects, such as suppliers and distributors, planners and administrators.

Criteria 6: Targeted investments. The investment should be targeted at workers and businesses that have been hardest hit by Covid-19. The pandemic is no fault of any worker who has lost their job or seen their hours reduced. From a fairness perspective, it is imperative that investments provide workers with job security by stimulating demand for skills and decent work in high-demand low-carbon products, services and new industries. For instance, the construction and manufacturing sectors are two of the hardest-hit sectors and many may not return to full capacity, as order books remain low. Some repurposing of fixed capital and retraining of workers can ensure that workers in these sectors can move to work on green projects that have high social returns and will be in demand for a long time into the future.

Criteria 7: Timeliness and feasibility. For the first phase of the recovery, the focus should be on projects that have short set up times. Often these will be projects are well established (such as home insulation) or those that already have some government schemes in place which can be scaled up.

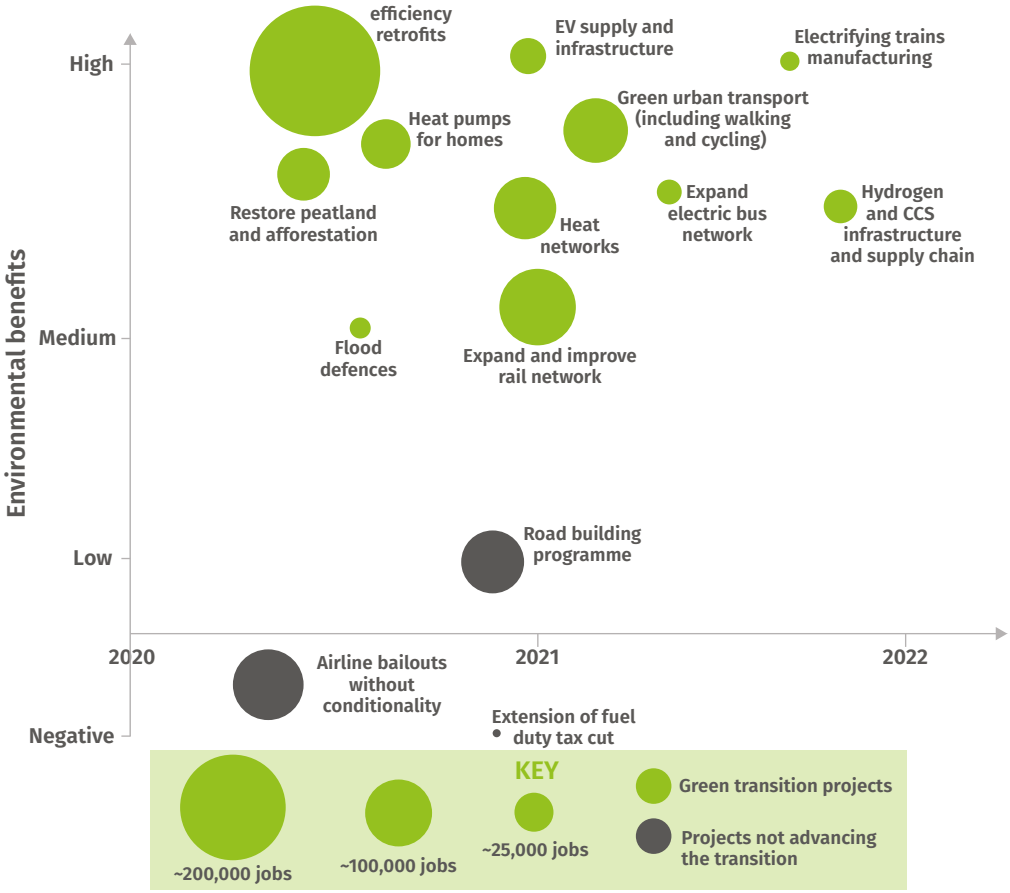
Criteria 8: Trigger a transformational second phase of the recovery. In the second phase of recovery, investments must target projects essential for the transition with longer lead-in times. For instance, these could be areas that require concerted investment in research & development first (such as hydrogen infrastructure), before deployment can occur.

Criteria 9: Fair distribution of costs and opportunities. The costs of policy measures must be fairly shared and those with the broadest shoulders should bear the greatest burden. The poorest communities and households, who are least responsible for the climate and nature crisis, must not pay disproportionately or at all. Moreover, it will be important to ensure that the opportunities of the recovery are also fairly shared.

Applying these criteria allows a prioritisation of the types of investment projects to lock-in a green recovery. In the first instance (as figure 5.1 shows) investment can be targeted at projects such as home retrofits, tree planting and supporting reskilling and retraining.

FIGURE 5.1: POTENTIAL PROJECTS WHICH COULD AID ECONOMIC RECOVERY AND HELP MEET THE UK'S CLIMATE AND NATURE GOALS INCLUDE HOME INSULATION, THE RESTORATION OF PEATLAND AND AFFORESTATION

Investment projects by prioritsation (size of bubble represents job creation potential)



Source: CCC 2019c; National Grid 2020; Emden et al 2017; Regeneris Consulting 2009; Environment Agency 2019c; Gov.uk 2018; ARM 2019; Pendleton et al 2019; DfT 2020; Innovate UK 2015; Greenpeace 2019; Garrett-Peltier 2011; Baltac and Durusut 2019; Pek et al 2019; EAMA 2018; BRES 2019

Notes: The figure is based on a number of assumptions, including those listed below, and should thus be treated as indicative providing estimates for orders of magnitude. The y-axis is not to scale. The environmental benefits ranking is based largely on total sectoral emission saving potential. These are adjusted based on whether they are direct emission savings (eg through electrifying transport) or indirect (through incentivising people to change modes of transport). Co-benefits such as adaptation, environmental restoration and air quality benefits are also included. Project timings are IPPR assessment of feasibility. Jobs creation potential is up to 2030. For afforestation, labour intensity of tree planting is assumed to be identical across the UK. For urban transport, the same jobs multiplier as for train transport are assumed for trams. For simplicity, jobs in manufacturing of electric trains are assumed to have the same labour intensity as non-electric trains.[49]

49 the size of the bubble for forestation and peatland has been updated to 46,000. It is calculated based on (i) the number of people currently working in forestry; (ii) making the simplifying assumption that most of these are in planting and restocking and (iii) using the CCC's recommendation that planting rates need to rise to 50,000 hectares per year. This estimate does not include jobs potential in wood processing sectors or peatland restoration. Our previous estimate had assumed that a significant share of this planting could be brought forward. We have lowered this, to reflect feasibility constraints.

TABLE 5.1: THERE ARE A NUMBER OF INVESTMENTS IDENTIFIED BY OTHER ORGANISATIONS THAT WILL SPEED THE UK'S RECOVERY FROM COVID-19 AND HELP THE UK ON THE PATH TO NET ZERO AND THE RESTORATION OF NATURE

Policy measure	Description
Energy generation, storage, and distribution	Invest in zero carbon energy production, storage infrastructure, and interconnection; extend and modernise the grid to support higher renewable penetration and electrification of heat and transport.
Reducing industrial emissions	Introduce financial incentives (eg wider carbon price floor) for industrial companies to reduce net carbon emissions and increase efficiency in production.
Research and development	Invest in high impact sustainability technology research and development that includes start-ups, small and medium-sized enterprises, and large companies.
Building climate-smart infrastructure	Investment in low and zero-carbon infrastructure projects, such as public transport infrastructure, that are also resilient to the impacts of climate change, such as flooding.
Broadband connectivity investment	Investment in broadband infrastructure to increase full fibre coverage beyond the current set of <10% of UK homes.
Nature-based solutions investment	Investment in ecosystem resilience and regeneration by enhancing green spaces, planting trees, and encouraging climate-friendly agriculture and restoring carbon rich habitats.
Electric vehicle conversion	Incentivise uptake of electric cars through financial incentives and fast-charging infrastructure and improve bike lanes to encourage wider uptake of e-bikes.
Home renovations and retrofits	Higher carbon standards for new-build homes; financial support for households installing insulation and other energy efficient improvements.
Education and training	Funding skills and retraining initiatives, such as through digital further education, to address structural unemployment effects resulting from decarbonisation measures.
Conditional bailouts	Bailouts for struggling firms, conditional on improvements against climate-positive criteria, especially for fossil fuel intensive companies such as airlines.

Source: Reproduced from Allan et al (2020)

CAN WE AFFORD A RECOVERY PACKAGE FOR CLIMATE AND NATURE?

Governments more than ever are expected to protect, mitigate and anticipate major shocks to the economy and society. The climate and nature crisis is the largest existential threat to our way of life and must be a priority for investment. The costs of inaction are far greater.

At this moment the government can afford to increase its debt level, because interest rates are close to zero – the lowest they have ever been. This means that, even with more borrowing, only a limited share of annual tax revenues would need to be spent on servicing the debt each year. This is akin to a person taking out a mortgage – someone can afford a bigger mortgage if interest rates are low at 1 per cent as opposed to when they are high at 5 per cent.

Therefore, as long as borrowing costs remain low, a high level of government debt remains affordable. In fact, interest rates are currently so low that even a doubling of the UK's debt would still mean the Treasury pays less to service this debt, as a share of tax receipts, than any other time in the 20th century.

The reason for ultra-low borrowing cost is partly because the Bank of England is buying up a lot of government debt. This calms financial markets and allows the government to borrow large sums of money at cheap rates. It is an essential support measure for the government's Covid-19 response, and it should go on until the economy has recovered.

We recommend that the UK government sets out an ambitious recovery package that accelerates progress towards net-zero and the restoration of nature, and also helps achieve its objective of 'levelling up' the economy. As part of this package, the largest possible investment should be directed towards the delivery of zero carbon infrastructure and the restoration of nature. Previous estimates by IPPR have shown that there is currently a £33 billion annual public investment gap between the UK government's planned investments and its stated goals for decarbonisation and the restoration of nature. This must be the minimum ambition for investment in climate and nature as part of the recovery package and in the first instance it can be targeted at projects that are job-rich and shovel-ready. Possible appropriate measures include investment in home retrofits, tree planting and supporting reskilling and retraining. Through its public investment and a well-designed policy environment, the government must also seek to maximise investment from the private sector. Greater private investment can be leveraged as a result of a better coordinated public policy response which the Net Zero and Just Transition Delivery Body outlined above will help to achieve.

As part of the recovery package, a national Just Transition Fund should be established as part of regional economic development funding to help the drive towards a net zero economy and to ensure those negatively disrupted are given the resources and support to succeed in the future. The UK government should capitalise the fund with an initial downpayment of £5 billion. Funds should flow to the areas of the UK with the greatest need for just transition, and should be – where applicable – transferred to the devolved administrations and where possible, passed down from there to local authorities and communities.

Policies consistent with 1.5°C

The recent decision by the High Court which found that the government had failed to consider whether the Heathrow expansion was consistent with its commitments under the Paris Agreement (Court of Appeal 2020) has profound implications for all government policy at every level.

> **In light of the decision on Heathrow by the High Court, we recommend that the UK government, devolved nations and local government review and audit all projects, policy, investments, regulations and legislation to ensure they are in line with the UK's obligations under the Paris Agreement.[50] When making any future infrastructure or development policies, it is essential that the climate change and broader environmental implications of these policies have undergone transparent analysis and consideration.**
>
> **We recommend that the Green Book – the Treasury's guide to spending decisions which is used across Whitehall – be updated to ensure that all guidance fully reflects the government's own net zero target and the UK's commitment to the Paris Agreement. This will require the broader social and environmental impacts and benefits of all infrastructure projects be properly assessed.**

Oil and gas extraction is the area of policy that is most clearly inconsistent with the UK and Scottish government's net zero targets and the Paris Agreement goal which requires that all Parties make financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. The High Court decision has reinforced this inconsistency. If all countries were to exploit their reserves in the way that the UK has signalled is its intention then we would rapidly blow the remaining carbon budget. At the same time, the Covid-19 crisis has forced the debate on the future of the oil & gas industry to the forefront of policymaker's priorities as a sustained drop in the oil price during the crisis poses a serious risk to workers in the sector and the survival of the industry as a whole.

> **In the near-term, we recommend that the UK and Scottish government's must place immediate priority on securing a just the transition for workers in the oil & gas sector to other industries where their skills will be transferable and highly valued, such as in the development of Carbon Capture and Storage (CCS), hydrogen transportation and storage and offshore wind. We further recommend that the UK and Scottish governments must end the policy of maximising the economic extraction of oil and gas. This will require an amendment to the Infrastructure Act 2015. Both governments should instead ensure that their policy approach to fossil fuel extraction is fully compliant with their respective net zero targets and the Paris Agreement goal of 1.5°C. In addition, the UK government should, in concert with the Scottish government, review all subsidies for oil and gas extraction, including tax breaks and seek to refocus any available funding on securing a just transition for workers.**

50 Article 2 1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. 2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

FORGING A NEW PATH

Delivering the economic transformation that the recovery from Covid-19 and the climate and nature crises demands will require a whole-economy approach. All policies going forward must be shaped by the following three principles[51]:

- address climate change and restore nature
- improve lives and offer opportunities for all in a thriving economy – leaving no-one behind
- help transform the economy.

These principles are inextricably linked.

The recommendations of this interim report primarily focus on how best the UK government should govern its new approach to the transition, and structure decision making and targets. In the coming months and in its final report, the commission will be setting out ambitious proposals, laying out a roadmap to go faster, further and fairer. Taken together, these would achieve the following:

1. Transform our economic model

Our economic model must place environmental sustainability, resilience and people at the heart of economic health. Meeting the climate and nature emergency requires ambitious climate targets, new legislation to ensure our environmental footprint is brought within sustainable limits, and new economic metrics which go beyond the measurement of economic growth alone and place value on nature and wellbeing. An economic model where people and nature can thrive, centred on good jobs and meaningful work, and successful low-carbon businesses.

- **Moving beyond GDP:** Overall economic progress is almost exclusively measured in terms of GDP, which does not incorporate measures of environmental degradation. Furthermore, GDP ignores distributional concerns and is only weakly correlated with wellbeing, and so its continued use perpetuates the myth that economic growth necessarily means societal welfare. This is in addition to related concerns about the type of activity that GDP excludes (unpaid work) and that which it includes such as defensive expenditure (repairing a broken window). The commission is assessing the most appropriate measures to embed wider considerations of environmental value and societal wellbeing within economic policymaking.

2. Finance the green economy

A transition that delivers for climate, nature, and people will require finance to be invested on an unprecedented scale into new solutions for a green economy. Both public and private finance will play a key role in getting us there - with new roles for both fiscal and monetary policy. There is considerable work still required to determine how best to fund the transition to net zero.

- **Fiscal policy:** Considerable investment will be required to successfully achieve the transition to a low carbon economy. We are assessing the scale of public investment required and the way in which funds should be raised and dispersed. Consideration will be given to how the investment can incentivise private investment, maximise co-benefits, unlock economic opportunities, and ensure a transition that is fair.
- **Greening the financial system:** The size and international role of the UK's financial services sector means that it will play a large part in setting the global standard for financial services worldwide as well as being vitally important at home. The commission is considering the role of the financial sector and will set out what policy changes are needed for the sector to deliver a response that is commensurate with the scale of the challenge. This

51 See summary for more information on the framework.

will include an assessment of the role of the Bank of England and financial regulators in the UK, as well as how compliance with the Paris Agreement should be factored into their duties. It will also include an assessment of how schemes such as the TCFD should be improved and made mandatory. It will also consider the establishment of a Low Carbon Business Bank to provide investment and loans with interest linked to carbon reduction targets. The role that organisations such as the Green Finance Institute can play in addressing these issues will also be considered.

- **Taxation, subsidies and incentives:** The commission is exploring the combination of taxes, sector specific carbon prices and levies, government subsidies, standards and regulation that will be needed to deliver the transition by encouraging positive outcomes for our climate and environment while deterring negative behaviours. We want to ensure that a robust distributional assessment is embedded into all policies anticipating and mitigating against any injustice or unequal impacts.

3. Support sustainable industries and create high skill, high wage jobs

A proactive and purposeful industrial strategy must support the transition to climate and nature safe methods of production, manufacturing, resource utilisation, and consumption. Subsidises for sectors of the economy that have a high carbon footprint must be replaced by significant investment in innovation and new technologies to support them to decarbonise.

- **Green industrial strategy:** The commission is examining how a green industrial strategy can help integrate demand-side policies on decarbonisation, achieving a zero-waste 'circular' economy, and sustaining natural capital with supply-side support for UK businesses and innovation to meet these goals.
- **A zero carbon energy system:** Long-term policy certainty is essential to ensuring a prosperous energy sector. The commission is exploring how a clear direction can be set for government energy policy securing investment, jobs and allowing businesses to plan for the future.

4. Build an education and skills programme for a zero carbon economy

The commission is exploring what reforms are needed to education and skills to ensure that we can progress the transition across the existing workforce in carbon intensive industries, but also ensure the UK has the necessary skills in the workforce of the future.

5. Deliver a new 'green social contract'

Covid-19 has exposed the insecurity of work for many. In the aftermath of this public health crisis and to secure a just transition for the climate and nature crises, we must reassess the 'social contract'. The commission is exploring the role of the institutions needed to embed the idea of a 'green social contract', Consideration will also be given to the financial support required as part of economic development funding to support the drive to a low carbon economy and mitigate against the negative impacts of decarbonisation.

- **Support for workers:** It will consider income and job guarantees for workers, improvements in collective bargaining and trade union rights and support for worker ownership models.
- **Institutions for a just transition:** The commission is exploring the role of **the institutions needed** to embed the green social contract including how those recommended in this report should work in practice. Consideration will also be given to the financial support required to support the drive to a low carbon economy and mitigate against the negative impacts of decarbonisation, over and above that recommended in this report.
- **A social partnership model**: The commission is considering the role of 'social partnerships'. Familiar across Europe, these are relationships in

which businesses, trade unions, the state, and civil society work together for a common purpose. In the workplace, new powers to organise and ensure worker voice is at the heart of transition are also vital, as will be consultation of the self-employed and workers in the gig economy.

- **Citizen participation:** The commission is undertaking significant citizen engagement through the use of deliberative democracy events, including citizens' juries. The commission will consider how such measures should be formalised as part of policymaking structures at every level of government across the UK.

6. Deliver warm homes for all

The commission is exploring the best means to decarbonise heating from buildings and deliver a dramatic roll out of energy efficiency measures across the country, delivering warmer homes, lower energy bills and creating jobs in every region. While the housing sector has in recent years expanded its capacity to build new homes that meet high energy standards, retrofitting the existing housing stock and decarbonising heat remains the biggest challenge for the housing sector.

7. Decarbonise mobility

The UK's transport infrastructure contributes significantly to the UK's total greenhouse gas emissions. At the same time, transport is essential to our everyday life. People rely on infrastructure networks to access the labour market and everyday services. The commission is exploring the best means of investing in – and, as importantly, making accessible – sustainable forms of transport and zero-carbon vehicles. This will include policies to reduce car-use and free or significantly subsidised public transport. The benefits of such a programme will reach far beyond just climate but will also include significant improvements in air quality and health outcomes.

8. Transfer power to communities

Covid-19 has revealed the strength of solidarity and depth of generosity in communities across the UK. Solutions for a sustainable future for climate and nature lie in these very communities all of whom have varied and diverse needs, and cannot be developed centrally. There is no one-size-fits-all approach. Power and money must be devolved to enable tailored and nuanced plans to emerge, and to enable communities to take control of the decisions that will affect them. This must include new forms of deliberation for policymaking including citizens juries and assemblies as well as digital tools. Vulnerable, disadvantaged and minority groups who have been previously left out of policymaking must be at the heart of this new approach.

- **A green settlement for the UK's nations and regions:** We are exploring what further fiscal devolution and devolved powers are needed for England's metro mayors, combined authorities, and local councils to unleash the full potential of local action to radically reduce greenhouse gas emissions, restore nature and champion economic and social justice.

9. Repair our natural environment

Repairing nature and biodiversity must be a priority for the benefit of our wider economy, for climate and for the health of our citizens. Doing so will require a reshaping of land use and agriculture and the restoration of our oceans, to provide both environmental and health benefits to our citizens. The commission is exploring how best to achieve agricultural reform, nature based solutions, healthier diets and improvements in the quality and availability of affordable food, and the reconnection of people with nature.

- **Nature based solutions:** Improving and protecting our natural world will play an essential role in helping us achieve our climate targets, mitigate and adapt

to climate change and help us tackle the biodiversity crisis. The commission is assessing policies which will best protect and restore our natural ecosystems and bring about investment in nature based soluitions in built-up environments.

- **Agricultural reform:** As the largest driver of biodiversity loss on land in the UK and globally, action must be taken both to help the industry meet net zero ambitions but to move it to a truly sustainable and profitable industry that supports the recovery of the natural world. The commission is exploring the best policies to deliver a truly sustainable model of farming.
- **Reconnecting people with nature and guaranteeing access for all:** The commission is examining how best to reconnect communities with the natural world, ensuring access to high quality green space for all and enable people to lead more nature-friendly lifestyles.

10. Lead the world

As the host of COP26 in 2021, the UK must increase its domestic policy ambition significantly in order to be a credible example to the rest of world and leverage greater ambition and delivery from other developed countries. However, as the fifth-largest contributor to the stock of greenhouse gas emissions and given its unsustainable global environmental footprint, the UK also has a responsibility to make a broader contribution.

- **The UK's international contribution:** We are exploring what contribution the UK should make internationally in terms of finance, technology and expertise to those nations most affected by the climate and nature emergency and assist in their efforts to tackle it. This will include, for example, the financial commitments that the UK government should be making to the Green Climate Fund up to 2030 to support less industrialised nations to accelerate and improve mitigation, climate adaptation and resilience as well as support for loss and damage.
- **Export finance and trade:** The commission will consider the action that is needed to limit the UK's significant investments in unsustainable infrastructure abroad; between 2013/14 and 2017/18, the UK government used UK Export Finance (UKEF) to invest £2.5 billion in fossil fuel energy, 96 per cent of its total investment in energy, with £2.4 billion of this invested in low- to middle-income countries (EAC 2019a). Post-Brexit, trade policy will also take on new policy importance and this must extend to considerations of the climate and nature crisis. The commission will assess how the UK's trading arrangements can incorporate high standards across environmental and social factors.

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