



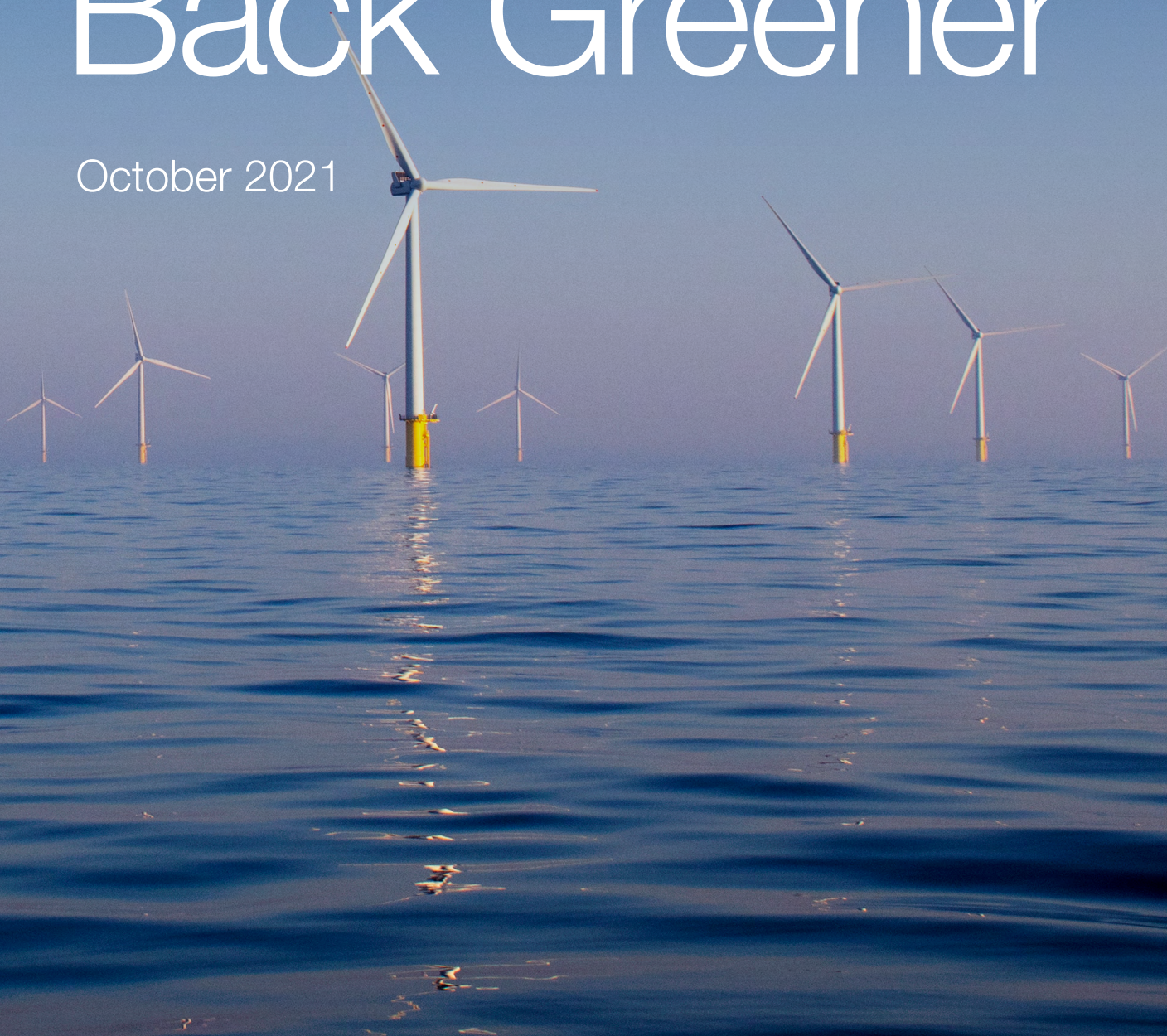
HM Government

TOGETHER  
FOR OUR  
PLANET



# Net Zero Strategy: Build Back Greener

October 2021





# Net Zero Strategy: Build Back Greener

Presented to Parliament pursuant to Section 14  
of the Climate Change Act 2008



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ISBN 978-1-5286-2938-6

E02678428 10/21

Printed on paper containing 75% recycled fibre content minimum

Printed in the UK by HH Associates Ltd. on behalf of the Controller of Her Majesty's Stationery Office

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# Forewords









# Foreword from the Prime Minister



Our strategy for net zero is to lead the world in ending our contribution to climate change, while turning this mission into the greatest opportunity for jobs and prosperity for our country since the industrial revolution.

Removing dirty fossil fuels from the global economy will lead to the creation of vast new global industries from offshore wind to electric vehicles and carbon capture and storage. By moving first and making the United Kingdom the birthplace of the Green Industrial Revolution we are building a defining competitive edge. Through our Ten Point Plan we have already attracted over £5.8 billion of new inward investment in just over ten months, and will create and support hundreds of thousands of new high skilled, high wage green jobs.

Over the last three decades we have already reduced our emissions by 44 per cent - while growing our economy by over 75 per cent – and this strategy sets out our plan for going the rest of the way. We will meet the global climate emergency but not with panicked, short-term or self-destructive measures as some have urged. Instead we will unleash the unique creative power of capitalism to drive the innovation that will bring down the costs of going green, so we make net zero a net win for people, for industry, for the UK and for the planet.

This strategy sets out how we will make historic transitions to remove carbon from our power, retire the internal combustion engine from our vehicles and start to phase out gas boilers from our homes. But it also shows how we will do this fairly by making carbon-free alternatives cheaper. We will make sure what you pay for green, clean electricity is competitive with carbon-laden gas, and with most of our electricity coming from the wind farms of the North Sea or state-of-the-art British nuclear reactors we will reduce our vulnerability to sudden price rises caused by fluctuating international fossil fuel markets.

The United Kingdom is not afraid to lead the charge towards global net zero at COP26, because history has never been made by those who sit at the back of the class hoping not to be called on. Indeed, as we set an example to the world by showing that reaching Net Zero is entirely possible, so the likes of China and Russia are following our lead with their own net zero targets, as prices tumble and green tech becomes the global norm.

For years, going green was inextricably bound up with a sense that we have to sacrifice the things we love. But this strategy shows how we can build back greener, without so much as a hair shirt in sight. In 2050, we will still be driving cars, flying planes and heating our homes, but our cars will be electric gliding silently around our cities, our planes will be zero emission allowing us to fly guilt-free, and our homes will be heated by cheap reliable power drawn from the winds of the North Sea. And everywhere you look, in every part of our United Kingdom, there will be jobs. Good jobs, green jobs, well-paid jobs, levelling up our country while squashing down our carbon emissions.

That is the clean and prosperous future that awaits every one of us as the UK leads the world in the race to net zero.

The Rt Hon Boris Johnson MP

**Prime Minister**



# Foreword from the Secretary of State for Business, Energy & Industrial Strategy



Now is the time the world needs to go further and faster to tackle climate change. The UK is stepping up to that challenge. Here we set out our ambitious strategy – the first of its kind in the world of a major economy - to create new jobs, develop new industries with innovative new technologies and become a more energy secure nation with clean green British energy. At the same time we will reduce greenhouse gas emissions across the economy to reach net zero by 2050.

The UK has already taken bold steps towards net zero, including bringing forward the end of sales of new petrol and diesel cars to 2030. We have committed over £12 billion of domestic green investment since March 2020, and have doubled our International Climate Finance commitment to £11.6 billion between 2021-2025.

This Strategy sets out the next steps we will take to cut our emissions, seize green economic opportunities, and leverage further private investment into net zero. The policies and spending brought forward in the Net Zero Strategy mean that since the *Ten Point Plan* we have mobilised over £26 billion of government capital investment for the green industrial revolution. Along with regulations, this will support 190,000 jobs by 2025, and 440,000 jobs by 2030, and leverage up to £90 billion of private investment by 2030. This will put us on an ambitious path to meet our Sixth Carbon Budget and our Nationally Determined Contribution, cutting emissions by at least 68% by 2030 on 1990 levels, and reaching net zero by 2050.

We know economic growth and reducing emissions can go hand-in-hand. As we continue to build back better from the COVID-19 pandemic, we will fuel a Green Industrial Revolution, creating jobs and business growth opportunities, and establishing the UK as a global leader in the technologies to tackle climate change. We will deliver the commitments in the Prime Minister's *Ten Point Plan* and *Build Back Better: our plan for growth*, and go further to build a resilient economy and level up the UK.

The changes will have wider benefits for the public and businesses alike. We will all enjoy cleaner air, increased biodiversity and improved access to green spaces. We will see greater efficiency in the way we travel and heat our buildings, which will be better protected from more extreme weather events. We will also put consumers at the heart of this transition, helping them make their homes warmer, more efficient, and ensure that they pay a fair, affordable prices for their energy.

But we cannot tackle climate change alone. We will take a coordinated approach, working

across local and national government, the Devolved Administrations, and with businesses and civil society organisations. And we will make it easier and fairer for individuals, businesses and households to decarbonise, so that our whole society can work together to reduce emissions. This strategy demonstrates how the UK is leading by example, with a clear plan for the future.

The Rt Hon Kwasi Kwarteng  
**Secretary of State for Business, Energy & Industrial Strategy**



# Executive Summary









# What is net zero and why do we need to act?

From heating our homes to filling up our cars, burning fossil fuels releases the greenhouse gases that increase global temperatures. We are already seeing the effects here in the UK, with devastating floods in the West Midlands in January and torrential downpours submerging London Underground stations earlier this summer.

People are rightly concerned, with the latest IPCC report showing that if we fail to limit global warming to 1.5°C above pre-industrial levels, the floods and fires we have seen around the world this year will get more frequent and more fierce, crops will be more likely to fail, and sea levels will rise driving mass migration as millions are forced from their homes. Above 1.5°C we risk reaching climatic tipping points like the melting of arctic permafrost – releasing millennia of stored greenhouse gases – meaning we could lose control of our climate for good.

But the good news is that there is, still, a path to avoid catastrophic climate change. The science could not be clearer: by the middle of this century the world has to reduce emissions to as close to zero as possible, with the small amount of remaining emissions absorbed through natural carbon sinks like forests, and new technologies like carbon capture. If we can achieve this, global emissions of greenhouse gases will be ‘net zero’.

Delivering this requires urgent global action, including ending coal fired power generation, retiring petrol and diesel engines from all cars, and halting deforestation. These are the steps that the UK is calling for at COP26, the global climate change talks in Glasgow next month.

# Why should the UK act first?

Since 1990 the UK has almost halved our greenhouse gas emissions. Thanks to the efforts of successive governments, we are almost half-way to ending the UK's domestic contribution to man-made climate change, and in 2019 the UK became the first major economy in the world to legislate to finish the job with a binding target to reach net zero emissions by 2050.

We are proud to lead the world in ending our own contribution to climate change, not just because it is the right thing to do, but because we are determined to seize the unprecedented economic opportunity it brings. We want to build back better from the pandemic by building back greener and levelling up our country with new high skilled, high wage, sustainable jobs in every part of our United Kingdom.

Removing dirty fossil fuels will require the transformation of every sector of the global economy. It means no longer burning fossil fuels for power or heating; it means new ways of making concrete, cement, steel; it means the end of the petrol and diesel engine. These changes are already beginning to happen. Renewable energy is now the cheapest source of power across two-thirds of the globe. Clean, cheap power is already driving the decarbonisation of heavy industry around the world. Almost all major car companies are now developing or producing zero emissions vehicles as battery technology improves and costs reduce.

The question is whether the new clean machinery of the net zero future will be “made elsewhere” or “made in Britain”. By moving first, the UK can get ahead of the pack and make the birthplace of the industrial revolution the home of the new Green Industrial Revolution.

Indeed, as we produce more of our own electricity – from wind farms in the North Sea and state-of-the-art British nuclear reactors – families will be much better protected from energy price spikes caused by volatile international fossil fuel markets. At the same time, by getting ahead of the curve in driving down the costs of the latest clean technology, more consumers will enjoy more efficient cars and heating systems sooner. Furthermore, by accelerating the deployment of cheap renewable power, and rolling out further energy efficiency measures, government decarbonisation policies mean that the average consumer energy bill in 2024 will likely be cheaper than it would otherwise have been.

We have shown the world that green and growth go hand in hand, and as a result other countries are already following our lead with their own net zero targets. When the UK was confirmed as host of COP26, less than 30% of global GDP was signed up to net zero or carbon neutrality targets. Today, in part again because of UK leadership, that figure is now over 80% – and rising.



# The Ten Point Plan for a Green Industrial Revolution

Last year, the government kick-started its mission to get ahead of the pack, by setting out a *Ten Point Plan for a Green Industrial Revolution*. Our ambition was to create the conditions for the private sector to invest with confidence, unleashing the unique creativity of capitalism to generate and grow new green industries.

We mobilised £12 billion of government investment, shared some of the risks of pioneering new industries, and began to introduce regulations to assure industry of the future demand for green products – such as through our decision to end the sale of new petrol and diesel cars by 2030. We have also invested in the skills the British workforce will

need for these new high wage green jobs, through our Lifetime Skills Guarantee, and we are helping investors to access capital for green projects by making the City of London the global centre of Green Finance.

At the Global Investment Summit in October 2021, the Prime Minister announced a package of 18 deals worth £9.7 billion that will support green growth and create an estimated 30,000 UK jobs. This is on top of the £5.8 billion already committed for sustainable projects since the Prime Minister launched his *Ten Point Plan* in November 2020. Now we need to build on this progress with a strategy to take us to net zero by 2050.

## Our Strategy for Net Zero

Since 1990 the UK has reduced our greenhouse gas emissions by 44%, while growing our economy by over 75%. This strategy sets out this Government's long-term plan to finish the job and end the UK's domestic contribution to man-made climate change by 2050.

Although every study shows that the costs of inaction on climate are far greater, there will, of course, be costs to the investments needed to make this transition happen. So we will approach these with four key principles:

- 1. We will work with the grain of consumer choice:** no one will be required to rip out their existing boiler or scrap their current car
- 2. We will ensure the biggest polluters pay the most for the transition** through fair carbon pricing

- 3. We will ensure that the most vulnerable are protected through Government support** in the form of energy bill discounts, energy efficiency upgrades, and more

- 4. We will work with businesses to continue delivering deep cost reductions in low carbon tech** through support for the latest state of the art kit to bring down costs for consumers and deliver benefits for businesses.

This strategy is a long-term plan for a transition that will take place over the next three decades. Many of the policies in the strategy will be phased in over the next decade or longer. Given our success in decarbonisation to date we are confident in our approach, but this strategy does not intend to predict the exact shape of the British economy in 2050 and neither should it.

We are making the decisions that are needed now to drive investment into new low carbon technologies and as these develop and we test our approach, we will make informed decisions over how we scale to reach net zero by 2050.

We have consistently underestimated how quickly the costs of clean technology would fall to date. There will be many more decisions to take, and many more steps on the journey to the finish line. But this strategy marks the beginning of the end of the UK's domestic contribution to climate change.

## What is in the Strategy?

Ending the UK's contribution to climate change is a long-term shift, and the Climate Change Act breaks up this challenge into bitesize chunks – five-year long carbon budgets.

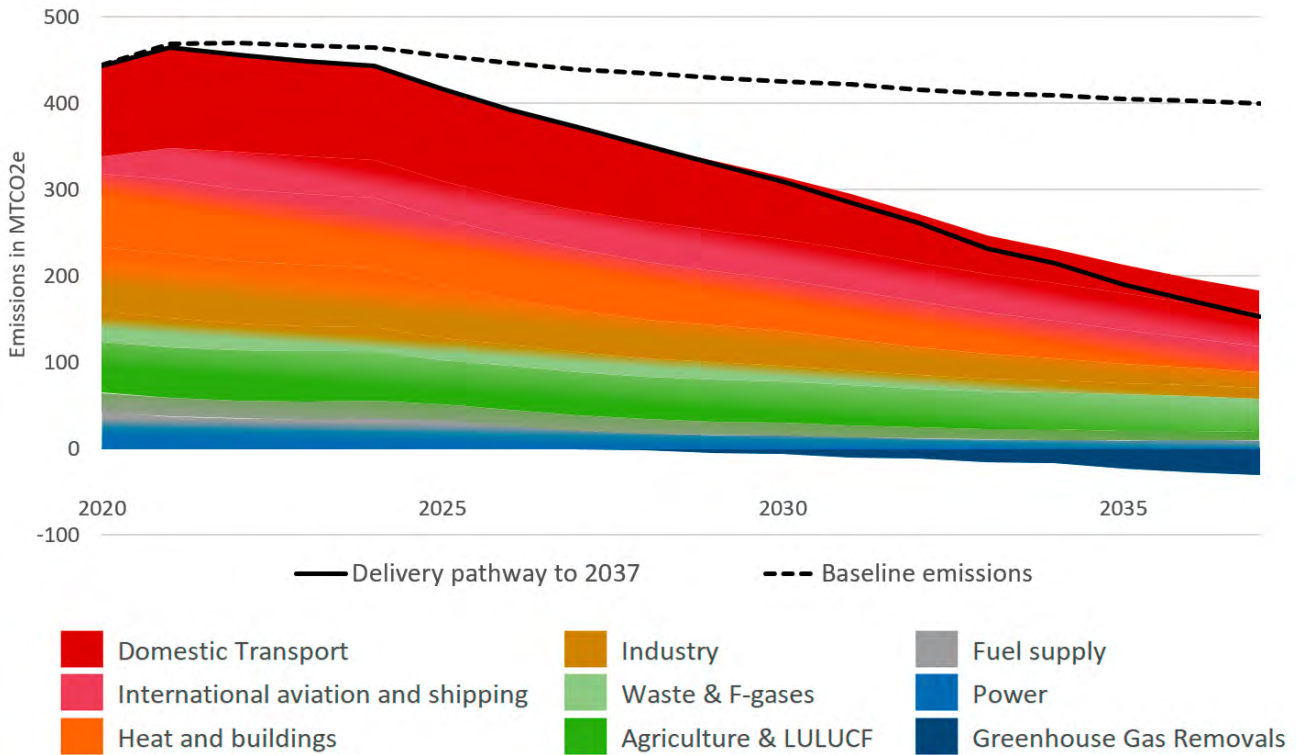
We have hit all of our carbon budgets to date.

**This document sets out clear policies and proposals for keeping us on track for our coming carbon budgets, our ambitious Nationally Determined Contribution (NDC), and then sets out our vision for a decarbonised economy in 2050.**

Whilst there are a range of ways in which net zero could be achieved in the UK, we set out a delivery pathway showing indicative emissions reductions across sectors to meet our targets up to the sixth carbon budget (2033-2037). This is based on our current understanding of each sector's potential, and a whole system view of where abatement is most effective. But we must be adaptable over time, as innovation will increase our understanding of the challenges, bring forward new technologies and drive down the costs of existing ones.

The policies and spending brought forward in the Net Zero Strategy mean that since the *Ten Point Plan*, HMG has mobilised £26 billion of government capital investment for the green industrial revolution. Along with regulations, this will support up to 190,000 jobs by 2025, and up to 440,000 jobs by 2030, and leverage up to £90 billion of private investment by 2030.

Figure 1: Indicative delivery pathway to 2037 by sector



Source: BEIS Analysis (2021)

So this strategy sets out our plans for reducing emissions from each sector of our economy, while hoovering up any remaining emissions with greenhouse gas removals – either natural, like trees, or technological, using carbon capture. This is an historic plan. Taken together the transitions set out below for every sector of the UK economy meets Carbon Budgets 4 and 5, and puts us on the path for Carbon Budget 6 – and ultimately on course for net zero by 2050.





## The policies and proposals for power in the Net Zero Strategy will ...

Support for up to 59,000 jobs in 2024 and up to 120,000 jobs in 2030

Start to mobilise additional public and private investment of £150-270 billion, in line with our 2037 delivery pathway

Fully decarbonise our power system by 2035

The net zero economy will be underpinned by cheap clean electricity, made in Britain. A clean, reliable power system is the foundation of a productive net zero economy as we electrify other sectors – so **we will fully decarbonise our power system by 2035**, subject to security of supply. Our power system will consist of abundant, cheap British

renewables, cutting edge new nuclear power stations, and be underpinned by flexibility including storage, gas with CCS, hydrogen and ensure reliable power is always there at the flick of a switch. The transformation of the power sector will bring high skill, high wage job opportunities right across the UK.

### Key policies:

- By 2035 the UK will be powered entirely by clean electricity, subject to security of supply.
- Secure a final investment decision on a large-scale nuclear plant by the end of this Parliament, and launch a new £120 million Future Nuclear Enabling Fund, retaining options for future nuclear technologies, including Small Modular Reactors, with a number of potential sites including Wylfa in North Wales.
- 40GW of offshore wind by 2030, with more onshore, solar, and other renewables – with a new approach to onshore and offshore electricity networks to incorporate new low carbon generation and demand in the most efficient manner that takes account of the needs of local communities like those in East Anglia.
- Moving towards 1GW of floating offshore wind by 2030 to put us at the forefront of this new technology that can utilise our North and Celtic Seas – backed by £380 million overall funding for our world-leading offshore wind sector.
- Deployment of new flexibility measures including storage to help smooth out future price spikes.



# Fuel Supply & Hydrogen

## The policies and proposals for fuel supply and hydrogen in the Net Zero Strategy will...

Support up to 10,000 jobs in 2030 in fuel supply

Start to mobilise additional public and private investment of £20-30 billion, in line with our 2037 delivery pathway

Deliver 5 GW of hydrogen production capacity by 2030, whilst halving emissions from oil and gas

While electricity will be the primary source of energy, we cannot rely on it alone. Many sectors require low carbon energy, including those where electrification is not a viable option, making the supply of cleaner fuels essential to achieving net zero. Building on commitments in the *North Sea Transition Deal*, we will significantly reduce emissions from traditional oil and gas fuel supplies,

whilst scaling-up the production of low carbon alternatives such as hydrogen and biofuels. Current gas prices spikes underline the need to get off hydrocarbons as quickly as possible, but we will manage the transition in a way that protects jobs and investment, uses existing infrastructure, maintains security of supply, and minimises environmental impacts.

### Key policies:

- We have set up the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme to fund our new hydrogen and industrial carbon capture business models. We will be providing up to £140 million to establish the scheme, including up to £100 million to award contracts of up to 250MW of electrolytic hydrogen production capacity in 2023 with further allocation in 2024.
- Introducing a new climate compatibility checkpoint for future licensing on the UK Continental Shelf and regulating the oil and gas sector in a way that minimises greenhouse gases through the revised Oil and Gas Authority strategy.



# Industry

## The policies and proposals for industry in the Net Zero Strategy will...

Support up to 54,000 jobs in 2030 in industry

Start to mobilise additional public and private investment of at least £14 billion in industry, in line with our 2037 delivery pathway

Deliver four carbon capture usage and storage (CCUS) clusters, capturing 20-30 MtCO<sub>2</sub> across the economy, including 6 MtCO<sub>2</sub> of industrial emissions, per year by 2030

We will decarbonise industry in line with our net zero goals whilst simultaneously transforming our industrial heartlands by attracting inward investment, future-proofing businesses, and securing high wage, high skill jobs. We will do this by supporting industry to switch to cleaner fuels; helping them improve their resource and energy efficiency, and through fair carbon pricing to drive deep decarbonisation of industry. Growing new industries in low carbon hydrogen alongside

CCUS and renewable energy will put our industrial 'SuperPlaces' at the forefront of technological development – accelerating decarbonisation in 'clusters', which account for approximately half of the UK's industrial emissions. These clusters could have the opportunity to access support under government's CCUS programme, which includes the £1 billion CCS Infrastructure Fund and revenue support mechanisms.

### Key policies:

- Following the Phase 1 of the Cluster Sequencing process, the Hynet and East Coast Clusters, will act as economic hubs for green jobs in line with our ambition to capture 20-30 MtCO<sub>2</sub> per year by 2030. This puts Teesside and the Humber, Merseyside and North Wales, along with the North East of Scotland as a reserve cluster, among the potential early SuperPlaces which will be transformed over the next decade.
- Future-proofing industrial sectors, and the communities they employ through the £315 million Industrial Energy Transformation Fund (IETF), (£289 million for England, Wales and Northern Ireland, £26 million for Scotland).
- Incentivise cost-effective abatement in industry at the pace and scale required to deliver net zero, through the UK ETS by consulting on a net zero consistent UK ETS cap (in partnership with the Devolved Administrations).





# Heat and Buildings

## The policies and proposals for heat and buildings in the Net Zero Strategy will...

Support up to 100,000 jobs in the middle of the 2020s and up to 175,000 in 2030

Start to mobilise additional public and private investment of approximately £200 billion, in line with our 2037 delivery pathway

Set a path to all new heating appliances in homes and workplaces from 2035 being low carbon

Reaching net zero means tackling all sources of emissions – and heating for homes and workspaces makes up almost a third of all UK carbon emissions. So we will improve the energy efficiency of housing and non-domestic properties across the UK, ensuring they require less energy to heat, making them cheaper to run and more comfortable to live and work in while reducing our dependence on imported energy. We are setting the ambition that, by 2035, once costs have come down, all new heating appliances installed in homes and workplaces will be low-carbon technologies, like electric heat pumps or hydrogen boilers. We will take a decision in 2026 on the role of hydrogen heating. Crucially, this will be a gradual transition that

works with the grain of consumer choice. But the costs of low carbon technology can fall quickly – working with industry, we expect a heat pump to be as cheap to buy and run as a gas boiler this decade. We want to reduce electricity costs so when the current gas spike subsides we will look at options to shift or rebalance energy levies (such as RO and FiTs) and obligations (such as ECO) away from electricity to gas over this decade. This will include looking at options to expand carbon pricing and remove costs from electricity bills while ensuring that we continue to limit any impact on bills overall. We know that in the long run, green products are more efficient and cheaper, and we are putting fairness and affordability at the heart of our approach.

### Key policies:

- An ambition that by 2035, no new gas boilers will be sold.
- A new £450 million three-year Boiler Upgrade Scheme will see households offered grants of up to £5,000 for low-carbon heating systems so they cost the same as a gas boiler now.
- A new £60 million Heat Pump Ready programme that will provide funding for pioneering heat pump technologies and will support the government's target of 600,000 installations a year by 2028.
- Delivering cheaper electricity by rebalancing of policy costs from electricity bills to gas bills this decade.

- Further funding for the Social Housing Decarbonisation Scheme and Home Upgrade Grants, investing £1.75 billion. Additional funding of £1.425 billion for Public Sector Decarbonisation, with the aim of reducing emissions from public sector buildings by 75% by 2037.
- Launching a Hydrogen Village trial to inform a decision on the role of hydrogen in the heating system by 2026.



# Transport

## The policies and proposals for transport in the Net Zero Strategy will ...

Support for up to 22,000 jobs in 2024 and up to 74,000 jobs in 2030

Start to mobilise additional public and private investment of around £220 billion, in line with our 2037 delivery pathway

Remove all road emissions at the tailpipe and kickstart zero emissions international travel

We will transform our cities and towns with greener, faster and more efficient transport. Our streets will be cleaner and people healthier from breathing cleaner air, walking and cycling more. Our zero emissions vehicle (ZEV) mandate will guarantee greater number of zero emission vehicles on our roads, unlocking the transformation of our road transport. Additional funding will support our automotive sector to stay at the cutting edge and capture jobs of the future. Significant new investment in vehicle grants and electric vehicle infrastructure will ensure that we see even more green vans delivering our goods and big improvements in local public

chargepoint provision. We will increase the share of journeys taken by public transport, cycling and walking, electrifying more railway lines, investing £3 billion to transform bus services and £2 billion for cycling. We will build on our strong maritime heritage and the success of the Clean Maritime Demonstration Competition to deliver a more ambitious multi-year programme for the sector. Setting out an ambitious position on SAF will set us on a path to decarbonise this challenging sector. Accelerating the decarbonisation of transport will save lives and significantly reduce noise, making our urban centres more enjoyable places to live.

### Key policies:

- A zero emission vehicle mandate to improve consumer choice and ensure we maximise the economic benefit from this transition by giving a clear signal to investors. This will deliver on our 2030 commitment to end the sale of new petrol and diesel cars, and 2035 commitment that all cars must be fully zero emissions capable.
- Further funding of £620 million for zero emission vehicle grants and EV Infrastructure, including further funding for local EV Infrastructure, with a focus on local on street residential charging.
- Allocating a further £350 million of our up to £1 billion Automotive Transformation Fund (ATF) to support the electrification of UK vehicles and their supply chains.
- Building on the success of our £20 million zero emission road freight trials, we will expand these to trial three zero emission HGV technologies at scale on UK roads to determine their operational benefits, as well as their infrastructure needs.



- £2 billion investment which will help enable half of journeys in towns and cities to be cycled or walked by 2030.
- £3 billion to create integrated bus networks, more frequent services and bus lanes to speed journeys.
- Transformation of local transport systems, with 4,000 new zero emission buses and the infrastructure to support them, and a net zero rail network by 2050, with the ambition to remove all diesel-only trains by 2040.
- Building on the success of the Clean Maritime Demonstration Competition, we will be extending this to a multi-year programme, delivering real-world demonstrations and technology trials of clean maritime vessels and infrastructure to decarbonise the maritime sector. This is part of our commitment to a UK Shipping Office for Reducing Emissions.
- Significant investment in rail electrification and city rapid transit systems.
- Aim to become a world-leader in zero emission flight and kick-starting the commercialisation of the UK sustainable aviation fuel so people can fly, and connect without guilt. Our ambition is to enable delivery of 10% SAF by 2030 and will be supporting UK industry with £180 million funding for the development of SAF plants.



# Natural Resources, waste and fluorinated gases

The policies and proposals for natural resources, waste, and fluorinated gases in the Net Zero Strategy will...

New employment opportunities across the UK. Afforestation in England could support up to 1,900 jobs in 2024 and 2,000 jobs in 2030	Start to mobilise additional public and private investment of approximately £30 billion, in line with our 2037 delivery pathway	Treble woodland creation rates in England, contributing to the UK's overall target of increasing planting rates to 30,000 hectares per year by the end of this Parliament
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Halting climate change and protecting the natural world are two sides of the same coin, so we will restore our countryside to reduce emissions, sequester carbon and build our resilience to climate change at the same time. We will support farmers to implement a range of low carbon farming practices that can help increase productivity and enable more efficient use of land, such as through agroforestry. We will increase tree planting to sequester carbon, and protect and restore our peatlands. As part of reforms to the resources and waste system, we also will move towards a circular economy, improve resource efficiency, and achieve near elimination of biodegradable waste to landfill. We will continue to phase down the use of F-gases in line with domestic regulations and international commitments.

## Key policies:

- Supporting low-carbon farming and agricultural innovation through the Farming Investment Fund and the Farming Innovation Programme to invest in equipment, technology, and infrastructure to improve profitability, benefit the environment and support emissions reductions.
- We will boost the existing £640 million Nature for Climate Fund with a further £124 million of new money, ensuring total spend of more than £750 million by 2025 on peat restoration, woodland creation and management – above and beyond what was promised in the manifesto. This will enable more opportunities for farmers and landowners to support Net Zero through land use change.
- Restoring approximately 280,000 hectares of peat in England by 2050 and trebling woodland creation rates in England, contributing to the UK's overall target of increasing planting rates to 30,000 hectares per year by the end of the Parliament.
- £75 million on net zero related R&D across Natural Resources, Waste & F-gases, to inform our pathway to 2037.

- To support our commitment to explore options for the near elimination of biodegradable municipal waste to landfill from 2028, we are bringing forward £295 million of capital funding which will allow local authorities in England to prepare to implement free separate food waste collections for all households from 2025.





# Greenhouse Gas Removals

## The policies and proposals for GGRs in the Net Zero Strategy will provide...

New, highly skilled, jobs in our industrial heartlands

Start to mobilise additional public and private investment of around £20 billion, in line with our 2037 delivery pathway

An ambition to deploy at least 5 MtCO<sub>2</sub>/year of engineered GGRs by 2030.

Our most important step to achieving net zero is to take ambitious decarbonisation measures across society. However, greenhouse gas removals (GGRs) will also play a critical role in balancing residual emissions from the hardest to decarbonise sectors such as aviation, agriculture, and heavy industry. Our innovation-led approach positions the UK as a global leader in this rapidly developing sector.

Government intervention in the short term will support early commercial deployment of GGRs, with an ambition to move towards a market-based framework for GGRs. This will support our delivery of net zero emissions and position us to export our skills and expertise, capitalising on economic opportunities for the UK and supporting the global shift to net zero.

### Key policies:

- Delivering £100 million of investment in GGR innovation could enable further deployment of GGRs, which in turn will leverage private investment and demand for transferrable engineering expertise from the UK's oil and gas sector.
- Explore options for regulatory oversight to provide robust monitoring, reporting and verification (MRV) of GGRs, following the recommendations of the BEIS-led MRV Task & Finish Group involving experts from industry and academia.



## Supporting the transition with cross-cutting action

We will maximise the opportunities of this transition, and make sure we are geared up to deliver these changes by also taking cross-cutting action. As the host nation for COP26 in Glasgow this year, we will use our global platform to continue to urge countries to set targets to get to net zero by 2050, and more ambitious 2030 emissions reduction targets to get us there. We will back innovation and our world-leading green finance sector. We will support each stage of the innovation chain to drive down costs and bring through key technologies and ideas to meet net zero. We will work with the private sector to leverage private investment to provide the finance needed, while providing the conditions for green finance to flourish.

We will put consumers at the heart of the transition and our goal is to make choosing green options significantly easier, cheaper, and more rewarding. We will back training and skills, supporting workers to retrain and upskill and build low carbon industries with strong UK supply chains that are resilient to changes. We will also take a place-based approach to net zero, working with local government to ensure that all local areas have the capability and capacity for net zero delivery as we level up the country. And Government is leading the way – embedding climate into our policy and spending decisions, increasing the transparency of our progress on climate goals, and providing funding to drive ambitious emissions reductions in schools and hospitals.

### Key policies:

- Deliver at least £1.5 billion of funding to support net zero innovation projects.
- Use the UK Infrastructure Bank (UKIB) to crowd in private finance, support more than £40 billion of investment, and pull through low carbon technologies and sectors to maturity and scale.
- Introduce a new Sustainability Disclosures Regime, including mandatory climate related financial disclosures and a UK green taxonomy.
- Reform the skills system so that training providers, employers and learners are incentivised and equipped to play their part in delivering the transition to net zero.
- Publish an annual progress update against a set of key indicators for achieving our climate goals.

# Delivering the Prime Minister's Ten Point Plan

In the past year, we have already taken important action on climate change, delivering on the commitments in the Prime Minister's Ten Point Plan.

**56,000 jobs** have been protected and created over the last ten months, since the publication of the Prime Minister's Ten Point Plan and wider green agenda - with some already on line and others set to come on line over the coming decade

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### We committed to...

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#### Point 1: Advancing Offshore Wind, including:

- 40GW of offshore wind by 2030 including 1GW of floating wind (wind turbines generating electricity in water depths)
- £160 million into modern ports and manufacturing infrastructure
- The Offshore Transmission Network Review

### Since then we have...

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- Supported manufacturers via government investment schemes. Six manufacturers have already announced major investments in the UK offshore wind sectors and delivering up to 3,600 jobs by 2030.
- Built our Offshore Wind capacity to 10.5GW, enough in 2020 to power 4.5 trillion LED light bulbs. This increased our share of electricity generated by Offshore Wind from 1% to 13% over the last decade.
- Kicked off the biggest-ever round of our flagship renewable energy scheme for low carbon electricity (Contract for Difference) with £200 million for offshore wind projects and £24m for floating offshore wind.
- Launched a £17.5 million competition to support innovative floating wind ideas from industry and joined the ORE Catapult's FOW Centre of Excellence, contributing £2 million.
- Leveraged over £1.5 billion investment into our offshore wind industry, following the £160 million to upgrade ports and infrastructure.
- Published the *Offshore Transmission Network Review*, setting out two initial policy consultations to move to a coordinated approach for both in-flight and future offshore wind projects.

#### Point 2: Driving the Growth of Low Carbon Hydrogen, including:

- An ambition for 5GW of low carbon hydrogen production capacity by 2030
- £240 million Net Zero Hydrogen Fund
- Hydrogen trials to test use of hydrogen in heating

- Published the *Hydrogen Strategy*, setting out our comprehensive approach to growing the UK hydrogen economy.
- Commenced an allocation process for electrolytic hydrogen in 2022 to award up to 100MW of contracts in 2023 and up to 400MW of contracts in 2024 and announcing a funding envelope in 2022 that will enable us to award the first contracts to CCUS-enabled hydrogen from 2023 through the Cluster Sequencing process, to deliver up to 1GW of CCUS-enabled hydrogen.
- Following our consultation on a proposed hydrogen business model, design of the £240 million Net Zero Hydrogen Fund and on a UK low carbon hydrogen standard.
- Invested £3 million to kick start the Tees Valley hydrogen transport hub, which is building early collaborations and operational learning.
- Announced a £60 million competition to fund projects to develop innovative low carbon hydrogen supply solutions.
- Started preparations for a hydrogen heating neighbourhood trial in Levenmouth, Fife led by SGN following funding awards by Ofgem and Scottish Government.



### We committed to...

**Point 3:** Delivering New and Advanced Nuclear Power, *including:*

- Pursuing large-scale nuclear projects, subject to value for money
- Legislating for a new financing model for nuclear projects
- £385 million Advanced Nuclear Fund to enable up to £215 million into Small Modular Reactors
- £170 million for a R&D programme on Advanced Modular Reactors

**Point 4:** Accelerating the Shift to Zero Emission Vehicles, *including:*

- End the sale of new pure petrol and diesel cars and vans by 2030 and consult on phase out for diesel HGVs
- £1 billion to support electrification of UK vehicles and their supply chains
- £1.3 billion to accelerate the roll-out of charging infrastructure
- Publish a Green Paper in 2021 on the UK's post-EU emissions regulation

### Since then we have...

- Announced our aim to bring at least one large-scale nuclear project to the point of Final Investment Decision by the end of this Parliament, subject to value for money and all relevant approvals. Entered into negotiations with the developer of Sizewell C power station in December 2020.
  - Launched a Call for Evidence on Government's preference to explore the potential of High Temperature Gas Reactors (HTGRs) to enable an AMR demonstration by the early 2030s.
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- Announced we will introduce a ZEV mandate to deliver our end of sales dates for new petrol and diesel cars and vans.
  - Announced funding for the UK's first large-scale gigafactory as part of the Automotive Transformation Fund. The investor has committed to creating 1,000 jobs which will be realised during the period to 2025/26 as the facility is built and becomes operational.
  - Secured an additional 950 jobs through other automotive projects, for a total of 1,950 jobs to be realised through to 2025/26.
  - Built on existing successful projects, such as the Advanced Propulsion Centre - according to participating companies, APC projects agreed this year will support up to 5,200 direct jobs.
  - Seen increased demand for ZEVs – industry figures state that nearly one in ten of all new cars sold so far this year in the UK is fully electric and over 650,000 plug-in cars have been registered in the UK since 2010.
  - For this financial year, committed £70 million to roll out home, on-street and workplace chargepoints.
  - 70% of motorway service areas now have plans to install at least 6 high-powered chargers by 2023.
  - Announced the winners of the £20 million Zero Emission Road Freight Trials – projects that will help to design and develop cost-effective, zero emission HGVs and refuelling infrastructure.
  - Consulted on the phase out of non-zero emission HGVs.

### We committed to...

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**Point 5:** Green Public Transport, Cycling and Walking, *including:*

- £120 million to begin introducing at least 4,000 zero emission buses
  - Billions of pounds in enhancements and renewals of the rail network
  - £5 billion to support buses, cycling and walking
- 

**Point 6:** Jet Zero and Green Ships, *including:*

- A Jet Zero Council
  - £15 million to support production of Sustainable Aviation Fuels
  - £20 million for the Clean Maritime Demonstration Programme
- 

**Point 7:** Greener Buildings, *including:*

- Ambition to install 600,000 heat pumps per year by 2028
  - Energy efficiency funding, including the Public Sector Decarbonisation Scheme and Social Housing Decarbonisation Fund
  - Strengthened energy efficiency requirements for private sector landlords
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### Since then we have...

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- Launched the National Bus Strategy and a consultation on phase out of new non-zero emission buses and the £120 million Zero Emission Bus Regional Area (ZEBRA) scheme to support local transport authorities outside London.
  - Supported Coventry to become UK's first all-electric bus city, with £50 million to fund up to 300 electric buses and charging infrastructure.
  - Committed £17.5 billion in the November 2020 Spending Review in capital funding for renewals, upgrades, and enhancements of the existing rail network up to 2024.
  - Delivered more than 300 walking and cycling schemes.
- 

- Consulted on our proposals for reaching net zero aviation by 2050 and following a consultation on a UK Sustainable Aviation Fuels (SAF) mandate, confirmed our ambition for it to enable delivery of 10% SAF by 2030, and we will make £180 million available to support the development of the UK SAF industry.
  - Announced the shortlist for the £15 million Green Fuels, Green Skies competition, to support UK pioneers in Sustainable Aviation Fuels.
  - Co-invested £150 million per year through the Aerospace Technology Institute to support greener aircraft technology like Rolls-Royce's next gen UltraFan jet engine which aims to cut emissions by 25% and ZeroAvia's zero-emission hydrogen-propulsion system.
  - Allocated up to £23 million of match-funding to 55 projects through the Clean Maritime Demonstration Competition to support the development of zero emission technologies and greener ports.
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- Supported approximately 45,000 jobs in greener buildings in the first year since the Ten Point Plan was launched.<sup>1</sup>
  - Announced that we will tighten Minimum Energy Efficiency Standards to ensure that landlords can no longer let properties covered by the Domestic Minimum Energy Efficiency Standards Regulations if they have an EPC rating below E, unless they have a valid exemption in place.
  - Allocated £1 billion funds from the Public Sector Decarbonisation Scheme, supporting up to 30,000 jobs.<sup>2</sup>
  - Awarded £62 million to 19 projects in the Social Housing Decarbonisation Fund Demonstrator, with over 2,300 homes in the process of being improved.
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**We committed to...**

**Point 8:** Investing in Carbon Capture, Usage and Storage, *including*

- Commitment for two industrial clusters by mid 2020s, and an aim for four sites by 2030, capturing up to 10Mt CO<sub>2</sub> emissions per year
- £1 billion CCUS Infrastructure Fund

**Point 9:** Protecting Our Natural Environment, *including*

- £5.2 billion for flood and coastal defences
- New National Parks and Areas of Outstanding Natural Beauty
- £40 million second round for the Green Recovery Challenge Fund
- Establish 10 long-term Landscape Recovery projects over the next four years

**Point 10:** Green Finance and Innovation, *including*

- £1 billion Net Zero Innovation Portfolio (NZIP), including £100 million for Direct Air Capture and other Greenhouse Gas Removal (GGR) technologies
- UK's first Sovereign Green Bond
- Green Jobs Taskforce

**Since then we have...**

- We have set up the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme, providing up to up to £140 million to fund our new hydrogen and industrial carbon capture business models.
- Announced £19.5 million of grant funding for projects developing novel CCUS technology and processes that reduce the cost of deployment.
- Kicked off the process to decide the first carbon capture cluster locations in our industrial heartlands.
- Published details of the design of funding mechanisms, including the business model for CO<sub>2</sub> transport and storage, industrial CCUS, power CCUS, as well as the CCS Infrastructure Fund.

- Supported an estimated 850 jobs in environmental protection and enhancement.
- Launched the floods investment programme that is on track to better protect 336,000 properties from flooding.
- Natural England has set out plans to start the process to designate four new areas of outstanding natural beauty - Yorkshire Wolds AONB, Cheshire Sandstone Ridge AONB, an extension to the Surrey Hills AONB, and an extension to the Chilterns AONB.
- Announced 90 projects awarded grants under round 2 of the £80 million Green Recovery Challenge Fund (GRCF). Across all 159 projects, the GRCF is set to plant almost 1 million trees and create and retain up to 2,500 jobs.
- Held three Landscape Recovery market engagement events and, subject to feedback, we aim to open applications for the first wave of pilot projects later this year.
- Launched several schemes under the Nature for Climate Fund to expand our pipeline of tree planting and peatland restoration projects in England, including the new England Woodland Creation Offer and Tree Production Innovation Fund.

- Launched the Net Zero Innovation Portfolio, providing funding for low-carbon technologies and systems across the areas of the *10 Point Plan*, including:
  - Up to £68 million across two competition streams for Longer Duration Energy Storage Demonstration.
  - Funding for the first phase of GGR studies, which could remove between 100 and 1,000 tonnes of CO<sub>2</sub>e per year in 2025.
- Issued £10 billion Sovereign Green Bond, to raise money for green government projects like zero-emission buses, offshore wind, and decarbonising homes.
- Launched the Green Jobs Taskforce in November 2020, which reported 15 recommendations in July 2021.



# Endnotes

<sup>1</sup> Estimate based on internal HMG analysis.

<sup>2</sup> This figure is already included in the headline 45,000 figure for greener buildings.