WEST OF ENGLAND CLIMATE AND ECOLOGICAL STRATEGY AND ACTION PLAN 2023

WEST OF ENGLAND
Combined Authority

FOREWORD

The West of England is an amazing place to grow up and grow old in. But we are living in the midst of a deadly climate and nature emergency. Many of our people and businesses are struggling to afford escalating energy bills during the current cost of living crisis. We are making progress to support our people, reduce emissions and restore habitats across the region. However, we need to come together across society and sectors in responding to these emergencies.

In the last year we have seen and supported theses collaborative efforts. I'm proud we have launched and allocated much of the £50m Green Recovery Fund. This is being invested in community energy initiatives to deliver solar and wind energy; innovative housing retrofits; improving and creating new areas for nature to recovery in Bristol Harbour, Somer Valley, Frome Valley, the Forest of Avon and via the Community Pollinator Fund; as match-funding for our SME carbon surveys and grants for retrofit and rooftop solar generation; and in establishing our flagship Retrofit Accelerator, to support households insulating homes, and local small businesses growing to meet local demand.

Our region is punching above its weight in progressing towards net zero energy. We have the country's largest water source heat pump in Bristol's harbour, and the country's largest onshore wind turbine is being constructed in Avonmouth by the Lawrence Weston community. Bristol City Leap represents a huge leap forwards in partnership investment in energy, seeking to retrofit and deliver 182MW of new renewable energy generation through £424m of investment.

We are securing the investment needed to make moving around our region sustainable. We secured £540 million for our City Region Sustainable Transport Settlement to radically improve infrastructure for buses, rail services and walking and cycling; and a further £105 million to improve local bus services.

But we must increase our activity to ensure residents, businesses and nature can prosper in our brilliant part of the world.

The scale of the challenge remains daunting and will require continued joined-up action locally, regionally, nationally and globally if we are to rise to this immense challenge. It is heartening to see the action being taken by, individuals, families,

communities and businesses all across the region who are doing things differently and stepping up to the challenge. Indeed, people from our most rural communities, to our market towns and great cities of Bristol and Bath are motivated to tackle the crisis and are often showing our politicians what can be achieved when it comes to the environment.

Many of the people that I meet and hear from are deeply concerned about the environment. Residents' bills have almost doubled this last year, with businesses facing even higher increases to their energy bills. This is partly driving the cost-of-living crisis. This is why we've supported local energy advice charities in advising residents this winter; and are expanding our offer of free carbon surveys and grant-funding support for SMEs looking to save energy and money on bills. Last year, we supported 360 SMEs with carbon surveys and provided grant funding to 160 of them retrofitting

Even if we achieve our region's ambitions by 2030, we face and must prepare for climate change. We need regional resilience to climate change, by ensuring our people and projects are supported in adapting to climate change.

Young people are particularly anxious - they are most alert to global warming and the ecological emergency, and know they have the most to lose. Aware of the great strength of public opinion here in the West of England we have rightly set a very ambitious target to achieve net zero and halt and reverse decline in nature by 2030. I want the West of England to be the bee and pollinator capital of the U.K.

I will ensure that the West of England Combined Authority which I lead, takes bold action and works with partners across communities, businesses and the public sector in making the necessary decisions to rise to the challenge of saving our planet.

Although great strides are being made, we cannot do this in isolation. The West of England Combined Authority will need to work in very close partnership with residents, regional partners and our local councils. We will desperately need Government to do much, much, more too – and I will continue to relentlessly make our case to them. We must all support each other and collaborate across the region to achieve our aims.

This strategy and action plan builds on the great work already being undertaken and some of the successes that have already been achieved. It sets out practical steps we are taking as a region. It highlights the challenges we must continue to address. It continues our journey that I know people right across the West of England are committed to. It is a living document and will be amended and updated to reflect changing circumstances and new ideas that we will need to embrace, if we are not only to successfully protect the planet, but make it better than now.

I'm hugely proud of our great region for many reasons. I know that together we can make a real difference in the fight against climate change and helping reverse declines in our local wildlife and natural habitats. Let's get to it and show our country and the world how it can be done.

Dan Norris
West of England Metro Mayor

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OUR PRIORITIES AT A GLANCE

We have set six priorities where action is needed and where the region will deliver tangible progress to tackle the climate and ecological emergency. Our six themes are priority areas that have been developed in collaboration between the West of England Combined Authority and partners across the region.

Key cross cutting themes essential to the delivery of our priorities are: securing further funding and investment into our region; good quality data being used to inform decision making; the skills and supply chains to meet our region's needs; and strong collaboration. We are working closer than ever with:

- Public Sector Partners: Bath & North East Somerset, Bristol City, North Somerset and South Gloucestershire councils; NHS and other emergency services; schools, colleges and universities; and others
- Businesses: both small and large, including Business West, our 4 universities and utility companies including Wessex Water, National Grid, Bristol Water and telecoms providers.
- Communities: both individual residents and established community groups

By targeting action and investment in these priority areas we expect to deliver significant climate and ecological benefits. We seek additional investment into the West of England's environment, including allocating remaining and expanding the Green Recovery Fund (GRF) investment in regional priorities.

The table on the following page identifies our regional priorities and how our key actions for next year are aligned.

Our priorities		Our key actions for the year ahead
Transport	Decarbonise the transport system; reduce car dependency; manage demand; increase cycling, walking, wheeling and public transport; embed nature recovery within transport capital projects	Helping people travel more sustainably by removing barriers and increasing investment in busses and trains, delivering new dedicated walking, cycling and wheeling routes, and expanded electric vehicle charging.
Buildings & places	Increase the energy performance, climate resilience and environmental benefits of buildings and places	Delivering even more domestic retrofits and strengthening supply chains via the Retrofit Accelerator. Phase one is aiming to advise 10,600 households, survey 5,250 homes, and deliver an additional 1,400 retrofits (comprising 4,200 measures) over the next 2 years. Phase 2 will ensure local economic benefit in supporting 350 small and micro businesses to build their retrofit skills and capacity
Nature Recovery	Wildlife and the natural environment are in recovery, with their decline halted and in line with the West of England Nature Partnership the abundance of wildlife has increased by 30%.	Deliver new habitats for our region's wildlife and invest in improving quality and connectivity of existing spaces for nature on land and in water, including vital habitats for bees and other pollinators.
Business & Skills	Help all businesses become more sustainable and resilient to meet our 2030 objectives; help low carbon sector businesses and ensure local people benefit from growth in the green economy.	Deliver support to businesses across the region, helping them become resilient to climate change and energy price rises through £2m Green Business Grants and Growth Hub support; & expand green skills programmes to help local people benefit from increasingly available green jobs through the Retrofit Accelerator, Futurebright, AEB, skills bootcamps, Careers Hub and other skills initiatives accessed via Skills Connect
Net Zero Energy	Work to decarbonise the energy system and increase local renewable energy	Empower community energy and innovation to unlock renewable energy potential including mine water heat.
Climate Resilience	Take action to accelerate and ensure we are adapting to a changing climate and increase climate resilience across our region	Prepare our residents and businesses for the impacts of climate change, by investing in flood defences and nature-based solutions, and considering future climate scenarios in infrastructure and emergency planning.

LAST YEAR'S REGIONAL ACHIEVEMENTS

We have seen significant progress since we published our 2022/23 Action Plan – including activity helping address the climate and ecological emergencies. In the past year, tackling these emergencies has become an even more central element of everything we do. In every project we are delivering, in every decision we make – we are taking steps to reduce and reverse our impact on climate and our natural environment.

Over the past year, cost of living pressures including the significant increase in energy costs have placed real pressure on people right across the region. Residents have struggled, as have local energy advice charities in supporting them. We funded these charities to meet last winter's exceptional demand. We have also improved our residents' resilience to energy price increases.

Through the South West Net Zero Hub, over 1000 lower-income households have seen their homes retrofitted to help reduce their energy costs. We also ran Solar Together, seeing a further 950 homes have solar PV panels installed. We have supported our businesses, advising them through our Growth Hub and skills programmes; and providing 360 SMEs with free carbon surveys to identify how they could save on their energy costs, and grant funding 160 to retrofit their buildings.

In the past year, we have also:

a. Allocated £42m of our £50m Green Recovery Fund (GRF) to projects delivering our ambitions around retrofit, community powered renewable energy and nature recovery – including nature recovery projects in Somer Valley Rediscovered, Capricorn Quay, Frome Valley River Reserve and Avon Needs Trees which seeks to plant 50,000 trees across 113 acres

b. Awarded 13 projects a share of £439,000 from our Community Pollinator Fund, enabling 1,300 of our residents transform 50 acres of land to support our pollinators, building on our Bee Bold initiative

c. Funded our ground breaking community energy groups' delivery:

i. Bristol Energy Network to construct the UK's largest onshore wind turbine in Lawrence Weston, and the bringing forwards further community wind projects across our region

ii. Bath & West Community Energy delivering a solar array and community orchard project at Fairy Hill

iii. Bristol Energy CoOp delivering solar PV generation on community, school and SME roofs

d. Delivered public and sustainable transport improvements across our region, extending the metrobus to Cribbs, gaining planning approval for new train stations at North Filton, Ashley Down and Portishead - and securing over £640m in our CRSTS and BSIP settlements

e. Delivering 3 Green Skills Bootcamps, embedding Green Skills across our skills provision and supporting over 160 people via the Community Support Fund in understanding environmental issues

f. Investing £3.8m in the University of Bath's £11.3m Hydrogen Sustainable Transport Economy Accelerator (HSTEA) project at Bristol & Bath Science Park collocating hydrogen production, storage and research collaboration

We have not acted alone in addressing the climate and ecological emergencies this last year. Across the West of England communities, businesses, local councils and the wider public and third sectors have delivered too. We need this collaborative cross-sector approach to continue.

Our region is seeing the benefit of collaborative partnerships forming, such as Bristol City Leap. This will invest £424m through a partnership between the Council and its partner Ameresco. Plans include installing 182MW of additional renewables and retrofitting council homes over the next 5 years, and a strategic heat main running from Avonmouth and Severnside through South Gloucestershire into Bristol city centre.

We have seen new net zero standards being developed and applied across our region. Bath and North East Somerset have adopted the UK's first net zero requirements for new housing, and ambitious Biodiversity Net Gain requirements. Working in partnership with them and the South West Net Zero Hub, other councils are seeking to adopt similar policy. An excellent example of these net zero standards is North Somerset and Kier, who have built Winterstoke Hundred Academy expansion to net zero standards, achieving BREEAM excellent energy efficiency rating and 10% biodiversity net gain.

Innovative solutions building on our region's strengths and heritage are also coming to the fore. This year we've seen Rolls Royce successfully trial green hydrogen fuelling a jet engine, building on our engineering aerospace expertise; and, looking to our coal mining heritage, the potential of abstracting heat from former mine workings is being explored. South Gloucestershire Council have already identified four areas of potential with over 20,000 homes and buildings that could use this as a potential heat source. With former mine workings across the West of England and 'geothermal' energy historically accessed in both Hotwells and Bath Spa, future sources of net zero heating and cooling may be beneath our feet.

OUR STRATEGY

We published the first version of this regional strategy in March 2022. Our review has established that the 2022 strategy remains largely correct.

We are focused on establishing and progressing the pace of change through actions and delivering change that will impact peoples' lives both now and in the future. We are building and strengthening partnerships across our region to maintain and increase delivery.

In the past year, discussion across our partnerships and with the public has highlighted a new priority area – Climate Resilience. This has been added to our strategic priorities, recognising the importance of adapting our region to the inevitable impacts of climate change and the increasing risks to our region.

The Challenge

The West of England Combined Authority's ambition is that in 2030:

- The West of England is net zero carbon,
- Wildlife and the natural environment are in recovery, with their decline halted and the abundance of wildlife increased by 30%; and
- The region has built its economic, social and natural environment resilience to the impacts of climate change

These ambitions have equal standing and status within the region. Although linked, we know that solving the climate emergency alone will not resolve the ecological emergency, and vice versa.

Achieving these formidable ambitions requires rapid and significant bold action at scale to transform our region. We must work across levels of government, catalyse private sector action, and empower the public to take action as well. We must adapt our behaviours, adopt new solutions and use existing technology rather than waiting for future solutions. We must adapt to an uncertain and changing national context.

As a Combined Authority, and working with North Somerset Council, our adopted strategies including the Joint Local Transport Plan, Joint Green Infrastructure Strategy and our developing policies are already contributing towards our ambitions.

This Strategy and Action Plan takes us further - setting out a route map between now and 2030. The Strategy and Action Plan:

- Defines our long-term strategic approach to tackling the climate and ecological emergency – the ways that we will deliver it and the objective for each priority area;
- Sets out our short-term action plan – including those actions already underway;
- Describes the medium and longer-term actions we will develop as we continue to plan for the future.

The Strategy and Action Plan provides a framework for our action up to 2030, but is not the final word. We will revisit these actions regularly, building up a programme that will realise our ambitions.

A Green, Just Transition

The actions required to address the impacts of climate change and deliver nature recovery will create new economic opportunities. The benefits from this transition must be shared widely, and support provided for those who may lose out. We must ensure the transition to a green economy does not leave anyone in the region behind.

This Strategy and Action Plan helps to tackle some of the most challenging issues we face as a region through this transition, including improvements to air quality, health and wellbeing, and addressing social inequalities.

We will continue to make necessary decisions to cut emissions, build resilience to the impacts of climate change and protect the natural environment, supporting our stakeholders to do the same.

Our actions and decisions will continue to be driven by science-based evidence, but we recognise that the urgency of the challenge means we will need to take decisions while the data remain uncertain, or where we are trying things that have not been done before. Where gaps in data are identified we will work with our stakeholders to address them.

OUR APPROACH

This Strategy and Action Plan is designed around six priorities developed and agreed by Combined Authority partners. Each section sets out:

- Our objective for 2030
- How we will deliver this objective – our strategic approach, outlining the key ways in which we will lead change
- 2023/24 actions – the immediate steps we will take to deliver swift action, and some of the regionally significant actions being taken by others
- Medium-term actions and long-term ambition – our and others' plans we are aware of and involved in to deliver further progress and to continue building our action. Further into the future, these will need to remain flexible so that we can continue to identify the actions needed to meet our ambitions and respond to opportunities.

We know we cannot meet our ambitions alone. We must collaborate together across our region, sectors and communities. The priority areas are interlinked, and impacts are often connected. For example, embedding nature recovery when we're retrofitting or constructing buildings, and how our businesses can benefit from our region adopting a sustainable transport system.

The strategy also sets out how the Combined Authority's actions will complement work already under way by our Unitary Authority partners, including North Somerset Council, and ensure we continue developing our plans in collaboration.

This strategy also includes our asks of government: where we will need devolution, policy direction, regulation, or funding to be able to co-ordinate and drive forward the transition.

We will continue providing progress reports every six months and update the Strategy and Action Plan annually to ensure we maintain momentum and ambition. This is the Strategy's first update, and is a living document that will remain under constant review.

The Strategy and Action Plan has been prepared in collaboration and consultation with key stakeholders , including:

- Unitary Authority partners, including North Somerset Council,
- Our Climate Action Panel, representing key businesses and stakeholders from across the region,
- The West of England Nature Partnership (WENP),
- Bristol Avon Catchment Partnership,
- The West of England Business & Skills Board and
- the Local Enterprise Partnership.

The West of England Combined Authority Committee has agreed five principles for the strategy:

- Take action now on the highest sources of emissions and causes of destruction of the natural environment and where we can have most impact as a Combined Authority – our six priority themes.
- Make the necessary decisions to cut emissions and protect the environment - we know that cutting emissions and protecting the environment will require taking hard decisions that will change the way we live and work in the region. We are not afraid to take these decisions and need residents and businesses to make the same tough decisions.
- Take a data led approach – providing metrics to fully understand the impact of actions taken and decisions made where the data is available. However, we recognise that the data to support some decisions is still in development. Where this is the case, we will not let lack of certainty be used as grounds for inaction or the avoidance of risk.
- Ensure that we are adapting to the effects of climate change by working with the natural environment and not against it, protecting and enhancing our natural assets and designing climate resilience intoof our infrastructure, land and water management across the region
- Facilitate a just transition – working to promote the green skills and high-quality jobs within a net zero and nature-rich economy. Ensuring that the decisions that we take do not adversely affect the most vulnerable social groups and SME businesses, ensuring we support their resilience first as those most at risk to climate impacts and energy price rises.

Regional roles and collaboration needed

Tackling the climate and ecological emergencies are a priority for the region. Yet achieving it will require changing what we do, how we live and work in the region and how we work together to make our decisions.

In order to meet the challenges that we face, we must work in collaboration – with regional partners, with residents, with businesses, and with Government.

The Combined Authority and our partner Unitary Authorities have an important responsibility to enable strategic changes and inspire behaviour change across the region in each of our six priority themes.

Local Government alone cannot save the region from the environmental emergencies we all face. Residents and businesses all have a role if we are to meet our ambitions.

There is no simple answer as to who does what. We need a flexible approach with a commitment to joining up, working together, sharing best practise, avoiding overlaps and pooling resources where it makes sense to do so.

Role of the Combined Authority

There are programmes and projects that we lead on, but we also take action to enable, fund, inform and inspire our residents and partners to take further actions. As a Combined Authority, we will focus on working in partnership with our Unitary Authorities to fulfil our role to:

- Deliver the actions within this plan to meet our challenging 2030 objectives, including:
  - reducing carbon emissions from our transport system and cutting car dependency
  - Significantly increasing retrofit across the region to reduce emissions from homes and other buildings
  - Supporting nature recovery by creating new spaces and habitats for wildlife including bees and other pollinators
- Changing the things within our direct control to help reduce emissions and halt the decline of wildlife including our own buildings, operations and travel and the way that we procure and commission.
- Grow the resources required to deliver action across the region. Developing successful fundable programmes, attracting private investment, and making the case for further investment.
- Deliver changes to our regional infrastructure to ensure that they enable us to meet our 2030 objectives
- Grow the skills within the region to support the delivery of action by developing successful skills training programmes, supporting businesses and residents with their own transition towards our 2030 objectives and making the case for further devolution and investment in skills in the region.
- Regional coordination of research, development and activity to address the climate and ecological emergencies across multiple sectors
- Showcasing good practice within the region to ensure we are involving and engaging our communities, delivering green social value, building partnerships where we need to drive effective change.
- Working with others to influence and make changes – working with our communities, partner councils and government to make the changes we all need to make

Role of local councils

Our region's Unitary Authorities share our ambition. Each has declared both climate and ecological emergencies. They have shared and some different influences over addressing climate and ecological crises in their local areas, defined in their own strategies and action plans.

Local councils have legal functions covering things such as planning, housing, education, waste, highways, and environmental health. They have thousands of employees across our region, supporting our region's million residents in their daily lives. This includes operational services and capital

projects, owning thousands of assets and operating many more.

Local Councils integrate their responses to both the climate and ecological emergencies through a broad range of statutory and non-statutory functions covering both people and place-based services. In doing so, they look across multiple functions to ensure that priorities are reflected in everything that they do and opportunities for services to work together across whole systems are capitalised upon.

Our region's Unitary Authorities, alongside the Combined Authority, have the same aim – to reach carbon neutrality area-wide by 2030. All of these Authorities made declarations of climate and ecological emergency between 2018 and 2020.

The Combined Authority supports our region's unitary authorities in the efforts and initiatives, such as:

- Bath and NE Somerset's application of net zero and BNG requirements for new developments via their Local Plan
- Bristol's Climate Neutral City Mission initiative which will bring key partners together to create a Climate Investment Plan
- South Gloucestershire's Live Labs 'Greenprint' highways initiative to explore how plant material mowed from our roadsides can be used for bio fuels and road materials

Role of our communities

To achieve our region's environmental objectives, all our region's communities need to be involved in shaping and delivering this agenda. The West of England Combined Authority and Unitary Authorities responsibility is to include and represent them in this. We have sought to reflect communities' needs within our strategies.

Our communities are already being impacted and adapting to the effects of climate change, and witnessing the ecological emergency in our natural environment. Without action, we will experience worsening impacts for years to come, especially impacting young people as our region's future generation. People must be locally supported in understanding, shaping and adapting activity.

We are fortunate that we have long-standing dedicated groups seeking to address climate change and improve our region's natural environment. We want to empower these and new groups to be part of the solution in delivering actions and environmental improvements.

We want to improve our engagement with our communities and organisations in this agenda. We will be building on strong foundations, joining others' engagement activity and collaboratively running our own engagements – including young people at a regional school summit this April, conversations with existing community groups and other partnerships, and coordinating conversations on specific challenges and opportunities.

Role of businesses and other organisations

Businesses of all sizes, commercial and industrial, are an essential part of reaching net zero carbon, protecting nature and ensuring supply chain resilience into the future. The Climate Change Committee has noted the importance of supporting businesses to achieve demand-side changes to energy use, including the transition to low carbon heating[1].

The role of other organisations across the West of England is also critical. This includes but isn't limited to our transport operators, housing associations, colleges and universities, charities and other public service providers.

A sustainable approach offers many opportunities for businesses including selling to customers who are looking for genuinely ethical and sustainable companies; and winning contracts from other businesses/organisations who want to improve their supply chains. Businesses that reduce their energy use will become more resilient to rising energy prices and the cost of living crisis. Businesses that plan for climate change impacts will become more resilient to direct or indirect weather extremes.

Businesses are responding positively to this challenge. A recent survey showed that nearly 70% of South West businesses consider climate change to be a core 'business issue' with 46% having already implemented plans and processes to reduce emissions and 31% switching to renewable energy[2].

1 Climate Change Committee, Progress Snapshot 2022. Available **here**.
2 Business West, Business Attitudes Survey, 2021, Available **here**.

Businesses are also increasingly aware of the difference that they can make in halting nature's decline and supporting nature recovery. This includes minimising their impact on the environment through the materials and processes they use and taking positive action in their local area such as developing projects to expand pollinator habitats.

We want to continue to support businesses in their sustainable journey through our Growth Hub, our free Carbon Surveys and Green Business Grants and Good Employment Charter. We also want to deliver more resources for businesses interested in protecting and expanding land for nature and pollinators.

A low carbon and greener economy is also an opportunity for those businesses delivering retrofit, natural environment, and renewable energy goods and services such as surveyors, builders, installers and ecologists. We aim to support these businesses to build their capacity to local economic market opportunities; and to support individual residents pursue green career pathways, to develop green skills to take up new or enhanced green job functions, responsibilities and opportunities.

Our Key Asks of Government

We support the findings and recommendations of the national Net Zero Review. With our region setting more urgent net zero goals of carbon neutrality by 2030, we urge Government to implement these recommendations sooner – and go further. The West of England has great strength and ability to deliver the 10 key missions identified within the Review. For instance, we are:

- Working ever more closely with National Grid and partners to ensure our electricity grid and other infrastructure is fit for our future needs;
- Looking at circular economy opportunities to reduce waste, such as South Gloucestershire Council investigating opportunities to use grass arising from maintenance to generate green gas in Live Labs;
- Seeking full scale deployment of solar across our rooftops via multiple projects and paving the way for onshore wind deployment, working closely with our community energy groups;
- Embedding and actively delivering nature and habitat restoration through our work; supporting our four universities and research and development sector in innovation; and
- Prioritising energy efficiency for households, leading to gas free homes.

We support the Government's Wildlife Improvement Plan, recognising its 10 goals aligning to our own regional priorities. Natural England's Green Infrastructure Framework also aligns and strengthens delivery of the West of England Green Infrastructure Strategy.

However, in order to meet the scale of the challenge and achieve our objectives, we are clear that government will need to do more to support our ambitions to go further, faster. We need government to work with us flexibly and responsively, listening to our needs.

To make progress across all themes we will need government to:

- Provide more resources e.g. the skills funding and training frameworks required to ensure we can achieve the transition towards net zero and to protect and enhance the natural environment. The investment required goes way beyond the resources available to the Combined Authority or Unitary Authorities. Central Government needs to step up and invest in programmes we are developing.
- Devolve powers and adapt national regulation –it is not just about resources. The Combined Authority and Unitary Authorities need the powers to manage our transport, planning, energy infrastructure and skills systems to achieve our ambitions and need national regulation to reflect this and be supportive of our 2030 ambitions.

Our key asks of government are to:

- Build on the Retrofit Accelerator and work with the Combined Authority to agree a long term retrofit strategy for the region including the rollout of heat pumps. This would include defined outcomes to increase the rate of retrofit within the region, including increasing retrofit skills courses and working with the public and community groups to encourage people to retrofit their homes. This would need to be accompanied by multi-year settlement to achieve the defined outcomes to provide retrofit market confidence, rather than the piecemeal stop-start subsidies.
- Include West of England in the National Adaptation Programme 3 trials – allowing us to test and trial innovative new approaches to building climate resilience within our region; and mandate climate resilience planning to be included in local resilience forums. This work should include natural capital assessment to understand our natural assets and the services (ecosystem services) they provide.
- Resource National Grid to work with us and provide them the regulatory changes needed at high-voltage transmission level to increase the amount of renewable energy generated in the region through:
  - Delivering approved connections where developers will proceed and removing approved connections that won't be proceeding, allowing additional connections – ensuring these are realised locally in our region
  - Strengthening the electricity grid to allow new generators to connect
  - Implementing smart solutions, including clarification of Exempt Licence legislation allowing more renewable energy generation connected directly to buildings via private wire networks;
  - Regulatory changes to treat localised generators and consumers (incl storage) as single entities, and to ensure an appropriate balance of storage vs generation (noting two thirds of approved but not yet connected electrical capacity in the region is storage)
- Create funding schemes to derisk community energy generation schemes, providing loans or grants for development costs. To collaborate with us in developing and launching further innovation funding rounds. These should be targeted at non-technical barriers relating to uptake of retrofit within buildings; and build on our region's strength in future energy systems supporting technological advancements in energy-from-mines, hydrogen and energy storage, nuclear fusion and tidal.
- Provide accelerated powers and set national policies for vehicle demand management, including distance and area-based options to make them fairer and more easily implemented, and further devolved powers to enable local transport decision making; and increase funding for capital investment and revenue support, including rural interventions to reduce car dependency; whilst continuing support for walking and cycling programmes and completing electrification of the rail network
- Provide sufficient capacity funding to produce, deliver and monitor Local Nature Recovery Strategies, including providing access to further proposed £124m within the £640m Nature for Climate Fund. The Government's Environmental Land Management schemes need to remain sufficiently ambitious to deliver nature recovery, including sufficient funding outside the Sustainable Farming Incentive.
- Provide sufficient resources for Local Planning Authorities to prepare for, implement and monitor Biodiversity Net Gain.
- Ensure that any changes to existing or introduction of new environmental legislation delivers increased protection for the natural environment
- To better reflect the advice of the Climate Change Committee in respect of emissions targets and that contained in reports to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of a changing climate.

Strategies & Plans in the Region

This strategy and action plan builds on the existing regional strategies within the region, including the Unitary Authorities' Local Plans, Joint Local Transport Plan, and Joint Green Infrastructure Strategy. All of our partner Unitary Authorities have also published their own climate strategies and action plans and have declared climate and ecological emergencies:

- Bath and North East Somerset Council who have a live page of projects (actions) they are taking: https://beta.bathnes.gov.uk/projects-progress
- Bristol City Council's refreshed Climate Plan in 2022: https://www.bristol.gov.uk/files/documents/5241-climate-emergency-action-plan/ and Ecological Plan in 2021: https://www.bristol.gov.uk/files/documents/794-ecological-emergency-action-plan/file
- North Somerset Council's refreshed Action Plan in 2022: https://www.n-somerset.gov.uk/council-democracy/priorities-strategies/climate-emergency/our-plans-tackle-climate-change
- South Gloucestershire's Climate and Action Plan refreshed in 2022: https://beta.southglos.gov.uk/climate-emergency-in-south-gloucestershire

This Climate and Ecological Strategy and Action Plan is not intended to replace or supersede the policies and activity contained within these documents. It is meant to complement them, providing an overview of our strategic approach and key actions to tackling the climate and ecological emergencies. As such, it should be read alongside our other regional strategies and action plans. Future actions and the development of this plan will take into account the wider regional strategies.

A snapshot of the key regional documents and strategies across the region's geographic authority areas is to the right and on the following page.

Sector	Bath & North East Somerset	Bristol	North Somerset	South Gloucestershire	West of England
Local Government	Climate & Ecological Emergency Action Plan	Climate Emergency Action Plan	Climate Emergency Strategy & Action Plan	Climate & Nature Emergency Strategy & Action Plan	Climate & Ecological Strategy & Action Plan
	Local Plan incl. Partial Update introducing BNG and net zero requirements	Local Plan	Local Plan	Local Plan	Innovation and Digital Plans
	Green Infrastructure Plan	Bristol Ecological Emergency Action Plan	Green Infrastructure Plan	Green Infrastructure Plan	Joint Green Infrastructure Strategy
	Employment & Skills Plan	Employment & Skills Plan	Employment & Skills Plan	Employment & Skills Plan	Employment & Skills Plan
	Clean Air Zone	Clean Air Zone	Rewilding Plan	Air Quality Action Plan	Joint Local Transport Plan
	Renewable Energy Resource Assessment	Renewable Energy Resource Assessment	Renewable Energy Resource Assessment	Renewable Energy Resource Assessment	Renewable Energy Resource Assessment
Joint government initiatives	One Shared Vision	One City Climate Strategy		Local Strategic Partnership	West of England Nature Partnership Strategy
		One City Ecological Emergency Strategy		Climate Emergency University Advisory Group	Nature Recovery Network
		Bristol City Leap		Town and Parish Council and Business 'Local Climate and Nature Action Plans' (LCNAPs)	Bristol Avon Catchment Plan
	River Chew & Bristol Avon Catchment Plans	River Frome and Bristol Avon Catchment Plans	Bristol Avon Catchment Plans	River Frome and Bristol Avon Catchment Plans	Bristol Avon Catchment Plans
NGO strategy and action plans		Bristol Energy Network Community Energy Strategy			Forest of Avon Tree & Woodland Strategy

UNDERSTANDING THE SCALE OF THE CHALLENGE

THE CHALLENGE FOR:

CARBON

TRANSPORT

BUILDINGS & PLACES

NATURE RECOVERY

BUSINESS & SKILLS

NET ZERO ENERGY

CLIMATE RESILIENCE

UNDERSTANDING THE SCALE OF THE CHALLENGE

The Carbon Challenge

Achieving our 2030 ambitions will require rapid and significant changes in the region. Current speed of change is not fast enough, and action must accelerate.

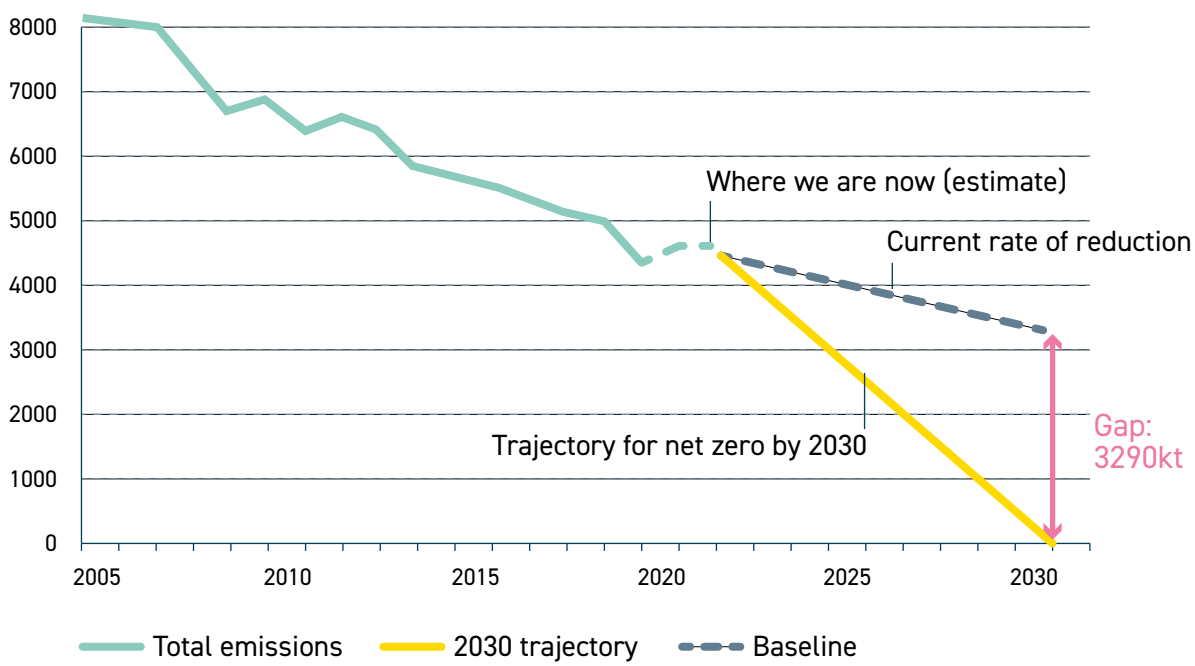
The West of England emitted 4,390kt of CO_2 in 2020. This amounted to 3.8 tonnes per person, 18% lower than the national average of 4.6 tonnes per person.

Regional emissions fell by 12% in 2020 compared to 2019 as a result of a reduction in business and travel activity during lockdowns. It is likely that some of these reductions were reversed in 2021, for which data is not yet available.

From 2005 to 2019, emissions fell by an average of 3.4% each year. If the pre-pandemic trend were to continue, the region would still emit 3,290kt CO_2 in 2030.

To reach net zero, emissions must fall by 501kt every year – 11% of current levels. This requires a significant acceleration of the progress made in recent years.

Figure 1: West of England greenhouse gas emissions must fall rapidly to meet our net zero ambition.[a]

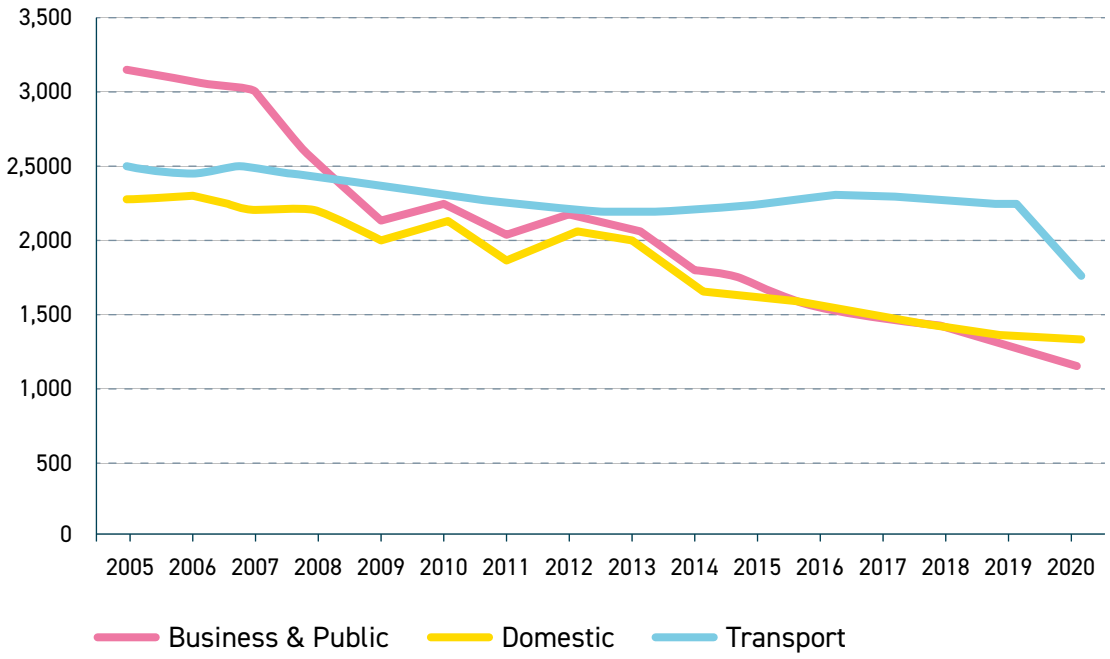


a UK Government local authority and regional carbon dioxide emissions national statistics: 2005 to 2020

The region's emissions in 2020 arose from transport (42%), domestic uses of power and heating (31%), and businesses and the public sector (27%). Reductions in emissions in recent years have arisen largely from the decarbonisation of the national electricity grid, which has reduced domestic and business emissions.

On the other hand, transport emissions have remained broadly level over the past 15 years. Increasing fuel efficiency and growing use of alternative modes has been off-set by rising car journeys; consumer preference to own larger vehicles; increasing trip length and freight movements. Reporting of transport emissions also reflects those considered within 'local control' - the emissions reported here only relate to 'surface' transport, excluding shipping and aviation emissions.

Figure 2: The sources of regional carbon emissions have changed since 2005. Domestic and business sources have declined.[b]



b UK Government local authority and regional carbon dioxide emissions national statistics: 2005 to 2020

We know that these figures do not provide the full story: they cover only emissions produced within the UK. Our businesses and residents consume imported goods and services, which have their own carbon footprint that is not accounted for here. Emissions embedded in imported goods and services account for almost half (48%) of the UK's total carbon footprint.[3] Consumers and businesses in the West of England have some control over the products they choose, but action is needed nationally and internationally to fully tackle this source.

The following sections discuss the current position for each of the six priority themes in this plan.

3 Defra, UK Carbon Footprint 1997-2019

The Challenge for Transport

Emissions from transport are among the largest contributors to greenhouse gas and CO_2 emissions in the region, representing 42% of the total in 2020. This excludes shipping and aviation, which are considered by Government in emissions reporting in the context of (inter)national emissions and outside the scope of direct local control.

Overall, transport emissions are not reducing in line with other emissions. Population growth means that car trips are expected to increase by a further 8% up to 2030.[4] Improvements in vehicle's fuel efficiency have been offset by changing consumer preferences for larger vehicles and travelling longer distances.

Historically, the West of England as a relatively prosperous area has had a high level of car dependency. More recently we have made substantial progress in growing bus, rail and cycle use; albeit, the last couple of years have seen the short-term drops in bus and public transport use largely linked to the COVID pandemic. Combined with financial pressures, this has resulted in some local bus services being cut and others being at risk of closure. However, increasingly longer trips, centralisation of services and amenities, and relatively generous parking provision, have continued to fuel a high level of car use.

There is a considerable gap between forecast transport carbon emissions reductions and 2030 ambitions. The ban on the sale of petrol and diesel cars from 2030 (and hybrid options from 2035) will help, but even considering planned activity and commitments such as the City Region Sustainable Transport Settlement and the MetroWest local rail network packages, we face a large gap in achieving a carbon neutral transport system by 2030.

In order to close this gap, we need to substantially reduce the use of the private car mileage by around 40%, both in terms of the number of trips and their length. This represents a fundamental change in lifestyle; decentralising services so people can access them in their local neighbourhood; significant increases in the use of public transport and active modes of cycling, walking and wheeling; and a shift towards electric cars will help but will not be enough.

We will need significantly more investment in walking, wheeling, cycling and public transport infrastructure beyond existing plans to provide improved, alternative journey options to the private car. Travel by low-carbon modes needs to be the genuine first-choice for our residents and businesses. We need to deliver a range of meaningful demand management measures to help achieve a meaningful reduction in the number of car trips within the region. These measures will need to include:

- Travel planning, marketing and information on sustainable and accessible alternatives;
- Review and change our local parking policies to further dissuade private car dependency whilst continuing to promote our local high streets;
- Planning to place obligations around provision of local services, including mobility hubs, and sustainable transport priority within developments
- Improving infrastructure, support and incentives to increase travel by walking, wheeling and cycling
- Ensuring new housing developments provide a good level of local facilities, effectively creating new, high quality `places' - placing obligations around provision, including mobility hubs and sustainable transport priority, via the planning process
- Progress a package of further pricing mechanisms including workplace parking levies and congestion charging areas, with revenues raised ringfenced for high quality alternatives to car use and to ensure a fair and just transition.

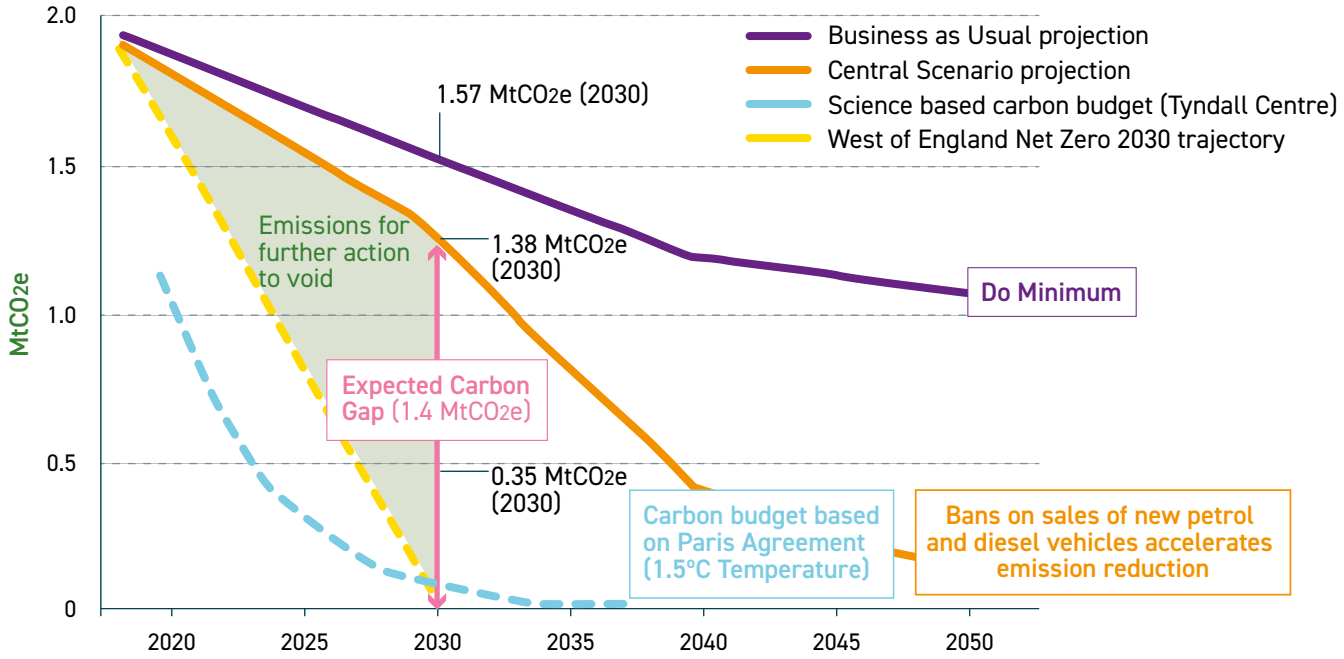
4 WSP, West of England Transport Decarbonisation Study, 2022

This graph illustrates the scale of the challenge in moving transport towards net zero. Our 2030 ambition is broadly in line with the Paris Agreement, but we will need to do much more to reduce car use given the likely proportion of non-electric vehicles by 2030.

Achieving this will provide the region significant benefits, including:

- Improve health, air quality and people's life expectancy;
- State of the art public transport and cycling, walking and wheeling networks
- Much more pleasant public spaces; and
- Much better access to local facilities.

Figure 3: Emissions cuts required by 2030 from transport (yellow line) compared with baseline following national trends (orange line) (WSP)[c]



c Tyndall Centre Carbon Budget https://carbonbudget.manchetser.ac.uk/reports/

The Challenge for Buildings & Places

Heating and powering our homes accounts for just over a quarter (28%) of the region's CO_2 emissions. To reach net zero, we will need to improve the energy efficiency of our buildings and move over to low-carbon heating sources. A total of 250,000 homes will need retrofitting with insulation and low-carbon heating.

Across the UK, emission reductions from buildings have levelled off since 2015. To achieve a 2050 net zero target, the Committee on Climate Change recommends:

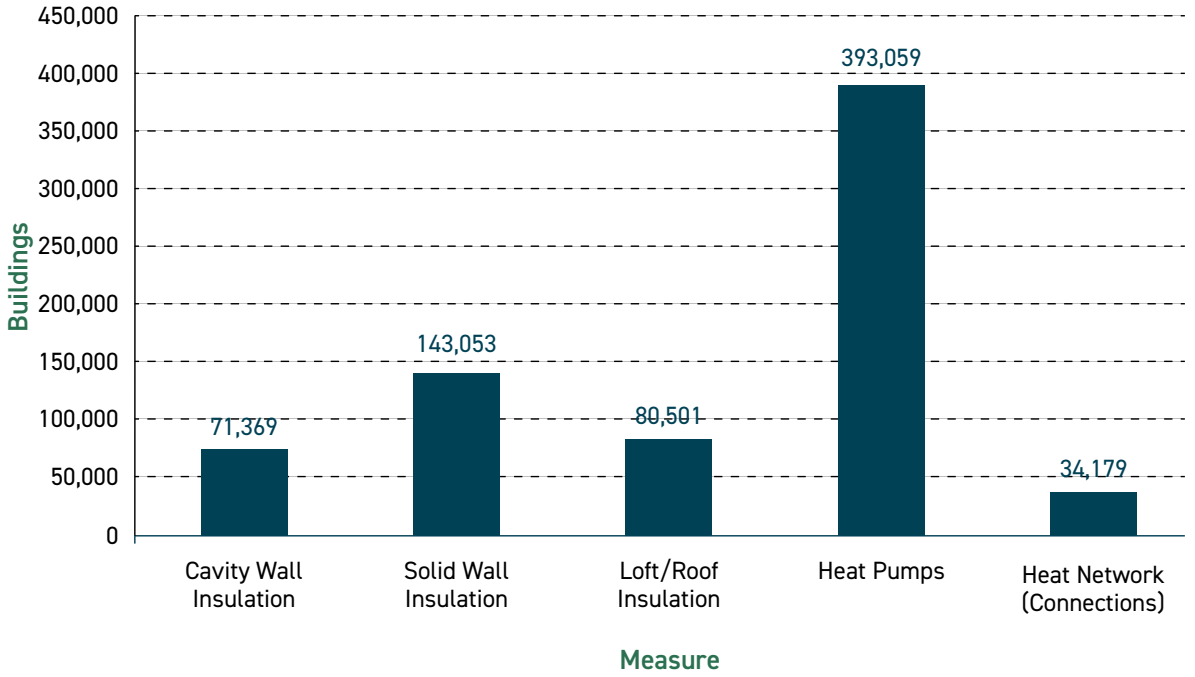
- All new buildings to be zero-carbon by 2025,
- All homes for sale should be rated EPC "C" level by 2028,
- All heating systems for buildings off the gas grid to be low-carbon from 2028 – i.e. not coal or oil, and,
- 100% of systems off natural gas by 2033.[5]

The West of England will need to act faster than this.

On energy efficiency, over 170,000 homes in the region need to increase their insulation and reduce energy use as far as possible through the delivery of over 290,000 insulation measures. This will lower fuel use and bills, and reduce the costs of decarbonisation. Currently, around 1,700 homes are retrofitted with insulation in the region each year, but the rate needs to increase to 29,000 per year by 2030: 21,000 properties installing wall insulation, and 8,000 loft or roof insulation.[6] And a further 8,400 non-domestic buildings across the region will need improvements to insulation as well.

To decarbonise heating, heat pumps or connections to heat networks will be needed for over 250,000 homes and 8,000 non-domestic properties. This will require over 40,000 installations per year by 2030. This is a significant shift: that rate exceeds the current rate of heat pump installations in the whole of the UK (30,000 per year).[7]

Figure 4: Total retrofit installations required in the West of England to meet net zero by 2030.[6]



5 Committee on Climate Change, The Sixth Carbon Budget: Buildings
6 Ecuity, West of England Retrofit Skills Market Analysis, 2021. Available **here**
7 *Ibid.*

The costs of retrofitting homes will be high, and beyond the capacity of the public sector to fund alone. Public policy will need to stimulate private investment, to share the costs. By illustration, the cost of increasing insulation and installing heat pumps varies significantly, depending on the age and construction of the building. Many homes in our region have heritage or conservation status that will affect the measures that are appropriate. A conservative estimate would be for an average cost of around £20,000 for a range of insulation measures and installation of a heat pump.[8] Applying this figure to 250,000 homes needing measures gives a rough estimate of a total domestic retrofit cost of £5bn. Costs could rise if supply chain bottlenecks are encountered as the rate of installations increases.

However, the benefits of retrofitting our buildings are high. Well insulated homes are easier and cheaper to keep warm in summer, and cooler in winter. This helps people and businesses be more resilient to energy costs and the cost of living crisis we face. It also helps protect people from ill health associated from being in cold, damp or (in summer) too hot buildings. This in turn reduces pressure on our public health service.

Buildings and developments have a significant impact on the natural environment, impacting the quality and quantity of habitats such as woodland, wetland, grasslands and our water courses. The Environment Act is introducing the requirement for all new developments to deliver 10% Biodiversity

Net Gain, with the aim of leaving the natural environment in a better state than before. This requirement will come into effect nationally from late 2023 and should have a positive impact across the region in terms of delivering our nature recovery objectives, placing an increasing demand for skills and jobs within ecological services sector in order to meet the demands of delivering Biodiversity Net Gain requirements.

8 DESNZ, What Does It Cost To Retrofit Homes?, 2017, available **here,** and House of Commons Environmental Audit Committee, Energy Efficiency of Existing Homes, 2021, available **here**

The Challenge of Nature Recovery

In common with other parts of the country, wildlife and the natural environment have come under increasing pressure in the West of England. As an example, numbers of woodland birds have declined 27% since the 1970s, 7% of this in just the last 5 years.

A functioning and resilient natural environment is vital to our society, economy, and wellbeing, and will also be crucial to mitigating the effects of climate change. Half of the world's GDP is moderately or highly dependent on nature, and 75% of the crop types grown by humans require pollination.[9]

Containing both urban and rural areas, the region provides a network of natural spaces on land and in water for residents and wildlife. However, we need to expand and better connect these areas and improve their quality as natural habitats to enable nature's recovery, as well as improving access. Currently, the region's natural spaces include:

- 5,583 hectares of accessible green space (4% of the region's area) [10]
- 11,657 hectares of woodland (9% of the area)[11]
- 10,000 hectares of water and wetland (8% of the area)

366,000 people (32% of the population) have access to substantial green space within 300 metres of home.[12]

The West of England Nature Partnership has mapped the region's Nature Recovery Networks to identify the best opportunities to deliver improvements.[13]

Wildlife habitats across the West of England need to be strengthened to promote the recovery of nature. Nationally, only 28% of habitats of European importance were in a favourable or improving condition in 2019 – down from 53% in 2007.[14] Key species are much less abundant than in the past: for instance, the abundance of farmland birds has declined by 55% from 1970-2019, and butterflies by 22% since 1976, across the UK.

The challenge is not only on land, but in water, where rivers provide habitats for a range of wildlife, play a key role in protecting against flooding, and are important places for recreation, however river habitats in England are facing significant pressure. Only 14% of English rivers are meeting good ecological status and no river is meeting good chemical status, posing dangers to nature, swimmers and other river users.

The State of Nature Report for the UK set out that this harm is ongoing:[15]

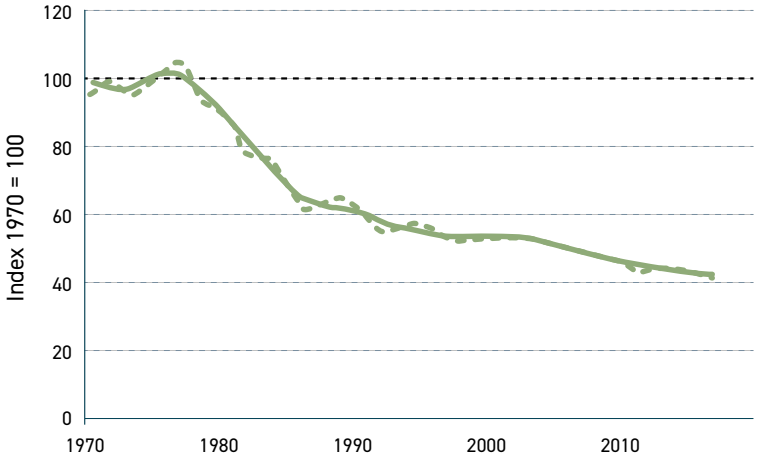
- 41% of species assessed decreased from 2009 to 2019;
- 15% of all wildlife in the UK is threatened with extinction;
- 2% are already extinct;
- Butterflies are down 16% since the 1970s and familiar birds like the house sparrow have reduced by more than half in the last 40 years.

These are the results of long-term damage to ecosystems and habitats, and they will need a comprehensive response to improve the quality, quantity and connectivity of our natural environment. The requirement to develop Local Nature Recovery Strategies, deliver Biodiversity Net Gain, improve Green Infrastructure, and existing work across our networks such as the West of England Nature Partnership will help to address some of this challenge, but we will need to do more to fully address the damage.

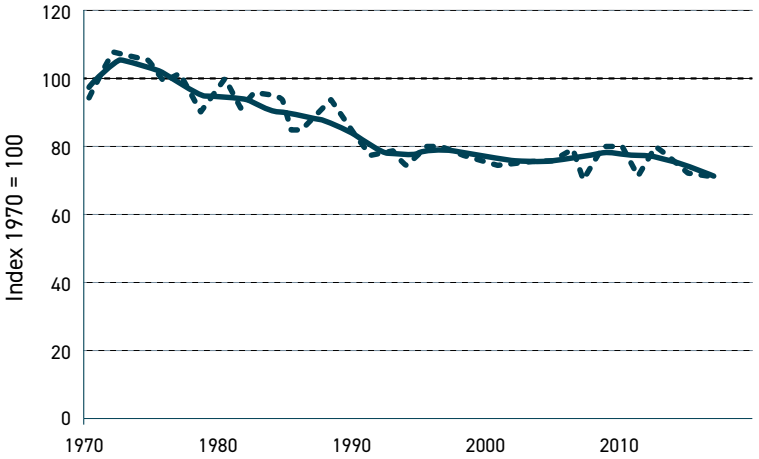
9 World Economic Forum, The New Nature Economy Report, 2020, available **here**
10 Ordnance Survey, Open Greenspace
11 Forestry Commission
12 Natural England
13 West of England Nature Partnership, Nature Recovery Network, available **here**
14 Defra, UK Biodiversity Indicators 2021
15 RSPB, State of Nature 2019

Bird populations in the UK over time (1970 to 2020)[15]

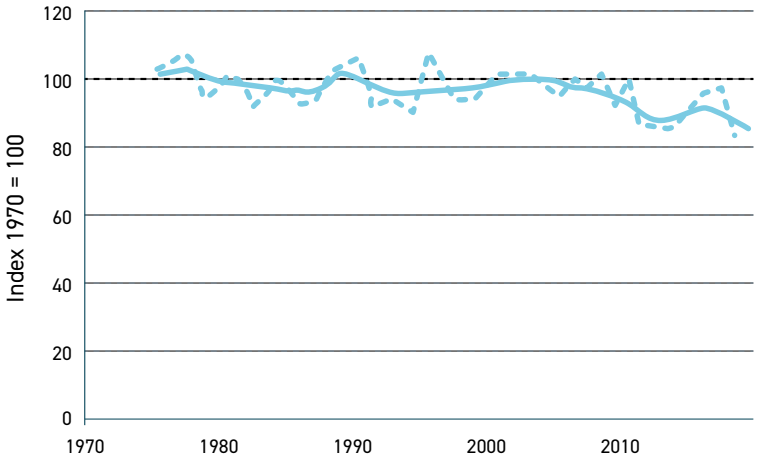
Farmland birds (19)



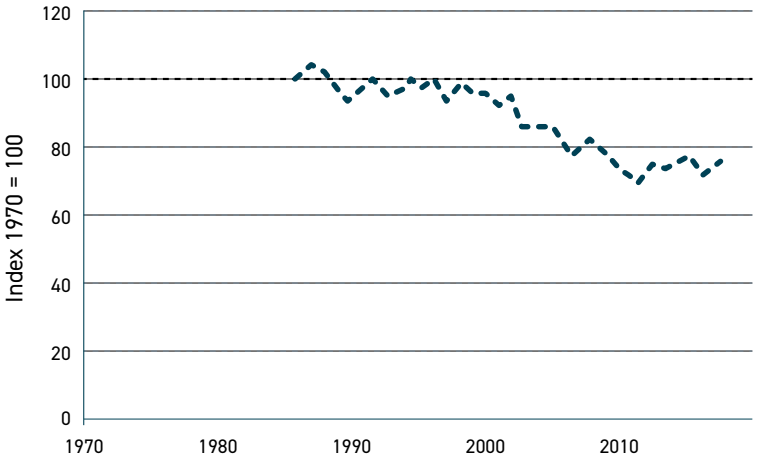
Woodland birds (37)



Water and wetlandbirds (26)



Seabirds (13)



The Challenge for Business & Skills

Cutting emissions

All businesses need to fully decarbonise their operations, ranging from heating and powering their buildings to logistics, transport and production processes. Businesses and organisations in the West of England emitted 1,310kt of CO_2 in 2019. These emissions have fallen 49% in the past 10 years, but a significant challenge remains in removing the remaining emissions.

Industrial firms produced 43% of these emissions; commercial businesses 34%, the public sector 18%, and agriculture 5%. Emissions mainly came from electricity (41%) and gas (33%), with industrial firms also using other fuels (24% of the total). The prevalence of gas and other fossil fuels demonstrates that decarbonising the electricity grid will not solve the problem alone, and that substantial changes will be needed by businesses in how they power and heat their buildings and business processes. Furthermore, firms will need to manage their supply chains to minimise 'imported' emissions embedded in goods and services they import from abroad.

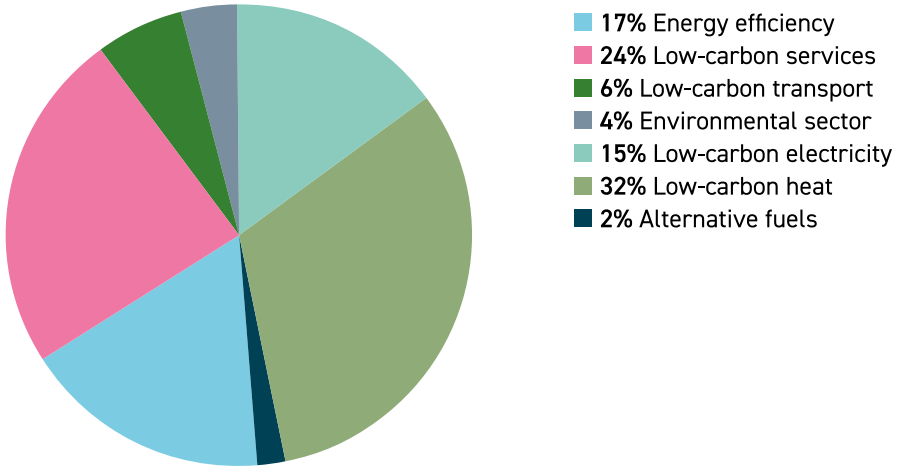
In the current economic climate and cost-of-living crisis, the connection between decarbonisation and economic resilience/growth has never been so strong. Payback on investment in low carbon solutions has been transformed by rising energy prices, increasing demand in supply chains and markets. Many businesses are unsure what their path to net-zero could look like. With the right support, local businesses will grow our region's economy in developing and exporting low carbon products and services.

Green jobs

Achieving net zero will need people with the right skills and in new jobs. The West of England will need over 45,000 green jobs by 2030. This is made up of jobs in manufacturing (10%), construction and installation (52%), and operation and maintenance (38%).[16] Evidence from our Unitary Authorities and key stakeholders also shows that demand for jobs within the ecological sector is likely to grow with the increased focus on delivering Biodiversity Net Gain.

Employment and skills provision will need to increase to meet this requirement. Around 6,250 people are estimated to currently work in low carbon jobs in the West of England.

Figure 5: Forecast low carbon job opportunities by sector, 2030, Ecuity



16 Ecuity, West of England Green Skills Market Analysis, 2021. Available **here**

Green business opportunities

These will also emerge. New low-carbon products and services will require innovation, and the West of England's businesses are well placed to take advantage of these growth areas. The low carbon economy is predicted to grow by 11% per year up to 2030, creating around one million jobs nationally.[17] Areas of green sector growth include:

- Low carbon electricity products and services, which could grow by 5-7% per year to 2030;
- Products and services for low emission vehicles, which could grow by 20-30% per year to 2030; and
- Low carbon financial services, which could grow at over 10% per year to 2030.

As set out above, this could create 45,000 green job opportunities by 2030 in the West of England. And these businesses could lift the region's low carbon GVA from £760m in 2020 to £3.7bn per year by 2030.[18]

Our definition of what constitutes a green job is one that "will help to create the job functions, responsibilities, conditions, working practices and/or business processes which contribute towards reducing emissions, lowering the carbon footprint and protecting the environment."

17 Ricardo, UK business opportunities of moving to a low carbon economy, 2017
18 Ecuity, West of England Green Skills Market Analysis

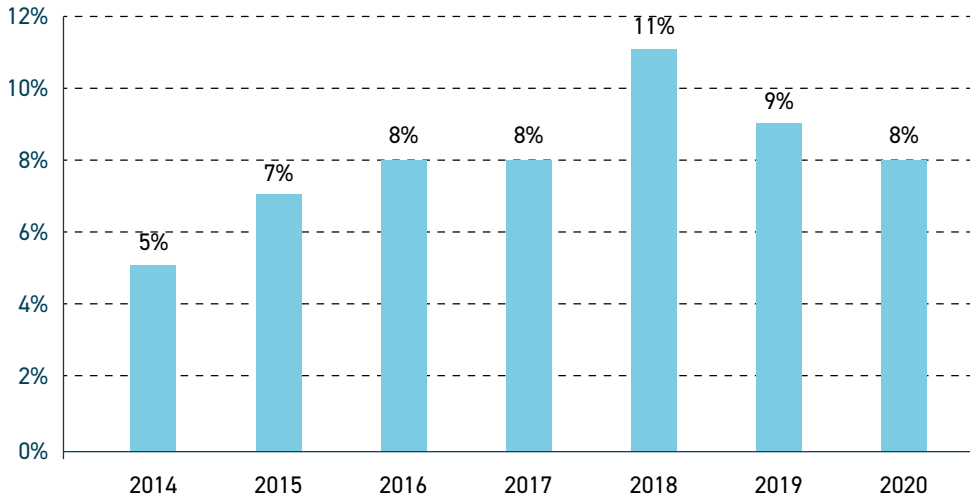
The Challenge for Net Zero Energy

In 2021, national grid electricity was 55% low carbon, comprising 15% from nuclear and 40% renewable.[19] The Government is aiming for a fully decarbonised electricity system by 2035, but due to grid inflexibility to maintain supply and demand, integrating renewables is still a major challenge.

Within the region, renewable electricity generation is 41% higher than a decade ago, yet still only provides 8% of the region's electricity consumption. After increasing significantly up to 2018, the region's renewable generation has dipped since 2018, with declining generation from municipal waste, anaerobic digestion, and onshore wind.

Photovoltaics (PV) are the largest source regionally, providing almost two-thirds (65%) of locally-generated renewables, followed by onshore wind (29%).[20] There are currently 23,200 sites with photovoltaic generation across the West of England, a 72% increase since 2014.

Figure 6: The share of our electricity consumption generated from renewable sources within the region has increased in the long-term but dipped in recent years significantly



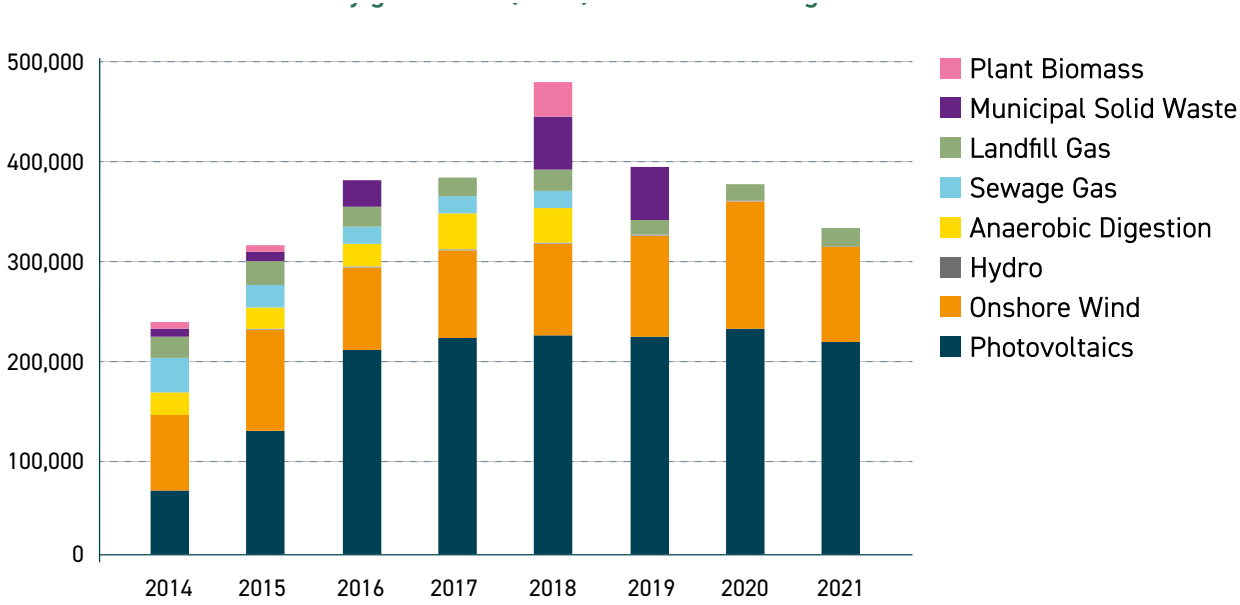
19 DESNZ, UK Energy in Brief 2021
20 DESNZ, Regional Renewable Statistics

There is a huge volume of proposed electrical capacity approved to connect to the region's electricity grid. Partly driven by the escalating value of electricity, the region has over 2,000MW accepted to connect[21] – over five times our region's current generating capacity. 1,326MW of this is electricity storage, with the remaining majority being 650MW of solar PV.

Whilst these are accepted to connect, and National Grid must honour these connections, they may not come to fruition. National Grid have said new connections in the southwest of England are unlikely to be approved until 2028-2031.[22] Increasing our region's renewable electricity will require:

- Delivering approved connections where developers will proceed
- Removing developers that chose not to proceed with the investment, allowing additional connections
- Strengthening the electricity grid to allow new generators to connect
- Implementing smart solutions, such as locating renewable electricity generation adjacent to where there is demand from buildings & industry

Figure 7: Photovoltaics and wind turbines are the largest sources of renewable generation within the region



21 **Embedded Capacity Register** - December 2022 - National Grid's Connected Data Portal
22 National Grid 2022 regional customer connections updates: **https://www.nationalgrid.com/electricity-transmission/connections/regional-customer-connections-update**

Decarbonising our region's heat is principally aligned with retrofitting our buildings. However, in addition to installing almost 400,000 heat pumps within buildings - the region needs to connect over 34,000 buildings onto heat networks – insulated pipes running between buildings connected to large renewable heating solutions.

Installing these networks between buildings and finding renewable sources of heat – larger heat pumps, such as the one installed in Bristol's floating harbour; or capturing heat currently lost in former mine workings and in our industrial areas and piping it to where it's needed – requires significant engineering, infrastructure investment, innovation and collaboration.

The greatest challenge will be in people and businesses changing their investment priorities, to recognise climate responsibility and the benefits of warmer well-heated buildings, and install heat pumps and retrofit energy efficiency measures in their buildings. Engagement, advice and other support is needed to support our region investing to save our climate and escalating energy costs.

Community renewable energy schemes will play an important role in increasing generation, as well as being powerful tools for promoting engagement and support for new renewables developments. Therefore, the acceleration of their deployment withing the region would be highly beneficial. Nationally, community schemes generated less than 1% of renewable electricity in 2021.[23]

There is opportunity to build on existing progress, by joining up community energy schemes to ensure that residents are linked into and benefit from local energy initiatives.

23 Community Energy England, Community Energy State of the Sector 2021

The Challenge for Climate Resilience

Our climate is changing and will continue to do so. Despite efforts to reduce emissions, the effects will have impacts for years to come.

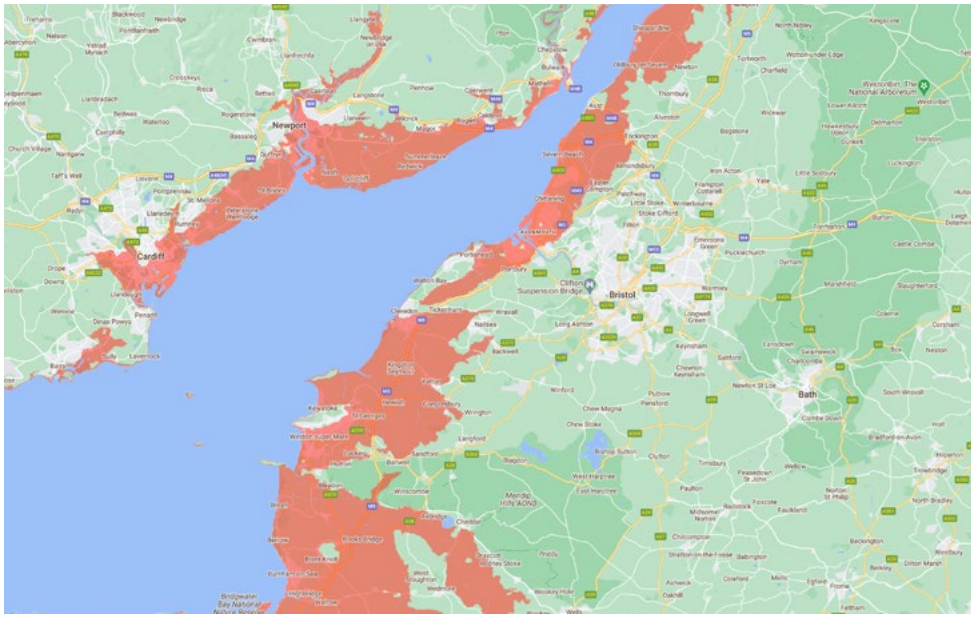
The Climate has already changed - across England, average annual land temperature in the decade 2010-2019 was 0.9°C warmer than in the period of mid 1970s to mid-2010s.

In the West of England we can expect to see hotter temperatures & more heat waves. Summer temperatures are expected to rise by between 1.7 and 3.9°C by the 2050s and between 3.1 and 7.6°C by the 2080s. Hotter temperatures put people's health at risk. During 2022's record-breaking heat waves there were over 3200 excess deaths in the UK. Summer high peak temperatures will increase by up to 4.5°C in 2050, and 8.9°C in 2080. Heat waves will increase the decline of our regions natural habitats and also increase the chances of wildfires. Summers will be drier, those with droughts will be up to 42% drier in 2050 and up to 62% drier in 2080. This will impact agriculture and industry, and our natural environment and ecosystems.

Our winters will be wetter. Rainfall is expected to increase by 9-28% by the 2050s and by between 17% to 48% by the 2080s. Sea levels are projected to rise by between 24-36cm by the 2050s, and 42-72cm by the 2080s. This will increase the vulnerability and susceptibility of homes, businesses and infrastructure to flooding – exacerbated further by climate change's impact on more extreme weather events. The UK Climate Change Risk Assessment sets out this will result in us facing:

- Increasing pests, pathogens and invasive species impacting our natural environment
- More frequent flooding and coastal erosion, impacting our buildings and infrastructure
- Extreme weather events impacting our transport, health and social care sectors
- High temperatures and drought resulting in water scarcity and impacting public health – combined with international impacts impacting food scarcity and national security

Land projected to flood annually by 2050, even with massive cuts in emissions now AND optimistic projections in sea level



Climate Central Coastal **Risk Screening Map**, showing land projected to be below annual flood level in 2050

The challenge we face is to ensure the West of England is prepared to adapt and our communities and businesses are as resilient as possible to the impacts of climate change. We import much of what we use – we need resilient local food production, infrastructure and supply chains; and cannot solve all the problems ourselves. This needs national and international work.

The National Adaption Programme sets out the actions that government and others will take to adapt to the challenges of climate change in England. This CESAP establishes what actions we need to do locally.

What does this evidence mean for our Strategy and Action Plan?

The evidence for the region is clear. We are not on track to meet our 2030 objectives for the climate and ecological emergencies.

Our regional emissions and the scale of damage to the natural environment are still too high and are not projected to reduce or recover quickly enough. If we do not take action now to change this pathway, we will continue the pattern of doing irreversible damage to the region, and putting the businesses and lives of our residents at risk.

This document provides the strategic framework and long term vision for us to achieve our 2030 ambitions. The actions set out provide the first steps towards meeting them and enabling the changes that we need to see across the region. However, we are clear that these alone will not be sufficient for us to meet our targets.

As a region, we need to work collectively to take the big decisions, accepting that there will need to be trade-offs in the way we invest our money and live and work within the region to meet our objectives. Addressing the climate and ecological emergencies will be the greatest challenge of our times, but one that we cannot afford to get wrong.

OUR ACTION PLAN

OUR STRATEGY FOR:

TRANSPORT

BUILDINGS AND PLACES

NATURE RECOVERY

BUSINESS & SKILLS

NET ZERO ENERGY

CLIMATE RESILIENCE

OUR ACTION PLAN

Working with partners across the region (including our Unitary Authority partners, the region's Climate Action Panel, the Local Enterprise Partnership and others) we have identified six core areas that we must focus on to achieve our ambitions. Whilst these areas have been separated for ease of reference within this plan, the actions are often interlinked, and the impacts will be shared between them all.

To keep actions clear and concise, we have not identified specific partners we're working with against each action. The vast majority of actions involve us working with our partners – including Unitary Authorities, businesses, education providers, community groups, residents and many more. Each action should be read in this context – of us working with partners across the West of England in their delivery.

Included in our Action Plan are a selection of complimentary actions being led by our Unitary Authority partners. These are those the Combined Authority has some involvement in, or where they will directly influence some of our activities. However, these are not comprehensive. Earlier in the document are links to Unitary Authority climate and nature action plans. We support their and other organisations' efforts in addressing the climate and ecological emergencies. Over the next year, we will be looking to bring our actions together with others in a searchable digital format – allowing greater visibility of work across our region in achieving our nature and climate goals.

In each section of the action plan, we set out:

The challenge	Setting out the challenge we must address in relation to this priority
Our focus	Highlighting the areas we have agreed with partners we should focus on to meet that challenge
Our call to Government	Setting out what we will call on Government to do to enable swifter progress

1. **Immediate action we will take in 2022-23**
2. **Medium-term actions we will take or develop with our partners in 2024-28**
3. **Longer-term ambitions that will be further developed in future iterations of our climate and ecological emergency action plan**

OUR STRATEGY FOR TRANSPORT

STRATEGIC OBJECTIVE: To decarbonise the transport system; reduce car dependency; manage demand; increase cycling, walking and public transport; and embed nature recovery within transport projects

The Challenge	Our focus	Our ask of government
Emissions from transport, including freight, are one of the largest contributors to greenhouse gas and CO_2 emissions (around 44%) Without intervention, car trips are expected to continue increasing. Significant modal shift and lifestyle change away from private cars is vital, with around a 40% reduction in car mileage required to meet our 2030 objectives.	**We will deliver the objective by:** • Cutting the number of journeys, promoting mode shift • Substantially increasing public transport, walking and cycling • Promoting the growth of local facilities, accessible by non-car modes. • Increasing the uptake of low carbon and electric vehicles. • Achieving the powers to deliver Demand Management measures, ringfence revenues for sustainable transport	Obtain powers to deliver demand management options, including distance and area-based options Increased funding for capital investment and revenue support, including rural interventions to reduce car dependency. Continue support for walking and cycling programmes. Completion of electrification of the rail network Further devolution of transport powers to enable more local decision making

Next year with our partners we will aim to:	Anticipated timescale
Reduce number of car trips and freight journeys by:	
Reviewing our Joint Local Transport Plan to confirm the policies which will substantially cut greenhouse gas emissions to prioritise options progressed in terms of their carbon and environmental impact.	Autumn 2023
Increasing the pace of transport decarbonisation by progressing plans and start to implement demand management measures	March 2024
Supporting councils in their efforts to strengthen car parking policies and prioritising accessible locations and sustainable travel in new development through their Local Plans	Throughout 2023/24
Developing detailed plans for a liveable neighbourhood in Bristol and confirming areas to deliver liveable neighbourhoods in B&NES and South Gloucestershire with a view to rolling out a programme of delivery across the region to reduce reliance on cars.	March 2024
Launch and trial Mobility as a Service scheme – a one-stop-shop to deliver a regional digital journey planning, booking, ticketing, payment and information solution	Throughout 2023/24
Explore and secure investment in further innovative transport solutions and services to reduce car and freight trips (including alternative fuels such as electricity, hydrogen and biofuels) as well as social and planning innovation.	Throughout 2023/24
Increase walking, cycling & wheeling by:	
Delivering 16 (TCF, ATF and CRSTS) walking, cycling & wheeling schemes and work with partners to submit applications for additional schemes to future active travel fund (round four).	Throughout 2023/24
Deliver 30 cycle hangars in Bristol, and explore feasibility of wider regional rollout	by Q1 2023
Deliver walking, cycling and wheeling routes within new strategic transport corridors being delivered under the CRSTS, integrated with delivery of green infrastructure.	Throughout 2023/24 and beyond
Deliver improved walking, cycling and wheeling facilities across Yate Station, Ralph Allen School in Bath, Concorde Way and Clapton Road in Midsomer Norton; and subsidising rental schemes and training, including Bristol Family Cycling Centre via £680k investment	Throughout 2023/24
Supporting councils and regional partners in their walking and cycling initiatives including working with employers and communication campaigns, and in traffic management schemes	Throughout 2023/24
Increase uptake of public transport by:	
Run 'WEST Link' fleet of 'on demand' minibuses to connect people to our bus corridors (Demand Responsive Transport)	Up to 2025

Next year with our partners we will aim to:	Anticipated timescale
Deliver Dynamic Demand Responsive Transport (DDRT) trial in north Bristol to connect people to major employment opportunities and other key destinations such as Southmead Hospital	Up to 2024 as part of FTZ
Build 15 green roofed solar-powered bus stops, as well as improving wildlife areas around them, this year and deliver a further 300 in subsequent years under CRSTS	By 2024 (w/ 300 delivered in CRSTS by 2026/27)
Implement fare capping in place for adult single trips and develop a single ticket solution to simplify residents' journeys across the region through BSIP.	By 2024
Improving frequency and accessibility of trains through delivery of new train lines and stations (via MetroWest Phase 1a, Phase 2 and CRSTS),	Throughout 2023/24, with Portway opening Q1 2024, Ashley Down in 2024/25, and Portishead & North Filton in 2026
Increase uptake of electric and net zero fuel vehicles by:	
Delivering around 300 new electric vehicle chargepoints and 400 charging bays by investing £5m (informed by EV charging strategy)	Initial Business Case for Spring 2023
Commence a new contract for micro-mobility to enhance escooter hire provision and introduce on-street ebike hire in the Bristol Bath areas	Launch Summer '23
Deliver our sustainable urban freight trials, introducing e-cargo bikes in university and hospital campuses, 'parcels as passengers' on trains and 'local high-street aggregator' to consolidate local neighbourhood deliveries	By March 2024
Supporting our councils in maintaining Clean Air Zones and in their electrification and decarbonisation of their fleet by publicly backing them	Throughout 2023/24
Build our region's hydrogen economy by exploring opportunities for green hydrogen electrolysis and piloting application of hydrogen as a transport fuel in sectors difficult to electrify (including HGVs operating locally, such as busses and in goods distribution)	Throughout 2023/24
Reduce the impact of our transport systems on nature by:	
Agreeing a regional framework for how transport projects will minimise their impact on nature, through interventions such as nature-based solutions to road run-off, wildlife kerbs, and regular and targeted cleaning of gullies.	By March 2024
Agree regional priorities for retrofitting of existing transport infrastructure to reduce its impact on nature	By March 2024

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030**
• Open six new railway stations by 2026, increasing access to rail for more people across the region. In 2024 we will see Ashley Down station, and in 2025 having step-free access at Lawrence Hill Station. Then in 2026 we shall see the new Portishead Line and new stations at: North Filton, Henbury and Charfield • Increase use of rail by 1,300,000 new rail journeys per year by 2025/6 by developing our regional rail network (delivering measures outlined in our CRSTS programme and Rail Delivery Plan). • Increase bus travel from 48,000,000 in 2021/22 to 70,000,000 bus journeys per year by 2025/6 (to pre lockdown levels) by developing our regional bus network through the delivery of measures outlined in our CRSTS programme and Bus Service improvement Plan. • Develop the walking,cycling and wheeling network in line with the Local Cycling and Walking Infrastructure Plan and the CRSTS programme. • Limit the increase in emissions of new development by designing and implementing planning policy to deliver reduce dependency on cars and increase use of sustainable public transport. • Work with Unitary Authorities to design and implement demand management measures within the region. • Work with government and Unitary Authorities to build a case for further devolution to enable more strategic decisions to be made on public transport in the region. • Expand car-share / car club services to offer services across the region, working with Unitary Authorities and private operators to shape and deliver • Build on the success of the Green Futures pilot to help educate young people on the benefits of transport decarbonisation, adopting green practices and pursuing green jobs. • Invest in nature-based solutions to limit pollution caused by the road network. • Reduce ecological severance caused by the existing transport networks and new infrastructure, for example through wildlife tunnels and wildlife kerbs.	• Create a network of 15-minute liveable neighbourhoods that will contribute to the longer-term reduction in emissions • Achieve a 40% reduction in car usage through the successful implementation of demand management frameworks • Have an affordable, convenient, sustainable and easy to use alternative to the car for all our rural and urban residents • Support industry partners to develop future transport fuels or energy systems for transport including the aviation industry • Have a road network that makes space on roads for cyclists, walkers and wheelers as standard. • Commence delivery of a new, state of the art public transport mode – Future4West – along four strategic corridors.

Transport Case Study

Delivering bus service improvements – metrobus and the Greater Bristol Bus Network

The region has a strong track record of success in delivering improvements to bus services which have led to increases in passenger numbers. Over the last 15 years we have worked together to improve bus services over the region with the introduction of projects such as the Greater Bristol Bus Network, Bath Transport Package and the metrobus Bus Rapid Transit network. Representing an investment exceeding £300m, following the introduction of these schemes the region saw an increase in bus use of 42% until 2017, and a further increase of 6% following the introduction of metrobus, bucking the national trend. The West of England councils working in partnership with bus operators, brought several key corridors up to recognised good practise 'showcase' and/or metrobus standards with:

- Over 150 new buses offering higher service frequencies including biomethane-fuelled metrobus services.
- Around 1,000 improved bus stops including new shelters, level access and more than 300 new real time information displays.
- Significant new bus priorities, including a new bus lane and bus-only junction on the M32.
- Improvements to public realm, pedestrian and cycle access and safety.

This has led to the region securing £540 million for our City Region Sustainable Transport Settlement to radically improve infrastructure for buses, rail services and walking and cycling; and a further £105 million for revenue funding for new bus services as well as further infrastructure in North Somerset.

OUR STRATEGY FOR BUILDINGS AND PLACES

STRATEGIC OBJECTIVE: Increase the energy performance, climate resilience and environmental benefits of buildings and places

The Challenge	Our focus	Our ask of government
Emissions from heat is one of the largest contributors to greenhouse gas and CO_2 emissions [around 35%] in the region. Most of our heat is supplied by gas. Retrofitting and improving the energy efficiency in 250,000 homes and 8,000 other buildings is highly complex as a result of different levels of ownership, building types including commercial and industrial buildings and responsibility for property maintenance Population growth, and government requirements, mean an increase in housing. With no action this will lead to an increase in emissions unless they are fitted with low carbon or carbon neutral heating systems and are built to high energy efficiency standards. New developments and buildings can also have a significant impact on the natural environment. From Winter 2023, all new developments will be required to deliver 10% Biodiversity Net Gain	**How we will deliver the objective** • Increase the number of new carbon neutral homes and buildings being developed that deliver Biodiversity Net Gain. • Increase the energy performance of homes and buildings across the region • Reduce reliance on fossil fuel based heating systems.	Provide policy consistency for the sector through a national retrofit strategy Provide long term, sustainable funding for large scale retrofit programmes, including our Retrofit Accelerator Instil confidence in the retrofit supply chain by establishing and maintaining clear quality accreditation standards for retrofit installers Change National Planning Policy Frameworks to support the development of carbon neutral buildings and the use of land for renewable energy generation.

Next year with our partners we will aim to:	Anticipated timescale
Increase the energy performance of homes and buildings across the region	
Run the Retrofit Accelerator Phase I Homeowner Advice Service to increase the scale and pace of retrofit, creating a hub for homeowners to access information on retrofit . Forecast to advise 10,600 households, resulting in 5,250 homes being surveyed and delivering 4,200 measures in 1,400 households over the next 2 years	Launch in Spring 2023
Expanding the domestic retrofit supply chain via the £2m Retrofit Accelerator Phase IIa, supporting a minimum of 350 small and micro businesses, and Phase IIb (£200k) to integrate retrofit understanding and awareness into our Future Bright coaching service, and other skills offerings	Launch in Summer 2023
Deliver the Innovative Housing Retrofit Scheme, insulating 50-75 hard-to-treat homes within the region; and seek funding to expand the scheme to further demonstrate new approaches for wider roll out (e.g. offsite manufacturing)	Throughout 2023/24
Carry out up to 400 free carbon surveys for small & medium sized enterprises (SMEs) to help them understand and reduce their energy use, carbon footprint and other environmental impacts	Throughout 2023/24
Provide c225 SMEs with grant funding to make energy saving improvements and install renewable energy via a new £2m Green Business Grant fund	From May 2023
Promote grant-funded domestic retrofit programmes in our region including those via the South West Net Zero Hub , Warm & Well in South Gloucestershire, Energy at Home in Bath & North East Somerset and City Leap domestic retrofit in Bristol	Throughout 2023/24
Work with public sector partners and the South West Net Zero Hub to secure funding, develop strategy and deliver decarbonisation projects on public land and buildings	Throughout 2023/24
Develop a range of sustainable funding mechanisms for retrofit and the transition to non-fossil fuel reliant heating within the regionto secure private and government funding	Throughout 2023/24
Develop our retrofit approach by improving our knowledge on existing housing and retrofit requirements – working with funders to collect data needed in securing investment	Throughout 2023/24

Next year with our partners we will aim to:	Anticipated timescale
Increase the number of new carbon neutral homes and buildings being developed that deliver Biodiversity Net Gain (BNG) by:	
Publicly support Local Councils and the South West Net Zero Hub in adopting and enforcing net zero and BNG new build standards for new developments across the region through local planning policy	Bath & NE Somerset Council adopted Dec 2022. Bristol consultation in 2022, adoption in 2023. South Gloucestershire to follow
Review and coordinate regional development and adoption of innovative environmentally-positive design and construction approaches (such as Bristol Housing Festival establishing a Regional Centre of Excellence in Housing Innovation; and Design Codes incorporating wildlife habitats such as swift boxes)	Throughout 2023/24
Reduce reliance on fossil-fuel based heating by:	
Coordinate rollout of heat pumps with local councils and National Grid Electricity Distribution, to accelerate rollout and maintain electricity grid resilience to accommodate transition	Throughout 2023/24
Develop a heat pump engagement and collective buying scheme, with corresponding local supply chain support, targeting delivery of an additional 1000 heat pumps across our region over 2 years	By Q4 2023/24
Agree cross-border collaboration agreements to support expanding the Strategic Heat Main within City Leap and other heat networks across the West of England	During 2023

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030 for the region:**
• Support retrofitting of over 1,400 additional homes through the Retrofit Accelerator, advising early adopter homeowners through the Homeowner Advice Service and supporting early adopter supply chain businesses through the Supply Side Market & Capacity Building Programme • Build the Retrofit Accelerator Green Skills programme to support residents to identify new green skills provision and access to it. This will facilitate progressions into and within work as well as support young people into green careers and pathways • Develop a range of sustainable funding mechanisms for retrofit and the transition to non-fossil fuel reliant heating within the region, including securing private and government funding and increasing community and regional purchasing schemes. • Support new low emissions developments that maximize the use of onsite renewable heat and energy and are linked with biodiversity objectives including increasing wildlife abundance and new habitat creation (through local and regional planning policy) • Test viability of setting requirements of achieving BNG requirements exceeding national 10% targets and carbon neutral (or reduced) construction and decomissioning for new buildings and infrastructure in the region • CA and UA using their unique position as strategic planning and housing authorities to raise awareness and understanding of retrofit options for various building types • Stimulate the market for non-fossil fuel heating systems encouraging the transition from gas and oil boilers through encouraging behaviour change, the innovation of new technology, and improving supply chain capacity for new energy systems. • Increase the number of Energy Performance Certificates for both housing and commercial buildings in the region, up from the current position of 44% to raise awareness of energy performance and the improvement measures required to retrofit to achieve 'grade C' to help reduce emissions from buildings.	• Increase the scale and pace of retrofit within the region to ensure that the majority of properties within the region achieving EPC C as a minimum, as a result of local interventions, improved national policy and access to funding. • Ensure new properties and buildings are carbon neutral across their lifetime, from construction and operation to decommissioning. • Deliver a widescale transition towards non-fossil fuel reliant heating systems across all buildings within the region. • Exceed 10% biodiversity net gain to increase wildlife abundance and protect green spaces across all new developments and infrastructure projects in the region where viable.

Low Carbon Buildings & Places Case Studies

Green Business Grant Case Study: Pentagon Sport South Ltd

Based in Bradley Stoke, Pentagon Sport design, manufacture and install playground and outdoor learning products and facilities for schools and nurseries. As part of a relocation to a new premises, they sought ways to improve energy efficiency within their new office and warehouse. Being located in a large warehouse poses significant decarbonisation challenges when balancing energy use and the need for the building to be well-lit and appropriately heated to suit their activities. They received a £3,420 Green Business Grant from the Combined Authority to replace almost 200 fluorescent lights with LED fittings, resulting in an estimated 70% reduction in lighting energy use and an annual carbon saving of 8.5 tonnes of CO_2 equivalent.

"We were looking to make our premises as green as possible for both our own carbon footprint, reduce emissions, ensure a safe and comfortable workplace for our employees and also to reduce our costs. We believe that it is very important for SMEs to think about it... If all businesses made small changes it could have a big impact in the region."

Chris Argrave, Finance Manager, Pentagon Sport.

OUR STRATEGY FOR NATURE RECOVERY

STRATEGIC OBJECTIVE: Wildlife and the natural environment are in recovery, with their decline halted and in line with the West of England Nature Partnership the abundance of wildlife has increased by 30%

The Challenge	Our focus	Our ask of government
Habitats loss and degradation, pesticide use and pollution, a rapidly changing climate, and invasive species. Protecting and enhancing the natural envrionment of the West of England including key priority habitats such as woodland, rivers, wetland and grasslands is integral in maintaining the ecosystem services. A lack of accessible green space has broad impacts including on community health and wellbeing and climate resilience.	**How we will deliver the objective** • Improve the quality and connectivity of existing spaces for nature and wildlife (primarily through the development and delivery of a Local Nature Recovery Strategy) • Create new spaces for nature and wildlife • Enable business, other stakeholders and residents to contribute to nature's recovery including unlocking investment in nature-based solutions.	Provide capacity funding to produce Local Nature Recovery Strategies and their ongoing delivery Ensure sufficent funding is available to deliver Biodiversity Net Gain Establish training routes and frameworks to support anticipated increase in need for ecologists and nature recovery experts Increase funding available for the delivery of large scale projects. Ensure agricultural subsidies support sustainable, nature-friendly farming and enable nature recovery at scale

Next year with our partners we will aim to:	Anticipated timescale
Improve the quality and connectivity of existing spaces for nature and wildlife by:	
Deliver improvements to existing natural green spaces such as through Common Connections, Chew Valley Lake, developing investable business cases for improvements at Bath Riverline and Waterspace Connected.	Throughout 2023/24
Deliver access improvements to existing water (blue) spaces including investment at Chew Valley Lake and developing business cases for improvements at Bath Riverline and Waterspace Connected.	Throughout 2023/24
Develop a Local Nature Recovery Strategy that provides a coherent regional vision and map for nature's recovery, building on the West of England Nature Recovery Network, and helps direct investment effectively into the natural environment	Autumn 2023
Develop a regional agreement for public sector bodies to reduce the use of pesticides on their estates, with an aim of eliminating use altogether.	Throughout 2023/24
Provide residents access to volunteering opportunities in nature recovery projects and the natural environment jobs market via Pollinator Fund, Green Futures, Community Support Fund and other grassroots skills programmes	Throughout 2023/24
Plant more trees and create habitats along strategic corridors and rivers (incl. CRSTS and strategic nature recovery networks)	Throughout 2023/24
Develop a monitoring framework (data platform and ecological baseline) for the regions natural environment to enable us to measure progress towards our ambitions, including the possibility to use a wildlife index to measure abundance and diversity of wildlife amongst the current ecological network	December 2023
Set up a region wide project that aims to understand the health of, and management approaches applied to the region's protected sites.	Summer 2023
Create capacity that will enable UA and partner priorities (WENP prospectus) to be developed into investment ready projects, and source varied and innovative funding options.	Throughout 2023/24
Create new spaces for nature and wildlife by:	
Launch the second round of the Community Pollinator Fund to increase the number and quality of habitats for pollinators and bees across the region	Spring 2023
Provide evidence to support councils' local plans and planning policy to create new spaces for nature and wildlife and protect existing spaces linking in with regional biodiversity objectives, including those set out in Joint Green Infrastructure Strategy and the Tree and Woodland Strategy.	ongoing

Next year with our partners we will aim to:	Anticipated timescale
Ensure that transport and planning projects delivered by the Combined Authority positively contribute towards nature's net recovery, including delivering at least 10% Biodiversity Net Gain	Throughout 2023/24
Together with WENP and the Forest of Avon Trust, renew and continue to accelerate action in delivering the Forest of Avon Plan. Includes investment of £730,000 for the Forest of Avon Trust for woodland creation, including 50,000 broadleaf trees in diverse habitats	Throughout 2023/24
Work with Bristol Avon Catchment Partnership to identify actions and investment required to deliver the Bristol Avon Catchment Plan and the Bristol Avon Fish Recovery Strategy to improve the health, biodiversity and resilience of our water courses, wetlands and river catchments.	Throughout 2023/24
Enable business, other stakeholders and residents to contribute to nature's recovery, including unlocking investment in nature-based solutions by:	
Promote and embed the West of England Placemaking Charter for creating high quality, biodiverse places that support access to nature and encourage health and wellbeing	Throughout 2023/24
Develop and promote the biodiversity footprint concept, to engage and inform businesses about how they can make changes to their supply chain to support nature.	Throughout 2023/24
Hold further Bee Bold Awards and create targeted business campaigns to support businesses create habitats and support polinators.	June 2023
Work with West of England Nature Partnership (WENP) and Natural History Consortium (NHC) to raise awareness of and engagement with the natural environment, and encourage conservation volunteering and pro-environmental behaviours (City Nature Challenge, Team Wilder, Festival of Nature)	Throughout 2023/24
Support the development of platforms that enable businesses to invest in the natural environment (e.g. Bristol and Avon Catchment Market)	Throughout 2023/24
Develop innovative new ways of observing and monitoring the natural environment	Throughout 2023/24
Using regional skills programmes including Multiply and Workforce for the Future to build skills required for ecology and natural environment sector.	Throughout 2022/23
Work with the agricultural community to understand needs and land use options to unlock investment for nature, aiming to create a coalition of agricultural partners signed up to support nature recovery	Throughout 2023/24
Develop an approach to enabling and collecting citizen science data, to engage people with nature and support decision making.	Throughout 2023/24

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030:**
• Deliver over 375ha of improved natural green spaces by 2025/6 • Provide strategic guidance and support (including via Skills Connect, skills interventions and joint initiatives with delivery partners) to develop regional relevant skills required for nature recovery • Work with the Unitary Authorities to develop and implement planning policy to deliver a coordinated strategy on climate change adaptation and mitigation, including the management of natural capital and ecosystem services • Seek further public and private investment to support upscaling of measures to increase the abundance and distribution of species and quality and quantity of habitats. • Develop a natural capital approach to evidence and support the development of investment ready projects and inform decision making across the region.	Support the ambitions of the West of England Nature Partnership to: • Increase the abundance of wildlife from 2020 levels by 30% by 2030 • Increase our semi-natural broadleaved woodland cover by 2500ha (from 8,000 to 10,500 ha, or by 31%) • In addition to woodland, create 2000 hectares of wildlife-rich habitat outside the protected site network • Close at least 40% of the Nature Recovery Network connectivity gaps through the creation of new habitat • Ensure all water catchments are in at least moderate ecological status, with half in good ecological status by 2030 • Ensure 70% of designated sites are in favourable condition by 2030.

Nature Recovery Case Studies

Tree Canopy Project

The Green Recovery Fund is funding the Tree Canopy project, to plant and establish 2000+ mature trees by 2025. This will deliver benefits directly where people live, on public open spaces, highways verges and green areas within residential developments. These benefits include increasing biodiversity; climate adaptation and resilience including cooling, shading and air quality.

Delivery is being managed by South Gloucestershire Council, working with partners including Forest of Avon, Woodland Trust, Local Tree nurseries and contractors, West of England Nature Partnership and Town and Parish Councils.

Bee S13 Pollinators Project

The Community Pollinator Fund is funding the Bee S13 Pollinator Project which is engaging residents with pollinators in an urban area of south Bristol. A pollinator trail will take visitors through seven locations in the BS13 postcode, where green spaces are being transformed with pollinator friendly plants. Planting workshops will also be run to teach local children nature-friendly gardening, equipping them with the practical skills to take home and use in their own environments.

OUR STRATEGY FOR BUSINESS & SKILLS

STRATEGIC OBJECTIVE: Help all businesses become more sustainable and resilient to meet our 2030 objectives; and help low carbon sector businesses and ensure local people benefit from growth in the green economy

The Challenge	Our focus	Our ask of government
Businesses need to fully decarbonise their buildings and operations. The physical risk of climate change could have a detrimental impact on businesses, their supply chains and workforce. The UK Government estimates that the green economy could grow 11% each year, creating new market opportunities; however, the region is currently missing the skills required to deliver the 2030 net zero ambition.	**How we will deliver the objective** • Support businesses to transition to low emission, sustainable practices and adapt for climate resilience and support nature recovery • Prepare business for emerging green economy opportunities, including through innovation • Support local people to access green jobs and bring 23,000 green jobs across the region. • Supporting low carbon industries, such as those in the domestic and commercial retrofit and renewable energy sectors, to grow through business support and providing training opportunities for quality labour supply	Continue to provide funding for Growth Hub Net Zero Advisors to encourage businesses to decarbonise Encourage all businesses to make a climate resilience plan, to ensure that they understand their risks and liability against a changing climate to help ensure business continuity Launch further innovation funding rounds to promote low carbon goods and services Work with the Metro Mayor to create a trade campaign focussed on increasing investment and trade in low carbon goods and services in the West of England

Next year with our partners we will aim to:	Status
Support businesses to transition to low emission, sustainable practices and adapt for climate resilience by:	
Carry out up to 400 additional free carbon surveys using £416k funding to help small & medium sized enterprises (SMEs) understand their energy use and low carbon solutions; and seek funding to widen the scope and number of businesses eligible for a survey	Throughout 2023/24
Deliver a new £2m Green Business Grant fund to help approx.225 SMEs to make energy saving improvements and install renewable energy, based on findings from a low carbon business evidence base	From May 2023
Increase our understanding of the scale of the challenge and support needed to decarbonise small & medium sized enterprises in the region, through commissioning a low carbon business evidence base and intelligence gathered from the Growth Hub	Throughout 2023/24
Pilot a Rooftop Generation Grant to encourage the use of larger business premises to boost solar PV generation capacity.	Launch in Autumn 2023
Deliver more carbon & nature literacy support for businesses to improve their understanding of climate and ecological emergencies and actions they can take to help decarbonise and build resilience through website resources and 4 events per year.	Throughout 2023/24
Develop a focussed net zero Growth Hub route to sit alongside the embedded activities already in place, to advise SME businesses on net zero journeys with a year-on-year increase in the number of businesses supported. .	Throughout 2023/24
Investigate the benefits and ways in which the Combined Authority could support a regional transition towards circular economy principles.	By March 2024
Explore opportunity to recognise businesses' positive actions through green digital badging, aligned to our Good Employment Charter (which has sustainability running through each of its pillars)	Throughout 2023/24
Develop a peer-to-peer support programme to promote innovation and environmental transition, including becoming nature positive, via mentoring, sharing best-practise and networking events	By March 2024
Ensure local people can access green jobs and bring 23,000 green jobs across the region by:	
Deliver green careers advice universally to school aged children and young people via the Careers Hub and seek funding to build on the Green Futures Fund pilot.	Throughout 2023/24
Use business engagement to understand what skills / knowledge they need in place to meet the 2030 ambitions to inform our skills provision including Skills Connect, Good Employment Charter and Skills Bootcamps.	Throughout 2023/24

Next year with our partners we will aim to:	Status
Use Skills Connect to support individuals to access information, advice and guidance on green jobs through the Retrofit Accelerator Phase IIb, FutureBright, Skills Connect and Green Skills Bootcamps	Throughout 2023/24
Deliver Workforce For The Future, aiming to support over 450 SME businesses and 1000 residents access skills and training including green skills	By September '23
Deliver Green Skills Bootcamps for residents as part of our £5.1m Wave 4 programme, focusing on retrofit; green transport; and organisational sustainability	Wave 4 Bootcamps launching from April '23
Publish and use the findings from the South West Skills Study from the South West Net Zero Hub to build on the West of England Green Skills Analysis Report to inform our provision of retrofit and green skills	By June 2023
Prepare business for emerging green economies by:	
Support 350+ domestic retrofit small and micro businesses through the Retrofit Accelerator Phase IIa, to raise awareness, train and increase accreditation	Launch in Summer 2023
Leverage national funding for large scale initiatives (such as demonstrators, networks, living labs) and support manufacturing and engineering industries to innovate new sustainable technologies and supply chains	Throughout 2023/24
Support SMEs to innovate new sustainable technologies through delivery of the Business Innovation Fund and Made Smarter programmes	Throughout 2023/24
Develop innovative green financial and delivery models, including those unlocking investment in nature-based solutions and supporting organisations in the West of England FinTech Strategy	Throughout 2023/24
Revise our regional procurement strategy to include environmental weighting alongside social value in procuring sourced goods and services.	By March 2024
Use Invest Bristol & Bath to create a campaign to attract new green businesses to the region, targeting a third of new businesses attracted to the region via Invest Bristol & Bath to be focused on green jobs	Throughout 2023/24

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030:**
• Deliver multimillion-pound infrastructure projects to support our 2030 objectives and grow the economy including flood defences to protect and enable 19,400 jobs and £3.8bn of GVA. • Develop programmes to re-skill and up-skill existing trades/ industries (especially fossil fuel reliant) that will be implemented by 2025. • Work with all schools and colleges within the region to green their curriculums and ensure work experience and training opportunities aligned with identified green skills gaps, Building upon Skills Connect and the West of England Employment and Skills Plan. • Grow innovative climate and environment-related research and development businesses in the region • Deliver Digital Transformation Programme by April 2025 to support green skills development and business growth through the improvement of digital infrastructure and capacity within the region.	• Ensure that it is common practice for businesses in the region to operate sustainably, including through low carbon practices and recruitment, and in ways that protect and restore nature and that they are prepared for climate change. • Enable low carbon sector businesses to develop new sustainable products and services that support the delivery of renewables and domestic/commercial retrofit. This will include adoption of greener job descriptions and functions as per the Good Employment Charter. • Ensure that the region has the workforce and skills to deliver our 2030 objectives by providing training and reskilling opportunities to new green jobs, particularly targeting fossil-fuel reliant sectors and engineering. • Prepare our regional economy for a lack of energy security and local climate risks – including key regional infrastructure such as transport/buildings/IT infrastructure, health care, food, water.

Business and Skills Case Studies

Green Business Grants: Kingsway Laundry Ltd

Based in East Bristol, Kingsway Laundry is a self-service laundrette as well as providing laundry services to local businesses. Having already installed LED lighting and purchased an electric vehicle for collections and deliveries, they still faced challenges decarbonising due to their reliance on gas for tumble driers and water heating. They received £15,000 from the Combined Authority's Green Business Grant scheme, supported by the European Regional Development Fund and West of England Recovery Fund. This allowed them to replace their gas-fired water heater with an electric air-source heat pump, as well as install pipe insulation to improve heat retention. They also installed solar photovoltaic panels on their roof, with some of their water able to be heated by electricity generated on-site too. The estimated impact is a reduction of 6 tonnes of CO_2 equivalent per year, and at least £350 off annual energy bills.

"We think being 'green' and responsible is incredibly important and being seen to do so, helps others to follow suit. It is also very important to our customers and business clients wanting to ensure their own laundry is being processed responsibly. With the price of gas going up so dramatically recently, moving from gas to electric water heating has helped us financially too." – Chris Hill, Company Director, Kingsway Laundry.

Climate and Biodiversity Festival

This collaborative programme of events ran between 24 September and 2 October 2022. It showcased, inspired and connected organisations, residents and communities across Bath and North East Somerset. Events included Repair Cafes, a Car Park Clean-up Challenge and Bike to the Park, and a Community Day. This brought together organisations supporting communities and residents in climate and biodiviersity – including Families Acting on Climate Emergency; Transition Bath; Eco Together; Bath & West Community Energy; Climate Hub; Share & Repair Bath and the RSPB.

OUR STRATEGY FOR NET ZERO ENERGY

STRATEGIC OBJECTIVE: Decarbonise the energy system and increase local renewable energy production

The Challenge	Our focus	Government action required
Renewable energy generation in the region has increased by 75% in five years, but represents a decreasingly low proportion of energy use [DESNZ 2021]. Average domestic fuel bills have almost tripled in the last ten years - the largest increases last year, with domestic bills increasing by 61% and non-domestic even higher, pushing households into fuel poverty and businesses to closing. Government proposes the National Grid will be fully decarbonised by 2035 - however, no new grid connections are available until after 2030 – partly due to 1350MW of storage and 650MW of PV approved but not yet connected, versus our region's existing 357MW of capacity	**How we will deliver the objective** • Increase renewable energy generation across the region, including through local, community focussed generation • Focus on delivering proven and building integrated renewable energy, such as heatpumps and rooftop solar generation • Work in partnership to develop new smart approaches to the decarbonisation, storage, management and distribution of energy.	Work with our region and National Grid to bring forwads generation approved to connect, and increase capacity through reinforcements and removing stalled projects Regulatory changes to treat localised generators and consumers (incl storage) as single entities, and to ensure an appropriate balance of storage vs generation Open further innovation funds non-technical barriers relating to uptake of retrofit within buildings; and build on our region's strength in future energy systems supporting technological advancements in energy-from-mines, hydrogen and energy storage, nuclear fusion and tidal Implementing smart solutions, clarifying legislation for private wire networks; Continue funding Net Zero Hubs and create funding schemes to derisk community energy generation schemes, providing loans or grants for development costs.

Next year with our partners we will aim to:	Status
Increase renewable energy generation across the region, including through local, community focussed generation by:	
Deliver £1.5m funding for Sustainable Innovative Finance Foundations for Wind Turbines (SIFFFT) to bring 10 sites to landowner agreement and 3 sites securing planning through a community led model across the region, providing a pipeline of up to 70MW of investable onshore wind projects with shared learning for other communities.	Throughout 2023/4
Rollout rooftop solar, including £569k for Bristol Energy Co-Op to install over 2MW PV targeting rooftops of SMEs, schools and community buildings; piloting a Rooftop Generation Grant scheme encourage the use of larger SME business premises to boost solar PV generation capacity; and launching a second round of solar bulk-purchasing solar PV scheme open to residents and businesses	Throughout 2023/4
Seek sustainable funding for free local energy advice provision for residents seeking help in coping with their energy bills	From April 2023
Fund the Local Energy Scheme round 2 capital projects and launch a third round for development and capital funding of over £600k to support community led projects, including 'smart' energy systems.	Throughout 2023/24
Support public sector partners across the region developing major capital projects through the South West Net Zero Hub provision of free local technical assistance	Throughout 2023/4
Work with National Grid Electricity Distribution and partners to bring forwards approved, but not yet operational, renewable electricity generation	Throughout 2023/4
Work with the UK Coal Authority to expand investigations in South Gloucestershire and Bristol's eastern fringe across the region's former coal workings across Bristol, Bath and North East Somerset	By April 2024
Explore innovative water sources of heating and cooling including from our harbours, rivers and sea	Throughout 2023/4
Input into Severn Estuary tidal energy commission via Western Gateway	Throughout 2023/4
Work in partnership to develop new smart approaches to the decarbonisation, storage, management and distribution of energy by:	
Increasing energy innovation funding coming to the region, working with partners such as our region's universities, R&D companies, Innovate UK and Energy Systems Catapult and National Grid (formerly Western Power Distribution)	Throughout 2023/24
Work with National Grid and our local councils to develop proposals to trial new flexible and other innovative solutions such as lower cost alternatives for grid reinforcement and to deliver additional renewable energy generation	Throughout 2023/24

Next year with our partners we will aim to:	Status
Investigate and support deployment of viable conjoined renewable electricity 'private wire' and virtual 'synthetic' networks connected to local communities	Throughout 2023/24
Review and collect evidence to develop regional heat and electricity decarbonisation pathway scenarios to net zero and the role different interventions will play (e.g. energy storage, renewable electricity, heat pumps and renewably fuelled heat networks)	Throughout 2023/24
Developing a coordinated approach with National Grid and local councils to locate new homes, buildings and infrastructure linked with renewable energy generation and storage to overcome grid constraints	Q1 2023/24
Engage communities and energy groups on the roles they can play in delivering smart energy solutions and provide information to them on our green careers and opportunities programmes	Throughout 2023/24

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030:**
• Implement a community energy strategy for the region with appropriate financial and support mechanisms, including career and skills progressions, to empower communities' role in net zero energy and retrofit rollout • Grow the region's hydrogen economy focusing research and investment efforts where electrification is difficult in the aerospace, shipping, industrial and heavy-goods vehicle sectors • Drawing conclusions and progressing viable solutions on the region's potential for tidal energy with pan-regional initiatives including Western Gateway Commission and the Severn Estuary Partnership • Increase the amount of energy storage within the region by reflecting its strategic priority in decarbonsing heat and facilitating renewable electricity generation, encouraging business innovation and seeking innovative funding to support installation of energy storage systems • Exploratory and initial capital infrastructure works to capture clean energy from former mine works and industrial areas in Avonmouth & Severnside for heating and possibly cooling buildings	• Reduce reliance on the wholesale energy market, increasing self-sufficiency through demand reduction from retrofit and behavioural change, and the generation of more locally supplied renewable energy • Make the West of England the national Community Energy Hub - Increasing community energy to 10% of locally generated renewables • Increase proportion of renewable energy consumed locally through smart connected solutions • Deliver infrastructure enhancement projects to facilitate the roll out of more renewable generation taking into consideration ecological impacts and regional place

Energy Case Studies

Local Energy Scheme : Ambition Community Energy CIC Wind Turbine

Currently being installed – this is the largest onshore wind turbine in England at 150m that will result in 4.2 megawatts (MW) of installed capacity. The project was developed by the local community in Lawrence Weston, working collaboratively with its partner organisations. The West of England Combined Authority has awarded £500,000 capital grant from the European Regional Development Fund (ERDF) to enable the project to be financially viable. Those involved are now seeking to develop more community wind power in our region via the SIFFFT project. The surplus, long-term income from energy generation will help Ambition Lawrence Weston, a local charity, deliver their Community & Climate Plan.

Bristol City Leap

This is a newly formed joint venture between Bristol City Council and Ameresco, in partnership with Vattenfall. Over the next five years, City Leap will invest c£424m into low carbon energy infrastructure and 182MW of additional renewable energy capacity including solar, wind, heat networks, heat pumps and energy storage. This venture also seeks to invest in retrofitting the council's domestic and non-domestic estateand grow the region's economy, including through 450 new direct jobs.

OUR STRATEGY FOR CLIMATE RESILIENCE

STRATEGIC OBJECTIVE: Take action to accelerate and ensure we are adapting to a changing climate and increase climate resilience across our region

The Challenge	Our focus	Our ask of government:
We are already experiencing and cannot fully prevent the impacts of climate change. Communities and organisations do not yet understand nor are prepared for climate change	**How we will deliver the objective** • Work with key stakeholders in the region to ensure regional planning (Local Plans; Emergency Planning) considers climate impacts/ future resilience • Build the evidence base and understanding of the risks posed by climate impacts • Support both businesses and residents to build their resilience to climate change.	Involvement & resource to trial Climate Adaptation National Action Plan (NAP3) approaches at regional Combined Authority Provide access to funding needed for key infrastructure changes, such as flood defences, and ensuring a just transition

Next year with our partners we will aim to:	Anticipated timescale
Work with Met Office to develop a regional 'Climate Pack' – identifying the anticipated future climate change for the region	Q1 2023
Work with the local councils and Local Resilience Forum run by Avon & Somerset Police to strengthen regional public service resilience to climate change	Throughout 2023/24
Coordinate regional review and application of West of England Sustainable Urban Drainage guidance for new buildings and infrastructure with unitary authorities	Throughout 2023/24
Convene regional conversations and collect evidence to understand the impacts of climate change and adaptations needed, particularly focused on those communities most vulnerable and least able to adapt.	Throughout 2023/24
Establish a regional steering group overseeing development of an Adaptation Plan distilling West of England priorities for early action from NAP3	Q2 23/24
Assess and ensure Combined Authority capital investments consider the impacts of and are integrating resilience to climate change impacts	March 2024
Identify and embed opportunities within advice to businesses (in particular, low carbon surveys and grants provision) to support them to build resilience to climate impacts	Throughout 2023/24
Ensure the Retrofit Accelerator and other retrofit projects consider and improve buildings' climate resilience	Throughout 2023/24
Deliver green and blue infrastructure and nature projects (in Nature Recovery section) to help address impacts of climate change	Throughout 2023/24
Support regional climate change risk assessments across the region's sectors to increase climate consideration & help standardise approach	Throughout 2023/24 & 24/25
Work with National Grid, Wessex Water, Bristol Water and other local infrastructure providers to understand regional infrastructure resilience to the impacts of climate change.	Throughout 2023/24
Develop a regionwide heat vulnerability assessment to show how risks vary across the region - learning from Bristol's approach to heat vulnerability mapping - to inform resilience-building measures [in communities, parks and green spaces, and through tree planting] to reduce the impact of heatwaves	By end of 2024
Build evidence on land used for food production in our region and how this could be impacted by climate change to develop a regional food production strategy	Throughout 2023/24
Support the Bristol Avon Flood Strategy feasibility work completed in last two years, commencing delivery of Phase 1 of flood defences, and coordinating a regional approach to flood defences and mitigations	Summer 2024

Next year with our partners we will aim to:	Anticipated timescale
Working with WENP and other partners to develop an approach to identify habitats and species at risk and the measures required to enable local threatened species to adapt.	Throughout 2023/24

IN THE MEDIUM TERM WE WILL:	OVER THE LONG TERM, WE WILL:
Medium Term Actions 2024-2028	**Long Term Vision 2028-2030:**
• Collate evidence-base on the investment needed and economic opportunities arising from regional climate resilience – providing this in an accessible dashboard together with metrics and monitoring progress • Work with public health practitioners (NHS, Local Councils, not-for-profit organisations, etc) and retrofit programmes/supply-chains in targeting preventative measures for health impacts associated with climate change building on our social value work • Support development of regional emergency response plans for extreme climate events (flooding, droughts, heat waves, storms, etc) • Continue to support flood defence work in the region, helping to ensure the incorporation of climate resilience, including use of natural flood management solutions • Work with partners to review coastal flooding threat and adequacy of current and planned defences to protect coastal communities • Work with partners to deliver the Bristol Avon Catchment Plan to deliver resilience and nature recovery across our river catchments and wetlands • Work to help ensure utility infrastructure in our region considers and is resilient to impacts of climate change • Target nature-based solutions, green and blue infrastructure and tree planting works, linked to community volunteering and careers programmes such as Green Futures, to help protect people and the natural environment from the worst impacts of climate change • Work with partners to explore the opportunities for carbon sequestration in natural habitats, including wetlands.	• Vulnerable people and businesses at most risk of catastrophic climate events (flooding and heat waves) are protected in emergency response plans • Help create a climate ready economy - businesses having emergency plans & business continuity plans to deal with extreme events, adaptation plan address climate risks while also being adaptive to ongoing change and uncertainties • Help create climate ready communities -West of England becomes a centre for excellence in climate resilience

Climate Resilience Case Study

Bristol Heat Vulnerability Map – Keep Bristol Cool

Bristol is the first UK city to develop an online tool of this kind. It explores where heatwaves could have the biggest impact on people's health and wellbeing. This shows wards with most vulnerability, taking into account multiple factors including age and deprivation. The Keep Bristol Cool mapping tool is for policy makers and practitioners such as urban designers, landscape architects, or emergency planners to explore how current heat vulnerability varies across different neighbourhoods, and how climate change may increase temperatures in the future. It gives insights into how urban heat risks vary across the city and within communities, and identifies the areas where high temperatures and heatwaves could have the biggest impact on people's health and wellbeing. This open-source tool is free to view here: https://www.bristol.gov.uk/council-and-mayor/policies-plans-and-strategies/energy-and-environment/the-keep-bristol-cool-mapping-tool

The Resilient Frome

The Resilient Frome is a £6 million project funded by the Environment Agency Flood and Coastal Resilience Innovation Programme. The Resilient Frome is a regional partnership project managed by the River Frome Reconnected Project which will deliver resilience work across the Bristol Frome catchment from rural South Gloucestershire to central Bristol.

GOVERNANCE AND MONITORING

We must work together to ensure we maintain momentum, take the tough decisions needed and monitor our progress towards meeting the goals our local leaders have agreed for the region. To do this we must have have clear governance and monitoring arrangements in place. With partners, we will continue to strengthen and improve our regional monitoring, working on a digital dashboard to increase transparency and accessibility of our and local council action on climate and nature.

To maintain the momentum required to deliver against our ambitions by 2030, we update the Combined Authority Committee on progress every six months (each September and March), following a review with the Mayor and the members of the Climate Action Panel. This reporting follows the Combined Authority's monitoring and evaluation framework.

Each year, we update the actions set out in our six themes, to ensure that we continue to develop a pipeline of actions that will meet the ambitions. This is done collaboratively with input from our partners, for adoption at Committee prior to each financial year starting.

This responsibility sits with the Combined Authority's Head of Environment, who manages the process, engaging Unitary Authorities through a dedicated Climate Working Group and a Natural Environment Officers Steering Group.

As actions are developed to the business case stage (where applicable), we will estimate the carbon reductions and ecological benefits they will deliver with more precision and will evaluate these estimates during delivery. This approach makes sure that our actions evolve as we gain new learning and when things change nationally.

We will work with local councils and key stakeholders to continue to improve our understanding of the sources of carbon emissions, and progress made by government, businesses, and households. We will use this to assess the West of England's progress in achieving our shared regional priorities, including carbon neutrality and ensuring nature and wildlife are in recovery – and how these align with national targets and the United Nations Sustainable Development Goals

MEASURING THE REGION'S PROGRESS

To track the region's progress towards our ambitions of net zero and nature recovery, we will establish a dashboard of indicators summarising the current position for each of the six priority areas.

We will build and deliver a digital environmental action portal for the public to view and engage with our, UA and others' environment actions in one place. Currently, the public would need to read through our CESAP's c80 actions – and separately through local council's action plans, ranging up to 150 actions.

Providing these indicators in an accessible format will help to demonstrate where the region is on track, and where further progress is needed from the Combined Authority, government, and other partners. This communication tool will form a key part of engaging residents and businesses of the region in the challenegs we face.

As far as possible, these indicators will draw on public statistics. In some areas, data are not currently available at a local level. We will work with our partners to identify suitable metrics, and will investigate where data-gathering is required to fill the gaps.

Public indicators for our action plan are included in the appendix. It is important to note that the covid-19 pandemic is having a significant impact on many of these indicators, and that the latest data available does not fully show these effects yet. Transport outcomes in particular have been heavily affected by covid measures, and do not necessarily reflect the underlying trends.

In addition, our projects and programmes will be based in evidence. Specific evidence-gathering will be conducted to inform the design of projects as they are developed.

GLOSSARY & APPENDIX

WEST OF ENGLAND NET ZERO SCOPE

DEFINITION OF A GREEN JOB

BIODIVERSITY NET GAIN

POTENTIAL FUNDING SCHEMES

CARBON OFFSET GUIDELINES

DRAFT INDICATORS OF PROGRESS

GLOSSARY & APPENDIX

West of England Net Zero Scope

The West of England declared a climate emergency in July 2019 and has set an ambitious goal for tackling climate change:

'In 2030, the West of England is net zero carbon'

There isn't a globally recognised definition of a net zero city or region. In line with national reported data, we will target emissions including the following:

- Scope 1 emissions: direct use of fuels within the region, for example in cars and gas boilers
- Scope 2 emissions: energy used within the region that is produced elsewhere, such as electricity used by regional businesses
- Certain scope 3 emissions including waste and transport produced within the region on an end-user basis.

We use the following working definition of a Net Zero region:

'A Net Zero region will set and pursue an ambitious target for all emission sources covered within scope 1 and 2 including selected scope 3 emissions, specifically including waste and transportation. Any remaining hard-to-decarbonise emissions can be compensated with certified greenhouse gas removal'

Definition of a green job

Our definition of what constitutes a green job is one that "will help to create the job functions, responsibilities, conditions, working practices and/or business processes which contribute towards reducing emissions, lowering the carbon footprint and protecting the environment."

Biodiversity Net Gain

Biodiversity Net Gain (BNG) is an approach that aims to leave the natural environment that is subject to development in a better state than before. It is often linked to planning applications and development through the National Planning Policy Framework (NPPF) Paragraphs 170(d), 174(b) and 175(d) and the Natural Environment Planning Practice Guidance (PPG). The Environment Act provides that all planning permission granted under the Town and Country Planning Act 1990 will be subject to a requirement for the developer to submit a biodiversity gain plan which shows how at least 10% net gain can be achieved. The net gain will be calculated using the approved Biodiversity Metric which was developed to help stakeholders assess changes in biodiversity value.

Under the Act, habitat identified to deliver the net gain must be secured for at least 30 years via obligations/conservation covenant and can be delivered on or off-site.

Carbon Offset guidelines

Carbon offset through purchased credits should only be considered as the final option when all other reduction or avoidance measures have been exhausted. The Science Based Targets initiative (SBTi) encourages reduction when transitioning to net zero, but ultimately net-zero is based on the ability to remove an equivalent amount of tCO_2e to what you emit. This does not apply to any offset capability that is the result of initiatives implemented within the green environment theme, such as additional tree planting or habitat restoration.

Prior to embarking on external carbon offset, there are a number of factors which must be considered:

- Limited availability of offsets on the market and increasing costs: The demand for offsetting is increasing, in particular from the private sector and high carbon industries. In some cases, nature-based offsets have increased more than threefold between June 2021 and January 2022.
- UK-based or international: UK-based schemes are approximately 10 times the cost of similar schemes overseas due to the increased costs of planning, manufacture, installation and monitoring.
- Nature based or technological offset: Whilst nature-based solutions have the potential to deliver additional biodiversity benefits they are becoming less popular due to their reliability and long term security.
- Offsetting through sequestration on land either owned by the Unitary Authorities or stakeholders would only be considered if it met the relevant standards, such as the Woodland Carbon Code or the Peatland Code and was independently verified.

Draft indicators of progress

The indicators below are intended to provide an overview of the region's progress in each of the six priority areas. They are not wholly within the control of the Combined Authority but provide a summary of where we are seeking positive change. In several areas further work is required to develop the indicators or identify sources of data. These areas have been noted in the framework below.

Note: the covid-19 pandemic will have a significant impact on many of these indicators, but the latest data available do not always show these effects yet. Transport outcomes in particular have been heavily affected by covid measures. Public transport usage has recovered from 2020 levels, but remains below 2019. However, the overall longer-term trend is positive.

1. Low carbon transport

How we will deliver	Indicator of progress	Where we are now	Year	Change in the last year	Source
Reducing car trips	Share of people who travel to work by car	52%	2022	▼ -8 ppts	Travel West Travel to Work Survey
Increasing cycling and walking	Proportion of adults who travel at least once a week by cycling	9%	2020/21	▼ -6 ppts	DfT
	Proportion of adults who travel at least once a week by walking	70%	2020/21	▼ -1 ppts	DfT
Increasing uptake of low carbon vehicles incl EVs	Share of vehicles with ultra low emissions	5.2%	Q3 2021	▲ from 3.2%	DfT
Increasing uptake of public transport	Bus trips per head per year	18.8	2020/21	▼ -67%	DfT
	Rail station usage (journeys to and from the region's stations)	16.4m	2020/21	▲ ambition	ORR
Outcome:	**CO_2 emissions from transport**	2,205kt	2019	▼ -1.3%	DESNZ

2. Low carbon buildings and places

How we will deliver	Indicator of progress	Where we are now	Year	Change in the last year	Source
Increase number of net zero and low emissions homes and buildings being developed	Share of new homes with an Energy Performance Certificate rating of A	8%	2021	▲ 6 ppts	DLUHC
Increase energy performance of homes and buildings	Share of homes with an Energy Performance Certificate rating C or above	44% of certificates	2020	To be developed	DLUHC & Combined Authority estimates
Reduce reliance on carbon heating systems	Number of homes installing low-carbon heating systems?	-	-	To be developed	Micro Certification Scheme (MCS)
Outcome:	**Domestic CO_2 emissions**	1,473kt	2019	▼ -1.8%	DESNZ

3. Nature recovery

How we will deliver	Indicator of progress	Where we are now	Year	Change in the last year	Source
Improve quality of existing spaces for nature and wildlife	Area covered by open green space	5,583 hectares 4% of the region's area	Oct 2019	No previous data	OS Open Greenspace
	Share of Sites of Special Scientific Interest with favourable status	68%	Mar 2022	-	Natural England
Create new spaces for nature and wildlife	Area covered by woodland	11,657 hectares 9% of the region's area	2019	▲ +0.3%	ONS and Forestry Commission Open Data
Enable business, stakeholders & residents to contribute to nature's recovery	Residents with at least 2ha accessible green space within 300m of home	366,000 32% of population	-	-	Natural England
	Activity, engagement or volunteering in natural spaces	-	-	-	To be developed

4. Low carbon business

How we will deliver	Indicator of progress	Where we are now	Year	Change in the last year	Source
Support businesses to transition to low carbon practices & adapt for climate resilience	Share of non-domestic buildings with an Energy Performance Certificate rating of A or A+	3%	2021	▲ +1 ppt	DLUHC
	Measure of carbon efficiency of business processes?	-	-	-	To be developed
Prepare business for emerging green economies	Number of businesses operating in low carbon sectors?	-	-	-	To be developed
Support local people to access green jobs	Number of green job advertisements	5,723	2021	▲ +63.7%	Burning Glass Labour Insights
Outcome:	CO_2 emissions from industry & commercial	1,082kt	2019	▼ -9%	DESNZ
	CO_2 emissions from public sector	208kt	2019	▼ -6%	DESNZ

5. Renewable energy

How we will deliver	Indicator of progress	Where we are now	Year	Change in the last year	Source
Increase local, community focussed, energy generation	Locally generated renewable electricity	319,843 MWh	2021	▼-12%	DESNZ
	Renewable electricity generated by community schemes?	-	-	-	To be developed
Work in partnership to develop new smart approaches to decarbonisation, storage, management & distribution of energy	Measure of readiness of grid for net zero?	-	-	-	To be developed
Outcome:	Locally generated renewable electricity as a proportion of total electricity consumption	11%	2019	▲ +0.6 ppts	DESNZ – source 1 and source 2

6. Climate Resilience (Source: Met Office Climate Pack)

How we will deliver	Indicator of climate impacts from average baseline of 1981-2000	What is projected in 2030?	What is projected in 2050?	What is projected in 2080?
Resilience in summer	Average temperature change in °C	+1.0 to +2.2	+1.7 to +3.9	+3.1 to +7.6
	Max temperature change in °C	+1.1 to +2.6	+2.0 to +4.5	+3.5 to +8.9
	Change in precipitation (rainfall)	-7% to –29%	-12% to –42%	-23% to –62%
Resilience in winter	Average temperature change in °C	+0.7 to +1.6	+1.1 to +2.6	+1.7 to +4.6
	Max temperature change in °C	+0.7 to +1.7	+1.2 to +2.9	+1.8 to +5.1
	Change in precipitation (rainfall)	+6% to +19%	+9% to +27%	+16% to +51%
Resilience to rising sea levels	Projected sea level rise in metres	+0.14 to +0.19	+0.24 to +0.36	+0.42 to +0.72