

GOVERNMENT INVESTMENT FOR A GREENER AND FAIRER ECONOMY

CAFOD
Catholic Agency for
Overseas Development

 **Friends of
the Earth**

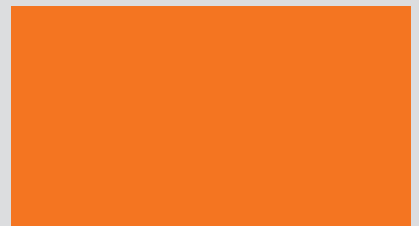
 **green
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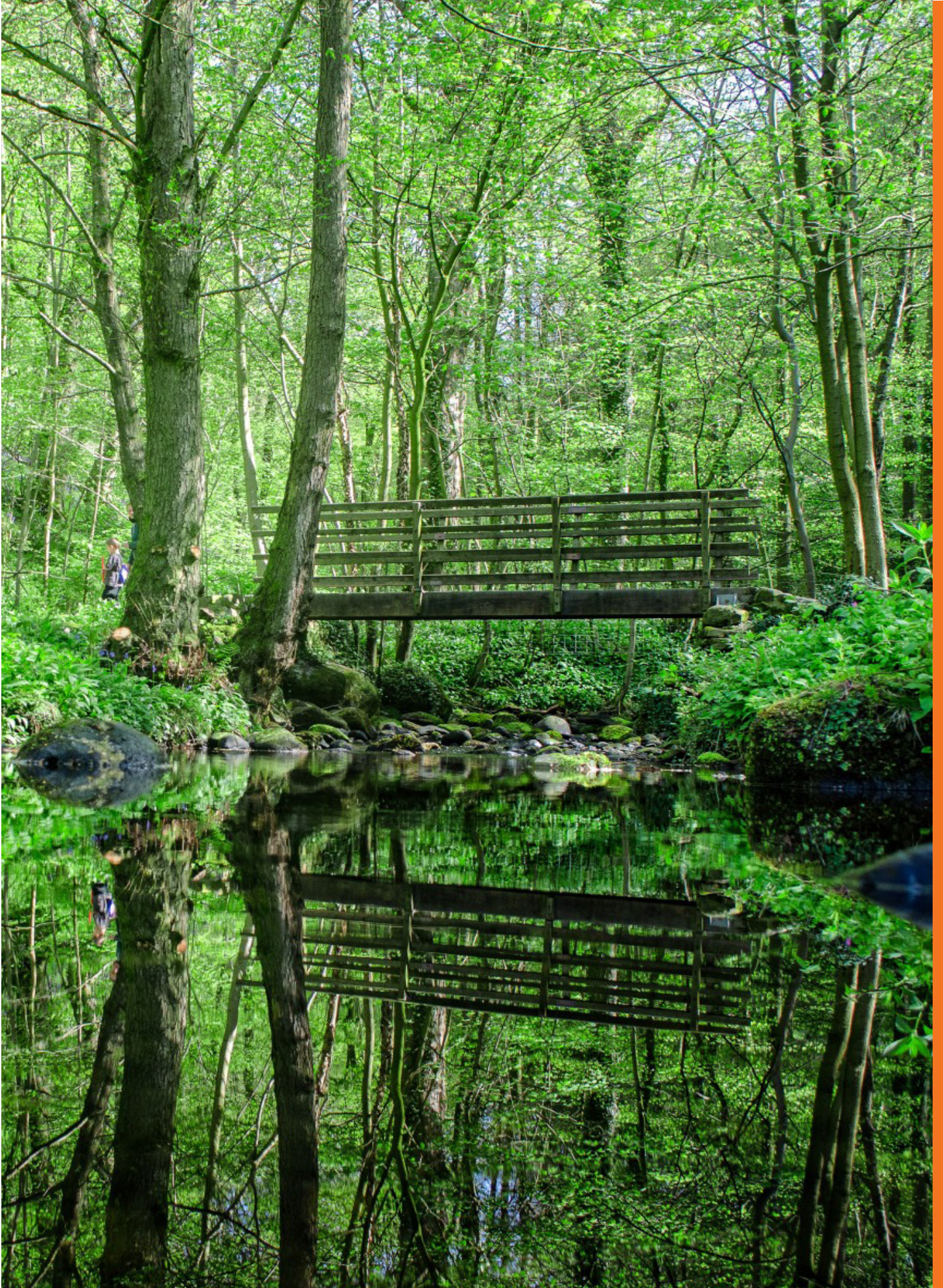
GREENPEACE



theWI
INSPIRING WOMEN

 **giving
nature
a home**





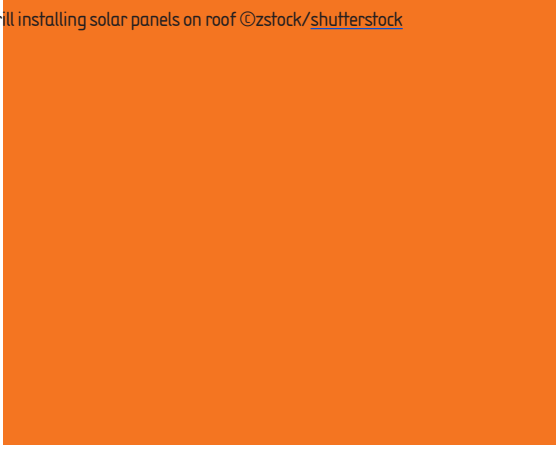
River in Forest © George Hodan Public Domain

CONTENTS

1. SUMMARY	3
2. USING THE TAX SYSTEM TO SUPPORT THE TRANSITION AND CREATE INCENTIVES FOR BEHAVIOUR CHANGE	7
3. GOVERNMENT SPENDING REQUIRED IN DIFFERENT SECTORS	
A. TRANSPORT	8
B. NATURE	9
C. BUILDINGS	11
D. POWER	11
E. INDUSTRY	12
F. INTERNATIONAL SUPPORT FOR TACKLING CLIMATE CHANGE AND PROTECTING NATURE	12
G. JUST TRANSITION	13
ENDNOTES	14



Solar panel technician with drill installing solar panels on roof ©zstock/shutterstock



1. SUMMARY

CAFOD, Friends of the Earth, Green Alliance, Greenpeace, Islamic Relief, the National Federation of Women's Institutes, the RSPB and WWF are calling on the government to allocate at least £42 billion of public expenditure per year to help address the climate and nature emergency at home and abroad, and seize the huge economic, social and public health benefits this will bring. This equates to around 5% of government spending, or around 2% of GDP¹. The government currently spends around £17 billion on climate and nature, which needs to be increased by a further £25 billion of additional spending.

Public spending on this scale will secure warm homes for all UK citizens, build a modernised energy system, mitigate nature's retreat and enhance the natural environment, provide cleaner and better transport and make the UK more resilient to climate impacts.

The UK government has resolved to be a world leader in addressing the climate and nature emergency and seizing the opportunities it brings through a legally-binding net zero greenhouse gas emissions target by 2050 and a commitment to leave the environment in a better state for the next generation. While the end date for net zero should be brought forward significantly, the litmus test of the new Government's credibility in tackling this problem will be the policies and financial commitments it makes over the next 18 months to transform every sector of the economy and restore our natural landscape through a just transition.

A combination of policy, regulatory and financial tools are required to shift behaviour, redirect the economy, embed a just transition across the UK and take responsibility for supporting the transformation globally:

- Existing spending and infrastructure commitments should be reviewed to ensure compatibility with climate and nature restoration

- Government investment on climate and nature must be significantly boosted, with a tailored strategy to transform each sector, while protecting and enhancing the wellbeing of all workers
- Significant policy support and funding should be provided to empower local authorities, businesses, citizens and communities to deliver the transformation
- A commitment to a just transition should be embedded across government policy and financial decisions at all levels. This should be supported by a new responsibility placed on the Treasury to ensure equitable social and economic impacts of the transition
- Significant additional funds from genuinely new and additional sources of public finance must be provided to contribute to international climate and nature action²
- The climate and nature emergency should become a defining mission for much of the existing publicly funded innovation and research budgets

Government investment on this scale must begin immediately to drive forward the transformation required. We expect this level of expenditure will help leverage significant additional private investment. However, there may well be additional policy measures that the government could introduce to help privately fund some of the £42bn, should this be a preferred route. For example, the government could establish an Environmental Impact Fund, as proposed in the 25 year plan, which could help to meet environmental targets cost-effectively³. Initially, this could be set up through an up-front commitment of government funding, which could then be used to leverage additional private sector investment, thereby minimising the requirement on the public purse.



Enviro Bus ©Alexander Dennis.com

Such investments provide a crucial opportunity to make the UK economy fit for the 21st century, and will help address the economic, social and health inequalities which currently blight the lives of communities across the UK. The UK's low carbon and renewable energy economy was already worth £44.5bn in 2017⁴. We now have a world-leading offshore wind industry that is attracting export contracts around the world and delivering thousands of local jobs, thanks to early government investment to date. If the last 8 years are any indication, early investment in clean technologies can lead to significant cost reductions and attract large sums of private capital. The shift from public to private spending in the power sector, as highlighted in the table below, exemplifies this.

If this additional spending seems a lot, we should remember that we are facing an emergency with no modern parallel. It needs to be treated as a long term investment in the future like education; the UK spends over £41 billion on secondary education alone⁵.

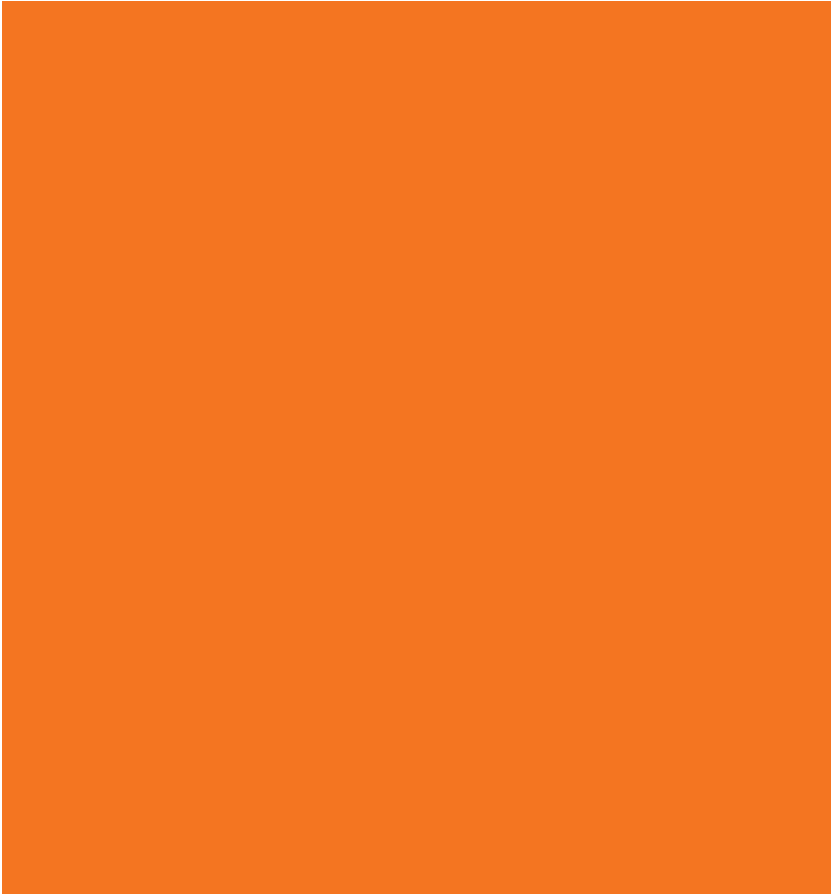
We know the costs of not investing this amount now will be much larger over the long term. As Lord Stern's 2006 review estimated, the economic costs of not tackling climate change would be 5% of GDP in 2050, or 11-14% of GDP when wider impacts like health are included. Progress has not been significant enough to negate that analysis - in fact Stern believes that the financial implications

of not spending more in the short term are likely to be greater than he estimated before⁶. The wider benefits of this investment will also be significant. From cleaner air to warmer homes, lower health costs, reduced risks of flooding, a flourishing countryside, and thousands of jobs in the industries of the future. The rate of return on investments in climate and nature are higher than many other major government expenditure projects.

This document is intended to provide an initial indicator of the minimum scale of need. The figures estimated below are not comprehensive. They are based on the best available information on what is required, drawing upon costings that exist for such interventions. Costings for many vital actions do not currently exist - for example additional spending for international climate and nature protection. More detailed and thorough analysis by government is required to build on this and develop a full picture⁷. £42 billion per year should be considered an absolute minimum expenditure.

The sums are also calculated on the basis of the spending required over the next 3 years. Beyond this period, government investment will need to be scaled up even further, as local resources and institutions for delivery are extended and better equipped for the transformation required. It is critical government plans beyond 3-yearly cycles to deliver the most impactful and cost-effective solutions.

Sector	Existing annual spending to maintain	New annual spending needed	Total government spending needed per year for the next 3 years
Transport	£2.79bn	£11.55bn	£14.33bn
Nature	£3.57bn	£5.62bn	£9.19bn
Buildings	£1.8bn	£3.6bn	£5.4bn
Power	£8.5bn	£0	£8.5bn
Industry	£0.09bn	£0.207bn	£0.3bn
Just Transition	£0	£4.32bn	£4.32bn
Total	£16.75bn	£25.3bn	£42.05bn



Bikes and bus wait at junction, London ©Greenpeace



2. USING THE TAX SYSTEM TO SUPPORT THE TRANSITION AND CREATE INCENTIVES FOR BEHAVIOUR CHANGE

Alongside increasing investment to restructure the economy, the tax system should be used to provide a balance of incentives in order to effectively tackle the climate and nature emergency. Certain fiscal measures can be used to disincentivise damaging environmental behaviour and raise revenue to fund the transformation, while fiscal rewards can be provided to encourage good practice and ensure that fairness is embedded in the transition. Several possible tax options are outlined below, as an illustration. Environmental taxes are not silver bullets and need to be used carefully, as part of a package of measures that help to aid the sustainable transformation and support a just transition, particularly for workers and communities connected to existing polluting industries.

Furthermore, a root and branch review of existing government spending is required to ensure the compatibility of new infrastructure projects with net zero emissions and the requirement to restore and enhance nature. This means that some projects, such as HS2 (£56 billion), the new road-building programme (£25 billion), and developments to support the construction of new airport runways, like at Heathrow, should be reviewed through the lens of what impact they have on the climate and nature. This should be done in the expectation that substantial savings could be made, which could be dedicated to supporting the sustainable investments outlined below.

Some examples of possible fiscal incentives that could be introduced are as follows:

- Phase out all subsidies for oil and gas production, including transferable tax credits and other tax breaks introduced over the last ten years as part of the

government's late-life policy for supporting the fossil fuel industry

- Unfreeze and gradually increase fuel tax over the next decade, with short-term exemptions for those in rural areas where public transport provisions are non-existent or less available, backed up by clear regulatory standards and Vehicle Excise Duty incentives to push fossil fuel cars to become more efficient. The freezing of this tax has cost the Treasury £46bn since 2011⁸
- Establish a Frequent Flier Levy - one tax free return flight a year per person, after which tax would be increased progressively for each additional flight so that the burden of taxation falls on those who fly most frequently⁹. Revenue generated from this levy could contribute to the investments required in other zero carbon transport options
- Introduce an incineration tax, as considered at the November 2018 Budget¹⁰. This should be raised gradually over time, as other waste minimisation policies are introduced (e.g. reduction and reuse targets) and waste infrastructure is developed (e.g. recycling facilities)¹¹
- Explore making the polluter pay through carbon taxes, ensuring those taxed have capacity for behaviour and/or investment change, and that it is implemented in such a way that is not regressive - either through tax design or because the dividends are directed to reducing social inequality and empowering communities to shape the green transition in a way that will benefit their local area¹²

3. GOVERNMENT SPENDING REQUIRED IN DIFFERENT SECTORS

A. TRANSPORT

Transport is now the UK's largest source of greenhouse gases and levels of emissions from surface transport and aviation have increased since 1990, rather than declined. Transport is also a major source of exposure to health-threatening air pollution, which causes up to 36,000 premature deaths every year¹³.

Electric cars are part of the mobility solution and the UK rightly aims to be one of the leading manufacturers. But electric cars still contribute to congestion and dangerous particulate pollution through braking and tyre wear. Even a rapid transition to electric cars will not reduce greenhouse gas emissions fast or far enough. Much more investment in public transport, cycling and walking, micro-mobility and reducing the need to travel is needed as part of a shift from car use to more sustainable and healthy options.

The spending requirements outlined here are what we have identified broadly as 'climate relevant' investments that should come from the overall government transport budget. These investments are relatively small compared to total transport spend, which is £31.2bn¹⁴. Some of this should be re-directed (e.g. from the new road-building programme) and, where necessary, new funds provided to address the pressing climate needs below.

The public investment needed in transport over the next few years includes:

- £1.5 billion per year should be allocated for a UK-wide scrappage scheme to support some of those with the most polluting vehicles to transition to more sustainable transport options¹⁵. In addition, £215 million per year is needed for action at targeted pollution hotspots near schools, as estimated by UNICEF¹⁶. This is in addition to the £0.5bn per year the government is spending on Clean Air Zones, Clean Air Fund, and through Highways England, which needs to become an annual expenditure¹⁷
- £50m as an additional annual investment towards the charging infrastructure for electric vehicles to achieve

coverage across the UK, including rural areas¹⁸. The government is also supporting UK-wide charging infrastructure through a £200 million contribution to a £400 million public-private charging infrastructure project to be spent over three years, plus funding Highways England to install chargers

- £2bn a year on a nationwide strategy to improve walking and cycling. This raises the spending to £25-35 per capita per year, equivalent to investment levels in countries like the Netherlands, where active travel levels are higher¹⁹. The current annual spending on active walking and cycling is £220 million²⁰
- £1.3 billion per year additional expenditure on buses, on top of £2bn per year existing expenditure. This is to restore the bus routes that have been cut significantly since 2014 and add new routes where local authorities deem necessary²¹
- £186 million per year to switch buses and coaches across the UK to electric²²
- £5.52 billion additional funding per year to enhance the UK's railways - specifically works to improve the core north-south UK mainlines, extend electrification, reopen lines and create new lines²³
- £1 billion per year on trams. In 1927 there were 14,000 trams in operation across the UK yet today very few UK cities benefit from trams²⁴

In total this equals an investment of approximately £14.33bn per year on sustainable transport. £2.79bn of this is existing government spending, and £11.55bn is the additional amount required.

This figure does not include funds to trial free bus travel for the under 30s. Making all bus travel free has been estimated at £3 billion per year²⁵.

SOCIAL AND ECONOMIC BENEFITS FROM ACTION ON TRANSPORT

- Physical inactivity costs the UK £7.4 billion per year and is responsible for 1 in 6 deaths²⁶

- According to Public Health England, the health and social care costs of air pollution in England could reach £5.3 billion by 2035, unless action is taken²⁷
- The most deprived communities are exposed to some of the worst levels of indoor and outdoor air pollution, contributing to an approximately 10 year gap in life expectancy between the highest and lowest socioeconomic group²⁸
- The National Infrastructure Commission have called for more spending on urban public transport and active transport to address congestion, which is said to cost the UK economy £8 billion per year²⁹
- £0.8bn additional spending per year to enhance existing habitats and create new ones (including reforestation) across the UK. In England, this should be in line with the more ambitious targets set out in the government's 25 Year Environment Plan³². After the spending review period, ambition and related funding for habitat enhancement will need to be increased beyond that set out in the 25 year plan – particularly to support activities such as reforestation
- According to the ONS, the UK government spends £14.7 billion a year on environmental protection, of which £11.5 billion is for solid waste management. This leaves an estimate of £3.2 billion for all other environmental protection measures³³. The existing Defra budget of £2.1 billion per year (including agency funding) falls within this total³⁴. The remaining £1.1 billion is for other environmental protection measures overseen by other government departments. The full £3.2 billion should be maintained. The UK currently receives £428 million/ year environmental funding from the EU³⁵. We assume this is currently accounted for in the ONS annual £3.2 billion environmental protection spend. The £428 million should therefore be treated as new expenditure, alongside retaining the other existing £2.77bn to make up the total. The Defra budget should be increased by another £1 billion per year on top of this, to take the overall budget back to around 2010 levels. This is vital in the context of additional enforcement and regulatory costs related to Brexit, as well as providing funds for other uncosted areas, such as dealing with invasive species and biosecurity. In England, a significant sum from this extra investment should go to Natural England, which is currently so stretched that it is struggling to fulfil its statutory duties and responsibilities.

B. NATURE

Nature has intrinsic value. It also provides a wide variety of essential life-support services to humans from food production to fresh water, clean air, resilience against natural disasters, and livelihoods for local communities. Natural landscapes are also significant stores and potential sinks for carbon – and so vital in the fight against climate change. Furthermore, nature provides joy and wonder, contributes to our wellbeing and benefits our mental health. For all of these reasons, we urgently need to halt the dramatic decline of natural landscapes and habitats, as well as take additional steps to enhance these places for future generations. Protection through regulation is important, but spending is also required. Public spending could also encourage the emergence of complementary private markets, such as the National Infrastructure Schemes for environmental goods and services from farmland, should this be a preferred route for delivery by government.

Natural environment policy in the UK is largely a devolved issue. As such, money should be allocated to the Governments across the UK based on the scale of need in each country.

The annual public investment in nature needed over the next few years includes the following:

- £2.6 billion per year for environmental land management and nature restoration, to ensure no net loss to UK habitats within predominantly UK agricultural based landscapes³⁰. Existing spending on biodiversity in the UK is around £445million per year (which falls into the existing Defra budget noted below)³¹
- Current spending on flood and coastal resilience is around £800 million per year³⁶. The National Infrastructure Commission estimate that, depending on the level of resilience needed under a 4C temperature rise, approximately £1 billion extra funding a year is required to support the Environment Agency with domestic adaptation³⁷
- £116 million a year to contribute to the implementation of all technically feasible measures to get water bodies to good status, in line with the Water Framework Directive³⁸
- £1 billion from the government's Waste Infrastructure Delivery Programme should be allocated to upstream activities including better product design, new business

models, and domestic reprocessing infrastructure during the Spending Review Period to target waste reduction and limit the requirements for new treatment infrastructure (£333 million per year)³⁹. This sum is already accounted for within the existing Defra budget noted above, but should be spent differently, according to these improved principles

- £70 million a year for the protection and management of the UK's entire network (350+) of Marine Protected Areas (MPAs), ensuring that all MPAs are properly protected, and including monitoring and enforcement costs⁴⁰
- £6.4 million per year for the maintenance of the Blue Belt (Marine Protected Areas (MPAs) in the UK Overseas Territories)⁴¹. This includes surveillance and enforcement, scientific monitoring, management costs for Ascension Island MPA and support for community-led marine conservation. As per the source of previous government funds to support the Blue Belt, these new funds should come from the Conflict Stability and Security Fund (CSSF), rather than the aid budget
- An average of £3 million a year for the establishment, monitoring and maintenance of seagrass, saltmarsh, mudflat and oyster bed restoration sites. A total of £9 million is required over the Spending Review period, and higher sums should be allocated in the first two years
- £45 million a year for sustainable fisheries management, post-Brexit. This sum maintains existing EU fisheries funding of approx. £40 million per year, plus additional funds to help improve monitoring and enforcement and reduce bycatch⁴²

In total this equals an investment of approximately £9.19bn per year. £3.57bn of this is existing government spending, and £5.62bn is the additional amount required.

SOCIAL AND ECONOMIC BENEFITS FROM ACTION TO RESTORE NATURE

We know that people feel better and have better mental well-being when experiencing nature, and feel better about the world knowing that there are areas of wilderness. Improved access to nature-rich places could help address the current shortfall in funding available to address rapidly increasing mental health problems, in particular for young people. There are further quantified monetary benefits that nature provides to human society including:

- In economic terms, the Natural Capital Committee's State of Natural Capital Report (January 2015) provided an economic analysis of the benefit cost ratios (BCRs) of a range of natural capital investments⁴³. For example, it highlighted a benefit cost ratio of at least 5:1 for a woodland planting programme; 4:1 for a catchment case study; salt marsh restoration in the region of 2 to 3:1 and inland wetlands restoration projects of up to 9:1
- The UK National Ecosystem Assessment (2014) estimated that in 2011 the bundle of services (water quality, flood control, recreation, tourism and amenity) provided by inland and coastal wetlands (many of which are Natura 2000 sites) was worth between £0.7 – 5.7 billion per year⁴⁴. Studies undertaken for the benefits of Sites of Special Scientific Interest report (2011) highlight that the public would be willing to pay £827m for the benefits currently provided by SSSIs in England (the designation which underpin nearly all terrestrial UK Natura 2000 sites) and that the benefits of increasing funding to enable all sites to reach favourable condition are estimated at £666 million in England⁴⁵. This study was used in a recent assessment of the overall benefits and costs of Defra regulations to estimate a 7:1 benefit from biodiversity regulations for SSSIs. In some cases there will be costs associated with not taking action, for example non-native invasive species are estimated to cost £1.7 billion per year in damage and management costs incurred
- There are 3.2 million hectares of woodland in the UK and the Office for National Statistics says they provide a carbon capture service worth £1 billion, based on the government's assumed value of carbon (this number of trees removed 16.5 million tonnes of carbon dioxide in 2015)⁴⁶
- DEFRA estimate that if everyone had access to green space the savings to the health system could be £2.1 billion per year⁴⁷
- As the frequency and intensity of extreme weather events is linked to climate change, restoring nature – the easiest and cheapest way of mitigating climate change⁴⁸ – can save thousands of lives and billions in damage caused by disasters (globally, \$32bn worth of damage was caused by only 2 of the many hurricanes in 2018)⁴⁹

C. BUILDINGS

Many of the UK's homes were constructed without insulation. This results in a waste of heat, discomfort and, for many, exorbitant energy bills. Investing in energy efficiency addresses these issues, as well as reduces greenhouse gas emissions. In addition, most homes are heated by gas whereas eco-heating, such as heat pumps, are more energy efficient and can be powered by renewable power. Spending in this area should be an immediate priority, particularly given the substantial benefits to public health and energy bills, relative to the cost of government investment required. History also shows that households are reticent to make such interventions to their homes independently, without incentives or other direct support from government.

The public investment in buildings over the next few years needs to include:

- A minimum £1bn of additional public capital every year on housing energy efficiency which should leverage a further £3.5bn of private investment⁵⁰. This is in addition to the £700 million currently invested. On top of this, an additional investment of £300 million per year should be used to innovate deep energy efficiency approaches such as Energiesprong and Passivhaus⁵¹
- £2.3bn of additional public capital per year for low carbon heating in addition to the £1.1 billion currently invested. This could leverage an additional £2.5bn of private contributions⁵²

In total this equals an investment of approximately £5.4 billion per year. £1.8bn of this is existing government spending, and £3.6bn is the additional amount required.

This figure does not include necessary investment in trialling a large-scale area heating and energy efficiency transformation programme. The figures are also a first step of much higher levels of spending required to transform heating in future years.

SOCIAL AND ECONOMIC BENEFITS FROM ACTION TO UPGRADE OUR HOMES AND OFFICES

- This action would deliver improved public health outcomes by avoiding ill-health from cold homes, through improved comfort. The cost to the NHS of health conditions made worse by poor housing is

estimated to be between £1.4 and £2.0 billion each year in England alone⁵³, with the costs of productivity loss (including lost education and employment opportunities) potentially as high as £18.6 billion⁵⁴. It would also improve outdoor air quality, with a present value of £4.1 billion⁵⁵

- Statutory targets to tackle fuel poverty in England and elsewhere in the UK would be met with this investment. This could enable considerable expenditure savings in the long run, as the cost of treating fuel poverty's worst effects amount to a significant share of Winter Fuel Payments, Cold Weather Payments and Warm Home Discount expenditure
- Government investment in energy efficiency reduces the costs of decarbonisation for all households and businesses – heat decarbonisation could cost £6.2 billion less per year to 2050⁵⁶ – and decreases the overall level of public subsidy needed
- It would create skilled employment opportunities, through the renovation and construction work needed, and the supply chains around them. This means a net increase in annual employment of around 100,000 full-time equivalents over the period 2020–2030, with most jobs created in the services and construction sectors⁵⁷

D. POWER

To date, the UK has had remarkable success in transforming the power sector and delivering dramatic cost reductions, thanks to the support provided to the renewables industry by successive governments, including through the £8 billion a year subsidy funded via a levy on electricity bills. This has resulted in wind and solar power now being cheaper than new gas-fired power stations. The UK is also now a global leader in offshore wind, securing export contracts across the world. This progress needs to be built on.

The public investment in power over the next few years includes:

- The £8 billion per year subsidy for existing renewable power plants, which has delivered huge reductions in the future costs of renewable power⁵⁸
- Continuing to support the development of renewable power using the Contracts for Difference scheme. The £0.5bn government has committed to spend on Contracts for Difference needs to maximise

the procurement of cheaper renewables, including onshore wind and solar as well as develop currently more expensive emerging technologies like floating offshore wind and tidal

In total this equals an investment of approximately £8.5 billion per year. All of this is existing spending.

This figure does not include necessary investment in developing energy storage approaches, nor the investment needed into the smart grid. While much of this investment might be by the regulated energy companies, including network operators, it is likely that government financial support is also needed, particularly for further research and development. The total also doesn't include anything to support decentralised energy, such as onshore wind or small scale solar for domestic households, communities, farmers and small businesses. These projects are vital both for involving the public in the climate transition and increasing their direct benefits from it, as well as a crucial component of the smart grid (local exchange of generation and supply with decentralised balancing arrangements). Again, most support for these projects might be achieved through regulatory approaches, but financial support may be needed and should be thoroughly explored by government.

SOCIAL AND ECONOMIC BENEFITS FROM ACTION TO CLEAN UP OUR ELECTRICITY SYSTEM

- In 2017, an estimated £79.6 billion turnover was generated directly and indirectly in the UK by businesses active in the low carbon and renewable energy (LCRE) economy. This compares to £73.6 billion turnover in 2016 and £71.8 billion turnover in 2015. These businesses accounted for a total of 396,200 full-time equivalent employees in 2017, compared with 390,600 in 2016 and 377,300 in 2015⁵⁹
- Analysis for the Committee on Climate Change suggests the UK's low carbon economy has the potential to grow at 11% per year between 2015 and 2030, which is five times faster than predicted for the rest of the economy⁶⁰

E. INDUSTRY

Currently, industry accounts for around 25% of all carbon emissions in the UK, with more than two-thirds of these coming from energy intensive industries which are often

located next to each other in clusters. These industries need support to decarbonise. Radical decarbonisation technologies (such as Carbon Capture and Storage (CCS) for low-carbon cement, or steel produced using hydrogen and renewable energy) need to be developed. The UK stands to be a global leader in these low carbon industrial technologies, with the right support now.

The public investment over the next few years needs to include:

- The government has allocated £170 million to set up a 'net zero' hub of heavy industry. Given the scale and urgency of the climate challenge, similar hubs need to be supported in other parts of the country. The government should allocate an additional £350 million for two other low carbon clusters to support a rapid decarbonisation of the industry. These sums should be spread over 6 years, giving an annual total of approximately £87 million per year
- The government has identified a £315 million Industrial Energy Transition Fund to be spent over 5 years. This is woefully inadequate and will only enable UK businesses to realise about one fifth of the total estimated additional profits from resource efficiency⁶¹. The Fund should therefore be spent over the 3 year spending review period, and added to by a further £320 million, to support a manufacturing upgrade programme. This equals an annual investment fund of £212 million

In total this equals an investment of approximately £0.3 billion per year. £0.091bn of this is existing government spending, and £0.207bn is the additional amount required.

This figure does not include the discounts on carbon pollution taxes in return for investment in energy efficiency. Nor does it include government support for developing carbon capture and storage.

F. INTERNATIONAL SUPPORT FOR TACKLING CLIMATE CHANGE AND PROTECTING NATURE

As one of the world's largest historic polluters, and with a track record of success in international climate and environmental diplomacy, the UK has both a responsibility and an opportunity to support developing countries pursue low-carbon and nature positive, resilient development

pathways. Climate change is exacerbating poverty and inequality, and reversing hard fought development gains in countries and vulnerable communities that have done the least to cause the problem.

The government's current five-year commitment to international climate finance comes to an end in financial year 2020-21, and is presently financed entirely from the aid budget. If support were to continue at the same level on an annual basis thereafter, over the next five-years this would represent 10% of the aid budget. This would make any increases to UK international climate finance impossible without diverting spending from other crucial development priorities such as education and health. This is despite the fact that the UK and other developed countries committed under the UNFCCC process to provide "new and additional" finance for climate action. It is vital therefore that genuinely "new and additional" sources of public finance are established urgently, both for international climate finance and for nature restoration.

The following actions must therefore urgently be taken:

- A new five-year commitment to international climate finance, in line with the UK's commitments under the UNFCCC to provide predictable and reliable climate finance
- A new strategic fund to ensure UK climate finance is spent on genuinely transformational climate action
- Increase ambition on UK international climate finance by urgently establishing the new and additional sources of public finance needed, and limit finance from official development assistance (ODA) to no more than 10% of the aid budget
- Retain the UK's current commitment to 50% of its climate finance for adaptation to climate change impacts in poor and vulnerable countries
- Phase out all UK Export Finance (UKEF) that is currently directed to fossil fuels, and ensure all UKEF projects are aligned with the Paris climate agreement⁶²
- Use the UK's international influence to lobby for a change in OECD-wide rules on export finance so that all projects must be Paris aligned
- Ensure all UK aid is nature-positive, supporting more integrated interventions that improve people's lives and enhance the natural environment⁶³

- Increase spending, in line with the UK's global fair share, to support global efforts to protect and restore nature⁶⁴. These funds must be genuinely new and additional sources of public finance and must under no circumstances come from existing ring-fenced finance for the aid budget
- Stop harmful investments that destroy nature and contribute to climate change, such as investing in fossil fuels, deforestation, conversion and exploitation of carbon- and nature-rich ecosystems
- Negotiate an ambitious deal for people and nature at the Convention on Biological Diversity's meeting in October 2020 that is integrated with the 2030 development agenda and the Paris Agreement

It is therefore clear that significant additional funds from genuinely new sources of public finance are required to contribute to international climate and nature action. These actions cannot be fully costed at present, and the most pressing priority is for the government to provide explicit reassurance that future international climate finance from ODA will be limited to no more than 10% of the aid budget.

G. JUST TRANSITION

A transition to a low carbon future that doesn't have fairness embedded in it is far less likely to succeed, and will have much less legitimacy. It is also undesirable in and of itself. Yet it is not a given that a rapid climate transition will lead to the creation of high volumes of decent, secure new work here in the UK. A proactive and well-funded strategy is required, led by the UK central Government, working in collaboration with empowered local authorities, businesses, unions and other relevant stakeholders, so that the green transformation is also one in which UK communities feel engaged and can flourish.

- Explicit financial support should be provided, for local and regional distribution, to aid skills development, retraining and local investment - particularly in areas where there are workers in carbon-intensive or exposed industries. The proposed Shared Prosperity Fund of £2.16 billion per year should be at least doubled for this purpose, as a starting point⁶⁵.

ENDNOTES

- 1 Total government managed expenditure is £789.5bn (based on 2017/18 figures) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/726886/PESA_2018_Chapter_5_tables.ods available at <https://www.gov.uk/government/publications/how-public-spending-was-calculated-in-your-tax-summary/how-public-spending-was-calculated-in-your-tax-summary> GDP was £2033bn in 2018, according to ONS <https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/abmi/pn2>
- 2 Urgent explicit reassurance from government is needed that future international climate finance from official development assistance (ODA) will be limited to no more than 10% of the aid budget, so as not to have a knock on impact <https://www.edie.net/news/11/25-year-Environment-Plan--Seven-key-talking-points-for-sustainability-professionals/>
- 3 <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalesimates/2017>
- 4 PESA table 5.2 <https://www.gov.uk/government/publications/how-public-spending-was-calculated-in-your-tax-summary/how-public-spending-was-calculated-in-your-tax-summary>
- 5 <https://www.theguardian.com/environment/2016/oct/27/10-years-on-from-the-stern-report-a-low-carbon-future-is-the-only-one-available>
- 6 Note that where money is currently being spent from EU sources for vital nature and climate measures, we assume that new money will be needed to cover these areas post Brexit
- 7 <https://greenerjourneys.com/wp-content/uploads/2018/06/THE-UNINTENDED-CONSEQUENCES-OF-FREEZING-FUEL-DUTY-JUNE-2018.pdf> <http://afreeride.org/>
- 8 <http://ukwin.org.uk/2018/10/30/2018-budget-threatens-an-incineration-tax/>
- 9 A £50/tonne Incineration Tax would raise around £850m a year, based off current incineration capacity http://ukwin.org.uk/btb/incineration_tax.pdf
- 10 The Grantham Research Institute has recently completed research into carbon pricing and recommend "medium level" carbon prices, differentiated by sector and complemented by regulation and technology support. The introduction of these differentiated polluter pays taxes would raise around £20 billion per year until 2030. It would also reduce the need for subsidies in some areas (e.g. through the Contracts for Difference scheme) (reference: Burke J, Byrnes R and Fankhauser S (2019) How to price carbon to reach net-zero emissions in the UK. London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science, <http://www.lse.ac.uk/GranthamInstitute/publication/how-to-price-carbon-to-reach-net-zero-emissions-in-the-uk/>)
- 11 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/734799/COMEAP_NO2_Report.pdf
- 12 PESA table 5.2 <https://www.gov.uk/government/publications/how-public-spending-was-calculated-in-your-tax-summary/how-public-spending-was-calculated-in-your-tax-summary>
- 13 15 English Metro Mayors called for £1.5bn for a nationwide scrappage scheme. At least this amount should be allocated and distributed on a UK-wide basis <https://www.uk100.org/city-leaders-across-country-join-forces-to-call-for-diesel-scrappage-fund-worth-up-to-3500-to-each-car-and-van-driver/>
- 14 https://downloads.unicef.org.uk/wp-content/uploads/2019/02/Healthy-Air-for-Every-Child-A-Call-for-National-Action.pdf?_ga=2.262413642.777107572.1561455473-1117127247.1561455473
- 15 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf
- 16 National Grid, Jan 2019, Supporting the growth of electric vehicles
- 17 Transport for Quality of Life, 2019, Segregated cycleways and e-bikes, Friends of the Earth <https://policy.friendsoftheearth.uk/insight/segregated-cycleways-and-e-bikes-future-urban-travel>
- 18 <https://www.cyclinguk.org/article/how-and-why-does-transport-spending-need-be-rebalanced>
- 19 https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/1425/report-files/142507.htm#_idTextAnchor018
- 20 A grant from government to Transport for London showed the additional cost of purchasing a new electric bus, over and above the cost of a conventional diesel one, is currently about £55,000 <https://www.mayorwatch.co.uk/government-awards-london-7m-for-new-electric-buses/>. Extrapolating this to the 35,000 buses in England, 2,458 buses and coaches in Wales, 12,000 in Scotland and 1383 in Northern Ireland means approximately £2.7bn extra funds are needed to replace the entire bus fleet with electric. (https://gov.wales/sites/default/files/statistics-and-research/2019-03/public-service-vehicles-buses-and-taxis-april-2017-to-march-2018_0.pdf, <https://www.transport.gov.scot/media/33814/sct01171871341.pdf> table 1.29 and <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/NI-transport-statistics-2017-2018.pdf> p8). The average age of a bus is 7.6 years (see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/666759/annual-bus-statistics-year-ending-march-2017.pdf) so an assumed lifetime of 15.2 years means the total replacement cost would average £2.8bn/15 = £186million per year. There are clear air quality reasons for wanting to front load this cost and target support towards areas of problematic air quality in first instance, so the £186 million per year amount is an absolute minimum required over the next 3-5 years. This cost will decline over time as the price of electric buses declines; however this annual total should be provided in at least the next 3 year period, and will continue to be required. Note this calculation makes no allowance for fuel savings or costs for charging infrastructure. Both numbers will be significant but very difficult to calculate because of variable local circumstances
- 21 See page 54 in NEF Rail Network For Everyone report https://neweconomics.org/uploads/files/A_Rail_Network_for_Everyone_WEB.pdf. The £5.52bn figure does not include all core rail operations and maintenance costs
- 22 Calculation based on the cost of the 3 phases of Manchester tram system, which was £1.4bn in today's money. https://en.wikipedia.org/wiki/Manchester_Metrolink. Beyond the next 3 years, significantly more than £1bn a year will be required, as costs become clearer, the scale of a national tram programme is fully scoped, and complementary policy measures are developed to enable full delivery. <https://www.wired.co.uk/article/trams-edinburgh-manchester-uk-transport-system>
- 23 <https://policy.friendsoftheearth.uk/insight/transforming-public-transport>
- 24 <https://www.gov.uk/government/publications/physical-activity-applying-all-our-health/physical-activity-applying-all-our-health>
- 25 <https://www.gov.uk/government/news/new-tool-calculates-nhs-and-social-care-costs-of-air-pollution>
- 26 <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>
- 27 <https://www.nic.org.uk/news/cost-of-congestion-shows-need-to-enable-local-leaders-to-tackle-the-issue/>
- 28 Assessing the costs of environmental land management in the UK: A report for the RSPB National Trust and Wildlife Trusts in 2017 <https://nt.global.sst.fastly.net/documents/assessing-the-costs-of-environmental-land-management-in-the-uk-final-report-dec-2017.pdf>
- 29 In 2016/17, £445 million of UK public sector funding was spent on biodiversity in the UK; a real-term decrease of 9% since 2015/16 and of 17% over the last 5 years <https://jncc.gov.uk/our-work/ukbi2018-e2-biodiversity-expenditure/>
- 30 Taken from a report for WWF in 2019. This estimates the annual costs of achieving monetisable (costed) 25 year plan targets that can be delivered through

- Environmental Land Management at £1.6 billion. Some of these actions will be included in the actions costed at £2.6bn/ year to UK restore habitats. However, the £1.6 billion estimate is for agricultural land in England only, and around two-thirds is for reducing soil degradation and water pollution which will enhance aquatic, farmland, marine and soil habitats, but mostly indirectly. Furthermore, it did not prove possible to calculate the cost of delivering some 25 year environment plan targets, such as cutting ammonia emissions. To be conservative and avoid double counting, while accounting for the need to extrapolate costs for the whole of the UK, not just England, we take 50% of the £1.6bn estimate to meet the government's objectives to enhance nature for future generations
- 33 <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/environmentalprotectionexpenditureuk/2017>
- 34 <https://www.parliament.uk/documents/commons-committees/environment-food-rural-affairs/Estimates/Defra-Supplementary-Estimate-Memorandum-2018-19.pdf>
- 35 Natural England estimates that the UK receives £428 million per year from the EU for regional development, Horizon 2020, LIFE, INTEREG and the Maritime and Fisheries Fund, which contributes towards dedicated species actions, landscape amenity values and promoting engagement with the natural environment in areas that don't fall within the agricultural system ("An estimate of the scale of EU Funding for delivering environmental outcomes in the UK" Natural England (2017))
- 36 See Table 2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/747328/Funding_for_flood_and_Coastal_Erosion_in_England_Oct_2018.pdf
- 37 <https://www.nic.org.uk/wp-content/uploads/Flood-modelling.pdf>
- 38 Calculation based on the Environment Agency's 2014 consultation on the draft update to the river basin management plan. <http://www.bawag.co.uk/1/documents/economic-analysis-extended-report.pdf>. Significant additional funds are required from the water industry and Environmental Land Management payments (accounted for separately above). Extrapolating from the EA figures to UK-wider costs, this takes the UK-wide total public and private investment to £41 billion between 2015 and 2052
- 39 We assume this to be additional to existing spending on waste
- 40 Extrapolation to UK MPA network, based on management cost estimates for MPAs in North Devon in: Effec & ABPmer (2018) Assessment of management costs for Marine Protected Areas in North Devon, Report to WWF UK, 2018
- 41 As calculated by the Great British Oceans coalition <https://greatbritishoceans.org/>
- 42 Current allocation of EU fisheries funding to the UK is effectively Eur 304m over 7 years = approx. £40m. We have added £5m for adding cameras and monitoring of vessels and work to reduce bycatch <https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/15-1077>, <https://academic.oup.com/bioscience/article/62/10/900/238172> and https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/798829/20190430_MM01135_Identifying_sites_for_habitat_creation_data_layers_Report_a.pdf
- 43 <https://www.gov.uk/government/publications/natural-capital-committees-third-state-of-natural-capital-report>
- 44 <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>
- 45 <http://randd.defra.gov.uk/Document.aspx?Document=finalreportsssis-benefits.pdf>
- 46 <https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/methodologies/uknaturalcapitalinterimreviewandrevised2020roadmap#natural-capital-accounting-at-a-glance>
- 47 <http://researchbriefings.files.parliament.uk/documents/POST-PN-0538/POST-PN-0538.pdf>
- 48 <https://www.theguardian.com/environment/2019/jul/04/planting-billions-trees-best-tackle-climate-crisis-scientists-canopy-emissions>
- 49 <https://www.bbc.co.uk/news/science-environment-46637102>
- 50 <https://www.theeig.co.uk/>
- 51 https://www.green-alliance.org.uk/reinventing_retrofit.php
- 52 E3G's calculations based on Element Energy's work for the National Infrastructure Commission, <https://www.nic.org.uk/wp-content/uploads/Element-Energy-and-E4techCost-analysis-of-future-heat-infrastructure-Final.pdf>
- 53 BRE (2015) The cost of poor housing to the NHS: <https://www.bre.co.uk/filelibrary/pdf/87741-Cost-of-Poor-Housing-Briefing-Paper-v3.pdf>
- 54 Roys et al. (2016) The full cost of poor housing: <https://www.brebookshop.com/samples/327671.pdf> <https://www.bre.co.uk/news/New-BRE-Trust-report-shows-poor-quality-homes-in-England-cost-the-NHS-14bn-per-year-and-wider-society-186bn-1161.html>
- 55 Rosenow et al. (2018) The remaining potential for energy savings in UK households: <https://www.sciencedirect.com/science/article/pii/S030142151830421X>
- 56 Imperial College London (2018) Analysis of Alternative UK Heat Decarbonisation Pathways: <https://www.theccc.org.uk/wp-content/uploads/2018/06/Imperial-College-2018-Analysis-of-Alternative-UK-Heat-Decarbonisation-Pathways.pdf>
- 57 Cambridge Econometrics & Verco (2014) Building the Future: the economic and fiscal impacts of making homes energy efficient: <http://www.energybillrevolution.org/wp-content/uploads/2014/10/Building-the-Future-The-Economic-and-Fiscal-impacts-of-making-homes-energy-efficient.pdf>
- 58 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/660986/Control_for_Low_Carbon_Levies_web.pdf
- 59 <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalesimates/2017#exports-from-the-uk-low-carbon-and-renewable-energy-economy-grew-to-50-billion-in-2017>
- 60 <https://www.theccc.org.uk/publication/uk-energy-prices-and-bills-2017-report-supporting-research/>
- 61 <https://www.ifm.eng.cam.ac.uk/uploads/Resources/Next-Manufacturing-Revolution-full-report.pdf>
- 62 Over a five-year period to 2018, UK Export Finance (UKEF) spent £2.6 billion to support the UK's global energy exports. Of this, 96% (£2.5 billion) went to fossil fuel projects <https://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-audit-committee/news-parliament-2017/uk-export-finance-report-published-17-19/>
- 63 <https://www.peopleandnature.co.uk/news/no-sustainable-development-without-nature-new-cross-party-campaign-for-calls-on-the-uk-to-step-up-protection-for-global-nature>
- 64 World Governments have committed to halting species extinctions and safeguarding critical biodiversity sites by 2020. McCarthy et al (2012) estimate the annual cost to achieve this at US\$76 billion (£61 billion) <https://science.sciencemag.org/content/338/6109/946.abstract>
- 65 <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8527>

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