House of Commons

Environmental Audit Committee

Growing back better: putting nature and net zero at the heart of the economic recovery

Third Report of Session 2019–21

Report and Appendix, together with formal minutes relating to the report

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Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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The public health emergency caused by the covid-19 pandemic has produced one of the largest ever shocks to the UK economy. It has stretched the UK's health and social care systems, has plunged businesses into crisis and is likely to lead to levels of unemployment not seen in decades. As the vaccine roll-out progresses and attention turns to the UK's recovery, the focus must be on how to grow back better, creating a greener, healthier and more resilient economy.

The covid-19 crisis must be treated as a wake-up call. It is a symptom of a growing ecological emergency. Its emergence is linked to the illicit trade in wildlife and humanity's growing encroachment on the natural world. The way in which the UK and other nations respond to the global economic downturn, and the stimulus that national governments direct to recovery efforts, will be pivotal in determining whether the goals of the Convention on Biological Diversity and the Paris Agreement on climate change will be met. Climate scientists advise that a very limited time window is left to slow the build-up of emissions in the atmosphere and thereby limit the increase in global heating to 1.5 degrees Celsius. If the economic recovery from covid-19 is not used as an opportunity to 'grow back better', then climate change and biodiversity collapse may deliver an even greater crisis. There will be no vaccine against runaway climate change.

Fortunately, many of the solutions necessary to halt biodiversity loss and slow climate change will spur innovation, create hundreds of thousands of jobs and make the economy and society more resilient to future crises. Billions of pounds of investment are needed to put nature into recovery and decarbonise industries, transport and buildings. This investment will provide economic multipliers in terms of jobs, together with wider benefits such as cleaner air and warmer homes. There are also considerable competitive economic opportunities for the UK in leading the world in a low carbon—green—industrial revolution.

Considerable progress has been made in moving to clean electricity generation in the last decade, but the UK is lagging in introducing measures to decarbonise transport, industry and buildings. In common with many other nations, by the end of 2020 the UK had signally failed to meet most of the Aichi targets to protect wildlife, habitats and eco-systems. Many of the green initiatives the Government has introduced as part of its economic recovery packages are welcome, but do not go far enough. The Prime Minister's Ten Point Plan for a green industrial revolution points in the right direction. The Sovereign Green Bond and National Infrastructure Bank provide important mechanisms for financing transition. The Government must use the UK's post-crisis economic recovery stimulus as an opportunity to accelerate investment on nature recovery, climate adaptation and cutting emissions to net zero. The speed at which coronavirus vaccines have been developed shows how rapidly scientific progress can be made when efforts are concentrated and urgent. That same level of urgency to developing and deploying solutions to the climate crisis needs to be applied to an economy stalled by the effects of the pandemic.

Infrastructure invested in now will be in use for decades to come. It is essential that all decisions on infrastructure investment are considered with regard to UK net zero targets, impacts on biodiversity and future projections for changes in climate likely to

affect the UK. The Government must ensure that its 'build, build, build' agenda delivers truly sustainable development with low-carbon homes fit for a changing climate. The Government should develop embodied carbon targets for new homes to increase demand for more sustainable building materials. Investment in energy efficiency and other areas needs to be front loaded as much as possible in order to produce short-run economic multipliers, stimulating the economy and creating jobs.

Air pollution has been linked to higher covid-19 mortality rates. Active travel infrastructure for walking and cycling in towns and cities must be a priority to clean the air we breathe, cut carbon and improve our health and fitness. The Government's road building programme must be rigorously assessed against the UK's air quality, biodiversity protection and climate change targets before individual projects proceed.

The net zero transition and the switch to electric vehicles being driven by Government policy will require the introduction of cutting-edge manufacturing processes in UK automotive industries to manufacture electric vehicles and their batteries. Up to eight so-called 'gigafactories' will need to be built. To support the accelerated uptake of ultra-low emission cars in the UK, further tax incentives should be introduced to make these vehicles more affordable.

The Chancellor must use the Budget on 3rd March as a springboard to revive the UK economy and to kickstart the green industrial revolution. As the UK recovers from the immediate crisis, a shift towards green taxation could help direct investment into job-rich low carbon activity, shift behaviour and increase resource and energy efficiency. The Government should use the latitude it enjoys following the UK's exit from the European Union to reduce rates of VAT on repair services and products containing reused or recycled materials to increase the circularity of the UK economy. The Government should also adopt a VAT reduction on home upgrades to incentivise installation of low-carbon domestic technologies and improve energy efficiency of homes. The Government should begin scoping work on a carbon tax and an accompanying border carbon adjustment tariff to incentivise low carbon changes across the economy.

1 Ecological crisis and economic recovery

About this report

1. The covid-19 pandemic has had an unparalleled impact on the global economy. In the UK, successive lockdowns have imposed severe restrictions on economic activity. Significant contractions in the economy have resulted, demanding vigorous policy responses from the UK Government.

2. Our remit as a Committee is to examine, on behalf of the House of Commons, the extent to which the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development, and to audit the performance of such bodies against sustainable development and environmental protection targets.

3. We report below our initial assessment of the measures the Government and the Bank of England have taken to date stimulate an economic recovery, together with outline recommendations for ensuring that these measures are consistent with the Government's commitments under the Paris Agreement and Convention on Biological Diversity, and to meet the statutory commitment to achieve net zero by 2050. Our approach to this inquiry is set out in Box 1.

Box 1: How we went about this inquiry

In May 2020 we held an exploratory hearing on the environmental implications of the covid-19 crisis, examining the connections between human health and natural systems and discussing the implications of the pandemic for carbon emissions, clean technology investment and international climate negotiations. We then launched an inquiry intended to examine how to 'green' the economic recovery.[1]

We received well over one hundred submissions of written evidence brimming with ideas on how the UK can grow back better after the crisis.[2] We held three further days of hearings with economists, business groups, the Bank of England and a variety of green and conservation groups. We also questioned three big businesses that had received public support either from the BoE's Covid Corporate Financing Facility (CCFF) or from the Government's Project Birch.

We heard evidence from 25 witnesses in person.[3] Our policy is to seek gender balance on our witness panels: over the course of this inquiry 11 women and 14 men gave evidence. During the course of the inquiry we also corresponded with the Treasury and the Department for Business, Energy and Industrial Strategy and conducted a survey of homeowners who had tried to apply for a Green Homes Grant.[4]

1 The terms of reference and call for evidence for this inquiry are available at https://committees.parliament.uk/work/306/greening-the-postcovid-recovery

2 A list of the published written evidence is printed on pages 82 to 85

3 The oral evidence taken is listed on page 81.

4 All published written evidence, transcripts of oral evidence and relevant correspondence can be found on the inquiry website: https://committees.parliament.uk/work/306/greening-the-postcovid-recovery

Zoonotic diseases and their transmission

4. Most emerging infectious diseases spread from animals to humans.[5] Trends over decades show that these so-called zoonotic diseases are on the increase.[6] Land use change due to deforestation and agricultural expansion is the biggest driver of species decline as highlighted in the latest Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment.[7] As such the increased emergence of zoonotic disease due to biodiversity decline is directly linked to human activity, population growth and consumption. All increase the risk that such zoonotic diseases will emerge by degrading biodiversity and increasing contact between people, domesticated animals and wildlife.[8]

5. Professor Kate Jones, Chair of Ecology and Biodiversity at University College London, described to us the relationship between the pandemic and planetary health:

> The definition of planetary health is the intersection of the health and well-being of humans and the state of the natural systems on which they depend. Much of public health is focused on human health rather than any of the links to the surrounding environment. […] One of the widely recognised areas of common ground between public health and ecology is the emergence of these new infectious diseases. Covid-19 is one of these diseases, and there is also HIV/AIDS, Ebola, SARS and other diseases. The reason it is an ecological issue is because over two thirds of all human infectious diseases are from animals or are spread by animals, so they are zoonotic or vector-borne. It is not just a public health issue; it is also fundamentally an ecological issue. It is thought that the pathways of transmission between animals and people, and the degradation and change of the pathways between these organisms, is what causes a rise in these emerging infectious diseases.[9]

6. Professor Jones went on to explain how biodiversity disruption was increasing the number of pathways for such diseases to infect human populations:

> Deforestation might be more problematic for diseases like HIV and Ebola, which we think were the main pathways for that. With things like Nipah it could be intensification of agricultural practices, maybe in wildlife areas that have high biodiversity and high pathogen richness. All species have their own pathogens. There is a spillover from domestic species into humans from intensification of agriculture, but it could also be that if you are in a really urban environment there might be some vectors. It could be a human-to-human disease, like malaria or dengue fever. If you are urbanising that area, the vector might like more urban areas; there may be more standing water. Urbanising areas might have a different set of diseases that you change. […] We are definitely increasing the ecological hazard.

5 Centers for Disease Control and Prevention, One Health: Zoonotic Diseases [accessed 10 February 2020].
6 Jones et al. 2008, Global trends in emerging infectious diseases, *Nature* 451:990–993
7 Q2 (Professor Kate Jones, 21 May 2020)
8 Hassell et al. 2017, "Urbanization and Disease Emergence: Dynamics at the Wildlife–Livestock–Human Interface", *Trends in Ecology and Evolution* 32(1): 55–67; WHO and Secretariat of the Convention on Biological Diversity, Connecting Global Priorities: Biodiversity and Human Health: A State of Knowledge Review, 2015.
9 Q2 (Professor Kate Jones, 21 May 2020)

> We are degrading landscapes, we are changing those pathways, so the hazard is definitely becoming higher. […] We are doing more risky things like going into more pristine areas. We are trading animals. We are moving animals and pathogens about, so our exposure is higher, and there is just more of us. If it was a very rare event to get one of these pathogens that goes from animals to humans and from humans to humans, now there are billions of us, so there are billions more opportunities for that to happen.[10]

7. Professor Jones illustrated her point about the increasing trend for infections to jump from animals to humans by pointing out that covid-19 was not the only likely zoonotic outbreak in early 2020:

> January 2020 was an unprecedented time. We had three major outbreaks of these zoonotic diseases from animals. The first one was Ebola in DRC; there was the largest ever outbreak of Lassa fever in Nigeria; and then we had covid-19 in Wuhan in China. January 2020 was unprecedented in lots of ways, and the number of infectious diseases is increasing over time.[11]

Ecological crises

8. The emergence of covid-19 can be seen as a symptom of ecological disruption. It should be treated as a wake-up call. The world is facing three interconnected environmental challenges: biodiversity collapse, climate change and environmental pollution. The UK has entered into international commitments under the Convention on Biological Diversity, the Paris Agreement and the UN Sustainable Development Goals to reduce its contribution to these problems.

Biodiversity

9. The IPBES global assessment report, published in 2019, showed that the diversity of life on earth—commonly referred to as biodiversity—is being lost at an accelerating rate.[12] Around one million animal and plant species are now threatened with extinction, one quarter of all species.[13] Many within decades. This is a result of unsustainable levels of consumption, human population growth, habitat destruction, pollution and the wildlife trade, and it constitutes a threat to human well-being across the world.[14] The international community collectively failed to achieve the Aichi targets to halt the destruction of biodiversity, agreed internationally under the Convention on Biological Diversity, by the target date of December 2020.[15] IPBES say that 'transformative change' is needed to reverse this decline in biodiversity.[16]

10 Q5 (Professor Kate Jones, 21 May 2020)
11 Q2 (Professor Kate Jones, 21 May 2020)
12 Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, IPBES (May 2019)
13 *Ibid.*
14 *Ibid.*
15 Global Biodiversity Outlook 5 – Summary for Policy Makers, Secretariat of the Convention on Biological Diversity (2020)
16 IPBES (May 2019), *loc.cit.*

Climate change

10. The global climate is also being destabilised. Profound impacts attributable to the 1°C rise in global temperature since the pre-industrial period are already apparent.[17] The incidence of drought, floods and other extreme climate-related events has increased around the world. The Intergovernmental Panel on Climate Change (IPCC) has warned that time is running out and only nine years remain to limit global temperature rises to below 1.5°C.[18] Pre-covid-19 emissions trends put the world on course to exceed 1.5°C by 2030:[19] to have at least a 50% chance of preventing this, global emissions must be cut to half their current levels by 2030.[20] It is estimated that even if all existing national commitments to cut emissions were fully implemented across the world, global temperatures would rise to 3.2°C by 2100.[21] Christiana Figueres, a former Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), told us that the climate crisis should be seen in the same category of risk as covid-19:

> One lesson that we have to relearn is that high probability, high impact risks have to be acted on in a timely manner and that delay is very costly.[22]

In a joint submission, the Grantham Research Institute on Climate Change and the Environment, the Impact Investing Institute and the Green Finance Institute, echoed this:

> Covid-19 has shown what happens when a known risk crystallises and provides a live stress-test for the devastating impacts of unrestrained climate change.[23]

11. To achieve net zero emissions and meet the Paris Agreement commitment to limit global warming to 1.5°C, emissions must be put on a rapid downward trajectory in this decade. In June 2019 the UK became the first major economy in the world to pass laws to bring all greenhouse gas emissions to 'net zero' by 2050, compared with the previous target of at least 80% reduction from 1990 levels.[24]

17 Global Warming of 1.5 C. An IPCC Special Report on the impact of global warming of 1.5°C: Chapter 1, IPCC (8 October 2018)

18 IPCC (8 Oct 2018) Special Report on the impacts of global warming of 1.5°C: Headline Statements from the Summary for Policymakers,

19 *Ibid.*

20 *The Future We Choose: A Stubborn Optimist's Guide to the Climate Crisis*, Christiana Figueres and Tom Rivett Carnac, 2020

21 *Emissions Gap Report 2019 Executive Summary*, UN Environment Programme (26 November 2019)

22 Q36 (Christiana Figueres, 21 May 2020)

23 Grantham Research Institute on Climate Change, Impact Investing Institute and the Green Finance Institute (COV0111)

24 UK becomes first major economy to pass net zero emissions law, *Gov.uk* (27 June 2019)

Box 2: Net zero emissions

A 'net zero' target refers to reaching net zero carbon emissions by a selected date—in the UK's case by 2050. These targets must primarily be achieved through a real reduction in carbon dioxide and other greenhouse emissions to be meaningful, but where absolute zero carbon cannot be achieved, the amount of emitted greenhouse gases can be balanced with the equivalent emissions that are either offset or sequestered: for instance, by planting forests or using carbon capture and storage. In June 2019, Parliament accepted the Government's proposal to amend the Climate Change Act 2008 to require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least an 80% reduction from 1990 levels.[25]

Environmental pollution

12. Pollution of air, water and land with chemicals and plastic also poses mounting problems for wildlife and human health. Air pollution is the biggest environmental threat to health in the UK,[26] and emerging research suggests that air pollution exposure may increase the risk of dying from covid-19. Researchers from Harvard University have conducted a nationwide study in the United States to investigate whether long-term average exposure to fine particulate matter (PM2.5) is associated with an increased risk of covid-19 death in the USA. Their findings suggested that even a single-unit increase in particle pollution levels in the years before the pandemic may be associated with an 8% increase in the covid-19 death rate.[27] Another study analysing European data examined the relationship between long-term exposure to nitrogen dioxide (NO_2) pollution and coronavirus fatality.[28] The researcher mapped pollution on a regional scale and compared it with the number of people who had died from covid-19 in 66 administrative regions in Italy, Spain, France and Germany. The results showed that out of the 4443 fatality cases, 3487 (78%) were in five regions located in north Italy and central Spain which show the highest NO_2 concentrations combined with downwards airflow. The paper concluded that the results suggest 'long-term exposure to this pollutant may be one of the most important contributors to fatality caused by the covid-19 virus in these regions and maybe across the whole world.'[29] Previous research found a link between higher mortality rates for Severe Acute Respiratory Syndrome (SARS)—also a coronavirus—in different areas of China with exposure to higher levels of air pollution. It found that SARS patients from regions with high Air Pollution Index (API) levels were twice as likely to die from SARS compared to those from regions with low APIs.[30]

13. Professor Frank Kelly, Head of the Department of Analytical, Environmental and Forensic Sciences at King's College London, told us that, while not enough research had been done in the UK on the link between air quality and the effects of covid-19, some recent studies of populations in London had:

25 via the Climate Change Act 2008 (2050 Target Amendment) Order 2019 (S.I. 2019/1056)

26 Public Health England publishes air pollution evidence review, Public Health England (11 March 2019)

27 Wu, X., Nethery, R. C., Sabath, M. B., Braun, D. and Dominici, F., 2020. "Air pollution and COVID-19 mortality in the United States: Strengths and limitations of an ecological regression analysis" *Science advances*, 6(45) (April 2020)

28 Yaron Ogen, "Assessing nitrogen dioxide (NO_2) levels as a contributing factor to coronavirus (COVID 19–19) fatality", *Science of The Total Environment*, volume 726 (2020)

29 *Ibid.*

30 Cui, Y., Zhang, Z., Froines, J. et al, Air pollution and case fatality of SARS in the People's Republic of China: an ecologic study, Environmental Health volume 2, Article number: 15, 2003 Cui, Y., Zhang, Z., Froines, J. et al, "Air pollution and case fatality of SARS in the People's Republic of China: an ecologic study", *Environmental Health* volume 2 (2003)

> … shown that if you expose lung cells to particulate pollution—tiny particles like PM2.5—it leads to an increase in expression of the ACE2 receptor [that allows the virus to infect the cell]. People who are being exposed to more pollution may, for that reason, be expressing higher levels of receptor and, therefore, the virus has a greater chance of entering their lung cells, replicating and leading to subsequent major health problems.[31]

Impact of lockdowns on carbon emissions and air pollution

14. Significant reductions in NO_2 levels were recorded in London during the first lockdown period between late March and mid-May 2020, particularly near once-busy roads. In some central areas concentrations of particulate emissions were halved.[32] The dramatic curtailment of energy use for industrial production and travel appears to have caused global carbon dioxide emissions to fall by 8.8% in the first six months of 2020, the largest ever recorded fall in emissions in an equivalent period.[33] Annual average CO_2 concentrations still increased over the course of 2020, albeit at a slower rate than usual: because carbon dioxide accumulates in the atmosphere.[34]

Aligning the recovery with nature and net zero

15. We have heard that the way the UK and other governments respond to the present economic downturn, particularly in their direct stimulus spending, will be pivotal in determining whether the Paris Agreement and Convention on Biological Diversity goals will be met. Christiana Figueres told us that it was critical to prioritise climate action in any economic recovery effort:

> It is going to be very dangerous if the only purpose of stimulus packages is to recover the economy to where we were in December [2019]. We already know that an approximately US$15 trillion fresh injection is being put into the economy, and it will likely go up to US$20 trillion. […] The scale of the injection of this fresh money is going to completely overwhelm and overpower anything that is being done only from a climate perspective. […] The timing is very critical. Those rescue packages, US$10 trillion to US$20 trillion, will not only be defined but very likely allotted over the next 18 months. Because of the scale, they will determine the characteristics of national economies and of the global economy for several decades. It is exactly this decade, between 2020 and 2030, where climate science has been lucidly clear that we need to halve our emissions, reduce to 50% the emissions that we have right now.[35]

31 Q11 (Professor Frank Kelly, 21 May 2020)
32 Spotlight on research: mixed pollution results for London during lockdown, King's College London (6 May 2020)
33 Global CO_2 emissions show biggest ever drop in first half of 2020, Reuters (14 October 2020)
34 Analysis: What impact will the coronavirus pandemic have on atmospheric CO_2?, Carbon Brief (7 May 2020). Carbon Brief explains the impact thus: 'An analogy is filling a bath from a tap. If the tap represents CO_2 emissions, and the water level in the bath is CO_2 concentrations, while we have slightly turned the tap down temporarily, water is still flowing into the bath and so the level is still rising. To slow climate change, the tap needs to be turned right down—and permanently.'
35 Q27 (Christiana Figueres, 21 May 2020)

16. Richard Benwell, CEO of Wildlife and Countryside Link, argued that the covid-19 crisis was in essence an ecological crisis and that if a green recovery was not pursued it would not be a recovery at all:

> If it is not a green recovery, then it is not really an economic recovery at all. It is a hair of the dog; it is a short-term pick-me-up, right back on the path to causing the same sorts of problems all over again, because if there is anything that this crisis has taught us it is that ecology and economy are utterly intertwined. We are in the midst of a global economic downturn. The global economy has been brought to its knees by an ecological problem that has been caused by the way that we interact with nature.[36]

17. A majority of citizens who participated in the recent UK Climate Assembly—commissioned by six select committees including EAC—said that steps taken by the government to help the economy recover should be designed to help achieve net zero.[37] The Zero Carbon Campaign called for all fiscal and economic stimulus packages to be aligned with the UK's net zero target and the UN Sustainable Development Goals—including those which relate to biodiversity (goals 14 and 15) and the circular economy (goal 12).[38] The conservation charity Plantlife stressed in its evidence that 'all decisions about the post-Covid financial recovery need to place our environmental future at its core. This includes a focus on biodiversity net gain, in addition to climate commitments.'[39]

Our view

18. Covid-19 has affected every household in the country and every sector of the economy. Its impact on livelihoods, employment, ways of working and activities usually taken for granted has been seismic. Measures to slow or to prevent the spread of the disease have been undertaken at a colossal cost to the public purse.

19. **The consequences of another widespread outbreak of a zoonotic disease of similar lethality would be catastrophic. Covid-19 must therefore be treated as a wake-up call. The factors which appear to be increasing the incidence of such diseases must be thoroughly investigated and urgent action taken to mitigate the risks.**

20. **The potential consequences of biodiversity loss for human populations have for too long been overlooked. It is vital that nature recovery is also prioritised in our economic recovery efforts alongside action on climate change. If measures to promote economic recovery are not treated as an opportunity to 'grow back better', then the global collapse in biodiversity, together with the impacts of pollution and climate change, may, if left unchecked, result in an even more catastrophic crisis.**

36 Q5 (Richard Benwell, Wildlife and Countryside Link, 23 July 2020)
37 Climate Assembly UK, Covid-19, recovery and the path to net zero, 23 June 2020
38 Zero Carbon Campaign (COV0032)
39 Plantlife (COV0034)

Economic recovery

Economic impact

21. The pandemic has delivered one of the largest ever shocks to the UK economy and the public finances.[40] In the first lockdown the UK recorded its sharpest monthly contraction ever recorded, and one of the largest among advanced economies. The Office for National Statistics (ONS) has confirmed that GDP contracted by 9.9% over 2020 as a whole—marking the largest annual fall on record.[41]

22. ONS data released in January 2021 showed that the UK unemployment rate hit 5.0%, in the three months to November 2020, up 1.2% on the corresponding period last year.[42] The Office for Budget Responsibility (OBR) anticipates a significant rise in unemployment over the course of 2021: in the central of three scenarios prepared by the OBR, the unemployment rate is projected to peak at 7.5%—equivalent to 2.6 million people unemployed—and is projected to rise as high as 11% in its downside scenario.[43]

23. The collapse of tax receipts as a result of each lockdown, together with the packages of economic support that the Government provided to workers, businesses and the self-employed, pushed the UK's budget deficit to £270.8 billion by the end of December 2020.[44] In November 2020, the Office for Budget Responsibility said that it expected the deficit to reach £394 billion by the end of the financial year in March 2021, the highest level since the second world war.[45] The Organisation for Economic Co-operation and Development has projected that economic recovery in the UK during 2021 will be among the slowest in the world.[46]

What should the policy response be to the pandemic?

24. In our call for evidence we asked how the policy response to the economic crisis should differ from the response to the global financial crash in 2008.[47] It was noted that the capacity of monetary policy alone to boost demand was weak, given that interest rates are at historic lows.[48] There was considerable consensus that the response to the current crisis had to be investment-led and that monetary and fiscal stimulus ought to be directed to socially and environmentally beneficial ends.[49]

25. Martha McPherson, from the Institute for Innovation and Public Purpose, University College London, said that 'the stimulus of a huge cash injection into an economy is by no means neutral': in the response to the 2008 financial crisis 'policymakers flooded the world

40 Economic and fiscal outlook – November 2020, Office of Budget Responsibility (25 November 2020)
41 Office for National Statistics, GDP first quarterly estimate, UK: October to December 2020, 12 February 2021
42 Labour market overview, UK: January 2021, Office for National Statistics (21 January 2020)
43 Economic and fiscal outlook – November 2020, Office for Budget Responsibility (25 November 2020)
44 Public sector finances, UK: December 2020, Office for National Statistics (22 January 2021),
45 Economic and fiscal outlook – November 2020, Office for Budget Responsibility (25 November 2020)
46 UK economic recovery from Covid crisis forecast to be among world's slowest," *Financial Times*, 1 December 2020
47 Environmental Audit Committee, Greening the post-Covid recovery: call for evidence
48 Institute for Innovation and Public Purpose, University College London (COV0048)
49 Institute for Innovation and Public Purpose, University College London (COV0048), Zero Carbon Campaign (COV0032); ClientEarth (COV0041); Positive Money (COV0051); Allan, J., Donovan, C., Ekins, P., Gambhir, A., Hepburn, C., Robins, N., Reay, D., Shuckburgh E., and Zenghelis, D., A net-zero emissions economic recovery from COVID-19, Smith School Working Paper 20–01 (2020)

with liquidity without specific direction towards investment areas or towards societally beneficial outcomes'.[50] This 'led to money going more into the financial sector than into the real economy'.[51] She said:

> In retrospect, from a green perspective, you can see there was a huge missed opportunity to direct finance towards the needs of the climate, which we were aware of at that time. The Stern Review came out in 2006 and flagged the benefits of strong and early action on climate outweighing the costs. We knew this in 2008, and so the question of why we did not act on it should strongly reverberate through to us here today.
>
> When stimulus packages were developed around things like renewables—and this happened in the US Recovery Act, for example—there were some interesting positive outcomes that did direct and push the market. That stimulus supported renewables assets out of risky unconventional asset classes into infrastructure asset classes, which are much more investable with better returns and better long-term stability for institutional investors, pensions and insurance companies. That is an example of how this kind of stimulus has a long-term impact on bringing down things like the prices of renewables and making that market more accessible today.[52]

26. This was a view echoed by the Zero Carbon Campaign, a body established by Stephen Fitzpatrick the founder of OVO Energy. It suggested that following the financial crash of 2008, 'the opportunities posed by green stimulus policies were not effectively realised because they made up such a small share of global recovery packages.'[53] The pressure group Positive Money argued that the monetary and fiscal policies in response to the global financial crisis of 2008 had increased inequality, had failed to fix the financial system and had subsidised carbon intensive activity:

> Loose and unconventional monetary policy pushed up asset prices, expanding the wealth of the asset-rich, while the austerity program weakened public services and exacerbated economic insecurity for lower income households. […] Monetary policy supported carbon-intensive economic activity, as the BoE's corporate Quantitative Easing programme favoured high-carbon companies, purchasing bonds issued by Shell, BP, Total, etc.[54]

27. The industry body Energy UK said the Government should 'focus its financial support where it can deliver jobs, deep decarbonisation and long-lasting economic opportunities across the country.'[55] The Institution of Civil Engineers said that—in contrast to the response to the 2008 financial crisis—there ought to be well-targeted infrastructure investment aimed at achieving the net zero target:

> For infrastructure investment to be an effective stimulus, it needs to be targeted at the right projects and be delivered in the timeframes required.

50 Q180 (Martha McPherson, 3 December 2020)
51 *Ibid.*
52 *Ibid.*
53 Zero Carbon Campaign (COV0032)
54 Positive Money (COV0051)
55 Energy UK (COV0043)

> Examples of approaches that would be effective include accelerating the roll-out of both full-fibre and 5G communications infrastructure, and greater active travel (cycling and walking) infrastructure provision.[56]

Growing back better

28. In our call for evidence we asked for views on how fiscal and economic stimulus packages ought to be aligned with the UK's ambitions in respect of achieving net zero, fostering biodiversity and the circular economy and pursuing the Sustainable Development Goals: in short, how the UK could 'grow back better'. A wide range of organisations responded to the inquiry, from business groups and professional bodies to academics, conservation charities, pressure groups. There was broad consensus that the economic stimulus necessary to revive the economy after the unprecedented downturn could and should be aligned with the UK's commitments on climate change and biodiversity protection. There were four other common themes that were highlighted again and again. These were the need to ensure the recovery:

- prioritises health and well-being;
- creates green jobs;
- helps to rebalance the UK; and
- increases the UK's resilience.

Health and well-being

29. WWF said that the covid-19 crisis represented an opportunity not to return to 'business as normal' but to rebuild the economy in a way that supports the health of the population and the natural environment.[57] Professor Kate Jones told us that the lockdown had shown just how valuable access to nature was for health and well-being.[58] These benefits are discussed in more detail in Chapter 3 below.

30. Fran Boait from Positive Money outlined to us a vision where health and well-being were prioritised ahead of GDP growth. Positive Money said that the current crisis had 'exposed our problematic relationship with GDP growth' and that:

> The reality is that GDP growth frequently fails to increase life satisfaction, alleviate poverty, or protect the environment. In many cases, the pursuit of growth at all costs is in fact counterproductive to achieving such goals. For example, in the UK and many other high-income countries, a 1% increase in GDP generates an equivalent increase in material footprint, exerting a range of negative environmental pressures including biodiversity loss, soil depletion, and pollution of air, water and land.[59]

31. In his recent review of the economics of biodiversity, undertaken for the Treasury, Professor Sir Partha Dasgupta has also highlighted the drawbacks of using GDP as the

56 Institution of Civil Engineers (COV0046)
57 In WWF's submission to our call for suggestions for possible future inquiries in this Parliament (PFI0104)
58 Q16 (Professor Kate Jones, 21 May 2020)
59 Positive Money (COV0051)

primary measure of economic success. He concludes that because GDP does not account for the depreciation of natural assets it encourages the pursuit of 'unsustainable economic growth and development'.[60] His review outlines an alternative conception of 'inclusive wealth', which he has told us would require economists 'to measure not only human capital and produced capital but natural capital as well.'[61] We are examining the findings of the Dasgupta Review, and their implications for Government policy on biodiversity, more fully as part of our inquiry into biodiversity and ecosystems.[62]

Creating green jobs

32. We examined the potential for stimulus spending to be targeted in a way that generates both economic and environmental benefits by creating green jobs. The transition from the current, carbon-intensive economy to a low-carbon, sustainable economy presents opportunities for increasing employment with submissions suggesting that hundreds of thousands of green jobs could be created by 2030 in sectors including energy efficiency, low-carbon energy, electric vehicles and the circular economy.[63] Professor Cameron Hepburn, Director of the Institute for New Economic Thinking at the Smith School of Enterprise and the Environment, University of Oxford, argued that policymakers should be looking for 'interventions or policy spending that will deliver maximum short-run economic multipliers.'[64] He said many of the actions that needed to be taken to build greener, healthier, more energy-efficient infrastructure were 'win-wins' because 'in the short run, you get the maximum economic multiplier from creating jobs.'[65]

> To give […] a classic example, renewable energy investment requires more people upfront to build the kit, per gigawatt of electricity delivered, than fossil. In economic terms that is normally not a good thing, because it means you have additional cost, but when you are in the middle of a recession it is exactly what you want, lots of jobs. The beauty of renewable energy is that, once you have built it, the operational and maintenance costs are so low—the fuel costs are obviously zero—that you have a stronger, larger economic stimulus from that sort of investment.[66]

33. The economist Dimitri Zenghelis also highlighted the benefits that green investment could deliver. He told us:

> A lot of the sustainable, resilient investments have very appealing features in the short and the long run. In the short run, things like insulation retrofits, building wind turbines, broadband networks, planting trees, restoring wetland—you name it: a whole gamut of environmental policies and low-carbon policies are actually very labour-intensive. They are not

60 The Economics of Biodiversity: The Dasgupta Review Headline Messages, HM Treasury, February 2021
61 Professor Dasgupta gave evidence to the Committee's inquiry into Biodiversity and Ecosystems on 9 December 2020 (HC 636, Q5)
62 *The Economics of Biodiversity: The Dasgupta Review*, HM Treasury, February 2021
63 Institute for Public Policy Research, in its submission to our Green Jobs inquiry (GRJ0059); Green Alliance (COV0013); Veolia UK (COV0018); RWE (COV0021); Local Government Association (COV0022); Climate Venture Collective (COV0024); Wildlife and Countryside Link (COV0035); Church of England Mission and Public Affairs Council and Environment Working Group (COV0050).
64 Q26 (Professor Cameron Hepburn, 21 May 2020)
65 *Ibid.*
66 *Ibid.*

> susceptible to imports or offshoring and they have what are called high short-run multipliers. That is, they generate significant growth for each pound of investment.[67]

34. Professor Hepburn and Dimitri Zenghelis were contributors to a paper which compared green stimulus projects with traditional stimulus measures, such as those taken after the 2008 global financial crisis. It found that green projects:

- create more jobs;
- with clean energy infrastructure construction generating twice as many jobs per pound of government expenditure as fossil fuel projects;
- deliver higher short-term returns per pound spent by Government, and;
- lead to increased long-term cost savings.[68]

35. Green Alliance has pointed out research undertaken in 2015 which suggested that a move towards a closed loop or circular economy for materials could help create 517,000 jobs in the UK by 2030 in regions and at pay grades where there was persistent unemployment, thereby making a net contribution to UK employment.[69] Green Alliance suggested that the case for such measures was only likely to become more pressing as unemployment increases. It said that the increase in spare economic capacity meant that jobs created in the circular economy sector would be less likely to reduce employment in other areas.[70]

36. Richard Benwell, of Wildlife and Countryside Link, thought that the environmental sector could absorb another 10,000 or 20,000 jobs at a cost of between £400 million and £800 million pounds a year, while employing 'a more diverse range of people.'[71] His organisation has proposed a 'National Nature Service' (NSS) employment and training scheme in which tens of thousands of jobseekers 'could help turn around nature's decline'.[72] The service could broaden out career opportunities to communities who may not have previously considered careers in conservation, as charities had hitherto depended on people being able to afford to volunteer their services. Wildlife and Countryside Link wanted to 'open up access to nature and to being involved in the nature sector in a way that is much fairer and more equitable.'[73]

Achieving a balanced and fair transition

37. Many contributions also stressed the importance of using the recovery efforts to rebalance the UK and create a fairer society. In a joint submission, the Grantham Institute, the Green Finance Institute and the Impact Investing Institute said that the pandemic had exposed and exacerbated 'a range of inequalities in society in terms of income, gender, race, age and location', emphasising that the move to a green economy would also need

67 Q3 (Dimitri Zenghelis, 23 July 2020)
68 Cameron Hepburn, Brian O'Callaghan, Nicholas Stern, Joseph Stiglitz and Dimitri Zenghelis, "Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change",; *Oxford Review of Economic Policy*, Volume 36, Issue Supplement_1, 2020, pp S359–S381 36(S1); 4 May 2020
69 Julian Morgan and Peter Mitchell, *Employment and the circular economy: job creation in a more resource efficient Britain*, WRAP and Green Alliance (2015), p 3
70 In written evidence to the Committee's inquiry into Green Jobs (GRJ0064)
71 Q8 (Richard Benwell, Wildlife and Countryside Link, 23 July 2020)
72 Call for a National Nature Service, Wildlife and Countryside Link, July 2020
73 Q9 (Richard Benwell, Wildlife and Countryside Link, 23 July 2020)

to be socially inclusive to deliver a just transition.[74] The founder of OVO Energy, Stephen Fitzpatrick, warned of a potential backlash against green policies unless they were fair to the economically disadvantaged:

> Everybody is very focused on the green recovery right now but, as the economic pain bites in years to come and as stimulus wears off, my fear is that we will see a resistance or a division in society between those who can and those who cannot afford to think about decarbonisation. [… I]f we do not figure out a way to make sure that those who can best afford to pay are going to be paying the price for decarbonisation, we are going to leave a lot of economically challenged citizens behind. They are going to resent the increases in costs that are put on their cost of living as a result of green policies and we are going to see […] the subject of climate change become a very politically divisive issue.[75]

38. The Institution of Environmental Sciences suggested that by explicitly seeking to tackle inequalities as part of a 'just transition', the Government could win 'buy-in from communities at the heart of the transition, whilst simultaneously achieving economic and environmental goals.'[76] Green Alliance argued that a successful future economy must be more balanced, with high quality employment and prosperity assured for all communities across the country.[77] Its Head of Climate Policy, Caterina Brandmayr, argued that, as well as generating jobs and economic activity, supporting solutions for climate and nature in the economic recovery could deliver:

> a wealth of benefits that comes from these solutions, including cleaner air, greater access to nature, more liveable communities and warm, comfortable homes. It is true that, at the moment, access to those benefits is not equally distributed across the country, so making sure that access is instead more evenly distributed will be fundamental as part of the transition.[78]

39. Some submissions identified specific opportunities where green measures could help to rebalance the UK; both between north and south and between urban and rural communities. The Northern Housing Consortium said that a programme of improving existing homes in the North to increase their energy efficiency 'would not only reduce carbon emissions and improve living standards, but also create new skills and employment opportunities in the region.'[79] It pointed out that the North's existing homes 'are older and colder than the English average' with 833,000 households across the North living in fuel poverty. It said that the 'labour-intensive nature of improving the energy performance' of housing stock could be used to contribute to the economic recovery of the North. The RSPB highlighted how investing in nature recovery projects can provide employment and skills development opportunities at all levels, often in rural areas 'where employment

74 Grantham Research Institute on Climate Change, Impact Investing Institute and the Green Finance Institute (COV0111)
75 Q187 (Stephen Fitzpatrick, OVO Energy, 3 December 2020)
76 Institution of Environmental Sciences (COV0014)
77 Blueprint for a resilient economy, Green Alliance, June 2020
78 Q10 (Caterina Brandmayr, Green Alliance, 23 July 2020)
79 Northern Housing Consortium (COV0025)

and training opportunities are limited.'[80] The Wildlife and Countryside Link said that investment in nature recovery projects as part of the recovery could be used to extend conservation work opportunities to communities that have previously not accessed them.[81]

40. The Trades Union Congress (TUC) emphasised the importance of achieving a 'just transition' to net zero. Sue Ferns, a member of the TUC Council, pointed to the German Government's 40 billion euro investment in the phasing out of coal by 2038 as an example of the scale of contribution necessary to achieve a 'just transition': the package included funding for restructuring regional economies, reskilling workers and expanding local infrastructure.[82]

41. The TUC set out four principles that it saw as essential to achieving a just transition:

- a clear and funded pathway to a low carbon economy;
- giving workers a voice in developing and delivering the plans;
- providing every worker with access to funding to improve their skills; and
- ensuring that green jobs are good jobs with fair pay and high health and safety standards.[83]

Improving the UK's resilience

42. A number of contributors argued that the shock of the pandemic highlighted the importance of fostering resilience, both in economic systems and in the environment. Claire Haigh from the organisation Greener Journeys argued that the policy response to Covid-19 needs a focus on risk and resilience. She stated:

> The pandemic has demonstrated the unpreparedness of the global economy to systemic risks, despite early warnings from scientists. We must put an end to economic short-termism and the maximisation of economic efficiency over the resilience of communities. We need to move beyond narrow frameworks of cost-benefit analysis. Greater emphasis should be given to co-benefits such as improving health and well-being, enhancing bio-diversity, creating jobs, reducing poverty, stabilising the economy, and increasing resilience and the ability to adapt to climate change.[84]

43. Wildlife and Countryside Link, RSPB and CPRE all highlighted how investing in nature-based solutions could enhance the UK's future resilience to changes in the climate. They identified a range of projects from natural flood management to restoration of natural carbon sinks and landscape enhancement as ways that investment could boost the recovery and increase resilience. We will discuss these ideas in more depth in Chapter 3.

44. Several contributors suggested that creating a more circular economy could increase productivity and make the UK more resilient to future crises that had the potential to

80 RSPB (COV0105)
81 Wildlife and Countryside Link (COV0035)
82 Q34 (Sue Ferns, 23 July 2020)
83 *Ibid.*
84 Greener Journeys (COV0087)

disrupt supply chains. The Microbiology Society said that the pandemic had revealed issues with supply chains in certain sectors and revived interest in localised production and more sustainable supply chains.[85]

45. We heard in our *E-waste and the circular economy* inquiry, which ran concurrently through much of 2020, that developing a more circular economy can increase the resilience of the UK economy, especially to critical raw materials.[86] These are often only sourced from a few countries around the world, and whose supply is limited. Examples are lithium and cobalt in electrical car batteries. Most of world's production of cobalt comes from the Democratic Republic of Congo, and lithium mostly comes from Chile. The Royal Society of Chemistry highlighted a number of materials, including indium used in touch screens and tantalum used in wind turbines, that could run out completely by the end of the century but which are vital to technologies of the future, in particular to low-carbon technology.[87] Our recent report on electronic waste highlights how there are increasing geopolitical struggles over these valuable materials, yet much of the waste which includes such materials is currently landfilled, exported or incinerated, so wasting them.[88]

46. As we outlined in our report on *E-waste and the circular economy*, published in November 2020, there is significant potential for job creation and value retention from approaches that minimise waste and provide incentives to reduce, repair, re-use and recycle.[89] Green Alliance stressed the potential benefits of circular economy approaches:

> In addition to generating considerable resource savings, such measures have the potential to create new jobs, to boost the economy through innovative circular business models and to build resilience by lowering demand for scarce resources while securing supplies of secondary material.[90]

Our view

47. **Policymakers owe it to everyone who has suffered during the pandemic to 'grow back better' from the crisis by creating a greener, healthier and more resilient UK. Fairness and the levelling up agenda must be central in efforts to secure the recovery while also pursuing the transition to net zero.**

48. **The speed at which we have developed the vaccine under pressure shows how rapidly scientific progress can be made when efforts are concentrated and urgent. We now need to apply that same level of urgency to developing and deploying the solutions to the climate and extinction crisis. The UK's post-crisis economic recovery stimulus must be treated as an opportunity to accelerate investment on nature recovery, climate adaptation and cutting emissions to net zero. Many of the solutions necessary to slow the pace of climate change and biodiversity loss will also spur innovation, create jobs and make the economy and society more resilient to any future crisis.**

85 Microbiology Society (COV0055)
86 Environmental Audit Committee, *Electronic waste and the Circular Economy*, 26 November 2020, First Report of Session 2019–21, HC 220
87 Evidence from the Royal Society of Chemistry to the Committee's inquiry on Electronic Waste and the Circular Economy in the 2017 Parliament (ELE0047)
88 Environmental Audit Committee, *Electronic waste and the Circular Economy*, 26 November 2020, paras 118–128
89 Environmental Audit Committee, *Electronic waste and the Circular Economy*, First Report of Session 2019–21, HC 220
90 Evidence from Green Alliance to the Committee's revived inquiry on Electronic Waste and the Circular Economy in the 2019 Parliament (EWa0006)

49. **Levels of unemployment not seen in decades are now in prospect, on a scale which inevitably demands Government intervention.** ***In its approach to the recovery, the Government should, as far as possible, front-load its investment in areas such energy efficiency, the circular economy, climate adaptation and nature recovery, so as to provide a green jobs boost to counter unemployment. This investment will provide economic multipliers in terms of jobs and improved productivity and will offer wider benefits such as cleaner air and warmer homes. Consideration should also be given to how investment in energy efficiency and nature recovery can be used to rebalance the UK by supporting communities most in need. Do this and we can also ensure that the UK is more resilient to future shocks.***

50. ***We further recommend that the Government establish clear and ambitious statutory targets for the state of nature, waste minimisation, water quality and air quality under the Environment Bill once enacted.***

2 The Bank of England's response to the crisis

51. Central banks generally responded to the economic crisis caused by the pandemic by further cutting interest rates, increasing asset purchasing programmes—known as quantitative easing—and providing liquidity in the form of loans to the private non-financial sector.[91] The principal actions taken by the UK's central bank, the Bank of England, in response to the pandemic to date have been:

- to cut interest rates to 0.1%;[92]
- to increase its holdings of UK government and corporate bonds by £200 billion;[93]
- to reduce capital sufficiency requirements for UK banks, while pausing plans for a future increase, to enable banks to have sufficient capital to lend to businesses;[94] and
- to launch a Covid Corporate Financing Facility (CCFF), providing financial support for large businesses by offering cash for their corporate debt, thereby enabling continued payments of wages and to suppliers.[95]

52. During the inquiry we focused our attention on the Bank's corporate loan scheme and its increase in corporate bond purchases: in this chapter we examine both. The first section below focuses on the Covid Corporate Financing Facility (CCFF) programme, examining the evidence we heard calling for sustainability conditions to be applied to future public support. We then examine the climate impact of the Bank's corporate bond portfolio.

Financial support for large companies

53. The economic disruption caused by the pandemic led many otherwise viable firms to face cashflow crises. In March 2020 the Bank of England established the CCFF on behalf of the Treasury 'to provide funding to businesses by purchasing commercial paper (CP) of up to one-year maturity, issued by firms making a material contribution to the UK economy.'.[96]

54. The Government also negotiated direct support for a smaller number of large firms through its Project Birch scheme. The Government announced that climate change conditions formed part of its Project Birch bailout of Celsa Steel, although it has not specified what these are.[97] No such conditions were placed on loans provided by the Bank

91 Paolo Cavallino and Fiorella De Fiore, Central banks' response to COVID-19 in advanced economies, *BIS Bulletin 5*, Bank for International Settlements, 5 June 2020

92 ,Monetary Policy Summary for the special Monetary Policy Committee meeting on 19 March 2020 , Bank of England

93 I*bid.*

94 Q75 (Sarah Breeden, 24 September 2020)

95 COVID-19 Corporate Financing Facility (CCFF): information for those seeking to participate in the scheme, Bank of England

96 Joint HM Treasury and Bank of England COVID 19 Corporate Financing Facility (CCFF) - Market Notice, HM Treasury and Bank of England, 18 March 2020

97 Written Statement made by the Secretary of State for Business, Energy and Industrial Strategy, 2 July 2020, HCWS332

of England. The Bank told us that its aim in designing the CCFF with the Treasury was 'to make sure it was big, broad and fast because that was what the economy needed.'[98] The Bank placed no conditionality on granting such loans.

The Covid Corporate Financing Facility (CCFF)

55. By January 2021, 230 large companies had been approved as eligible for the CCFF, of which 49 businesses had outstanding commercial paper still held by the Bank. A number of the businesses in receipt of public support were in sectors with a high environmental or carbon impact, such as chemical companies, airlines and automotive: these included BASF, British Airways, Nissan, Rolls Royce, and easyJet.

56. Positive Money estimated in June 2020 that 56% of funds had been allocated to high-carbon sectors.[99] It also pointed out to us that the interest rates offered to big businesses by the Bank via the CCFF were significantly more favourable than those offered to small and medium-sized enterprises. Interest on CCFF loans was between 0.3 and 0.7%, while the interest rates offered by the Coronavirus Business Interruption Loan Scheme, administered by commercial banks, was on average 6%.

Table 1: recent use of the Covid Corporate Financing Facility

	Data as at close	
	13.01.2021	10.02.2021
Total amount of commercial paper (CP) purchased in the week to date, in terms of the amount paid to the sellers	£45mn	£0mn
Sum of CP purchased, less any redemptions and sales, since opening of CCFF in March 2020	£12,182mn	£12,231mn
Nominal sum of drawing capacity of all CCFF approved businesses	£84.495mn	£84,220mn
Businesses approved for CCFF issuance	230 businesses	231 businesses
Businesses with outstanding CP held by the CCFF	49 businesses	50 businesses
Businesses with no outstanding CP held by the CCFF	181 businesses	181 businesses

Source: Bank of England, Results and usage data: Covid Corporate Financing Facility [accessed 21 January 2021 and 11 February 2021]

Sustainability conditions

57. Some governments have placed conditions on support packages provided during the pandemic. In May 2020, the Canadian Government launched a Large Employer Emergency Financing Facility, the terms of which require recipient businesses to publish annual climate-related financial disclosures.[100] Other countries have placed more conditions. For instance, the French and Dutch government support packages for Air France and KLM—comprising $7.9 billion and $3.8 billion, respectively—require each carrier to halve their CO_2 emissions per passenger kilometre by 2030, compared with 2005 levels.[101]

98 Q79 (Sarah Breeden, 24 September 2020)
99 Positive Money (COV0051)
100 Prime Minister announces additional support for businesses to help save Canadian jobs, Justin Trudeau, Prime Minister of Canada, 11 May 2020
101 Airline bailouts highlight the debate over how green the coronavirus recovery should be, *Fortune*, 27 June 2020

Box 3: Climate-related financial disclosures

In recognition of the risks climate change could pose to businesses, the international Financial Stability Board has endorsed recommendations for companies to examine and then disclose the risks and opportunities they are facing from both the physical impacts of climate change and the transition to a low-carbon economy. The idea is that disclosure will help companies prepare for climate change impacts, and help investors understand risks so that they can make more informed investment decisions. The goal of requiring such reports is to enable investors and other stakeholders to evaluate the company's approach to climate change and its exposure to climate-related risks, and thereby incentivise companies to develop appropriate climate strategies. When it is implemented strategically along the investment chain, it can become a framework of constructive dialogue between business corporations and institutional investors, as well as other financial institutions.

Source:, Explainers: climate change risk disclosure, Grantham Research Institute on Climate Change and the Environment

58. Many of the stakeholders who gave evidence to our inquiry called for climate-related financial disclosures to be a minimum condition placed on businesses receiving substantial public support.[102] The environmental lawyers ClientEarth recognised that such conditions could not be imposed retrospectively, but argued that they ought to be placed on any future arrangements under the CCFF.[103]

59. Sarah Breeden, Executive Director for UK Deposit Takers Supervision at the Bank of England, argued that placing conditions on loans would have prevented assistance from being delivered swiftly:

> The shared aim across the Treasury and the Bank for these initial interventions was for them to be big, broad and fast, and getting the money to the companies that needed it as quickly as possible. In that context, putting conditionality about TCFD disclosure would have frustrated that underlying objective of getting money out quickly.[104]

60. Dimitri Zenghelis set out a range of conditions that could be applied to such loans, from mandatory climate-related disclosures to 'improvements against climate-positive criteria, including the need to embrace new technologies and meet new efficiency standards.'[105] He suggested that sector specific conditions on airlines could help drive a technological transition to sustainable aviation:

> When you put people's minds and entrepreneurial spirit and innovators to a task with a clear policy signal, it is amazing what they can deliver, and I think bail-out conditionality is a very important way of doing that. One of our proposals is that if airlines do not meet the targets, bail-out funding will be converted to equity at today's very low stock market prices for those airlines, thus providing a better deal for taxpayers and a stronger incentive for aviation companies.[106]

102 Dimitri Zenghelis (in oral evidence on 23 July 2020); Steve Waygood (in oral evidence on 12 May 2020); ClientEarth (COV0041); Positive Money (COV0051)

103 Q66 (Maria-Krystyna Duval, 24 September 2020)

104 Q82 (Sarah Breeden, 24 September 2020). 'TCFD' is the Financial Stability Board's Task Force on Climate-related Financial Disclosures, currently chaired by Michael Bloomberg.

105 Q11 (Dimitri Zenghelis, 23 July 2020)

106 *Ibid.*

61. In its Green Finance Strategy, issued in 2019, the Government announced that by 2022 all listed companies and large asset owners would be expected to make climate risk disclosures in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). This was a recommendation made by our predecessor committee in 2018.[107]

62. Some contributors to our inquiry argued that conditionality needed to go beyond mandating climate-related financial disclosures. WWF suggested that mandatory climate risk disclosure was an insufficient means to secure changes in corporate behaviour because 'actions related to climate risk management may lead to little or no real-world emission reduction or preservation of nature.'[108] Steve Waygood, of Aviva Investors, recommended that companies in receipt of Government support should, as well as disclosing their exposure to climate risks, be required to produce transition plans aligning their businesses with the Paris Agreement goals:

> … any company that receives Government support should, in turn, commit to producing a TCFD report. […] They should also say, on top of that report, 'This is our transition plan and how we are going to deliver the Paris Agreement.' The TCFD report does not require a transition plan, and there are other conditions that need to be placed upon them in terms of the governance of the business, embedding the delivery of the climate transition in the incentive structure and in board training, and so on. That conditionality needs to be embedded in any Government support.[109]

63. These points were echoed by ClientEarth's Head of Climate, Maria-Krystyna Duval. She said that companies that are either listed in the UK or have an annual turnover of £45 million or above receiving significant public support via mechanisms such as the CCFF should make a commitment to do five things:

- to report in line with TCFD recommendations
- to commit to achieving net zero emissions by 2050, with interim targets so that companies start the movement towards the transition as soon as possible rather than later.
- to publish a Paris-aligned business plan that is reasonable, transparent and accountable.
- to link executive pay to achievement of the targets in the business plan; and
- to restrict executive pay and capital contributions for the duration of the period of government support.[110]

107 Environmental Audit Committee, *Greening Finance: Embedding sustainability in financial decision making*, Seventh Report of Session 2017–19, HC 1063

108 WWF (COV0099)

109 Q35 (Steve Waygood, Aviva Investors, 21 May 2020)

110 Q64 (Maria-Krystyna Duval, 24 September 2020)

A recent review of UK-listed companies' climate change related reporting, carried out by ClientEarth, concluded that many companies are still failing to provide meaningful information about climate-related risks, despite a range of existing reporting requirements for companies to disclose material climate-related information.[111]

64. The Bank of England's Sarah Breeden insisted that imposition of conditionality arrangements on CCFF support was not an appropriate mechanism to drive multi-year net zero transitions. She stressed that work was being done to make climate-related disclosures mandatory by other means:

> The Covid Corporate Financing Facility is a short maturity facility. It is providing short-term finance, less than 12 months, in order for companies to be able to bridge the Covid financing gap. It is not, in my view, the vehicle that is going to drive the multi-year transition that I absolutely agree our economy needs. We have a shared objective […] to have the financial system, and the Bank of England within that, drive the economy on an orderly transition to net zero. Attaching conditionality to the CCFF does not seem to me to be the best way to do that. [… W]e need to address the TCFD issue and […] we should look, through the work that we are doing with the banks and insurers that we regulate, and the work that we are doing jointly with the Treasury and other regulators, at bringing TCFD in and making it mandatory.[112]

Commitments from the companies we questioned

65. We took evidence from representatives of three large companies receiving CCFF support: the energy technology company Baker Hughes, the airline easyJet and the steel manufacturer Celsa. None were publishing TCFD disclosures. easyJet said that it was addressing climate-related issues in its annual reports.[113] Celsa said that it would be working 'over the next year' to towards TCFD disclosure,[114] and Baker Hughes made a similar commitment.[115] Baker Hughes confirmed that the company had paid dividends after receiving £600 million of CCFF support.[116]

Climate-related financial disclosures

66. Martha McPherson, of the Institute for Innovation and Public Purpose at University College London, told us that the requirement for large-scale financial support was a once-in-a-generation opportunity to affect a transition within the corporate sector. This should not be seen as providing difficulties or barriers for businesses:

> Instead, [such disclosures] are there to align corporate behaviour with the long-term desire to lead that we have identified as a country. If we are heading towards a greener economy, as outlined by all these different jigsaw pieces of policy, the companies that switch their organisation, their business

111 ClientEarth reveals UK companies not adequately reporting on climate change, ClientEarth, 4 February 2021
112 Q83 (Sarah Breeden, 24 September 2020)
113 Qq118–19 (David Morgan, easyJet, 24 September 2020)
114 Q123
115 Q127
116 Qq106–07 (Richard Ward, Baker Hughes, 24 September 2020)

activities in that way the soonest, are the most competitive and become the most innovative. The conditionalities in that sense should really be seen as a carrot and not a stick.[117]

Bond purchasing

67. In response to the crisis, the Bank of England increased its use of what is known as 'quantitative easing' (QE), a device that central banks can use to inject money directly into the economy. QE has involved large-scale purchases of government and corporate bonds which stimulated the economy by boosting financial asset prices, thereby lowering the interest rates or 'yields' on those bonds. This can push down on the interest rates offered on mortgages or other loans, because rates on government bonds tend to affect other interest rates in the economy, ultimately making it cheaper for households and businesses to borrow money—in theory, encouraging spending.[118] The majority of the Bank's holdings are in Sovereign Government Bonds and a smaller proportion are in UK sterling corporate bonds.

68. In March 2020, the Monetary Policy Committee of the Bank of England voted to increase the stock of asset purchases, financed by the issuance of central bank reserves, by £200 billion to a total of £645 billion. The Bank began to make purchases on 25 March 2020.[119] As part of this operation the Bank doubled its corporate bond purchases from £10bn to £20bn under its Corporate Bond Purchase Scheme (CBPS).[120]

Carbon intensity of the BoE bond portfolios

69. In June 2020 the Bank of England published its own climate-related financial disclosures.[121] This made it the first central bank in the world to publish its own TCFD-compliant disclosure. For its disclosure the Bank commissioned external data providers to assess the carbon footprint of its financial asset portfolios and its exposure to climate risks.[122]

70. The disclosures revealed that the Bank's UK sovereign government bond portfolio had an average carbon intensity of 202 tonnes of carbon dioxide (CO_2) equivalents per £ million of GDP, compared to a G7 country reference portfolio of 336 tonnes.[123] The Bank's corporate asset holdings had an average carbon intensity of 294 tonnes of CO_2 equivalents per £ million of revenue.[124] The analysis published by the Bank suggested that the portfolio was consistent with an average temperature increase of 3.5°C above pre-industrial levels by 2100 but indicated that this was in line with estimates of the overall market.[125]

71. ClientEarth said in its submission that the CBPS was 'heavily invested in carbon-intensive corporates':

117 Q191 (Martha McPherson, 3 December 2020)
118 What is quantitative easing? Bank of England, 5 November 2020
119 Bank of England Asset Purchase Facility Fund Limited Annual Report and Accounts 2019–20, HC 381,18 June 2020
120 ClientEarth (COV0041)
121 The Bank of England's climate-related financial disclosure 2020, Bank of England, June 2020
122 *Ibid.*
123 *Ibid.*
124 *Ibid.*
125 *Ibid.*

> As of June 2020, four carbon-intensive sectors comprised approximately 57% of the value of bonds held by the Bank of England, although their contribution to UK Gross Value Added was only 19%. Earlier analysis from 2017 showed that 49.2% of bonds were from the manufacturing and electricity/gas production sectors, which contributed 52% of UK GHG emissions.[126]

ClientEarth observed that while the Governor had acknowledged that realigning the CBPS portfolio with net zero was a 'perfectly sensible thing to do,' no realignment had yet been undertaken.[127] Maria-Krystyna Duval from ClientEarth praised the Bank's leadership in 'identifying climate as a material financial risk' and urged it to continue to show leadership by decarbonising its bond purchasing programme. She suggested that the Bank could approach this in a number of ways:

> There is nothing restraining the Bank from now reconfiguring its portfolio so that the Corporate Bond Purchase Scheme becomes a greener one. That could be done according to two different scenarios. It could be done according to a lower-carbon scenario that might be more progressive and start attaching conditions over time to enable companies to transition away from fossil fuels—we know that in some cases that will take time—or a low-carbon scenario where the Bank decides to divest a certain number of holdings immediately in those carbon-intensive fossil fuel sectors. There are a number of ways in which the Bank could be greening this recovery through the Corporate Bond Purchase Scheme.[128]

Pricing climate change risk

72. The fact that the carbon intensity of the Bank's corporate bond portfolio reflects the overall market ought to be a matter of some concern. A 2016 Bank of England paper warned that 'a sudden, unexpected tightening of carbon emission policies could lead to a disorderly re-pricing of carbon-intensive assets'.[129] Aviva Investors' Steve Waygood said that the high average carbon intensity of the UK stock market posed enormous risks to the value of stocks. He cited research that Aviva had commissioned in 2015 that estimated that in the worst case climate scenarios $43 trillion (at 2015 values) would be wiped off the global stock of capital.[130] He outlined the problem this could pose for the insurance industry:

> The embodied global warming potential of the London Stock Exchange is nearer 4 degrees than 1.5. This is a profound problem if you are an insurance company. We are exposed to the physical risks of floods and fire. Others will insure more than we do in terms of food. We are not a big insurer in that space, but of course famine will be a problem. We do general insurance. As we near 4 degrees, we believe that represents an existential crisis for our sector, and that is currently where the London Stock Exchange is heading.[131]

126 ClientEarth (COV0041)
127 ClientEarth (COV0041)
128 Q68 (Maria-Krystyna Duval, 24 September 2020)
129 Sandra Batten, Rhiannon Sowerbutts and Misa Tanaka, *Let's talk about the weather: the impact of climate change on central banks*, Bank of England Staff Working Paper No. 603, May 2016
130 Q32 (Steve Waygood, Aviva Investors, 21 May 2020)
131 *Ibid.*

73. He concluded that the market needed recalibrating to 'internalise the externalities'. Policymakers and financial regulators needed to use 'fiscal measures, market mechanisms, standards and directives that internalise the costs of carbon at source.'[132] Fran Boait from Positive Money said that the market was not pricing climate risks correctly. She called on central banks to take a lead on correcting that as part of their price stability remit:

> While it is very clear that central banks have taken on climate change as part of their financial stability remit, there is still sometimes hesitation to take it on in terms of their price stability remit. [… T]here is an emerging consensus that markets are not pricing climate risk properly, and therefore there is a market distortion and market neutrality may not be the right benchmark. […] I do not think there is any reason why, in the current mandate, the Bank of England has not taken those simple steps to exclude certain companies from their corporate bond purchase when […] currently the Corporate Bond Purchase Scheme is skewed disproportionately towards high-carbon industries.[133]

The Bank of England's remit on climate change

74. Sarah Breeden insisted to us that the Bank's remit did not allow it to place climate conditions on its CCFF loans or for it to avoid high carbon assets in its corporate bond purchasing scheme.[134] Martha McPherson disputed this,[135] drawing attention to the Bank's formal response of June 2020 to the Chancellor of the Exchequer's annual remit letter.[136] In it, the Governor of the Bank of England says that the Financial Policy Committee will 'continue to regard risks from climate change as relevant to its primary [financial stability] objective, and acknowledges that in the context of its secondary objective, it has a role to play in seeking to support the Government's Green Finance Strategy'.[137] Martha McPherson added that 'if there is a need to undertake a mandate shift, this needs to be a baked-in step as part of the green recovery'.[138]

Correspondence with the Bank of England

75. We wrote to Andrew Bailey, Governor of the Bank of England, in January to raise our concerns about the Bank's actions in this respect. We welcomed the Bank's rapid response to the pandemic, but pointed out that it was at risk of creating incentives to moral hazard; not only by purchasing high-carbon bonds but also by providing finance unconditionally

132 *Ibid.*
133 Q68 (Fran Boait, 24 September 2020)
134 Q77 (Sarah Breeden, 24 September 2020)
135 Q192 (Martha McPherson, 3 December 2020)
136 The Bank of England Act 1998 requires the Chancellor of the Exchequer to write to the Bank's Financial Policy Committee (FPC) every year setting out matters that it should regard as relevant to the Bank's objective to maintain financial stability. On 11 March 2020 Rishi Sunak wrote to the Governor to set out the FPC's remit for the coming year: he explained why the Bank should continue to regard the 'risks from climate change as relevant to its primary objective' of protecting financial stability. The letter also recommend that 'in the context of its secondary objective, the FPC also has a role to play in seeking to support the government's Green Finance Strategy, which aims to ensure that the financial system is able to act to facilitate finance to support the delivery of the UK's carbon targets and clean growth.' The Chancellor's letter is available here: https://www.bankofengland.co.uk/-/media/boe/files/letter/2020/chancellor-letter-11032020-fpc.pdf
137 Letter from the Governor to the Chancellor: response to the remit for the Financial Policy Committee - June 2020, Bank of England, 25 June 2020
138 Q192 (Martha McPherson, 3 December 2020)

to companies in high-carbon sectors. In neither circumstance has the Bank stipulated any terms or conditions which might encourage transition to net zero. We called on the Bank to show continued leadership on climate change by ensuring that its future actions to promote economic recovery from coronavirus also reduce the UK's exposure to climate risks. We recommended that:

- the Bank must begin a process of aligning its corporate bond purchasing programme with Paris Agreement goals as a matter of urgency;
- in future, the Bank should require large companies receiving millions of pounds of taxpayer support via the Covid Corporate Financing Facility (CCFF) to publish climate-related financial disclosures in line with the Government's Green Finance Strategy; and
- the Bank should also write to all the companies that have already received CCFF loans to remind them that the Government's Green Finance Strategy expects to see all listed companies and large asset owners publish disclosures by 2022.[139]

76. In his response, Andrew Bailey indicated that he was not persuaded that the CCFF would be an effective tool for increasing climate disclosure, 'since the CCFF is a short-term liquidity facility that closed to new applications at the end of last year and will shortly cease making any new loans altogether.'[140] He suggested that:

> A far more effective way to ensure climate disclosures are widely adopted is to make them mandatory, and that is why we have worked with other authorities through the UK Joint Government-Regulator taskforce on climate disclosures to publish a roadmap for mandatory disclosure requirements.[141]

77. With regard to the corporate bond purchasing scheme, the Governor stated that:

> I have for some time been eager to adjust our approach to the CBPS to be more supportive of climate transition as you propose in your letter. In order for such changes to be made, I believe it is important that the MPC's remit should first clarify that the Committee should have regard for the Government's climate objectives in the conduct of UK monetary policy. […] discussions with HM Treasury on this matter are taking place. And work has already begun in advance of any potential change in remit to explore how we can go about adjusting the CBPS.[142]

Our view

78. We have heard many calls for climate-related disclosures to be a minimum condition placed on big businesses in receipt of millions of pounds of support from the UK's central bank. The Bank of England also appears to be providing an implicit subsidy to carbon-

139 See Appendix
140 See Appendix
141 See Appendix
142 See Appendix

intensive companies by purchasing corporate bonds with a high average carbon intensity, amid calls for policymakers and regulators to take action to lower the climate risk exposure of UK stocks.

79. **We congratulate the Bank of England on its laudable work highlighting the financial risks from climate change in recent years. The Bank of England has led the world in this regard, not least by becoming the first central bank to publish its own climate-related financial disclosure. The Bank is to be commended for its leadership on this.**

80. ***The Government should clarify that the Bank's monetary policy remit should include climate and nature objectives in the conduct of UK monetary policy, including when considering any extension of the Covid Corporate Financing Facility (CCFF) or future such mechanisms. We recommend that if any future support is offered via the CCFF, the Bank should require recipients to publish climate-related financial disclosures in line with the Government's Green Finance Strategy as a minimum condition.***

81. ***We also repeat our recommendation that the Bank writes to each CCFF loan recipient to alert them that the Government's Green Finance Strategy expects all listed companies and large asset owners to publish climate-related disclosures not later than 2022. This is a low-cost intervention that the Bank can take in advance of disclosures being made mandatory.***

82. **It is a matter of grave concern that the carbon intensity of the UK corporate sector remains aligned with global temperature rises that would be catastrophic. We welcome the news that the Bank of England is exploring how it can adjust its Corporate Bond Purchase Scheme with regard to the Government's climate objectives.** ***Before the Pre-COP summit in September 2021, the Bank must set out the steps it intends to take to reduce the average carbon intensity of its corporate bond portfolio to align with the temperature goals of the Paris Agreement. This is necessary to avoid undermining UK diplomatic leadership on climate change and to demonstrate the seriousness of the UK's commitment to fulfil its Nationally Determined Contribution.***

83. ***We further recommend that the Government updates its Green Finance Strategy to add an explicit objective to reduce the carbon intensity—and therefore the climate risk exposure—of the UK corporate sector and financial markets, such as the London Stock Exchange. The Government should examine how best to use the mechanism of mandatory climate-related financial disclosures to encourage listed companies to draw up transition plans aligned with the objectives of the Paris Agreement.***

3 Investment in infrastructure and nature recovery

84. Over the course of this inquiry many witnesses made the case for huge investment to decarbonise the economy and put nature into recovery. This is investment which would have been required even without the crippling effect of the pandemic on the UK economy. The evidence presented to us suggests that the substantial investment in decarbonisation will provide economic multipliers, in terms of jobs and improved productivity, that the post-covid economy badly needs, together with wider benefits such as cleaner air, homes that are cheaper to heat and power, and enhanced well-being for many.

85. In this chapter we consider the Government's Ten Point Plan for a green industrial revolution and its infrastructure investment plans. We will look in turn at the three priority areas where rapid progress will need to be made to achieve the UK's strengthened carbon targets: transport, industry and buildings. We also look at ways in which investment in nature recovery can be used to create jobs, improve well-being and enhance the UK's resilience.

Priority areas for net zero investment

86. Considerable progress has been made in reducing emissions from electricity generation since the Climate Change Act was passed in 2008. Successive governments have achieved this through effective policies to phase out coal power and encourage lower carbon electricity generation, such as solar and offshore wind installations.[143] Other sectors have made more limited progress. As the most recent progress report from the Committee on Climate Change (CCC) shows, the UK is still not on track to achieve the Fourth and Fifth Carbon Budget targets on the path to net zero, and a step change is needed in policies on transport, home energy efficiency and industrial emissions.[144]

87. The CCC says that the lessons from UK power sector decarbonisation must now be applied in other sectors. Greater progress is particularly needed on:

- surface transport (accounting for around 22% of UK greenhouse gas emissions);
- industry (20%); and
- buildings (17%).[145]

88. Green Alliance has asserted that the Government had underinvested in the low carbon infrastructure needed to meet its net zero goal, estimating that 'there is still a £14.1 billion gap in annual investment in low carbon transport, buildings, natural capital and industry infrastructure'.[146] The CCC has said that low-carbon investment must scale up to £50 billion each year to deliver net zero.[147]

143 Committee on Climate Change, *Reducing UK emissions: progress report to Parliament*, 25 June 2020
144 *Ibid.*
145 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020
146 Blueprint for a resilient economy, Green Alliance, June 2020
147 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020

89. In December 2020 the CCC published advice to the government on setting the Sixth Carbon Budget, together with a recommended path to achieving net zero by 2050, which it has estimated will require a 78% reduction in net UK territorial emissions between 1990 and 2035.[148] This brings forward the UK's previous 80% target by nearly 15 years.[149] Cambridge Econometrics summed up the scale of the challenge now facing the UK in achieving the steeper carbon budget pathways:

> The UK is currently not on track to meet the Fourth (2023–2027) or the Fifth (2028–2032) Carbon Budgets. Crucially, the more recent net zero target requires an annual rate of emissions reduction that is 50% higher than under the 80% reduction target and 30% higher than average reductions achieved since 1990. Clearly, progress to decarbonise needs to increase rapidly across all sectors of the economy. Economic stimulus packages designed in 2020 should take into account longer term climate goals.[150]

The Ten Point Plan for a Green Industrial Revolution

90. During the summer of 2020 the Government announced £8.6 billion of capital investment in infrastructure, decarbonisation and maintenance projects to support jobs. On 18th November 2020 the Prime Minister set out a 'Ten Point Plan for a Green industrial revolution' to 'build back better, support green jobs and accelerate our path to net zero'.[151] The plan comprises:

i) **advancing offshore wind**: providing 40GW of offshore wind generation capacity by 2030, an increase of 10GW over the period;

ii) **driving the growth of low carbon hydrogen**: developing 5GW of low carbon hydrogen production capacity by 2030, supported by measures including a £240 million Net Zero Hydrogen Fund;

iii) **delivering new and advanced nuclear power:** establishing a £385 million Advanced Nuclear Fund enabling investment into small modular reactors and research and development on advanced modular reactors;

iv) **accelerating the shift to zero emission vehicles**: bringing forward to 2030 a ban on the sale of cars and vans powered by internal combustion engines, with provision of grants for the purchase of electric cars and funding for electric vehicle charge points;

v) **green public transport, cycling and walking**: investment in the rail network, £4.2 billion on intra-city transport, £5 billion on buses, cycling and walking, and £120 million in 2021 to begin the introduction of 4,000 more British built zero emission buses;

vi) **'Jet Zero' and green ships**: establishment of a 'Jet Zero Council' to accelerate the development and adoption of cleaner aviation technologies; investing

148 *Ibid.*
149 *Ibid.*
150 Cambridge Econometrics (COV0029)
151 *The Ten Point Plan for a Green Industrial Revolution: building back better, supporting green jobs, and accelerating our path to net zero*, Gov.uk, November 2020

in a 'FlyZero' study into zero emission aircraft; running a £15 million competition to support the production of sustainable aviation fuels, and investing £20 million into a Clean Maritime Demonstration Programme;

vii) **greener buildings**: the allocation of £1bn in 2021 to insulate homes and public buildings, to be delivered through the existing Green Homes Grant, the Social Housing Decarbonisation Fund, and the Public Sector Decarbonisation Scheme, together with acceleration of the introduction of a Future Homes Standard;

viii) £1 billion to support the establishment of **Carbon Capture, Usage and Storage** facilities in four industrial clusters;

ix) **protecting the natural environment**: creating new national landscapes and piloting of environmental land management schemes; and

x) **green finance and innovation**: issuing the UK's first Sovereign Green Bond in 2021; making climate-related financial disclosures mandatory by 2023, and introducing a green taxonomy to classify and define green assets and projects.[152]

National Infrastructure Strategy

91. On 25th November 2020, the Chancellor set out Spending Review 2020 and published a National Infrastructure Strategy (NIS) setting out how the Government intends to 'build back fairer, faster and greener'.[153] He also announced plans for a new infrastructure bank to catalyse private investment in projects across the UK.[154] In total the Spending Review will deliver £100bn investment in the 2021–2022 financial year, with £27bn of this devoted to infrastructure.[155] The Treasury has also updated its Green Book guidance on investment decisions to include taking into account wider policy objectives such as levelling up the UK and achieving net zero.[156]

92. Much of the evidence gathered in this inquiry was taken before the Ten Point Plan and the National Infrastructure Strategy were published in November 2020, or the Energy White Paper in January 2021. Nevertheless, our final hearing took place shortly after the Autumn Spending Review and we were therefore able to seek some initial reactions. The Chief Executive Officer of OVO Energy, Stephen Fitzpatrick, suggested that the Ten Point Plan needed more detail:

> [The plan] is signalling the right intent. It is incredibly helpful as a signpost for the seriousness with which we are taking this as a country. There is not really anything you can invest in at the moment coming from this Ten Point Plan, so we should be cautious about this. […] In a world of extremely low

152 *Ibid.*
153 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325, November 2020
154 HM Treasury, *Spending Review 2020*, CP 330, November 2020
155 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325, November 2020
156 *Ibid.*

> interest rates, it is obvious that we should be investing in assets that will help us decarbonise, but where we go with the Government's strategy, we will have to wait and see.[157]

Professor Jim Hall, of the Institution of Civil Engineers, observed that infrastructure projects were a good means of creating jobs in the short term, but while the Ten Point Plan and the National Infrastructure Strategy contained 'a number of positive things […] in terms of net zero and the environment more broadly', there was not yet a clear plan for the delivery of net zero infrastructure.[158] The University College London Institute for Innovation and Public Purpose warned that greater ambition and better integration with existing policies on biodiversity and the circular economy were required: 'new policy initiatives, such as the Circular Economy Package, must be integrated into the recovery plan, as should other measures on biodiversity and broader environmental protections—which are notably missing from the current discourse.[159]

Sustainability rule for infrastructure investments

93. Many submissions advocated some form of sustainability test by which spending or infrastructure investment decisions ought to be judged.[160] Green Alliance said that much of the infrastructure we invest in now will still be in place in 2050, therefore introducing such a test would be necessary to 'future proof' the UK's economic recovery efforts.[161] WWF said that all spending decisions should be undertaken through a sustainable lens, recommending a 'net zero test' and a 'Fiscal Resilience Rule'.[162] The RSPB said:

> Measures taken now to stimulate the economy must not undermine long term national objectives, so all elements of a recovery package should be subject to an economic rule to ensure they are in line with our net zero ambitions and the recovery of nature. Such a rule should be verified and independently monitored by the Committee on Climate Change and the Office for Budget Responsibility.[163]

94. The Institution of Civil Engineers advocated reforms to the methodology in the Treasury Green Book—the Government manual on best practice appraisal and value for money for taxpayers—so that infrastructure investment, focused on economic stimulus, aligned with net zero outcomes.[164] Similarly, Client Earth recommended the updating of guidance documents, including the Green Book, to ensure that policymaking across different departments was consistent in its approach to air quality, climate and biodiversity objectives.[165]

95. The findings of a review of the Green Book were published with the National Infrastructure Strategy.[166] The review's principal conclusion was that a Green Book appraisal process often failed to take proper account of how a proposal for expenditure on

157 Q183 (Stephen Fitzpatrick, 3 December 2020)
158 Q148 (Professor Jim Hall, 3 December 2020)
159 Institute for Innovation and Public Purpose, University College London (COV0048)
160 Green Alliance (COV0013); Greenpeace UK (COV0019); Institution of Civil Engineers (COV0046); WWF (COV0099)
161 Green Alliance (COV0013)
162 WWF (COV0099)
163 Royal Society for the Protection of Birds (COV0105)
164 Institution of Civil Engineers (COV0046)
165 ClientEarth (COV0041)
166 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325, p 44

infrastructure would deliver the government's policy ambitions, including levelling up and net zero. As a consequence, appraisals were focused on a benefit-cost ratio (BCR) which did not properly reflect wider social policy objectives: appraisals conducted on that basis would not necessarily give Ministers contemplating spending decisions the information they needed about where costs and benefits fell in relation to their policy priorities.

96. Professor Jim Hall, of the Institution of Civil Engineers, welcomed the revision to the Green Book, in particular its emphasis on accounting for carbon.[167] He nevertheless observed that the Green Book was only one of the tools required to arrive at net zero:

> You cannot guarantee that you are going to get there by looking individually at specific projects; you have to look at how the system adds up, and so how carbon emissions accumulate all the way across infrastructure and the economy. That is why having a firm decarbonisation plan, including a transport decarbonisation plan, which we have yet to see, is so important.[168]

Infrastructure investment and nature recovery

97. Dr Steve Melia warned that the Government's plans to invest in road building risked accelerating the loss of biodiversity by severing and further fragmenting habitats.[169] Professor Hall added that:

> [O]n biodiversity, we need to look ahead and plan nature recovery networks in advance of what we are doing in relation to infrastructure networks so that planning for nature becomes integral to the way we plan for infrastructure systems. For the time being, they are somewhat disconnected. The nature recovery networks need to be given more emphasis in this process.[170]

98. Green Alliance also stressed the importance of embedding nature recovery in infrastructure plans, recommending that the Government must go further than the net biodiversity gain currently contemplated in the Environment Bill by amending its provisions to require biodiversity net gain in the construction of major public infrastructure projects.[171]

Our view

99. **We welcome the publication of the Ten Point Plan, the National Infrastructure Strategy, and the changes to the Green Book criteria for public infrastructure projects. We now call for greater urgency in publishing detailed strategies and policies to allow private sector and industry to invest.**

100. **Infrastructure invested in now will be in use for decades to come. It is essential that all decisions on infrastructure investment are considered against the net zero target, likely impacts on biodiversity and future projections of the changes in climate likely to affect the UK, and comply with the UK's air quality, biodiversity protections and climate change commitments. The nature recovery network that the Government**

167 Q160 (Professor Jim Hall, 3 December 2020)
168 *Ibid.*
169 Dr Steve Melia (COV0005)
170 Q160 (Professor Jim Hall, 3 December 2020)
171 Green Alliance (COV0013)

has promised must not be an afterthought established after other infrastructure is built. Nature recovery must be integral to the Government's infrastructure plans and factored in from the start as a strategic priority.

Low-carbon transport and communications

101. The pandemic has profoundly affected infrastructure use with the transport network particularly impacted. Trains have run empty, walking and cycling have surged, and pressure has grown on parts of the road network.[172] With so many working from home or unable to meet in person digital infrastructure has become even more essential to staying connected and accessing services. The Government reflected on this in the infrastructure strategy:

> some of the behavioural changes seen through this period are likely to endure. For instance, people are likely to spend more time working from home in future, making the government's plans to deliver gigabit broadband across the country even more important. Many people who have started cycling to work will continue to do so. But in other areas, the economy may return to similar patterns to before the pandemic. For instance, cities will still be key engines of growth, with people and businesses clustering to drive and benefit from innovation. […] All of this creates questions for the government, such as how to address increased demand for space on the roads? And how to rebuild confidence in public transport as the pandemic eases?[173]

102. At the same time, the Government faces the overarching challenge of creating a greener transport system. The UK continues to breach legal air pollution limits for NO_2 at 75% of reporting zones across the country, contributing to life-threatening health problems for tens of thousands of people every year.[174] Furthermore, transport is now the UK's biggest source of climate-changing emissions. Surface transport accounted for around 22% of greenhouse gas emissions in 2019.[175] The UK's contribution to international aviation and shipping account for a further 8% and 3% respectively of total UK emissions.[176] The current trend in transport emissions is not on track to achieve the UK's forthcoming Carbon Budgets.[177]

Government announcements on transport

103. In November 2020, the Government announced that it would be bringing forward the ban on sales of passenger vehicles and vans with internal combustion engines by 2030. The Spending Review in November announced £1.9 billion investment in charging infrastructure and consumer incentives to support the transition to electric vehicles. This included:

- Provision of £950 million for rollout of rapid electric vehicle (EV) charging hubs at every service station on England's motorways and A-roads;

172 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325
173 *Ibid.*, p 21
174 UK Air Pollution: How clean is the air you breathe?, ClientEarth, October 2020
175 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020
176 Committee on Climate Change, *Reducing UK emissions: progress report to Parliament*, 25 June 2020
177 *Ibid.*

- £582 million for a Plug-in Car, Van, Taxi, and Motorcycle Grant until 2022–23, reducing the price of zero and ultra-low emission vehicles; and
- £275 million to extend support for charge point installation at homes, workplaces and on-street locations.[178]

104. In addition to this support for the electric vehicle transition, the National Infrastructure Strategy outlined where the Government was targeting investment in public transport provision. It pledged:

- £5 billion over this parliament for buses and cycling;
- Supporting the largest city regions outside of London with £4.2 billion intra-city transport settlements;
- Restoring some of the rail services lost through the Beeching cuts of the 1960s;[179]and
- Backing HS2 to deliver North-South connectivity, with an Integrated Rail Plan to deliver transformational improvements in the Midlands and the North of England.

Challenges on the road to decarbonising transport

105. We heard concerns about the adequacy of current transport decarbonisation policies to achieve net zero. Electric car sales are rising strongly, however, they still only account for 13.7% of new registrations across the UK.[180] All new vehicles are to be required to have a zero emissions capability (e.g. plug-in and full hybrids) from 2030 and be 100 % zero emission from 2035. However, many older petrol and diesel vehicles will remain on the road beyond 2030. ClientEarth recommended that the £27bn allocated for road building be redirected to incentivise zero exhaust emission vehicles (ZEEVs).[181] We examine how fiscal incentives could be used to accelerate take up of electric vehicles in Chapter Four.

106. Dr Steve Melia, Senior Lecturer in Transport and Planning at the University of the West of England, highlighted the challenges for transport in achieving the UK's net zero target. He pointed out that because aviation was likely to be the largest single contributor to residual emissions by 2050, there would be little headroom to offset surface transport emissions. He noted that the Committee on Climate Change had given aviation 'the most favourable treatment of all sectors in its Net Zero report', allocating nearly 40% of the projected offsetting budget to the sector.[182] Consequently, 'to decarbonise surface transport, net zero would mean absolute zero.'[183]

107. The National Union of Rail, Maritime and Transport Workers (RMT) said that the majority of the UK's surface transport greenhouse gas emissions come from road transport, with 55% coming from cars. It said that carbon reduction necessary to reach net

178 HM Treasury, *Spending Review 2020*, CP 330, November 2020
179 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325, November 2020
180 New car registrations fall -39.5% as showroom closures stifle demand, Society of Motor Manufacturers and Traders, 4 February 2021
181 ClientEarth (COV0041)
182 Committee on Climate Change, *Net Zero: the UK's contribution to stopping global warming*, May 2019
183 Dr Steve Melia (COV0005)

zero meant that a switch from diesel and petrol to electric vehicles will not be sufficient. 'The distance travelled by car will also need to decrease, significantly.'[184] It cited figures indicating that car mileage would need to be cut by between 20 and 60%, depending on the speed of the switch to electric vehicles.[185]

Rolling out electric charging and hydrogen refuelling infrastructure

108. Charging infrastructure for electric vehicles will need to be rapidly rolled out across the country in the 2020s to support the phasing out of petrol and diesel vehicles in the early 2030s[186] Tom Thackray from the CBI argued that the Government needed to ensure that electric vehicle charging is delivered at a much faster rate:

> We have been advocates for public investment in the electric vehicle charging network. We think range anxiety is a reality at the moment, and particular support should be given to areas where the market will not deliver. The Government could help pump-prime some of the delivery bodies to produce electric vehicle charging at a much faster rate than it is currently being delivered, working through some of the distribution networks to get that done even quicker.[187]

109. The Society of Motor Manufacturers and Traders (SMMT) said there was a need for multi-standard charging technologies and a consistent method of charging to ensure compatibility with the range of plug-in vehicles on the market. It also called on the Government to invest in the delivery of a national network of hydrogen refuelling stations across the strategic road and motorway network alongside rapid and ultra-rapid electric vehicle charging hubs.

Hydrogen powered heavy vehicles

110. Considerable uncertainty remains over the most feasible and cost-effective decarbonisation option for heavy goods vehicles, according to the CCC.[188] Dr Melia said that for heavier vehicles requiring more intensive use or longer distances hydrogen may be a better option than battery electric.[189] Ryse Hydrogen said 'buses are the ideal starting point for unlocking the UK's hydrogen economy.'[190] It said that at least 5 hydrogen production plants are required at strategic locations across the UK to support a fleet of zero emission buses. It called on the Government to commit £200m to unlock significant private investment to deliver five hydrogen production sites located across the UK. It said that funding at this scale would act as a catalyst to crowd in private investment, potentially up to £1.5bn, by signalling the Government's support for hydrogen to play a substantial role in the energy supply mix.[191]

184 National Union of Rail, Maritime and Transport Workers (RMT) (COV0109)
185 *Ibid.*
186 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020
187 Q55 (Tom Thackray, 23 July 2020)
188 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020
189 Dr Steve Melia (COV0005)
190 Ryse Hydrogen (COV0085)
191 *Ibid.*

Road building

111. In his March 2020 Budget the Chancellor of the Exchequer announced the Road Investment Strategy 2 (RIS2), committing the Government to spend £27.4 billion between 2020 and 2025 on a 'largest-ever' road-building programme for England. The strategy said that some of this money 'will be used to build new road capacity, but much more will be used to improve the quality and reduce the negative impacts of the existing Strategic Road Network.'[192]

112. The Confederation of British Industry (CBI) supported RIS2, but Tom Thackray, the Confederation's infrastructure and energy policy lead, noted that it was important to look at the emissions and environmental performance of building the road, including the materials used and their environmental impact. His comments followed an analysis by the consultancy Transport for Quality of Life, that RIS2 will breach the UK's commitments on climate change. It calculated that the road building programme could generate 20 million tonnes of carbon dioxide (Mt of CO_2) between now and 2032.[193] Transport for Quality of Life estimated that about a third of the emissions would come from construction (including energy required to manufacture steel, concrete and asphalt); a third from increases in vehicle speeds on wider, faster roads; and a third from extra traffic generated by roads stimulating more car-dependent housing, retail parks and business parks.[194]

113. While supportive of road building, Tom Thackray from the CBI advocated reducing the pollution caused by congestion by investing in public transport:

> [N]ow is the time to invest in public transport for use of the roads. The problem we have with emissions is largely caused by congestion, and since we have a situation where in parts of the country two thirds of people are still travelling into work by car, that seems like low-hanging fruit, where investment in public transport could start shifting some of that behaviour.[195]

114. CPRE called for a new hierarchy for transport spending, prioritising 'reducing the need to travel, followed by active travel modes, then public transport, with spending on private car travel reduced to an absolute minimum.' It said:

> The government should cancel the £27 billion Road Investment Strategy [RIS2] road building programme to provide funding for low carbon transport solutions. Transport investments which increase carbon emissions over their lifecycle, should not be permitted to go ahead.[196]

Better connecting the countryside

115. Sue Ferns from Prospect and the TUC argued that road building and improvements were important to support rural communities, but said that it should be accompanied by greater investment in public transport:

> The TUC's priority would be investment in public transport […]. I do not think that roads should be excluded completely; I am thinking particularly

192 Department for Transport, *Road Investment Strategy 2: 2020–2025*, March 2020
193 "Government's road strategy threatens net zero target", ENDSReport, 13 July 2020
194 Transport for Quality of Life press release, 10 July 2020
195 Q32 (Tom Thackray, 23 July 2020)
196 CPRE (COV0104)

> of rural communities that do not have good transport infrastructure. If they are going to be much better served by public transport, that is fine, but I also think that it is all very well for all of us who live in cities that are well connected with other transport options to rule out the importance of roads. For some of those rural communities, road building and road improvement schemes will still be important.[197]

116. CPRE pointed out that many rural areas were very poorly served by public transport and are becoming 'transport deserts' where residents who could not drive or were unable to afford a car were at risk of being cut off from basic services. More than half of small rural towns in the South West and North East of the country were already transport deserts or were at risk of becoming one. CPRE called on the Government to invest in 'an expanded and comprehensive public transport network for every community to end the reliance of rural residents on driving cars.'[198]

117. The National Farmers Union (NFU) argued that there needed to be increased investment in infrastructure in rural areas to support net zero aspirations.[199] As well as prioritising the roll out of electric vehicle charge points 'to support rural dwellers and tourists alike', rural areas needed enhanced and more extensive mobile and broadband coverage.[200] This was imperative in order to support more people working from home and allow businesses to thrive in rural areas. It said its Digital Technology Survey demonstrated that there were 'significant productivity gains for farmers who are better connected, in addition to the wider benefits of connected rural communities.'This was imperative in order to support more people working from home and allow businesses to thrive in rural areas. It said its Digital Technology Survey demonstrated that there were 'significant productivity gains for farmers who are better connected, in addition to the wider benefits of connected rural communities.'[201]

118. Many submissions highlighted how fast and reliable broadband could help lock-in some of the benefits seen by the reduction in traffic.[202] The stay-at-home periods had shown the importance of high-quality broadband across the country, according to the Church of England: 'not just for home workers, but for all communities to be able to access goods and services, including public services.'[203] The Carbon Trust[204] has said that the Government should accelerate plans to install high-speed broadband to achieve nationwide connectivity to help ingrain digital working habits developed during this period 'with virtual workshops and meetings reducing the need for domestic and international travel.'

Active travel and air pollution

119. The Institution of Civil Engineers said that the benefits of active travel had been demonstrated during the lockdown. It identified the need to improve infrastructure provision for cycling, walking and running to continue this trend in the long term. Ongoing

197 Q53 (Sue Ferns, 23 July 2020)
198 CPRE (COV0104)
199 National Farmers Union (COV0045)
200 *Ibid.*
201 *Ibid.*
202 Church of England Mission and Public Affairs Council and Environment Working Group (COV0050)
203 *Ibid.*
204 Carbon Trust (COV0074)

investment in public transport networks was also required: the ICE recommended that active travel provision be prioritised to maintain the positive shift to healthier forms of travel that has been witnessed during the lockdown.[205]

120. Green Alliance welcomed the steps that the Government and local authorities had taken to reallocate road space [for socially distanced walking and cycling] and the Government's commitment of £2 billion investment to support cycling and walking. However, Caterina Brandmayr said:

> if you really want to lock in some of the positive changes that have been observed during lockdown […] we really need to scale up infrastructure for walking, cycling and public transport. For that, we think the Government should be investing an additional £2.2 billion per year over the next few years in walking and cycling infrastructure and buses. They should also be addressing this for longer distances. There, it is really a matter of scaling up infrastructure for rail and enhancing existing rail networks, but also expanding rail to make sure that there is better connectively between cities over longer distances.[206]

121. This was also a point made by Professor Frank Kelly at our first hearing, when discussing the evidence linking air pollution to increased mortality rates from coronaviruses. He said that to reduce harmful levels of air pollution in our cities we had to reduce the number of vehicles and promote active travel and clean public transport:

> We have to have much fewer vehicles on our busy city roads. We have to encourage the active transport, the cycling and walking that we have seen a lot more of during lockdown, and we have to invest in clean public transport so we have an alternative to motor vehicles. My message going forward is to look at what we have achieved during lockdown from an air quality point of view. It has been beneficial for the population from a physical and a mental health point of view. Let us learn some lessons from that and try to make sure that all our cities are much more friendly environments and have less traffic on the roads as we move forward.[207]

Our view

122. **The Government's current approach to transport decarbonisation relies heavily on a consumer switch to the purchase of electric passenger cars and vans as a consequence of banning the sale of certain petrol- and diesel-fuelled vehicles by 2030. Such heavy reliance on a single policy lever to deliver such a substantial policy outcome appears unwise.**

123. ***We recommend that the Government set out, in its forthcoming transport decarbonisation strategy, what plans it has for substantial long-term investment in better public transport and in traffic reduction measures, and how such investment will reduce levels of road congestion, improve air quality and contribute to achieving net zero.***

205 Institution of Civil Engineers (COV0046)
206 Q12 (Caterina Brandmayr, 24 July 2020)
207 Q14 (Professor Frank Kelly, 21 May 2020)

124. **Each project within the Government's Road Investment Strategy will no doubt be analysed for its costs and benefits in accordance with Government guidance in the 'Green Book', as revised in November 2020. To ensure a green recovery, it is vital that the likely impact of each is explicitly appraised against the UK's air quality, biodiversity protection and climate change commitments before final approval for construction is given in each case.**

125. **In supporting the development of strategic nationwide communications networks between urban centres, the Government must not overlook the importance to rural communities of hyper-local transport networks. Private car usage on well-maintained rural roads will of necessity continue to form a significant part of the overall UK transport mix. In its programme to encourage economic rebalancing and revival, the Government must also ensure that rural areas receive their share of investment in low-carbon transport and communications infrastructure, so as to bear down on levels of exhaust and tyre wear emissions while improving rural connectivity.**

126. **Changes in ways of working during the pandemic have led to far greater levels of working from home, in urban and rural areas. This has doubtless reduced commuter car usage in rural areas in particular. Home working can therefore contribute to meeting net zero goals. High quality internet and mobile connectivity are nevertheless a prerequisite for home working to be sustained after the pandemic, and must therefore be considered as an essential utility. Access to reliable mobile signal, and fast and reliable broadband, must now be guaranteed as a priority.**

127. **There is emerging evidence that areas of the world with higher concentrations of air pollution may be experiencing higher covid-19 mortality rates. The development of active travel infrastructure, designed to reduce traffic and promote walking and cycling in towns and cities, must be a priority to help clean the air we breathe, cut carbon and improve our health and fitness.**

Industry and low-carbon energy

128. To continue its decarbonisation of electricity and industrial processes the UK needs investment in low-carbon hydrogen, battery manufacturing capabilities and carbon capture and storage. On 22nd July 2020, the Prime Minister pledged £350 million to cut emissions in heavy industry and drive economic recovery, including:[208]

- £139 million to cut emissions in heavy industry by supporting the transition to hydrogen, and scaling up carbon capture and storage (CCS);
- £149 million to drive the use of innovative materials in heavy industry; and
- a further £10 million for R&D in the automotive sector, to help take ideas from prototype to market, including electric motors and batteries.[209]

208 PM commits £350 million to fuel green recovery, Gov.uk, 22 July 2020
209 *Ibid.*

129. EEnergy UK said that continued decarbonisation of the power sector would require baseload power from new nuclear and biomass ' alongside a high level of renewables, increased system flexibility, storage, and new technology solutions, such as low-carbon hydrogen and CCUS.'[210]

130. Industry currently contributes around 21% of UK emissions. Until now, the UK has largely pursued a reduction in industrial emissions through the EU Emissions Trading Scheme, where a cap is set on total carbon emissions and firms are given carbon allowances.[211] The Climate Venture Collective said that this approach had failed for 'multiple reasons including carbon offsetting in foreign countries, the volatile price of carbon, lobbying against tougher targets and fraud and gaming.'[212]

131. The Trades Union Congress argued that there needed to be greater investment in low-carbon research and development. Its representative Sue Ferns said:

> On technology, I would like to see a ramp-up of research and development into a range of energy technologies. We will produce a report shortly that shows that real spending on renewables R&D between 2010 and 2018 declined by 60% overall, including a decline of 71% in geothermal, 52% in wind and 42% in solar. As we sit here, we cannot rule out any of those options. The only way we can make them a reality at the scale we require is by continuing to invest in R&D. I would like to see an increase in R&D.[213]

Carbon capture and storage

132. Tom Thackray from the Confederation of British Industry told us that in terms of technology:

> One of the major pieces of investment that we need is in the infrastructure to deliver carbon capture and storage. Some £800 million has been earmarked for that, but it does not come with any detail about the kind of assets that will be used to develop or how it will provide a route to market for the industry that is starting to grow. That is the technology side.[214]

133. Energy UK said that the Government needed to work in partnership with the energy industry to 'agree consistent, sustainable funding models' for investment in large scale strategic priorities, 'such as low carbon hydrogen, Carbon Capture, Usage and Storage (CCUS) and new nuclear which could benefit from cost savings through replication.'[215] In its Ten Point Plan the Government has promised to bring forward details in 2021 of a revenue mechanism to bring through private sector investment into industrial carbon capture and hydrogen projects to support these initiatives.[216] The recent approval of a coal mine in Whitehaven to extract coking coal for steel production in Cumbria demonstrates the urgent need for CCS and CCUS deployment in the UK.[217]

210 Energy UK (COV0043)
211 Climate Venture Collective (COV0024)
212 *Ibid.*
213 Q55 (Tom Thackray, 23 July 2020)
214 *Ibid.*
215 Energy UK (COV0043)
216 *The Ten Point Plan for a Green Industrial Revolution: building back better, supporting green jobs, and accelerating our path to net zero*, Gov.uk, November 2020
217 "Whitehaven coal mine approved for third time", *BBC News*, 3 October 2020

Carbon border adjustment

134. We asked Chris Hagg of Celsa Steel what the Government could be doing to support the net zero transition within the steel industry. He said that as energy-intensive user high electricity costs were a problem and further support with energy efficiency was necessary. He also called for a carbon border tax and for the Government to promote the local sourcing of materials in UK manufacturing:

> First, as an energy-intensive user, we suffer with higher electricity costs than probably anywhere else in Europe. […] Support for energy efficiency projects has been there and should continue to be there. Consideration needs to be given to the carbon border tax, which is being considered within the EU. […] Somewhere along the line we have to understand that it is easy to offshore manufacturing, but the consequences are not right for the planet. Overall, we know that our carbon footprint, for example, is about a third of alternative steelmaking opportunities. It can be easy to move a carbon problem away from this country but increase the overall carbon footprint. […] the pandemic is showing us that we need to have a strong manufacturing base and capability inside this country, and therefore local sourcing of materials is of paramount importance.[218]

135. The Society of Motor Manufacturers and Traders (SMMT) also warned that the UK automotive sector could be vulnerable to carbon leakage without Government support. It pointed out that:

> Although automotive is not typically seen as energy intensive (as the value of its products are relatively high), energy is the second largest in-house cost and automotive does have a very high trade intensity ratio, which means it is subject to carbon leakage—especially given the globally competitive nature of the automotive sector.[219]

136. The Zero Carbon Campaign recommended a phased introduction of 'charges via a Border Carbon Adjustment or equivalent international pricing mechanism by 2025 (or earlier if possible) before a 'carbon price' is applied to agriculture and trade exposed industry' in order to address concerns about 'carbon leakage'[220] In our final chapter we examine arguments for a carbon border adjustment alongside proposals for a carbon tax.

Box 4: Carbon leakage

The term 'carbon leakage' refers to the possibility that climate policies lead to companies moving production abroad to countries with less ambitious climate measures, thereby leaking emissions rather than curtailing them.

137. The idea of carbon border adjustments appears to be gaining traction internationally. The EU is currently considering a carbon border adjustment mechanism to ensure that the price of imports reflect more accurately their carbon content. This is intended to

218 Q134 (Chris Hagg, 24 September 2020)
219 Society of Motor Manufacturers and Traders (SMMT) (COV0033)
220 Zero Carbon Campaign (COV0032)

prevent the risk of carbon leakage. Carbon leakage occurs when production is transferred from the EU to other countries with lower ambition for emission reduction, or when EU products are replaced by more carbon-intensive imports.[221]

Decarbonising automotive manufacturing

138. The Government's Ten Point Plan has brought forward the ban on the sale of new petrol and diesel cars to 2030. We heard during the inquiry about the particular challenges faced in decarbonising automotive manufacturing in the UK at a time when the automotive industry is also recovering from covid-19 and adapting to Brexit.

139. SMMT emphasised the scale of the transition in manufacturing that the Government's 2030 phase out of petrol and diesel sales would entail. Large sections of the current UK automotive sector are geared towards producing internal combustion engines and vehicles, or hybrids.[222] Of the 1.3 million cars that were built in the UK last year there were over 190,000 electrified cars (battery electric vehicles (BEVs), plug-in hybrid vehicles (PHEVs) and hybrid electric vehicles (HEVs)), an increase of some 35%. These models accounted for around 15% of total output, up from below 10% in 2018. BEVs accounted for just over 3% of the total.[223]

140. SMMT's Director of Policy and Government Affairs, Konstanze Scharring told us that achieving the Government's 2030 date for an end to the petrol and diesel cars would involve a massive transformation of both market infrastructure and the manufacturing sector. She said:

> We should be under no illusion that bringing forward the end-of-sale date for petrol and diesel vehicles to 2030 and 2035 is a massive challenge not just to our industry but to the whole endeavour of providing that leadership. We need to transform a consumer market from current rates to 100% in nine years and, in particular, to look at the opportunities from this transition. We need to create the right conditions that investment can be made and realised in that time so that the transition can be made in the UK. From our perspective, it is welcome that this announcement was part of the recognition and further investment in these elements of vehicle incentivisation, significant infrastructure rollout and manufacturing and industrialisation of the electric supply chain.[224]

141. SMMT told us that the net zero transition and switch to electric vehicles would require huge investments in manufacturing processes in UK automotive. For instance, achieving net zero in industry might require a switch to hydrogen as a fuel or switching to electric processes. However, at present the technologies to do this on a commercial and industrial scale did not exist, were unproven or were not cost effective, according to SMMT.[225]

221 EU Green Deal (carbon border adjustment mechanism), European Commission (accessed 9 February 2021)
222 Society of Motor Manufacturers and Traders (SMMT) (COV0033)
223 *Ibid.*
224 Q150 (Konstanze Scharring, 3 December 2020)
225 Society of Motor Manufacturers and Traders (SMMT) (COV0033)

Battery manufacturing capabilities

142. The Faraday Institution has estimated that 130 GWh of annual capacity will be required by 2040 if the UK is to retain a large automotive sector. SMMT suggested that the increase in manufacturing capacity to meet the electric vehicle challenge was significant. The UK would require up to eight 'gigafactories', each with a capacity of between 15 GWh and 20GWh, each able to produce up to 250,000 battery electric vehicles (BEVs) per annum.[226] This would ensure that the UK was capable of producing around two million BEVs averaged across all segments (or more ultra-low emission vehicles, if a mix of different electrified powertrains were considered) per annum. Achieving this would sustain and grow the domestic EV supply chain—for example in power electronics, motors and drives—and help to secure significant opportunities in the electrical and electronics value chain where the UK has deep capabilities.[227]

143. SMMT said that the Government's commitment to scale manufacturing of batteries and the wider electric vehicle supply chain as part of the £1 billion funding announcement in September 2019, and reiterated by the Prime Minister in July 2020, was a step in the right direction, but that much more needed to be done and Government support upscaled to match the automotive packages advanced by other nations such as France, Germany and Spain.[228] SMMT argued in its submission that significant tax breaks or incentives that went beyond the provision in the current Industrial Energy Transformation Fund were required to reduce costs and to incentivise the huge investments needed to decarbonise the manufacturing processes in the UK automotive sector.

144. There were fears that the UK had failed to secure large-scale battery manufacturing facilities, and the related supply chain, after the electric car maker Tesla chose Berlin to site its European manufacturing facilities.[229] SMMT had told us that the UK business environment and cost base needed to be internationally competitive: 'global investors looking at automotive are forensic in their examination and comparison of their cost bases across the world.'[230] Recent announcements, however, appear encouraging. In December it was announced that start-up battery manufacturer, Britishvolt, would build the UK's first battery gigafactory on the same land as the Blyth Power Station in Northumberland. Britishvolt said that the gigafactory would create 3,000 jobs for the region, as well as 5,000 more in its supply chain, and would produce 300,000 lithium-ion battery packs each year when complete in 2027.[231] In January Nissan confirmed that it was to invest in local battery production for its Leaf EVS in Sunderland. This would lead to reductions in logistics-related emissions, as the company has hitherto been importing batteries from Japan.[232]

145. Further positive news for the UK's battery production potential has come from Cornwall, where 'globally significant' levels of lithium—used in batteries for mobile phones and electric vehicles—have been found in hot springs in deep geothermal waters

226 *Ibid.*
227 *Ibid.*
228 *Ibid.*
229 "UK's first car battery 'gigafactory' to be built by two startups", *The Guardian*, 20 May 2020
230 Society of Motor Manufacturers and Traders (SMMT) (COV0033)
231 AutoExpress (11 Dec 2020) Britishvolt will start construction on UK's first Gigafactory next year
232 Edie (22 January 2021) Nissan to expand EV battery manufacturing at Sunderland plant

near Redruth. The Chief Executive of Cornish Lithium Jeremy Wrathall has said that the discovery is an 'exciting step towards the realisation of low-carbon lithium extraction from geothermal waters in Cornwall.'[233]

Hydrogen strategy

146. A hydrogen strategy could play a key role in supporting cost-effective decarbonisation of transport sectors such as aviation and shipping. The Committee has taken extensive evidence on the potential contribution of hydrogen technology to meeting the UK's obligations on climate change.[234] The UK has the expertise and the technology capabilities to scale up low-carbon hydrogen, but it lags behind other nations such as Australia, Japan and Canada which all have ambitious hydrogen strategies, as well as a recently-launched EU initiative. At present 95% of global hydrogen is derived from fossil fuel feedstocks, so more must be done to champion carbon capture, usage and storage (CCUS) to ensure hydrogen contributes to a low-carbon future.[235]

147. It is clear, from the evidence we have received on hydrogen technology, that the lack of a specific strategy to harness the potential of hydrogen is holding the sector back. This was echoed in evidence to this inquiry, with Energy UK saying that to deliver low-carbon hydrogen the UK needed a hydrogen strategy setting out a 'market framework, alongside incentives that stimulate demand for and reward production of hydrogen, to enable investment and deliver a low-carbon hydrogen industry by 2030.'[236]

Our view

148. **Significant Government investment in the development of carbon capture, usage and storage (CCUS) technology sends an important signal in the run up to COP26 about the UK's ambition and its confidence in the contribution this sector can make in putting the whole of the UK economy on the path to net zero.** ***While we welcome investment in carbon capture, usage and storage clusters, we recommend that the Government set out a clear strategy for CCUS, with timelines and impacts, and support the development of the technologies needed where absolute zero carbon cannot be achieved.***

149. ***The Government must publish a hydrogen strategy as soon as possible, setting out clear mechanisms to support the development of green hydrogen systems in the UK.***

150. **The switch to electric vehicles—a key component of the Government's plan for achieving net zero—will require the introduction of cutting-edge manufacturing processes to the UK's automotive sector for the manufacture of electric vehicles and their batteries. It is estimated that up to eight 'gigafactories' will need to be built. Government support will be necessary to scale up the electric vehicle supply chain—in particular the manufacture of electric vehicle batteries—to enable the sector to make the rapid switch from the production of internal combustion engines to the manufacture of ultra-low and zero emission vehicles.**

233 BBC News (17 September 2020) Cornwall lithium deposits 'globally significant'
234 EAC, 6 August 2020, Lack of Hydrogen Strategy holding back sector from capitalising on potential role in delivering Net-Zero Britain
235 The Committee pointed this out in correspondence with the Department for Business, Energy and Industrial Strategy in August 2020
236 Energy UK (COV0043)

Buildings and sustainable development

151. The Government has declared house building, planning reform and energy efficiency as key elements in its economic recovery agenda. After the UK lifted the first lockdown in June 2020, the Prime Minister Boris Johnson announced support for housebuilding and 'the most radical reforms to our planning system since the Second World War'.[237] The planning reforms enable the use of buildings and land to be changed without planning permission. This will allow new homes to be created through the demolition or the renovation of vacant or redundant buildings.[238]

152. Further announcements to increase energy efficiency and kick-start construction followed in July:

- £2 billion Green Homes Grant scheme for homeowners and landlords to pay for green improvements such as loft, wall and floor insulation;
- A £1 billion programme will make public buildings, including schools and hospitals, greener;[239]
- £26 million to support advanced building techniques in order to reduce build costs and carbon emissions in the construction industry;[240] and
- A £10 million boost for state-of-the-art construction tech which will go to 19 projects focused on improving productivity and building quality.[241]

153. We did not examine the Government's proposals for planning reform in detail during this inquiry. Nevertheless, we did ask witnesses for their reactions to the Government's 'build, build, build' agenda and many of the submissions to the inquiry made recommendations on construction, planning and energy efficiency issues. We questioned representatives from the British Property Federation and the Royal Institute of British Architects (RIBA). We also conducted a survey of homeowners who had attempted to access the Government's Green Homes Grant scheme.

Reaction to planning reforms

154. In the 25 Year Environment Plan the Government announced it would embed the principle of 'environmental net gain' in the planning system.[242] Nevertheless, the Prime Minister blamed 'newt-counting delays' for holding up housebuilding when he announced his 'build, build, build' agenda in the summer of 2020.[243] This prompted concern from environmental groups. The RSPB told us that many feared that the planning reforms are 'intended to weaken environmental regulation.'[244] At the Committee's hearing in July 2020, Richard Benwell, CEO of Wildlife and Countryside Link, suggested that the Government's position was based on a false premise:

237 "PM: Build, Build, Build", Gov.uk, 30 June 2020
238 *Ibid.*
239 "Chancellor's Plan for Jobs to help the UK's recovery", Gov.uk, 8 July 2020
240 "PM commits £350 million to fuel green recovery", Gov.uk, 22 July 2020
241 "PM commits £350 million to fuel green recovery", Gov.uk, 22 July 2020
242 HM Government, *A Green Future: Our 25 Year Plan to Improve the Environment*, January 2018, p 32
243 "PM Economy Speech: 30 June 2020", Gov.uk, 30 June 2020
244 Royal Society for the Protection of Birds (COV0105)

> … there are a million homes that are consented for development that are simply not being built. It is not consenting that is the problem; it is build-out […] The suggestion that environmental regulations get in the way of planning and that protected species cause the problem are both false premises.[245]

155. The Northern Housing Consortium welcomed the Government's commitment to 'build, build, build' in response to the economic challenges the UK now faced.[246] It suggested the housing sector in the North as an 'ideal arena' in which to align the Government's post-covid-19 recovery plans with its net zero and levelling-up ambitions. It argued that this alignment was not only necessary but could be achieved through investing in the region's existing homes to make them more energy efficient and by building new homes in the North.

156. Other groups were more sceptical. RIBA argued that the Government's planning reforms did almost nothing to guarantee the delivery of affordable, well-designed and sustainable homes. Whilst recognising that building homes should be a priority to help stimulate the economy and address the housing crisis, RIBA warned that the Government must ensure any new homes did not negatively impact the environment.[247] Its Head of Policy and Public Affairs, Andrew Forth, told us in December 2020 that:

> … at the moment, we do not know enough about what the planning reforms mean. It is a White Paper but it is light on details. There are some positive things. Moving to a single sustainability assessment could be good if it is a good sustainability assessment, or it could be awful. It seems a bit bizarre that they are proposing to legislate on something when they have not even properly consulted on it yet. One of the biggest concerns that the RIBA and others have is that the focus of the White Paper is not on sustainability. It does not mention the climate emergency or the biodiversity emergency once in the planning reforms. When it talks about design, it is talking about the appearance of new homes, which is important but good design is about a whole range of things: how environmentally friendly they are, where they are built, how they are connected to the rest of the world.[248]

Energy efficiency

157. Buildings currently contribute about 17% of the UK's greenhouse gas emissions.[249] The CCC says that £55 billion of investment is needed in home energy efficiency by 2050 to follow its Balanced Net Zero Pathway.[250] The Government's Clean Growth Strategy set a target to upgrade as many houses to Energy Performance Certificate (EPC) Band C by 2035 'where practical, cost-effective and affordable', and for all fuel poor households, and as many rented homes as possible, to reach the same standard by 2030.[251]

245 Q18 (Richard Benwell, Wildlife and Countryside Link, 23 July 2020)
246 Northern Housing Consortium (COV0025)
247 Royal Institute of British Architects (RIBA) (COV0036)
248 Q161 (Andrew Forth, 3 December 2020)
249 Committee on Climate Change, *The Sixth Carbon Budget: the UK's path to Net Zero*, December 2020
250 *Ibid.*
251 HM Government, *The Clean Growth Strategy: leading the way to a low carbon future*, October 2017 (revised April 2018)

158. Many of the organisations giving evidence to our inquiry identified energy efficiency as a key area where win-win outcomes could be achieved—delivering economic as well as environmental and social benefits.[252] The Energy Institute identified 'a jobs-rich, energy-efficient retrofit of UK housing' as the 'number one route to both economic recovery and net zero, extending over a sufficiently long time frame to build supply chains and skills, and ensure job security.'[253]

159. The industry body Energy UK said that the UK's green recovery must pursue the 'objective of fairness alongside economic growth and decarbonisation.' It said that there was a need to support those most affected by the covid-19 crisis by providing opportunities for job upskilling, 'but also by supporting the most vulnerable in making their homes more energy efficient and therefore cheaper to run.'[254]

160. The Northern Housing Consortium argued that investing in energy efficiency in the North would help it to level up:

> A comprehensive programme of improving existing homes in the North to increase standards of energy efficiency would not only reduce carbon emissions and improve living standards, but also create new skills and employment opportunities in the region. Therefore, the labour-intensive nature of improving the energy performance of the North's housing stock will advance the UK's target of net zero and contribute to the economic recovery of the North.[255]

It said the Green Homes Grant scheme was a welcome development but urged the 'Government to open up the full £3.8bn Social Housing Decarbonisation Fund outlined in the Conservative Manifesto to enable social housing providers to invest at scale.'[256]

The Green Homes Grant

161. In July 2020, the Chancellor of the Exchequer announced £2 billion of support through the Green Homes Grant. The Government claimed that the measures would help make over 600,000 homes more energy efficient and would support over 100,000 green jobs.[257] The scheme was originally due to end on 31st March 2021 but the Government extended it by one year, to 31st March 2022, and announced an additional £320 million of funding.[258] The scheme offers vouchers up to £5,000 to insulate or to install low-carbon heating in a residential property. Low-income households and those in fuel poverty are eligible for grants covering up to 100% of the cost of works up to £10,000.[259]

162. The Green Homes Grant Voucher Scheme opened for applications on 30th September. In November 2020 we conducted a survey to find out how easy it had been for home

252 Energy Institute (COV0007); Green Alliance (COV0013); Northern Housing Consortium (COV0025); Zero Carbon Campaign (COV0032); Royal Institute of British Architects (RIBA) (COV0036); Energy UK (COV0043); oral evidence from Dimitri Zenghelis, 23 July 2020

253 Energy Institute (COV0007);

254 Energy UK (COV0043)

255 Northern Housing Consortium (COV0025)

256 *Ibid.*

257 "Quality assurance at the heart of new £2 billion green homes grant", Department for Business, Energy and Industrial Strategy, 4 August 2020

258 HM Treasury, *Spending Review 2020*, CP 330, November 2020

259 "Green Homes Grant: make energy improvements to your home", Department for Business, Energy and Industrial Strategy, 28 August 2020

improvers to access.[260] In total, 510 people responded to the survey. Alarmingly, 86% of those responding to the survey had had a poor experience with the process, although just over half applying had found the Green Homes Grant eligibility calculator helpful. The eligibility criteria, however, prevented many from being able to access vouchers for the measures they required: homeowners must install primary measures before receiving the same funding towards secondary measures.

163. After checking eligibility and applying for the grant, many people experienced delays in receiving responses to their applications leading to some quotes expiring. In addition, over 75% of respondents had found it difficult to find a TrustMark registered contractor. The Federation of Master Builders told us at a hearing in November 2020 that of its 7,400 members, 180 registered companies had expressed an interest in securing accreditation, but by the date of the hearing, only three had been accredited[261] The industry also complained that it was not consulted on design of the scheme. Many of the builders and installers that can do the work told us that they were in limbo as a result of the time taken to approve applications. We have also heard evidence of some having to lay off skilled workers as orders have been stalled pending confirmation of vouchers.

164. We sent the survey outcomes to the Government and requested details of what improvements Ministers intended to make. The Government responded in early 2021 acknowledging that the scheme had 'taken some time to ramp up'.[262] By February 2021, 60,000 applications had been received, but only 21,000 vouchers issued.[263] The Department for Business, Energy and Industrial Strategy said that applications 'must be thoroughly checked for compliance with the scheme rules to help ensure value for money, consumer protection, and to detect malpractice' explaining the delays in issuing vouchers.[264] It said that the Government was continuing to 'work closely with the Scheme Administrator to ensure that vouchers are issued quickly, streamlining the customer application process where possible.'[265]

New build vs retrofit

165. The Government's Future Homes Standard aims to require new build homes to be fitted with low carbon heating, and high levels of energy efficiency—reducing the new buildings operational emissions (emissions resulting from energy consumption in the day to day running of the property).[266] RIBA welcomed the ambition to reduce CO_2 emissions by between 75 and 80% by the middle of the 2020s; however, it argues that 'comparing emissions to current levels inherently benefits energy inefficient buildings.' Instead, RIBA suggested that the Future Homes Standard should include specific targets for carbon emissions with an absolute scale of kilo grams of CO_2 per square metre, and ensure that all new homes were net zero by 2030. RIBA's evidence to this inquiry stated:

260 Letter from the Chair of the Committee to the Minister for Business, Energy and Clean Growth, Department for Business, Energy and Industrial Strategy, 11 December 2020

261 As part of the Committee's inquiry into Energy Efficiency of Existing Homes: Q244 (Brian Berry, 18 November 2020)

262 Letter to the Chair of the Committee from the Minister for Climate Change and Corporate Responsibility, Department for Business, Energy and Industrial Strategy, 22 January 2020

263 *Ibid.*

264 *Ibid.*

265 *Ibid.*

266 The Future Homes Standard: 2019 consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings, Ministry of Housing, Communities and Local Government, October 2019

> The Future Homes Standard is the Government's opportunity to demonstrate that it is a world-leader in improving the energy efficiency of the built environment. However, the direction of travel signified in the White Paper lacks ambition and will impact the UK's ability to reach its climate targets.[267]

166. Several submissions suggested that the retrofitting of existing homes should be prioritised over new build where possible.[268] The Royal Institution of Chartered Surveyors warned that sizeable carbon emissions arising from the built environment were attributable not only to the use of built assets or operational emissions but also to the 'embodied emissions' that arise during the construction, repair and demolition of buildings.[269]

167. Daniel Scharf, a town planner and consultant, said that 50% of carbon attributable to house-building was emitted in the construction phase and that opportunities to 'sweat existing assets' ought to be examined:

> This is an approach to 'building back better' that would avoid the carbon emissions emitted in the construction of buildings and infrastructure. Lifetime and operational emissions are irrelevant unless there is a very rapid reduction in construction emissions in the next year/decade when the most damage could be done or avoided.[270]

He argued that the UK would not achieve the existing Fourth and Fifth Carbon Budgets 'without a steep decline in construction emissions.'[271]

168. Evidence we received from De Montfort University made a similar point, suggesting that there was so much embodied carbon in buildings that even if a highly efficient new building were constructed after the demolition of an old one, it could take up to 30 years to redress the carbon balance.[272] The Head of Policy and Public Affairs at the Royal Institute of British Architects, Andrew Forth, summed up the trade-off between building new and retrofitting:

> In some areas, there is definitely housing that could not be effectively retrofitted to meet new standards, or it would be prohibitively expensive, but that does not mean demolishing everything, necessarily. There are lots of great examples where they have maintained the building core and have then built new stuff around that. The concrete within a building is a huge source of CO_2 emissions and there is more we can do to incentivise those to be reused. That is a huge win not just for the environment but for the time it takes to build new stuff and the disruption to people living in the local area.
>
> We have about 1 million property transactions a year and, at the moment, our tax system and the way we do things does not incentivise you to make

267 Royal Institute of British Architects (RIBA) (COV0036)
268 Daniel Scharf (Consultant, PfT Planning) (COV0009); Geraldine Dening (Senior Lecturer, De Montfort University) (COV0023); Royal Institute of British Architects (RIBA) (COV0036)
269 Royal Institution of Chartered Surveyors (2017) Whole life carbon assessment for the built environment
270 Daniel Scharf (Consultant, PfT Planning) (COV0009)
271 *Ibid.*
272 Geraldine Dening (Senior Lecturer, De Montfort University) (COV0023)

> any improvements at that stage. People will not always want to go through the inconvenience of retrofitting their house, but if they could do it while they are buying or selling, there is real potential there.[273]

169. To identify the overall best combined opportunities for reducing lifetime emissions, RIBA advised that it would be necessary to assess both the anticipated operational and embodied emissions over the whole life of the building. For example, the embodied carbon burden of installing triple glazing rather than double could be greater than the operational benefit resulting from the additional pane.[274] Andrew Forth added that greater use of timber and the reuse of demolished materials ought to be encouraged in construction, with less use of new steel and concrete.[275]

170. To reduce the levels of embodied carbon in new homes, RIBA called for the UK to introduce embodied targets. These targets would increase the demand for low carbon materials, stimulating growth in low-emission manufacturing of traditional, local materials and promoting the use of new low carbon materials.[276]

171. Anglian Water said that there also 'needs to be a fundamental shift in how we manage and use water resources' if we want to see a green recovery.[277] It called for a combined energy and water efficiency retrofit programme in existing housing and non-domestic buildings, and argued that the Green Homes Grant should also include water efficiency measures in its scope: there should be changes to building regulations to ensure new homes were built to the highest water and energy efficiency standards. It said that tighter building regulations were needed, applying 'a 100 litres of water per person per day standard or below for new homes, using a fittings-based approach which requires developers to install only 'A-rated' taps, showers and appliances.'[278]

Our view

172. **The Government must ensure that its 'build, build, build' agenda has, at its heart, a commitment to delivering truly sustainable development by promoting the construction of low-carbon homes fit for a changing climate.** ***We recommend that the Government introduce embodied carbon targets for the construction of new homes, so as to increase demand for low carbon materials, thereby stimulating growth in low-emission manufacturing of traditional, local materials and promoting the use of new low carbon materials.***

173. **The manufacture of construction materials is a sector with the potential to make a significant contribution to the path to net zero. We plan to examine this sector in greater detail in a forthcoming inquiry into the sustainability of the built environment. We will be making further recommendations on the Government's plans for energy efficiency of existing homes in our forthcoming report on the subject.**

273 Q163 (Andrew Forth, 3 December 2020)
274 Royal Institution of Chartered Surveyors, Whole life carbon assessment for the built environment, 1st edition (November 2017)
275 Q165–66 (Andrew Forth, 3 December 2020)
276 Royal Institute of British Architects (RIBA) (COV0036)
277 Anglian Water Services (COV0012)
278 *Ibid.*

174. **We welcome the intention behind the Government's Green Homes Grant. It is disappointing that the administration of the scheme appears to be putting green jobs at risk, rather than creating them. Delivery has been poor for consumers and has led to perverse consequences for installers, and the scheme remains too short-term to have any prospect of achieving its initial targets.** ***We recommend that the Green Homes Grant scheme be urgently overhauled and extended to provide greater long-term stimulus to the domestic energy efficiency sector. The Government must be mindful not to repeat the mistakes of the failed Green Deal energy efficiency incentive scheme.***

175. **The Government has promised £2.9 billion for support for public sector decarbonisation projects over the five years to 2025.** ***We consider that there is an urgent need for the front-loading of programme expenditure, and we recommend that as part of the programme the Government should support the capital cost of upgrading the energy efficiency of schools and hospitals. Providing energy efficiency upgrades to the UK's social housing stock should also be prioritised. This should be assessed periodically by the National Audit Office as part of its regular work programme.***

Investing in nature recovery

176. In the UK, climate change is projected to increase the damage and disruption caused by flooding; to degrade some of the most productive agricultural land; to reduce water supplies; to increase the frequency and intensity of heatwaves, and to stress transport and energy infrastructure.[279] The Committee on Climate Change has found that the Government has made little progress to date in ensuring the UK is resilient to the climate changes projected to affect the country in the coming decades.

177. The National Infrastructure Strategy made few mentions of biodiversity but did state that its new system for environmental assessment would 'support net gains for biodiversity wherever possible.'[280]

178. The Dasgupta Review on the Economics of Biodiversity has recommended that, as a society, we should view nature as an asset, just as produced and human capital are seen as assets.[281] Professor Dasgupta has suggested that investment in natural capital, undertaken as part of the fiscal stimulus packages in the wake of the pandemic, has the potential for quick returns.[282] This was a view echoed by a number of organisations submitting evidence to our inquiry.

179. Investment in green infrastructure could be used to stimulate short-term demand and would have wider benefits such as making the economy more resilient to future environmental risks, according to a briefing published by Wildlife and Countryside Link.[283] Richard Benwell, of Wildlife and Countryside Link, enthusiastically set out this vision for us:

> We should be looking for injections of investment in natural infrastructure—in the green assets that sustain our economy and that will make us more

279 Committee on Climate Change, UK Climate Change Risk Assessment 2017 Evidence Report
280 HM Treasury, *National Infrastructure Strategy: fairer, faster, greener*, CP 325, November 2020, p 84
281 HM Treasury, *The Dasgupta Review—Independent Review on the Economics of Biodiversity: interim report*, April 2020
282 HM Treasury, *The Economics of Biodiversity: The Dasgupta Review*, February 2021
283 "Project Speed", Wildlife and Countryside Link, 22 July 2020

> resilient to future environmental risks. In the long term, it means setting a regulatory framework that makes the polluter pay and that pays the provider of environmental goods, so that you build that environmental resilience into your economic system. What does it look like in physical terms? This is where it gets exciting. In physical terms, it means pocket parks and tiny forests in our cities. It means greener streets and targeting the areas where deprivation overlaps with nature deprivation, to restore people's quality of life in our inner cities. It means re-wetting our uplands and sometimes destocking to reduce our impact, but also investing in our peatlands and upland habitats to reduce flood risk and to sequester carbon. In the lowlands, it means turning around some of the problems caused by CAP by putting trees and ponds back into our farm systems to help support pollinators. Around our cities, it means a greener belt—one that actually protects green spaces and wildlife at the same time. On our coastlands, it means things like intertidal habitat, salt marsh creation and restoring our seas to replenish the economic stocks of our fisheries and marine wildlife. That is my vision for a green recovery.[284]

180. Coordinating with other conservation charities Link compiled a compendium of 330 projects, costing approximately £315 million, which it estimated could create up to 10,000 jobs, enhance at least 200,000 hectares of priority habitat, and plant 4.5 million trees: the list was submitted to Defra in May 2020. Link argued that these projects would have other benefits—improving flood defences and improving communities' health through improved access to green spaces, and improving air and soil quality, noise and pollution levels, sites of special scientific interest, coastal protection and fish stocks.[285] It recommended:

- large-scale habitat recovery and creation, to guard the UK against environmental risks including flood and drought. Link recommends the Government front-load delivery of the 25 Year Environment Plan, and the creation of a National Nature Service for England to provide work in conservation areas;[286] and
- investment in urban nature, particularly in deprived areas, where lack of access to green space led to communities with increased ill health.

Link observed that, according to National Trust research, £5.5 billion focused on making urban areas greener would deliver £200 billion in health benefits and secure 40,000 jobs in initial construction and over 6,000 permanent jobs for ongoing maintenance.

181. The RSPB and other conservation charities highlighted a number of nature-based solutions where economic stimulus could usefully be directed:

- **natural flood defences**: The RSPB identified natural flood management (NFM) projects as a key nature-based solution to invest in as part of catchment-based approaches to water management. This could also reduce droughts, improve water quality and support biodiversity. RSPB said the projects would also provide economic, health and well-being benefits for local communities. Examples of NFM included constructing leaky dams and restoring peatland habitats;

284 Q5 (Richard Benwell, 24 July 2020)
285 Shovel-ready green recovery projects summary, Wildlife and Countryside Link, 2020.
286 Letter from Wildlife and Countryside Link and other signatories to the Chancellor of the Exchequer, June 2020

- **natural carbon sinks**: The UK had huge potential for natural carbon storage through restoration of carbon rich habitats, according to the RSPB, which cited peatlands as an example. Peatlands were said to 'hold up to 30% of all terrestrial carbon', but many are 'unprotected or in poor condition';[287] and
- **landscape enhancement**: CPRE told us that there was significant potential to enhance landscapes across England, which would in turn help address the climate crisis, prevent flooding and slow environmental degradation. CPRE proposed hedgerow planting and restoration projects as its contribution to the list of 'shovel ready' projects coordinated by Wildlife and Countryside Link: with funding of some £135,000 it could 'plant and restore approximately 30km of hedgerows and plant around 400 hedgerow trees over a year', sequestering carbon, enhancing local character and empowering communities to connect with their local landscapes.[288]

Box 5: A nature recovery case study: the proposal for the Haweswater Change Project

The RSPB outlined how with the right funding its proposed Haweswater Change Project (a partnership between the RSPB and United Utilities) could transform the Lake District landscape, restoring upland habitats such as broadleaf woodland and blanket bog. It said 'the project would reduce flood risk, provide more sustainable and resilient livelihoods for local farming communities, and the woodland creation element alone would help sequester 70,000 tonnes of carbon.

Source: Royal Society for the Protection of Birds (COV0105)

182. The pandemic has had a crippling effect on conservation charities. During the first lockdown, environmental charities faced collective gross losses in excess of £35 million per calendar month.[289] The Government has announced a £40m Green Recovery Challenge Fund to help charities and environmental organisations halt biodiversity loss through local conservation projects, creating 3,000 jobs and securing 2,000 others. In response to the announcement, Link said:

> £40million investment in the natural environment—brought forward from nature funds already allocated for 2024—is welcome but far from sufficient. It barely touches the hole in finance for ecological restoration left by the coronavirus crisis and is orders of magnitude below the scale of investment needed for this aspect of a green recovery.[290]

Access to green space

183. At our first hearing we were told about the benefits that investing in urban green brought for mental and physical well-being by allowing space for daily walks and exercise. Access to green and open space has been linked to self-reported levels of physical and mental health for all ages and socio-economic groups, particularly for disadvantaged groups, and urban green space is said to have the wider benefits of increasing biodiversity, protecting against UV radiation and providing space for shade and rest during heatwaves. Professor Kate Jones told us that:

287 Royal Society for the Protection of Birds (COV0105)
288 CPRE (COV0104)
289 Wildlife and Countryside Link (COV0035)
290 *Ibid.*

> There is a lot of emerging evidence about the links between exposure to natural areas and mental health, physical health and cognitive development. There are a number of studies that are coming out now to show that access and exposure to green space is incredibly important for health in general. There is even more cutting-edge evidence that is showing that the type of green space is important as well. Woodlands seem to be much better for you than the length of grass in these parks and the very managed systems. It could be that the woodland has a big role to play in mental health and cognitive development, which we are trying to understand at the moment.[291]

184. Professor Jones said that that the value of avoided health care costs of green space was in the millions and billions of pounds.[292] She said that this made green space in cities like London incredibly valuable for health and well-being:

> It does take a lot of money to run, but the investment in people's health is enormous. If you were designing better cities, having more natural areas is a win-win for many things. It could be used for sustainable food production, it could be a win for wildlife and it is also good for people's mental and physical health. I would design cities that are much greener than the ones we have at the moment.[293]

185. Inner city green space is also important for urban resilience since it is proven to reduce the 'urban heat island' effect, reducing the risks from heatwaves in cities. Despite the wealth of benefits that green space provide, urban green space in England has declined to 56% in 2016 from 63% in 2001.[294] In the report of the Committee's inquiry into this issue in the 2017 Parliament, our predecessors recommended that national targets be set to increase urban green space back up to 2001 levels or higher.[295]

Our view

186. **Investment in nature recovery projects could deliver a range of economic, environmental and social benefits. As well as protecting UK wildlife, well designed schemes could create thousands of job opportunities, while improving flood resilience and locking more carbon in trees and soils.**

187. **The lockdowns which have been imposed to counter the spread of covid-19 have given the public compelling reasons to appreciate the value of neighbourhood green spaces in towns and cities. Projects designed to enhance urban biodiversity and to increase access to green space can offer immense benefits to urban dwellers.**

188. ***We recommend that the Government, in developing further its strategy for economic recovery, give greater priority to strategic projects aimed at encouraging nature recovery. The Government should work with conservation charities to pilot the idea of a National Nature Service this summer to open up conservation opportunities.***

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291 Q16 (Professor Kate Jones, 21 May 2020)
292 *Ibid.*
293 *Ibid.*
294 Charles Ffoulkes, Research to provide updated indicators of climate change risk and adaptation action in England, submission to the Committee on Climate Change, 2017.
295 Environmental Audit Committee, *Heatwaves: adapting to climate change*, Ninth Report of Session 2017–19, HC 826

4 Fiscal and financial incentives for a green recovery

189. In this chapter, we look at the mechanisms to finance a green recovery which are available to the Government, such as the Sovereign Green Bond and a National Infrastructure Bank. We also examine further some of the ideas advanced in evidence about how tax incentives can be used to help the UK grow back better.

Sovereign Green Bonds

190. In 2018, our predecessors suggested that issuing a Sovereign Green Bond presented an opportunity for the Government to set a benchmark of good practice for domestic green bonds and could be a useful mechanism to raise the capital necessary to deliver its carbon budgets and achieve other environmental objectives.[296] We therefore welcome the Chancellor's announcement, in November 2020, that the Government planned to issue the UK's first Sovereign Green Bond in 2021—and that it intends to follow up with a series of further issuances to meet growing investor demand for these instruments.[297] The Government said these bonds will help finance projects to meet the UK's 2050 net zero target and other environmental objectives, as well as financing infrastructure investment and creating green jobs across the country.

191. The Chief Executive of the Impact Investing Institute, Sarah Gordon, warned us that the UK had fallen behind on green bonds. She argued that the Government should be considering how the Sovereign Green Bond can also be used to provide employment opportunities:

> Sixteen other Governments have already issued green sovereign bonds and it is high time that the UK did so, so we were absolutely delighted to see the announcement. However, I think there is real opportunity for both innovation around the nature of green gilt issuance and this element of defined social co-benefits, which is something we really should be thinking very carefully about, particularly given the massive unemployment crisis that is about to hit this country. We need to think about the transition in close proximity to the economic challenges and opportunities that we face. In terms of the City, at the moment, in the global ranking of investment banks that support and underwrite these kinds of sovereign offerings, the UK banks do not rank highly.[298]

She added that the bond could provide opportunities for the City of London become a global leader on green finance:

> There is a real opportunity, a real business case, for the UK's banks in terms of building expertise, building credibility, in the sovereign green market. There is already a lot of expertise around this and obviously, as we know, deep pools of capital in the City that are keen to be deployed for green and

296 Environmental Audit Committee, Green finance: mobilising investment in clean energy and sustainable development, Sixth Report of Session 2017–19, HC 617

297 "Chancellor sets out ambition for future of UK financial services", Gov.uk, 9 November 2020

298 Q189 (Sarah Gordon, 3 December 2020)

> sustainable ends. This is something that really could be part of the City of London's global offering to the world, post Brexit—leadership, innovation, pioneering steps in sustainable finance.[299]

192. This summer Germany issued its first ever green bond. The German Treasury reportedly attracted more than €33bn of bids for up to €6bn of 10-year debt, in a deal seen as a 'landmark step in the development of Europe's green bond market that will help establish a benchmark for pricing other green transactions.'[300] However, Royal London Asset Management warned that unless sovereign bonds were structured in a way that clearly ringfenced the proceeds for environmentally friendly activities, they could be an exercise in state-sponsored 'greenwashing'.[301]

Ensuring that revenues contribute to additional green investment

193. Issues around the adequacy of certification processes and data requirements to demonstrate the environmental credentials of green bonds have been raised with the Committee previously.[302] It has been argued that a form of sustainability disclosure to the bond market is required in order to enable proper evaluation of any 'additionality' achieved by green bonds.[303] A recent article in the Financial Times warned that:

> … the link between green issuance and any additional green spending is tenuous at best. Germany, for example, identified €12.7bn of eligible spending from last year's budget—hardly an indication that the green Bund programme will be financing anything that was not already happening anyway.[304]

194. Sarah Gordon explained how green sovereign bonds issued in other jurisdictions addressed the additionality issue:

> Hypothecation is not a necessary requirement for issuing a green sovereign bond. What has been the case in other countries, for example France with its issuance of *obligations assimilables du Trésor* [French Treasury bonds], is that the issuer documents a schedule of projects with a notional equivalence to the proceeds, so you guarantee that the amounts raised through the green gilt issuance would be devoted to green projects and you must specify those green projects. There is transparency in that sense. You would also expect any green gilt to follow the green bond principles where there must be an annual report accounting for the use of proceeds.[305]

195. The Grantham Research Institute on Climate Change, the Impact Investing Institute and the Green Finance Institute said that 'a robust green finance framework' now needed to be established that shows how the proceeds would be deployed by the Government,

299 *Ibid.*
300 "Investors pounce on Germany's first green bond sale", *Financial Times*, 2 September 2020
301 "Sunak should be wary of tokenism with green gilts", *Financial Times*, 24 November 2020
302 Environmental Audit Committee, *Green finance: mobilising investment in clean energy and sustainable development*, Sixth Report of Session 2017–19, HC 617
303 *Ibid.* Additionality is defined as the extent to which something happens as a result of an intervention that would not have occurred in its absence.
304 "Sunak should be wary of tokenism with green gilts", *Financial Times*, 24 November 2020
305 Q189 (Sarah Gordon, 3 December 2020)

'including measures to fend off any charges of greenwashing'. Strategic thought must also be put into 'identifying how the catalytic effect can be maximised in terms of follow-on issuance both domestically and internationally.'[306]

Our view

196. **We welcome the Government's announcement of a Sovereign Green Bond and consider that it has significant potential to incentivise a green recovery.** ***We recommend that the Government undertake a full evaluation of the potential economic and social benefits of its bond issuance, especially with respect to the creation of green jobs.***

197. ***We further recommend that, in his forthcoming Budget Report, The Chancellor set out in detail a plan to ensure that revenue from the Sovereign Green Bond is invested only in projects which deliver demonstrable, significant and measurable environmental benefit.***

National Infrastructure Bank

198. In its 2018 report on Green Finance: *Mobilising Investment in Clean Energy and Sustainable Development*, the our predecessor Committee highlighted the importance of a state investment bank in addressing market failures limiting low carbon investment and accelerating the clean energy transition..[307] On 25th November 2020, as part of the Spending Review announcements, the Chancellor announced that the Government would be launching an independent UK National Infrastructure Bank (NIB), to be based in the north of England and expected to be operational by spring 2021. The Chancellor is expected to set out details of the operations, mandate and scale of the bank in his 2021 Budget.

199. The Institute for Innovation and Public Purpose at University College London identified a need for public sector interventions to ensure private financial flows were consistent with net zero emissions goals. It said that at present, UK banks and institutional investors were poor providers of the long-term, patient capital needed for green innovation.[308] Greenpeace called for the Government to establish a Climate Infrastructure Bank, to leverage private investment to accelerate the transition to net zero while levelling up the UK.[309] Energy UK, the trade association for the energy industry, had also added its voice, saying the Government should 'consider reviving the concept of a green investment bank' to help provide a mix of public funding and private investment on 'large infrastructure projects such as EV charging infrastructure, decarbonisation of power, heat and energy intensive industries'.[310]

200. Sarah Gordon from the Impact Investing Institute said that, at the moment, it is unclear whether the National Infrastructure Bank 'is going to have a genuine focus on

306 Grantham Research Institute on Climate Change, Impact Investing Institute and the Green Finance Institute (COV0111)

307 Environmental Audit Committee, *Green finance: mobilising investment in clean energy and sustainable development*, Sixth Report of Session 2017–19, HC 617

308 Institute for Innovation and Public Purpose, University College London (COV0048)

309 Greenpeace UK (COV0019);

310 Energy UK (COV0043)

transition to net zero'.[311] She called for the mandate to commit the bank explicitly to financing net zero projects and for the NIB to also aim to deliver social co-benefits with its investments:

> It is very clear that the National Infrastructure Bank, if it is to be consistent with the 10-point plan for a green, industrial revolution, essentially has to be a green bank; it has to be a bank that has a mandate, an explicit mandate, to finance the transition to a net zero economy. What we would like to see is that that mandate also makes it explicit that the transition needs both to take into account the negative social consequences of the transition but also to seize the social opportunities that transition brings. For example, around the creation of green skills, around the ability to direct spending, both public and private, to areas and regions of the country that have been historically underserved by that investment, and issues around access.[312]

Our view

201. **We welcome the creation of a National Infrastructure Bank: we trust that the Government has learned from the experience of selling off the previous Green Investment Bank.** ***We recommend that the Government give an unequivocal guarantee, supported in statute if necessary, that the Bank will be maintained as a public institution for the long term. We further recommend that, in addition to a mandate to contribute to the delivery of net zero, the Bank be given a mandate to encourage the financing of projects which promote nature recovery.***

Tax incentives for green recovery

202. The pandemic has pushed Government borrowing to a peacetime record of £394bn.[313] Unemployment is rising: the Office for Budget Responsibility has projected that it will reach 7.5% in 2021, equivalent to 2.6 million people.[314] Against the backdrop of these challenging circumstances, hundreds of billions of pounds of investment must be mobilised for the transition to net zero and put nature into recovery. The forthcoming spring budget—the first since the full implementation of the Withdrawal Agreement on the UK's exit from the European Union—provides an opportunity to use the tax system to kick start a green recovery.

203. We have previously called on the Treasury to shift taxation from things that benefit society, such as employment; to things that are socially harmful, such as pollution and waste.[315] This was echoed in evidence to the inquiry. Green Christian said that financial incentives were often preferable to regulatory instruments because 'they facilitate cultural change rather than top-down imposition.'[316] The Grantham Research Institute's Dimitri Zenghelis said that a shift towards green taxation could eventually help pay off the deficit

311 Q185 (Sarah Gordon, 3 December 2020)
312 *Ibid.*
313 Economic and fiscal outlook – November 2020, Office for Budget Responsibility, 25 November 2020
314 *Ibid.*
315 Environmental Audit Committee, *Budget 2011 and environmental taxes*, Sixth Report of Session 2010–12, HC 878
316 Green Christian (COV0081)

while helping to shift behaviour and increase resource and energy efficiency. He said that it was important to look at the 'broader social and economic challenges that we face' rather than 'fixating on balancing the budget in the short term':

> In the short run, the best way to generate tax revenues is through growth […] Thereafter, we probably will need to change our tax base, and there has been a lot of discussion about how we do that equitably, fairly and efficiently. Clearly, one of the things we want to do is shift the tax base from discouraging things we want, such as work and saving, on to the things we do not want, such as limiting inefficiency, limiting congestion and limiting pollution and waste. Green taxation will play a very big part in that. Shifting the tax base towards green taxation will have benefits not only in terms of paying off the deficit in the long term, but in terms of changing behaviour, meeting environmental aims and stimulating the kinds of investment in productivity and efficiency that generate growth, competitiveness and revenue and also provide the quality jobs that will endure in an increasingly competitive, low-carbon market across the world.[317]

Fiscal consolidation

204. We heard concerns that the fiscal consolidation required after the crisis could impact green investment. Dr Neil McCulloch, Associate Fellow at the Institute of Development Studies, warned that the post-lockdown fiscal consolidation could have major implications for investment in green technologies. He argued that:

> […G]overnments throughout the world have borrowed heavily to cushion the impact of the crisis. This suggests that, after the recovery is underway, there will have to be a stringent fiscal consolidation to pay for the measures taken during the crisis. This will have a major implication—probably for years—on the availability of public finance to invest in new green technologies and measures to tackle climate change. While climate change had risen to the very top of the political agenda prior to the pandemic, it is possible that it will now be subordinate to the steps needed to get the economy back on track, thereby losing further valuable years in addressing climate change.[318]

205. Several of our witnesses called for the Government to prioritise economic stimulus after the crisis rather than paying off the deficit. The TUC said:

> the priority now is not to reduce public debt but to take action to minimise the long-term damage to the productive potential of the economy and get it back on a path of sustainable growth. Our view is that if you are going to deal with structural deficit, you need to do that cautiously and carefully, and at the right time, after the economy has recovered and is able to achieve its real growth potential. So we would say that fiscal consolidation should

317 Q23 (Dimitri Zenghelis, 23 July 2020)

318 In a submission to our call for suggestions for possible future inquiries in this Parliament (PFI0104)

> not happen for at least a year or two, and beyond that, closing any structural deficit should be something that you aim for over a period of 10 years or more.[319]

206. Positive Money suggested that low yields reduced the pressure on the Government to pay off the deficit in the short term:

> Fears about rising government debt are misplaced. Currently, nominal yields on 2 and 5-year government bonds (and real yields on longer term debt) are negative: investors are paying to lend money to the government. This is partly due to the Bank of England backing government spending with 'monetary financing': creating new money to support increased government spending. The Bank of England was already doing so indirectly through 'Quantitative Easing' (QE): purchasing government bonds from non-bank financial institutions. As a result, the Bank currently owns approximately a third—£745bn—of the government's debt, alleviating any pressure to resolve those obligations. The Bank has also offered to extend the 'Ways and Means' facility, the government's 'overdraft' at the Bank.[320]

Shifting taxation to make the polluter pay

207. Submissions to this inquiry have included a number of proposals for tax changes to support the transition to a sustainable society:

- Anglian Water Services called for the Government to apply the 'polluter pays' principle to manufacturers of polluting plastic wet wipes: 'nuisance single-use plastic products that cause fatbergs, local sewer flooding and pollutions, and severe and lasting damage to wildlife and the natural environment.'[321] This is an issue we will be examining in our inquiry on *Water Quality in Rivers* inquiry;
- Green Alliance recommended a reduction in VAT on home retrofit, pointing out that building renovations are currently subject to 20% VAT, while new build is zero-rated for VAT;
- Zero Carbon Campaign call for a carbon tax;[322]
- ClientEarth suggested extending the plug-in grant scheme until ZEEVs reach cost-parity with their petrol and diesel counterparts. It also recommended that the Government introduce a time-limited VAT exemption to reduce the upfront cost of ZEEVs and reform Vehicle Excise Duty to better reflect the health and environmental impacts of petrol and diesel vehicles;[323]
- SMMT proposed a package of incentives to make electric vehicles effectively tax-free (for example paying no VAT, vehicle excise duty or company car tax for an extended period);[324]

319 Q30 (Sue Ferns, 23 July 2020)
320 Positive Money (COV0051)
321 Anglian Water Services (COV0012)
322 Zero Carbon Campaign (COV0032)
323 ClientEarth (COV0041)
324 Society of Motor Manufacturers and Traders (SMMT) (COV0033)

- Green Alliance called for an increase in fuel duty. It said that the ten year fuel duty freeze had cost the Treasury an estimated £8 billion in lost tax and increased emissions;[325] and
- The CBI advocated a net zero mobility credit, which would give people the option to scrap their high-carbon transport options and move towards lower-carbon forms of transport, be that electric vehicles or scooters.[326]

In the following section we will look at some sector specific ideas.

Incentivising green retrofits and energy efficiency

208. There were calls to use the tax system to incentivise home energy efficiency and low carbon retrofits, which were identified as high multiplier effects. Caterina Brandmayr from Green Alliance said:

> We think there is a need to bring VAT on housing upgrades and renovation in line with that for new builds. That is to make sure that we preserve the building stock and make it fit for a net zero future. It would enable, for example, the type of whole building retrofit solutions which are currently disincentivised by the higher rate of VAT. It would also make sure that we preserve the emissions that are embodied in the building materials of existing buildings so that those are renovated and refurbished, as opposed to being demolished and built anew.[327]

209. Andrew Forth from RIBA said that a variety of property taxes could be used to incentivise the take up of energy efficiency improvements:

> Stamp duty land tax should be reformed so that when you buy a house a more energy-efficient home would pay less stamp duty. There are ongoing payments such as council tax. There are also other ways the tax system comes into housing like inheritance tax and capital gains tax.[328]

Incentivising low-carbon transport

210. ClientEarth said that the forthcoming Budget provided an important opportunity to tackle two crucial agendas—reducing illegal and harmful levels of air pollution in order to protect people's health, whilst also de-carbonising the road transport system in order to help achieve carbon budgets.[329]

211. Electric car sales are rising strongly, with figures released in February showing that battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs) accounted for 13.7%

325 Green Alliance (COV0013)
326 Q59 (Tom Thackray, 23 July 2020)
327 Q24 (Caterina Brandmayr 23 July 2020)
328 Q173 (Andrew Forth, 3 December 2020)
329 ClientEarth (COV0041)

of registrations in the year to date.[330] However, the SMMT said that further tax incentives would be essential to accelerate the market switch from petrol and diesel to 100% new electric cars by 2030.[331]

212. SMMT pointed out that plug-in vehicles were currently more expensive for manufacturers to produce due to the cost of the battery. Therefore, until cost parity was reached, fiscal incentives would be essential to driving the market towards ULEVs, helping overcome the higher upfront cost and helping manufacturers offer the right vehicle at the right price. To support accelerated uptake of ultra-low emission cars in the UK, SMMT proposed a package of incentives, resulting in those vehicles effectively becoming tax-free (for example paying no VAT, vehicle excise duty or company car tax for an extended period). This would help address the higher upfront cost of a ULEV car.[332] The SMMT's Konstanze Scharring said:

> the key barrier to mass uptake is that, in truth, electric vehicles are still more expensive upfront in terms of the purchase price. Even if you look at the total cost of ownership, if you take into account the savings you make in running the vehicles put against depreciation and other factors, you still see there is a differential. We need to work together to try to bring this into an equation that is available for more people. Incentives play a key role there. We are supportive of the plug-in car grant, but the incentives need to be internationally competitive to overcome that price gap in the eyes of consumers.[333]

213. Cambridge Econometrics advocated a scrappage scheme to incentivise electric vehicle up-take.[334] The CBI agreed, telling us it would like to see some form of 'net zero mobility credit', which would give people the option to scrap their high-carbon transport options and move towards lower-carbon forms of transport, be that electric vehicles or scooters.[335] Claire Haigh, CEO of Greener Journeys, called for a total reformulation of transport pricing. She said:

> The failure of road taxation to cover external costs means that we over consume roads. For example, the freeze in fuel duty since 2011 has caused 5% more traffic, an additional five million tonnes of CO_2 emission and a quarter of a billion fewer bus journeys.[336]

She argued that the Chancellor should increase fuel duty: 'the money raised should be ring-fenced to boost the use of public transport and encourage the switch to cleaner vehicles.'[337]

214. The Society of Friends argued that any taxation-based measures designed to discourage ecologically harmful behaviours should be accompanied by policy measures making it easy and affordable to adopt 'good' behaviours instead. For example, fuel duty should be increased, but this should be paired with major investment in active travel and

330 "New car registrations fall -39.5% as showroom closures stifle demand", Society of Motor Manufacturers and Traders, 4 February 2021
331 Society of Motor Manufacturers and Traders (COV0033)
332 *Ibid.*
333 Q151 (Konstanze Scharring, 3 December 2020)
334 Cambridge Econometrics (COV0029)
335 Q59 (Tom Thackray, 23 July 2020)
336 Greener Journeys (COV0087)
337 *Ibid.*

public transport, and an approach to land-use planning which reduces car dependency.[338] This was a point also made by CPRE, who said that the current lack of public transport provision in rural areas meant that 'many people living in the countryside have no alternative to driving many of their day to day journeys.' Therefore:

> The government must tackle the problem of our unsustainable transport system with a carrot and stick approach which provides the public funding for alternatives to private car travel first, and then develops fiscal disincentives for high emission journeys.[339]

Reducing aviation emissions

215. Green Alliance said the aviation sector had been lightly taxed as it was exempt from fuel duty and VAT. Claire Haigh from Greener Journeys highlighted the perverse incentives this resulted in, asking:

> How can it be cheaper to fly from London to Edinburgh than to get the train, when emissions per passenger km for air travel is 10 times that of rail?[340]

216. Green Alliance estimated that if the aviation sector was paying the same duty and VAT as motorists, it would raise £11 billion tax revenue.[341] The organisation Green Christian agreed that aviation had long been 'unduly cheap' and said that a progressively introduced carbon tax on aviation fuel would reduce emissions and could be used to fund research into electrification of aircraft.[342] It called on the Government to ensure aviation pays a fairer contribution to public finances in future. Caterina Brandmayr from Green Alliance added:

> Increasing excise duty on kerosene, and introducing a progressive tax that reduces demand for aviation will be vital to drive a transition towards a net zero future.[343]

217. David Morgan from easyJet suggested that Air Passenger Duty (APD) needed to be reformed. At our hearing in September he suggested lifting APD for 12 months to support the industry through its current predicament and then reforming the tax to incentivise cleaner aircraft technology. He said:

> In terms of the progress that we need to make, since 2000 easyJet has reduced its carbon emissions per passenger kilometre by over a third. We have done that through investment in modern aircraft and so on. In the last two or three years, all our aircraft have had a fuel burn of 15% less than the earlier generation of aircraft, yet there is very little incentive at the moment for investment in that kind of technology. We would like to see a system that rewards good behaviour in that regard. We have optimised the way we operate, but we are looking to technology to provide the long-term answer

338 Quakers in Britain (COV0060)
339 CPRE (COV0104)
340 Greener Journeys (COV0087)
341 Q24 (Caterina Brandmayr, 23 July 2020)
342 Green Christian (COV0081)
343 Q24 (Caterina Brandmayr, 23 July 2020)

> Rather than suppressing aviation, if we are going to achieve our long-term sustainability goals, it is important that the industry is able to thrive. […] a reform of the APD would incentivise carbon-efficient flying. At the moment it does not at all. A 50-year-old aircraft can have the same APD as a brand-new aircraft. It is not linked to the distance of a flight in a fair way at all. We would like to see Government support—we have seen some already, which is great—in investment in R&D to help us transition over the next years to a fully carbon-free airline.[344]

A carbon tax

218. One of the clearest ways to begin to shift the tax burden to make the polluter pay is through the introduction of a carbon tax. The UK's Carbon Price Support (CPS) policy and Carbon Price Floor have been effective examples of carbon pricing, because they have served to make polluting coal power generation uneconomic in the UK.

219. Our predecessor committee's 2018 *Green Finance* report suggested that carbon pricing would be needed to decarbonise the full economy. It recommended that Ministers should set out a trajectory gradually to increase the carbon price, starting after the current freeze on CPS comes to an end in 2021, to continue driving investment away from fossil fuel-based electricity generation. It also recommended that the Government should carry out an assessment to consider how extending carbon pricing to cover the whole economy could help us meet our climate change targets.[345]

220. In evidence to this inquiry, Green Alliance said that the government should consider how carbon pricing, in conjunction with other policies, could be used to incentivise emissions reductions across the economy. The think tank said that 'many sectors currently do not bear the full cost of their climate impact and that the recovery offers the opportunity to promote a more coherent and comprehensive approach to carbon pricing.'[346]

221. Stephen Fitzpatrick, CEO of OVO Energy, argued that a carbon tax would be an effective and fair way to drive the net zero transition across the whole economy with minimum regulation:

> a very simple carbon tax, which has a wide degree of public support, that would ensure higher carbon intensity activities face a higher cost of capital, which is something we all want to see. Lower carbon activities will receive a lower cost of capital and, over the long term, that is the thing that will make the difference in terms of shifting finance towards this zero-carbon transition.[347]

> When we are talking about getting to net zero across the whole economy, net zero would imply this tremendous shift in our economy and the way we live our lives. It is simply not going to be possible to regulate for everything. Regulation is going to play its part, but in terms of ensuring that the worst off in society are not paying a disproportionately high cost, it is obvious to

344 Q136 (David Morgan, 24 September 2020)
345 Environmental Audit Committee, *Green finance: mobilising investment in clean energy and sustainable development*, Sixth Report of Session 2017–19, HC 617
346 Green Alliance (COV0013)
347 Q194 (Stephen Fitzpatrick, 3 December 2020)

> somebody who runs an energy company, and anybody who thinks about it, that those households that own two vehicles, that own larger cars, that have larger homes, that have a higher carbon intensity lifestyle, that fly more frequently, these are the people that should be paying a higher price.
>
> The fairest, simplest way to do it is to levy a price per tonne of carbon and then let people make their own decisions. It is very easy to imagine a scheme where we can ensure that lower-income households are compensated, or at least that, in some way, the burden that falls on them is softened by the state through redistribution, but the cheapest, most efficient way to do it is through carbon taxation.[348]

222. The Government has recently consulted on carbon pricing: in July 2020 the Treasury issued a consultation on a limited carbon tax as one option for transitioning from membership of the EU's emission trading system.[349] In the Government's proposal the tax would only be applied to installations that had been subject to the EU ETS. The Zero Carbon Campaign outlined a number of concerns it had with these proposals. It said:

- The proposed auction reserve price proposed by BEIS (£15) was substantially lower than the EU ETS traded carbon price before covid-19, which constitutes a reduced incentive to cut emissions;
- The Government had decided against increasing the scope of a UK ETS to new sectors, meaning approximately only ⅓ of UK emissions would be covered. Those that were priced would be cushioned by the provision of 'free allowances';
- The UK's emissions were substantially lower than its share of the EU ETS emissions and there was likely to be a surplus of credits on the market;
- The Treasury's proposal to allocate 'free allowances'—and to enable an allowance increase for those actors who continually fail to meet their emissions targets—was a further instance of the Government failing to effectively price pollution where it occurred, and instead facilitating subsidies for polluting sectors.[350]

223. The Bank of England has cited 'orderly transition' scenarios showing that a carbon price of $100 per tonne by 2030 is necessary to limit temperature rises to below 2°C.[351] As discussed in Chapter 3 above, a domestic carbon tax could put carbon-intensive companies, such as steelmakers, at a disadvantage unless carbon prices are also raised internationally, or appropriate border carbon tariffs are introduced. Green Alliance said that to avoid a rising carbon price driving industry and its emissions abroad, the Government should also consider introducing a carbon border adjustment mechanism. This would also serve to 'promote decarbonisation along global supply chains.'[352]

348 Q195 (Stephen Fitzpatrick, 3 December 2020)

349 Consultation: Carbon Emissions Tax, HM Treasury, July 2020. The Government has now set out the details of the UK Emissions Trading System in force from 1 January 2021: https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets

350 Zero Carbon Campaign (COV0032)

351 The Bank of England and Climate Action: briefing to Bank of England Agency contacts, Bank of England, 14 January 2021

352 Green Alliance (COV0013)

Our view

224. **The UK will host COP26 in November 2020. All eyes will be on the UK as an environmental world leader. The Chancellor's Spring Budget must back this ambition, and ensure that the UK's spending plans align with its net zero and biodiversity commitments.**

225. **As the UK recovers from the immediate crisis, a shift towards green taxation could help direct investment into job-rich low carbon activity, shift behaviour and increase resource and energy efficiency.**

226. **The Government now has the latitude to propose the variation, or the abolition, of value added tax on certain categories of goods.** ***We recommend that the Chancellor of the Exchequer bring forward proposals to reduce the rate of VAT on repair services and products containing reused or recycled materials to increase the circularity and resilience of the UK economy. The Government should also reduce VAT on green home upgrades to incentivise more people to install low-carbon technologies and improve the energy efficiency of existing homes.***

227. ***To support the accelerated uptake of ultra-low emission cars in the UK, further tax incentives should be introduced to make these vehicles more affordable. Where current environmental taxes, such as Air Passenger Duty, are blunt in their effect, the Chancellor should consider fine-tuning them to reward and incentivise investment in cleaner, more efficient, low-emission technology.***

228. **One of the most economically efficient ways to incentivise low-carbon choices would be through the introduction of an economy-wide carbon tax.** ***The Government should begin scoping work on a carbon tax to incentivise low-carbon changes across the whole economy.***

229. ***We recommend that the Government investigate the merits of carbon border adjustments, to accompany work on a carbon tax, as one way of addressing carbon leakage. We recognise this would also require measures to ensure that such policies do not adversely impact developing countries.***

Conclusions and recommendations

Ecological crisis and economic recovery

1. The consequences of another widespread outbreak of a zoonotic disease of similar lethality would be catastrophic. Covid-19 must therefore be treated as a wake-up call. The factors which appear to be increasing the incidence of such diseases must be thoroughly investigated and urgent action taken to mitigate the risks. (Paragraph 19)

2. The potential consequences of biodiversity loss for human populations have for too long been overlooked. It is vital that nature recovery is also prioritised in our economic recovery efforts alongside action on climate change. If measures to promote economic recovery are not treated as an opportunity to 'grow back better', then the global collapse in biodiversity, together with the impacts of pollution and climate change, may, if left unchecked, result in an even more catastrophic crisis. (Paragraph 20)

3. Policymakers owe it to everyone who has suffered during the pandemic to 'grow back better' from the crisis by creating a greener, healthier and more resilient UK. Fairness and the levelling up agenda must be central in efforts to secure the recovery while also pursuing the transition to net zero. (Paragraph 47)

4. The speed at which we have developed the vaccine under pressure shows how rapidly scientific progress can be made when efforts are concentrated and urgent. We now need to apply that same level of urgency to developing and deploying the solutions to the climate and extinction crisis. The UK's post-crisis economic recovery stimulus must be treated as an opportunity to accelerate investment on nature recovery, climate adaptation and cutting emissions to net zero. Many of the solutions necessary to slow the pace of climate change and biodiversity loss will also spur innovation, create jobs and make the economy and society more resilient to any future crisis. (Paragraph 48)

5. Levels of unemployment not seen in decades are now in prospect, on a scale which inevitably demands Government intervention. *In its approach to the recovery, the Government should, as far as possible, front-load its investment in areas such energy efficiency, the circular economy, climate adaptation and nature recovery, so as to provide a green jobs boost to counter unemployment. This investment will provide economic multipliers in terms of jobs and improved productivity and will offer wider benefits such as cleaner air and warmer homes. Consideration should also be given to how investment in energy efficiency and nature recovery can be used to rebalance the UK by supporting communities most in need. Do this and we can also ensure that the UK is more resilient to future shocks.* (Paragraph 49)

6. *We further recommend that the Government establish clear and ambitious statutory targets for the state of nature, waste minimisation, water quality and air quality under the Environment Bill once enacted.* (Paragraph 50)

The Bank of England's response to the crisis

7. *We congratulate the Bank of England on its laudable work highlighting the financial risks from climate change in recent years. The Bank of England has led the world in this regard, not least by becoming the first central bank to publish its own climate-related financial disclosure. The Bank is to be commended for its leadership on this.* (Paragraph 79)

8. *The Government should clarify that the Bank's monetary policy remit should include climate and nature objectives in the conduct of UK monetary policy, including when considering any extension of the Covid Corporate Financing Facility (CCFF) or future such mechanisms. We recommend that if any future support is offered via the CCFF, the Bank should require recipients to publish climate-related financial disclosures in line with the Government's Green Finance Strategy as a minimum condition.* (Paragraph 80)

9. *We also repeat our recommendation that the Bank writes to each CCFF loan recipient to alert them that the Government's Green Finance Strategy expects all listed companies and large asset owners to publish climate-related disclosures not later than 2022. This is a low-cost intervention that the Bank can take in advance of disclosures being made mandatory.* (Paragraph 81)

10. It is a matter of grave concern that the carbon intensity of the UK corporate sector remains aligned with global temperature rises that would be catastrophic. We welcome the news that the Bank of England is exploring how it can adjust its Corporate Bond Purchase Scheme with regard to the Government's climate objectives. *Before the Pre-COP summit in September 2021, the Bank must set out the steps it intends to take to reduce the average carbon intensity of its corporate bond portfolio to align with the temperature goals of the Paris Agreement. This is necessary to avoid undermining UK diplomatic leadership on climate change and to demonstrate the seriousness of the UK's commitment to fulfil its Nationally Determined Contribution.* (Paragraph 82)

11. *We further recommend that the Government updates its Green Finance Strategy to add an explicit objective to reduce the carbon intensity—and therefore the climate risk exposure—of the UK corporate sector and financial markets, such as the London Stock Exchange. The Government should examine how best to use the mechanism of mandatory climate-related financial disclosures to encourage listed companies to draw up transition plans aligned with the objectives of the Paris Agreement.* (Paragraph 83)

Investment in infrastructure and nature recovery

12. We welcome the publication of the Ten Point Plan, the National Infrastructure Strategy, and the changes to the Green Book criteria for public infrastructure projects. We now call for greater urgency in publishing detailed strategies and policies to allow private sector and industry to invest. (Paragraph 99)

13. Infrastructure invested in now will be in use for decades to come. It is essential that all decisions on infrastructure investment are considered against the net zero target, likely impacts on biodiversity and future projections of the changes in climate likely to affect the UK, and comply with the UK's air quality, biodiversity protections and

climate change commitments. The nature recovery network that the Government has promised must not be an afterthought established after other infrastructure is built. Nature recovery must be integral to the Government's infrastructure plans and factored in from the start as a strategic priority. (Paragraph 100)

14. The Government's current approach to transport decarbonisation relies heavily on a consumer switch to the purchase of electric passenger cars and vans as a consequence of banning the sale of certain petrol- and diesel-fuelled vehicles by 2030. Such heavy reliance on a single policy lever to deliver such a substantial policy outcome appears unwise. (Paragraph 122)

15. *We recommend that the Government set out, in its forthcoming transport decarbonisation strategy, what plans it has for substantial long-term investment in better public transport and in traffic reduction measures, and how such investment will reduce levels of road congestion, improve air quality and contribute to achieving net zero.* (Paragraph 123)

16. Each project within the Government's Road Investment Strategy will no doubt be analysed for its costs and benefits in accordance with Government guidance in the 'Green Book', as revised in November 2020. To ensure a green recovery, it is vital that the likely impact of each is explicitly appraised against the UK's air quality, biodiversity protection and climate change commitments before final approval for construction is given in each case. (Paragraph 124)

17. In supporting the development of strategic nationwide communications networks between urban centres, the Government must not overlook the importance to rural communities of hyper-local transport networks. Private car usage on well-maintained rural roads will of necessity continue to form a significant part of the overall UK transport mix. In its programme to encourage economic rebalancing and revival, the Government must also ensure that rural areas receive their share of investment in low-carbon transport and communications infrastructure, so as to bear down on levels of exhaust and tyre wear emissions while improving rural connectivity. (Paragraph 125)

18. Changes in ways of working during the pandemic have led to far greater levels of working from home, in urban and rural areas. This has doubtless reduced commuter car usage in rural areas in particular. Home working can therefore contribute to meeting net zero goals. High quality internet and mobile connectivity are nevertheless a prerequisite for home working to be sustained after the pandemic, and must therefore be considered as an essential utility. Access to reliable mobile signal, and fast and reliable broadband, must now be guaranteed as a priority. (Paragraph 126)

19. There is emerging evidence that areas of the world with higher concentrations of air pollution may be experiencing higher covid-19 mortality rates. The development of active travel infrastructure, designed to reduce traffic and promote walking and cycling in towns and cities, must be a priority to help clean the air we breathe, cut carbon and improve our health and fitness. (Paragraph 127)

20. Significant Government investment in the development of carbon capture, usage and storage (CCUS) technology sends an important signal in the run up to COP26

about the UK's ambition and its confidence in the contribution this sector can make in putting the whole of the UK economy on the path to net zero. *While we welcome investment in carbon capture, usage and storage clusters, we recommend that the Government set out a clear strategy for CCUS, with timelines and impacts, and support the development of the technologies needed where absolute zero carbon cannot be achieved.* (Paragraph 148)

21. *The Government must publish a hydrogen strategy as soon as possible, setting out clear mechanisms to support the development of green hydrogen systems in the UK.* (Paragraph 149)

22. The switch to electric vehicles—a key component of the Government's plan for achieving net zero—will require the introduction of cutting-edge manufacturing processes to the UK's automotive sector for the manufacture of electric vehicles and their batteries. It is estimated that up to eight 'gigafactories' will need to be built. Government support will be necessary to scale up the electric vehicle supply chain—in particular the manufacture of electric vehicle batteries—to enable the sector to make the rapid switch from the production of internal combustion engines to the manufacture of ultra-low and zero emission vehicles. (Paragraph 150)

23. The Government must ensure that its 'build, build, build' agenda has, at its heart, a commitment to delivering truly sustainable development by promoting the construction of low-carbon homes fit for a changing climate. *We recommend that the Government introduce embodied carbon targets for the construction of new homes, so as to increase demand for low carbon materials, thereby stimulating growth in low-emission manufacturing of traditional, local materials and promoting the use of new low carbon materials.* (Paragraph 172)

24. The manufacture of construction materials is a sector with the potential to make a significant contribution to the path to net zero. We plan to examine this sector in greater detail in a forthcoming inquiry into the sustainability of the built environment. We will be making further recommendations on the Government's plans for energy efficiency of existing homes in our forthcoming report on the subject. (Paragraph 173)

25. We welcome the intention behind the Government's Green Homes Grant It is disappointing that the administration of the scheme appears to be putting green jobs at risk, rather than creating them. Delivery has been poor for consumers and has led to perverse consequences for installers, and the scheme remains too short-term to have any prospect of achieving its initial targets. *We recommend that the Green Homes Grant scheme be urgently overhauled and extended to provide greater long-term stimulus to the domestic energy efficiency sector. The Government must be mindful not to repeat the mistakes of the failed Green Deal energy efficiency incentive scheme.* (Paragraph 174)

26. The Government has promised £2.9 billion for support for public sector decarbonisation projects over the five years to 2025. *We consider that there is an urgent need for the front-loading of programme expenditure, and we recommend that as part of the programme the Government should support the capital cost of upgrading the energy efficiency of schools and hospitals. Providing energy efficiency upgrades*

to the UK's social housing stock should also be prioritised. This should be assessed periodically by the National Audit Office as part of its regular work programme. (Paragraph 175)

27. Investment in nature recovery projects could deliver a range of economic, environmental and social benefits. As well as protecting UK wildlife, well designed schemes could create thousands of job opportunities, while improving flood resilience and locking more carbon in trees and soils. (Paragraph 186)

28. The lockdowns which have been imposed to counter the spread of covid-19 have given the public compelling reasons to appreciate the value of neighbourhood green spaces in towns and cities. Projects designed to enhance urban biodiversity and to increase access to green space can offer immense benefits to urban dwellers. (Paragraph 187)

29. *We recommend that the Government, in developing further its strategy for economic recovery, give greater priority to strategic projects aimed at encouraging nature recovery. The Government should work with conservation charities to pilot the idea of a National Nature Service this summer to open up conservation opportunities.* (Paragraph 188)

Fiscal and financial incentives for a green recovery

30. We welcome the Government's announcement of a Sovereign Green Bond and consider that it has significant potential to incentivise a green recovery. *We recommend that the Government undertake a full evaluation of the potential economic and social benefits of its bond issuance, especially with respect to the creation of green jobs.* (Paragraph 196)

31. *We further recommend that, in his forthcoming Budget Report, The Chancellor set out in detail a plan to ensure that revenue from the Sovereign Green Bond is invested only in projects which deliver demonstrable, significant and measurable environmental benefit.* (Paragraph 197)

32. We welcome the creation of a National Infrastructure Bank: we trust that the Government has learned from the experience of selling off the previous Green Investment Bank. We recommend that the Government give an unequivocal guarantee, supported in statute if necessary, that the Bank will be maintained as a public institution for the long term. We further recommend that, in addition to a mandate to contribute to the delivery of net zero, the Bank be given a mandate to encourage the financing of projects which promote nature recovery. *We recommend that the Government give an unequivocal guarantee, supported in statute if necessary, that the Bank will be maintained as a public institution for the long term. We further recommend that, in addition to a mandate to contribute to the delivery of net zero, the Bank be given a mandate to encourage the financing of projects which promote nature recovery.* (Paragraph 201)

33. The UK will host COP26 in November 2020. All eyes will be on the UK as an environmental world leader. The Chancellor's Spring Budget must back this ambition, and ensure that the UK's spending plans align with its net zero and biodiversity commitments. (Paragraph 224)

34. As the UK recovers from the immediate crisis, a shift towards green taxation could help direct investment into job-rich low carbon activity, shift behaviour and increase resource and energy efficiency. (Paragraph 225)

35. The Government now has the latitude to propose the variation, or the abolition, of value added tax on certain categories of goods. We recommend that the Chancellor of the Exchequer bring forward proposals to reduce the rate of VAT on repair services and products containing reused or recycled materials to increase the circularity and resilience of the UK economy. *We recommend that the Chancellor of the Exchequer bring forward proposals to reduce the rate of VAT on repair services and products containing reused or recycled materials to increase the circularity and resilience of the UK economy. The Government should also reduce VAT on green home upgrades to incentivise more people to install low-carbon technologies and improve the energy efficiency of existing homes.* (Paragraph 226)

36. *To support the accelerated uptake of ultra-low emission cars in the UK, further tax incentives should be introduced to make these vehicles more affordable. Where current environmental taxes, such as Air Passenger Duty, are blunt in their effect, the Chancellor should consider fine-tuning them to reward and incentivise investment in cleaner, more efficient, low-emission technology.* (Paragraph 227)

37. One of the most economically efficient ways to incentivise low-carbon choices would be through the introduction of an economy-wide carbon tax. *The Government should begin scoping work on a carbon tax to incentivise low-carbon changes across the whole economy.* (Paragraph 228)

38. *We recommend that the Government investigate the merits of carbon border adjustments, to accompany work on a carbon tax, as one way of addressing carbon leakage. We recognise this would also require measures to ensure that such policies do not adversely impact developing countries.* (Paragraph 229)

Appendix: Correspondence with the Bank of England

Letter from the Chair of the Committee to Andrew Bailey, Governor of the Bank of England

Environmental Audit Committee recommendations for the Bank of England on post-COVID recovery

I am writing to you concerning the Committee's current inquiry into the post-COVID recovery to make two recommendations to the Bank. Firstly, I would like to congratulate the Bank on its laudable work highlighting the financial risks from climate change in recent years. The Bank of England has led the world in this regard, not least by becoming the first central bank in the world to publish its own climate-related financial disclosure. The Bank is to be commended for its leadership on this.

The cross-party Environmental Audit Committee is now calling on the Bank to show continued leadership in this area by ensuring that its future actions to promote economic recovery reduce the UK's exposure to climate risk. The Bank's rapid response to the pandemic has been admirable and has no doubt saved many firms from folding as a result of cash flow problems. However, the Bank is at risk of creating a moral hazard by purchasing high-carbon bonds and providing finance to companies in high-carbon sectors without placing any conditions on them to make a transition to net zero.

We believe the Bank's remit is already explicit in giving it recourse to consider the financial stability risks of climate change. The Bank must begin a process of aligning its corporate bond purchasing programme with Paris Agreement goals as a matter of urgency. It must do this before COP26 to avoid undermining UK diplomatic leadership on climate change and to demonstrate the seriousness of the UK's commitment to fulfil its Nationally Determined Contribution.

In future, the Bank should require large companies receiving millions of pounds of taxpayer support via the Covid Corporate Financing Facility (CCFF) to publish climate-related financial disclosures in line with the Government's Green Finance Strategy. The Bank should also write to all the companies that have already received CCFF loans to remind them that the Government's Green Finance Strategy expects to see all listed companies and large asset owners publish disclosures by 2022.

We thank the Bank for its engagement with our inquiry and the insightful evidence provided by Sarah Breeden. We look forward to receiving the Bank's response to these recommendations. I am copying this letter to the Chancellor of the Exchequer, Rt Hon Rishi Sunak MP.

22 January 2021

Letter from Andrew Bailey, Governor of the Bank of England, to the Chair of the Committee

Thank you for your letter of 22 January 2021 and the Committee's recognition of the Bank of England's leadership on addressing the financial risks from climate change.

Climate change is a strategic priority for the Bank because, as your Committee has clearly set out, left unchecked it has the potential to cause significant damage to the UK economy and the financial system. To play our part in meeting this challenge we have put in place an ambitious domestic and international work programme, which includes: assessing banks and insurers against our supervisory expectations;[1] launching a comprehensive climate scenario exercise (climate stress test);[2] progressing an industry working group on investment in productive finance;[3] and playing a leading role in key international fora such as the Network for Greening the Financial System (NGFS) and the Sustainable Insurance Forum (SIF).

As your letter notes, last year the Bank also became the first central bank to publish a climate disclosure report that covered all of its operations and key policy portfolios, including those held for monetary policy purposes.[4] The vast majority of our monetary policy assets consist of UK government debt, which score relatively well on climate metrics compared to others in the G7. Around 2% of our monetary policy assets have been acquired via the Corporate Bond Purchase Scheme (CBPS). Consistent with the Monetary Policy Committee's (MPC) current remit, the composition of the CBPS portfolio, and therefore its carbon footprint, is broadly representative of the underlying sterling corporate bond market. Consequently, the gap your letter highlights between the carbon footprint of the CBPS and Paris Agreement goals is a reflection of the current carbon intensity of the UK corporate sector as a whole.

I have for some time been eager to adjust our approach to the CBPS to be more supportive of climate transition as you propose in your letter. In order for such changes to be made, I believe it is important that the MPC's remit should first clarify that the Committee should have regard for the Government's climate objectives in the conduct of UK monetary policy. As I told the Treasury Select Committee (TSC) on 23 November 2020, discussions with HM Treasury on this matter are taking place. And work has already begun in advance of any potential change in remit to explore how we can go about adjusting the CBPS.

Given that the CBPS accounts for around 5% of the sterling corporate bond market, and the MPC currently has no active corporate bond purchases under way, much of the impact of any change in our approach would come through our influencing the approach of investors generally, rather than the sheer financial impact of our purchases. That makes it particularly important that we design our interventions in ways that create genuine incentives for companies to take meaningful actions to support the whole economy transition to net-zero emissions.

Your letter also proposes linking lending via the Covid Corporate Financing Facility (CCFF) to climate disclosures. I am not persuaded that this would be a particularly

1 *In July 2020, Deputy Governor Sam Woods sent a* letter to the CEOs of UK banks and insurers setting out that our supervisory expectations on climate change must be fully embedded by the end of 2021.
2 *The Bank will launch its first climate change Biennial Exploratory Scenario (BES) exercise in June 2020.*
3 *HM Treasury, the Bank, and the FCA have* launched an industry working group on Productive Finance.
4 *The Bank* published a climate disclosure report in line with the TCFD framework on 18 June 2020.

effective tool for increasing climate disclosure, since the CCFF is a short-term liquidity facility that closed to new applications at the end of last year and will shortly cease making any new loans altogether. A far more effective way to ensure climate disclosures are widely adopted is to make them mandatory, and that is why we have worked with other authorities through the UK Joint Government-Regulator taskforce on climate disclosures to publish a roadmap for mandatory disclosure requirements.[5]

This year will give us a unique opportunity to demonstrate the progress we have made and our ambition for the future with the UK's presidency of the G7 and hosting the UN COP26 conference. I look forward to continuing to work with the Committee on this challenge, and to reading your forthcoming report.

8 February 2021

5 *In November 2020, the UK Government-Regulator Task Force on disclosure* published a report and roadmap.

Formal minutes

Wednesday 10 February 2021

Members present:

Philip Dunne, in the Chair

Duncan Baker	Jerome Mayhew
Barry Gardiner	John McNally
Mr Robert Goodwill	Dr Matthew Offord
Ian Levy	Alex Sobel
Caroline Lucas	Claudia Webbe
Cherilyn Mackrory	

The Committee deliberated.

Draft Report (*Growing back better: putting nature and net zero at the heart of the economic recovery*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 229 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Third Report of the Committee to the House.

Ordered, That correspondence with the Governor of the Bank of England be appended to the Report.
Ordered, That the Chair make the Report to the House.

Ordered, that embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Wednesday 24 February at 2.00 pm.

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the inquiry publications page of the Committee's website.

Thursday 21 May 2020

Professor Kate Jones, Chair of Ecology and Biodiversity, University College London; **Professor Frank Kelly**, Head, Department of Analytical, Environmental and Forensic Sciences, King's College London; **Professor Tim Lang**, Professor of Food Policy, City University London's Centre for Food Policy — Q1–19

Christiana Figueres, Former Executive Secretary, United Nations Framework Convention on Climate Change; **Professor Cameron Hepburn**, Director and Professor of Environmental Economics, Institute for New Economic Thinking at the Oxford Martin School; **Steve Waygood**, Chief Responsible Investment Officer, Aviva — Q20–38

Thursday 23 July 2020

Caterina Brandmayr, Senior Policy Analyst, Green Alliance; **Richard Benwell**, CEO, Wildlife and Countryside Link; **Dimitri Zenghelis**, Senior Visiting Fellow, Grantham Research Institute on Climate Change and the Environment — Q1–24

Tom Thackray, Infrastructure and energy policy lead, CBI; **Sue Ferns**, General Council lead on energy and climate change, TUC; **Melanie Leech**, Chief Executive, British Property Federation — Q25–61

Thursday 24 September 2020

Maria-Krystyna Duval, Head of Climate, ClientEarth; **Fran Boait**, Executive Director, Positive Money — Q62–73

Sarah Breeden, Executive Director for UK Deposit Takers Supervision, Bank of England — Q74–91

Chris Hagg, Head of External Affairs, Celsa Steel UK; **David Morgan**, Director of Flight Operations, Easyjet; **Richard Ward**, Vice President Marketing, Strategy & Solutions, Baker Hughes — Q92–143

Thursday 3 December 2020

Andrew Forth, Head of Policy and Public Affairs, Royal Institute of British Architects; **Dr Steve Melia**, Senior Lecturer in Transport and Planning, University of the West of England; **Professor Jim Hall**, Trustee Board member, Institution of Civil Engineers; **Martha McPherson**, Head of Green Economy and Sustainable Growth, Institute for Innovation and Public Purpose (IIPP), University College London (UCL) — Q144–176

Stephen Fitzpatrick, Chief Executive Officer, OVO Energy, founder, The Zero Carbon Campaign; **Konstanze Scharring**, Director of Policy and Government Affairs, Society of Motor Manufacturers and Traders (SMMT); **Sarah Gordon**, CEO, Impact Investing Institute — Q177–201

Published written evidence

The following written evidence was received and can be viewed on the inquiry publications page of the Committee's website.

COV numbers are generated by the evidence processing system and so may not be complete.

1 AMP Clean Energy (COV0073)

2 ADS Group (COV0058)

3 Aldersgate Group (COV0066)

4 Alderson, Lawrence (COV0002)

5 Anderson, Mrs Elizabeth (COV0015)

6 Anglian Water (COV0012)

7 Appleby, Mr Brian (COV0037)

8 Ario Advisory (COV0053)

9 Baker Hughes (COV0102)

10 Borg, Professor Emma (Principal Investigator, "A Social Licence for Business"; Director, Reading Centre for Cognition Research, University of Reading) (COV0103)

11 Born Free Foundation (COV0028)

12 British Trust For Ornithology (BTO) (COV0076)

13 Bull, Mrs Nicola (COV0082)

14 CLS Energy (Consultancy) Ltd (COV0011)

15 CPRE – The Countryside Charity (COV0104)

16 Cadent Gas (COV0049)

17 Caird, Mr Laurence (COV0052)

18 Cambridge Econometrics (COV0029)

19 Carnegie UK Trust (COV0038)

20 Charlton, Mark (Associate Director of Public Engagement, De Montfort University) (COV0023)

21 Chartered Institute of Building (COV0063)

22 Chemical Industries Association (COV0097)

23 Childs, Mike (COV0098)

24 Christian Aid (COV0016)

25 Church of England (COV0050)

26 City of London Corporation (COV0067)

27 Clear Public Space (COV0107)

28 ClientEarth (COV0041)

29 Climate Venture Collective (COV0024)

30 Dawnay, Dr Emma (Core Group Member, Green House Think Tank) (COV0059)

31 Dening, Geraldine (Senior Lecturer, De Montfort University) (COV0023)

32 Ecos Maclean Ltd (COV0064)

33 Energy Institute (COV0007)

34 Energy UK (COV0043)

35 Extinction Rebellion Marches (COV0030)

36 Flatman, Dr Ruth (COV0086)

37 Frugalpac (COV0061)

38 Global Witness (COV0095)

39 Grantham Research Institute, London School of Economics; Impact Investing Institute; and Green Finance Institute (COV0111)

40 Green Alliance (COV0013)

41 Green Christian (COV0081)

42 Greener Journeys (COV0087)

43 Greenpeace UK (COV0019)

44 Hartill, Rosemary (COV0015)

45 Harvey, Dr Guy (Consultant Psychiatrist, NHS, UK) (COV0017)

46 Holt, Mr Adrian (Consultant, Capita Consulting – Capita PLC) (COV0090)

47 Howcroft, Hilary (COV0092)

48 Howson, Dr Peter (Senior Lecturer, Northumbria University) (COV0003)

49 Hubbub Foundation UK (COV0039)

50 Hydrogen Strategy Now campaign (COV0047)

51 Institute of Historic Building Conservation (COV0100)

52 Institution of Civil Engineers (COV0046)

53 Institution of Engineering and Technology (IET) (COV0077)

54 Institution of Environmental Sciences (COV0014)

55 Kindbom, Hannes (COV0008)

56 Local Government Association (COV0022)

57 Ludlow 21 (COV0031)

58 Ludlow Constituents Climate Action Group (COV0056)

59 McDermott, Rosalind (COV0008)

60 McKie, Dr Ruth E (Senior Lecturer In Criminology, De Montfort University) (COV0023)

61 Melia, Dr Steve (Senior Lecturer in Transport and Planning, University of the West of England) (COV0005)

62 Microbiology Society (COV0055)

63 Milne, Robert (COV0094)

64 Mitchell, Dr Andrew (Lecturer, De Montfort University) (COV0023)

65 Muswell Hill & Hornsey Friends of the Earth (COV0069)

66 Naked Energy Limited (COV0089)

67 National Association for Areas of Outstanding Natural Beauty (COV0106)

68 National Farmers Union (COV0045)

69 National Trust (COV0079)

70 National Union of Rail, Maritime and Transport Workers (RMT) (COV0109)

71 No 3rd Runway Coalition (COV0070)

72 Northern Housing Consortium (COV0025)

73 Nuclear Industry Association (COV0062)

74 Oil Change International (COV0083)

75 Pallis, Dr Monica (COV0001)

76 PlanB.Earth (COV0006)

77 Plantlife (COV0034)

78 Positive Money (COV0051)

79 Priestley, Richard (COV0020)

80 Quakers in Britain (COV0060)

81 RSPB (COV0105)

82 RWE (COV0021)

83 Red Rock Power Ltd (COV0071)

84 Roger, Mr Jonathan (COV0054)

85 Royal Institute of British Architects (COV0036)

86 Ryse Hydrogen (COV0085)

87 SSE plc (COV0078)

88 SUEZ recycling and recovery UK Ltd (COV0072)

89 Saunders, Camilla (COV0026)

90 Scharf, Daniel (COV0009)

91 ShareAction (COV0088)

92 Society of Motor Manufacturers and Traders (SMMT) (COV0033)

93 Solar Trade Association (COV0075)

94 Stanley, Dave (COV0108)

95 Surrey Nature Partnership; Kent Nature Partnership; Sussex Nature Partnership; and Hampshire & Isle of Wight Nature Partnership (COV0110)

96 Sustain: the alliance for better food and farming (COV0057)

97 Sustainable Traditional Buildings Alliance (COV0084)

98 Tearfund (COV0068)

99 The Restart Project (COV0091)

100 The Zero Carbon Campaign (COV0032)

101 UCL Institute for Innovation & Public Purpose (UCL IIPP) (COV0048)

102 Veolia UK (COV0018)

103 West of England Nature Partnership; Cornwall & Isles of Scilly LNP; Dorset LNP; Gloucestershire LNP; Natural Devon LNP; Somerset LNP; and Plymouth LNP (COV0042)

104 Wildlife and Countryside Link (COV0035)

105 Woodland Trust (COV0096)

106 World Wildlife Fund (COV0099)

107 Zero Carbon Harrogate (COV0080)

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the publications page of the Committee's website.

Session 2019–21

Number	Title	Reference
1st	Electronic Waste and the Circular Economy	HC 220
2nd	Pre-appointment hearing for the Chair-Designate of the Office for Environmental Protection (OEP)	HC 1042
1st Special Report	Invasive species: Government Response to the Committee's First Report of Session 2019	HC 332
2nd Special Report	Our Planet, Our Health: Government Response to the Committee's Twenty-First Report of Session 2017–19	HC 467