West of England
LOCAL
ENTERPRISE
PARTNERSHIP

WEST OF
ENGLAND
Combined Authority

West of England
Climate Emergency Action Plan

September 2020

Foreword

Tim Bowles, Mayor of the West of England

The West of England has set an ambitious goal to achieve our part in tackling climate change and take meaningful steps towards a low carbon economy which enhances regional action.

As we recover from the Covid-19 pandemic, protecting and securing jobs, helping businesses rebuild and making sure our workforce has the skills and qualifications for the jobs of the future is going to be of profound importance to our region. That is why I was determined that both our economic recovery and renewal plans and our Climate Emergency Action plan should be properly integrated, rather than standing apart.

We have a track record of delivering on our pledges to reduce emissions. In the West of England, carbon emissions have reduced 35% since 2005, through local renewable energy generation, insulating homes and reductions in coal generation. The region emits 14% less carbon per person than the national average. Now we can work together to take this further.

We are investing in our railways and buses, creating safe routes to cycle and walk and using new technologies like our e-scooter trial, all so that we all have practical low-carbon alternatives to get around our region. In all, £123m of the £133m allocated to transport by the Combined Authority so far has been on sustainable modes of transport, demonstrating our clear intention to act. We are supporting renewable energy generation and helping our businesses to transition to low carbon ways of doing things, so that we can all play our part, through small and large steps alike. And at the Combined Authority, the impact on our commitments to tackle climate change is now explicitly considered as part of every decision we make.

But it is not just where we live that we are playing our part in reducing emissions. Thanks to work that is being pioneered in the West of England, and in many cases being supported by the Combined Authority, our region is having a global impact on cutting carbon emissions. From supporting low carbon innovation in the aerospace, automotive and energy sectors, to our world class creative industries telling stories of the natural world that inspire others to act.

Our target of reaching net-zero by 2030 is ambitious. This is an ambitious plan. It sets out the scale of the challenge and the action that we need to take, working with the Government, our councils, businesses and residents, in order to meet it.

Climate emergency goal for the future of our region

The West of England has set an ambitious goal for tackling climate change

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

This goal is shared by our unitary authority partners and is a key part of our covid-19 recovery plans. This integrated approach provides us with an opportunity to reboot our economy in a way that also benefits the environment.

WECA is committed to playing our role in influencing and supporting local action through the funding and strategic policy decisions we make, but we do not have the powers or funding to deliver this goal on our own. We will need to work in partnership nationally, regionally and locally to accelerate our journey towards a net zero carbon future.

This action plan sets out the actions WECA will take, within our powers, to support the rapid delivery of this climate emergency goal for the West of England.

The action plan at a glance

Low carbon transport system	Low carbon business	Renewable energy	Low carbon buildings and places	The green environment
Work to decarbonise the transport system and increase cycling and walking and the use of public transport; building on positive behaviour change following the covid-19 pandemic lockdown period	Help business and local people benefit from growth in the green economy; maximising government investment in the region and supporting our businesses to build back better	Work to decarbonise the energy system and increase local renewable energy	Increase the energy performance of buildings and develop low carbon standards in new developments	Protect and enhance the environment through a proactive approach to green infrastructure

Impact of climate emergency on the region

Climate change poses a clear and urgent challenge, affecting our future environment and prosperity of our region. The Intergovernmental Panel on Climate Change's [IPCC] recommendations are clear – limiting global warming to 1.5 degrees [rather than 2 degrees] between now and 2052 will significantly reduce the effects of global warming.

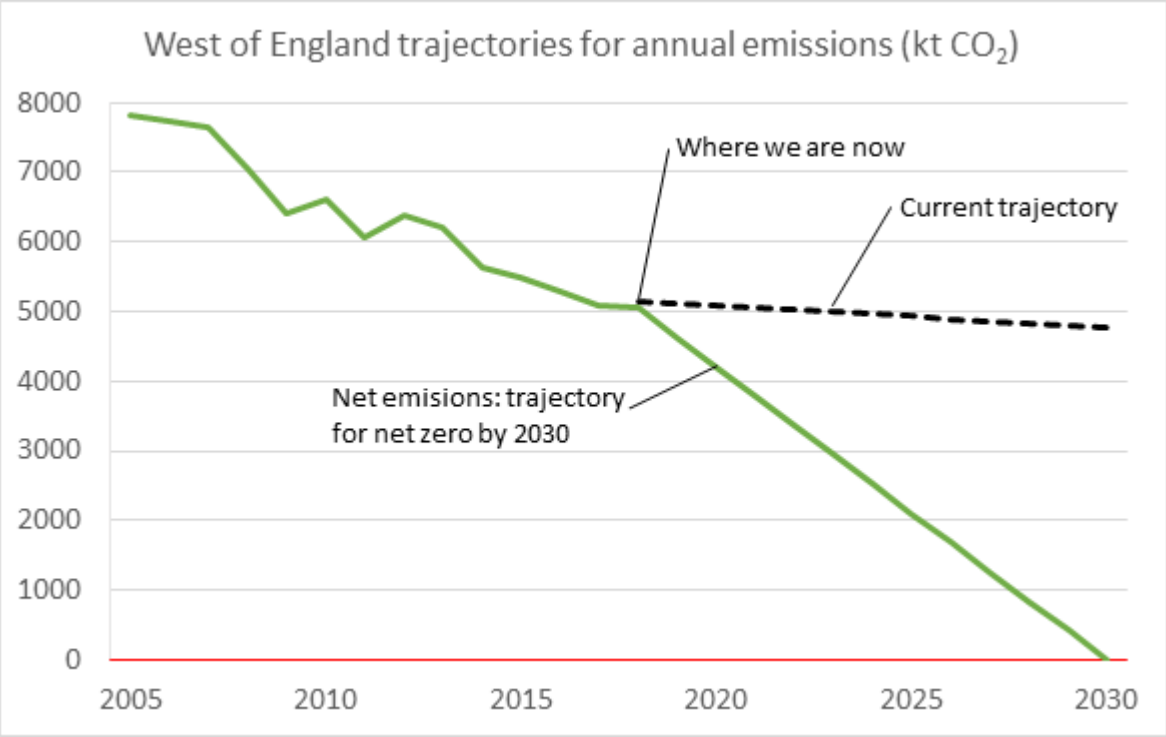
Government has recognised this, and the UK is the first country to commit to becoming net carbon zero by 2050. The West of England has gone further than this, committing to carbon neutrality by 2030. This is in line with our partner Unitary Authorities.

To achieve this goal, we will need to rapidly reduce carbon emissions in the region as well as adapt to the impacts of climate change such as increased heat, drought and flooding. This will require changes in the way that we act and make decisions. However, the way to achieve this goal is complex and will require a collaborative approach between national government, combined authorities, unitary authorities, individuals, business and international government.

Regional emissions

The region has achieved significant cuts to emissions in recent years. The West of England produced 5,154kt of CO_2 in 2018, a 35% reduction from 2005[1]. This represents 4.5 tonnes of CO_2 per person in the West of England, compared with 5.2 tonnes per person across the UK.

As the national electricity grid has decarbonised, household and business emissions have fallen considerably, but there remains a significant challenge. 27% of the region's emissions come from business, 29% from households, and 44% from transport. Transport emissions have been more difficult, falling 5% across the region since 2005. And overall, across all uses, around 90% of all the energy used in the region comes from fossil fuels.



To meet our carbon reduction goal by 2030, emissions must fall by 18% every year.

[1] This figure is for CO_2 only, as data for other greenhouse gasses are not available. Source: BEIS UK local authority carbon dioxide emissions statistics

It is also possible to estimate the emissions impact of all goods and services consumed by residents of the West of England ['consumption emissions']. This equates to emissions produced in the region, plus the emissions of imported products, and less the emissions of exported products. Consumption emissions are harder to calculate because the emissions associated with foreign products are difficult to measure. Based on the UK average, consumption for the West of England could reach 10,500kt CO_2, 1.9 times production emissions[2].

UK production emissions have been falling since 1973, whereas consumption emissions have only fallen since 2007. This reflects the deindustrialisation of the economy, as consumers have become more reliant on imported manufactured products. Action set out within this plan focuses primarily on emissions produced in this region, as consumption emissions require action from national and international Governments.

Economic benefits of low-carbon transition

National and global investment in the transition to a zero-carbon economy presents significant opportunities for innovation and growth. The low carbon economy is predicted to grow by 11% per year up to 2030, creating around one million jobs nationally. This could represent 35,000 new jobs in the West of England by 2030, and 65,000 by 2050[2]. 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 could grow by 20-30% per year to 2030
- Low carbon financial services could grow at over 10% per year to 2030.

Across all these sectors, the West of England has pre-existing strengths in businesses, skills, and innovation capacity, and could look to build on these.

A further economic opportunity arises in recovery from the covid-19 pandemic. Green stimulus measures taken after the 2009 financial crisis created more jobs than traditional stimulus and can achieve cost-savings in the long-term. This makes the case for investment in green jobs and industry to deliver a long-term boost to our economy.

[2] Ricardo, *UK business opportunities of moving to a low carbon economy,* 2017

Covid-19 pandemic is reshaping emissions

The covid-19 pandemic has had a radical and rapid impact on economic activity and carbon emissions. As the Committee on Climate Change points out, lockdown is not a blueprint for reducing emissions, and "it is unlikely that the pandemic will fundamentally alter the trajectory for emissions"[3]. However, the pandemic presents opportunities to build on changes in behaviour that have occurred and highlights the importance of early and long-term planning for transition.

There has been a short-term fall in emissions as a result of the lockdown period. Overall, global emissions fell by around 5% in the first three months of 2020. The fall in 2020 is likely to be more than any previous year and much larger than the drop following the 2009 financial crisis, however this percentage decline will need to be increased and repeated year after year to meet net zero goals. In the medium term, the impact of the pandemic on emissions will depend on how carbon intensive the world's stimulus is during recovery.

During lockdown

- Daily emissions in the UK fell by 31% during the peak in April and May
- Energy use fell by 15% in the UK in March-May, particularly due to reductions in transport4
- Household water use rose by up to 40%, increasing pressure on natural resources
- Rush hour air pollution vanished in cities
- There has been a walking and cycling boom and cities have been reconfigured to support this [£2 billion invested in the UK]
- There has been a return of nature to our streets, gardens, woodlands and greenspaces
- There has been an increase in people shopping locally, helping to revitalise our local high streets

But:

- Short-term reductions in emissions will have minor long-term effects
- Emissions will rebound as lockdown ends, economies rebuild, and people return to work
- If recovery stimulus is invested in carbon intensive ways, emissions could rise faster. The extent of this will depend on the speed of recovery and the action taken

[3] Committee on Climate Change, *Reducing UK emissions Progress Report to Parliament,* June 2020
[4] BEIS, *Energy Trends and Prices statistical release*, 30 July 2020

This climate emergency action plan is fully integrated with our recovery plan making sure we make the most of the opportunity to re-build through proposals that deliver a net zero carbon approach.

Approach: working together to deliver the ambition

This plan is a key part of our covid-19 recovery plan. It is about supporting our climate emergency goal alongside securing our economic future following the covid-19 pandemic. It is part of a set of plans for the region, that stem from our Local Industrial Strategy and covid-19 recovery plan, and take the ambitious action needed to deliver clean and inclusive economic growth.

It sets out the next steps WECA will take to support a net zero region, building on the carbon reduction programmes and initiatives already underway. Such as the £1.7m Low Carbon Challenge Fund and the Green Business Grant scheme, as well as activities undertaken by our unitary authority partners.

The plan brings together key actions WECA can take across 5 high-level challenge areas to support rapid delivery towards our regional goal. It is essential, however, that we take an integrated approach across these 5 high-level challenge areas as this will enable us to achieve so much more. Working together across the challenge areas we can deliver low carbon improvements to our economy and the ways we travel around the region.

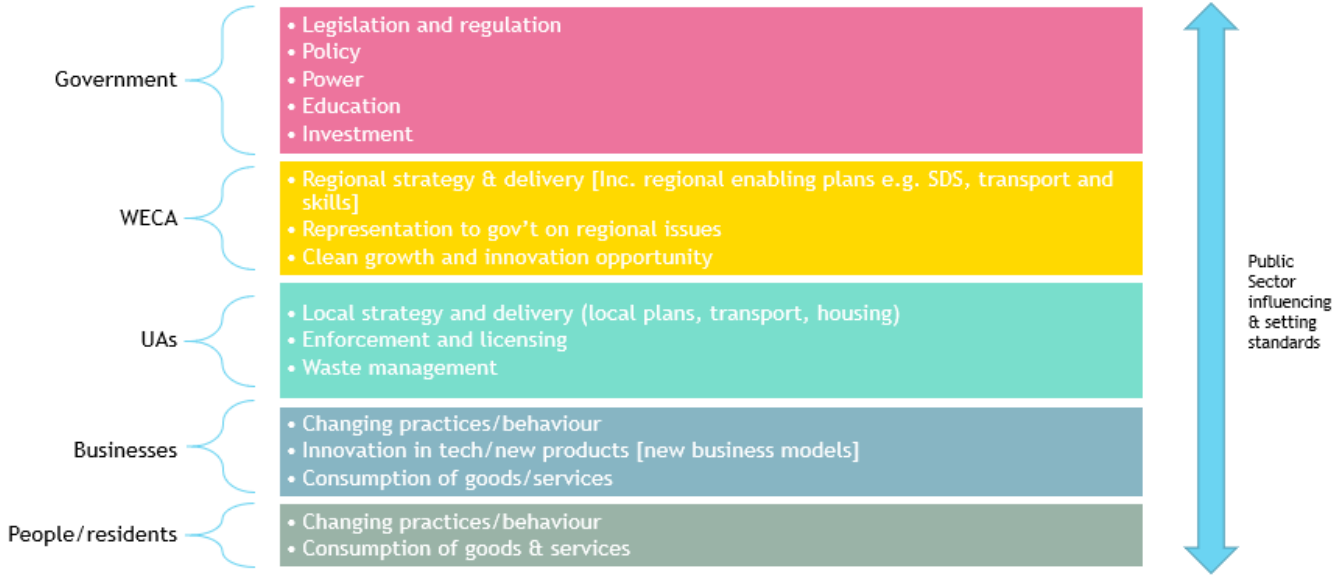
The plan also provides a framework for discussion with Government on the additional powers, funding and regulatory change needed to accelerate delivery towards a zero-carbon future. Without government action on key areas such as planning WECA's ability to deliver on areas such as zero carbon new buildings will be constrained.

Simply reducing our emissions will not be enough. We need to adapt to the impacts of climate change that are happening today such as flood and extreme weather events. The scope of this action plan will also consider how we adapt to the impact of climate change, recognising the importance our environment, green spaces and natural habitat has on protecting us from the impact of climate change.

Using this plan as a guide we will:

- Continue to call on Government to introduce policies, funding and incentives to enable rapid transformation to net zero carbon pathway and climate resilience by 2030.
- Support our unitary authority partners and other stakeholders to progress low carbon actions, recognising that WECA does not have all the powers, funding or levers needed to deliver it on our own.
- Work with our businesses to drive action, for example through the Low Carbon Challenge Fund; supporting businesses to adopt more energy efficient measures and practises.
- Embed our net zero carbon goal within our business plan, policy, programmes and projects

Delivering our regional goal will be complex and will require action by national government, combined authorities, unitary authorities, individuals, business and international government. WECA does not have the funding or levers to do it all alone. The below diagram sets out how responsibility lies between stakeholders.



The plan is not intended to be fixed, nor can it predict an absolute pathway to carbon neutrality. Over the next few years there will be decisions nationally on the future of our energy production and supply, as well as investment in new green fuels; these decisions by Government will influence our ability to reach our climate emergency goal regionally. By focusing our efforts on the steps, we can take now and over the next five years, we are putting the West of England on the pathway towards net zero carbon and are not constrained in the short term by the big and structural decisions Government needs to take to make our net zero carbon future possible.

Development of our plan

The plan has been developed with input from representatives from our unitary authority partners, business, community organisations and government who have given their time, knowledge, expertise and skills to inform its content through a series of workshops. We will continue this co-production approach as we implement the actions in this plan.

We have also worked closely with our businesses to understand their needs and how WECA can help foster green innovation and invest in the skills needed to make sure our region takes advantage of the economic benefits of clean growth.

Monitoring progress

Each year, we will update and report on progress against actions set out in our 5 challenge areas, in line with WECA's monitoring and evaluation framework. As actions are developed to the business case stage, we will estimate the carbon reductions they will deliver with more precision and will evaluate these estimates during delivery. This approach will make sure that our actions evolve as we gain new learning and when things change nationally.

We will also carry out an assessment of the West of England's progress against the pathway to net zero carbon outlined earlier in this document. We will work with the unitary authorities in the region to continue to improve our understanding of the sources of carbon emissions, and progress made by government, businesses, and households.

The plan supports the delivery of a number of the United Nations Sustainable Development Goals [UN SDGs], including 'climate action', 'affordable and clean energy', 'good health and wellbeing', 'decent work and economic growth', 'industry, innovation and infrastructure', 'sustainable cities and communities', 'responsible consumption and production', 'life on land', 'partnership for the goals'. We will carry out an assessment of our progress, through this plan, of our contribution to these goals.

Work is already underway

At the same time as developing this action plan work has continued to deliver existing carbon reduction programmes and initiatives. Since the spring of 2020 WECA has:

Business and skills

£5m invested in the Digital Engineering Technology and Innovation [DETI) project to identify and develop the tools, technologies and processes needed to accelerate low carbon products.

£10 million invested in The Institute for Advanced Automotive Propulsion Systems [IAAPS) global centre of excellence developing ultra-low and zero emission vehicles

Low Carbon Challenge Fund; a £4.2m project that includes £1.7m ERDF, has supported SMEs to improve their energy efficiency through the Green Business Grants scheme. So far **54 SMEs** have received a free energy survey and 26 businesses have been awarded over £200,000 grant.

Through the **Local Energy Scheme**, £500k has been awarded to support a local renewable energy project, demonstrating our commitment to increase the number and quality of local renewable energy projects.

Infrastructure

£123m of the £133m allocated to transport so far has been focused on sustainable modes reflecting the region's priority to invest in low carbon public transport and cycling and walking.

£28m of national and local funding committed to Future Mobility Zone proposals. This includes E scooter trial will take place in 2020 - one of the first projects that will offer a new way to travel around our region.

£10m to be allocated to walking and cycling measures and **£3m** for active travel and public transport measures to supporting recovery following the covid-19 pandemic.

We host the **South West Energy Hub** – a £4m project funded by Government to increase the number and quality of local energy projects across the South West. It supports a range of different projects, from home energy retrofit to low carbon electricity and heat generation.

This continued investment in innovation, low carbon transport, renewable energy and SME's in the region, will help us to go further and faster to support the transition to net-zero carbon.

Going further and closing the gap

The following section sets out the actions WECA will take over the next five years to support rapid action towards the regions goal and put us on the right path to achieving net carbon neutrality in the West of England.

The plan focuses on 5 challenge areas where action will need to be taken to achieve the region's goal. These challenge areas are underpinned by evidence and focus on the actions WECA can take to enhance regional action, building on work already underway by us and our partners.

Our five challenge areas are:

- **Low carbon transport system**: Work to decarbonise the transport system and increase cycling and walking and the use of public transport; building on positive behaviour change following the covid-19 lockdown period
- **Low carbon business**: Help business and local people benefit from growth in the green economy; maximising government investment in the region and supporting our businesses to build back better
- **Renewable energy**: Work to decarbonise the energy system and increase local renewable energy
- **Low carbon buildings and places**: Increase the energy performance of buildings and develop low carbon standards in new developments
- **The green environment**: Protect and enhance the environment through a proactive approach to green infrastructure

The actions set out within each challenge area have been co-designed and developed in partnership with WECA officers, our partner unitary authorities and business. They are designed to show how WECA can use its influence and levers of actions to support the delivery of the net zero carbon ambition across the region. Wherever possible, they support and enhance the work already being undertaken by the unitary authorities, rather than duplicate their efforts.

Each challenge area provides further detail on the scale of the challenge, what success might look like over the next five years. Importantly, it also shows the co-benefits, or additional benefits that reducing carbon emissions can bring to the region.

Challenge area 1: Low carbon transport system

The challenge

Emissions from transport is one the largest contributors to greenhouse gas and CO_2 emissions [around 32% excluding railways] in the region and overall it is not reducing in line with other emissions**.** Furthermore, population growth means that car trips are expected to increase**.**

Opportunities to build back better

Levels of cycling and walking have increased during the lock down period, car trips have reduced as more people have worked at home and air quality has improved. But the number of car trips are bouncing back as lock down restrictions are eased and there is a risk of long-term damage to public transport due to low public confidence.

Our action so far

- £123m of the £133m allocated to transport so far has been focused on sustainable modes of transport reflecting the region's priority to invest in low carbon public transport and cycling and walking
- Secured £28m of national and local funding for Future Transport Zone proposals. This includes an E scooter trial which will take place in 2020 - one of the first projects that will offer a new way to travel around our region
- £10m to be allocated to fund walking and cycling measures and £3m for active travel and public transport measures that can be rapidly implemented to support covid-19 pandemic recovery
- Joint Local Transport Plan [JLTP] 4 aims to reduce the amount of car trips even considering the anticipated increase in population
- Bus strategy aims to double the number of bus trips by 2036

Our strategy

Low carbon transport system

Work to decarbonise the transport system and increase cycling and walking and the use of public transport; building on positive behaviour change following the covid-19 pandemic lock down period

Reduce the number of car trips

Actions to improve the uptake of active travel and public transport and disincentivise car trips including better journey planning and approaches to congestion

Increase active travel

Actions to increase the uptake of cycling and walking through the implementation of the Local Cycling and Walking Infrastructure Plan [LCWIP] including continuity of cycling and walking lanes, improved maintenance, provision of secure cycle storage, e-bikes and scooters and an active travel campaign.

Increase uptake of low carbon vehicles

Actions to increase the uptake of low carbon fuelled vehicles including encouraging public transport operators to convert to low carbon fuels and identify and address the barriers to the uptake of Ultra Low Emission Vehicles.

Increase the uptake of public transport

Actions to increase the uptake of public transport and to restore public confidence following the covid-19 pandemic. This includes continuing to plan for a mass transit system in the region and smart ticketing.

Delivering further action

Appendix A sets out the next steps WECA will take to support a net zero region, building on the carbon reduction programmes and initiatives already underway in this challenge area. It includes actions to increase the uptake of cycling and walking through the implementation of the Local Cycling and Walking Infrastructure Plan, reduce car trips and increase the uptake of public transport.

There are also co-benefits of acting in this area including:

- Improved air quality
- Active travel promotes good health: an increase in physical activity in the UK has been estimated to generate a potential saving to the NHS of £17 billion within 20 years[5]
- The UK cycle industry is worth three times more than the UK steel industry and employs twice as many people. Cycling related businesses currently generate at least £5.4 billion for the UK economy each year, and they sustain 64,000 jobs[6]

How we will measure success:

Reduction in emissions from transport as a result of:

- Reduction in the number of car trips
- Increase in the uptake of active travel [cycling and walking]
- Increase in uptake of public transport [especially post covid – restoring public confidence]
- Increase in uptake of low carbon fuelled vehicles

The future of mobility
The West of England Combined Authority [WECA) will deliver a £28m Future Transport Zone [FTZ) programme trialling innovative public transport solutions.

The FTZ programme will evaluate how new technologies can be used to make it radically easier for people to move around the region through better journey planning, flexible ticketing, new ways of paying for transport, and better-connected transport networks.
By improving access to public transport, the FTZ programme will help to cut congestion, reduce emissions and improve our air quality.

The programme will also trial the use of e-scooters in the region; a new low carbon way to get around whilst also maintaining social distancing. The 12-month e-scooter trial will launch in Autumn 2020.

[5] Ashden p.14
[6] Ashden p.29

Challenge area 2: Low carbon business

The challenge

- In its clean growth strategy, Government estimates that the green economy could grow 11% each year, significantly faster than the projected growth of the economy.
- Green finance is a growing industry, with more financial institutions offering bonds and loans to finance environmental and climate projects.
- Better carbon efficiency can help businesses to increase productivity by bringing down costs.
- The Local Government Association is forecasting growth in as many as 694,000 low carbon jobs by 2030 and 1.18m by 2050.
- The physical risk of climate change e.g. flooding, heatwaves, wildfires, could have a detrimental impact on businesses, their supply chains and workforce.

Opportunities to build back better

Government is investing £3billion in a green recovery package, this includes the Green Homes Grant (£2bn) estimated to support over 100,000 new jobs and the Green Jobs Challenge Fund (£40m) to create and protect 5,000 jobs in environmental sector. More flexible approaches to working from home could help reduce car trips, congestion and emissions.

Our action so far

- Green Business Grants, part of WECA's Low Carbon Challenge Fund, are already helping businesses to improve their energy efficiency and invest in alternative low carbon solutions.
- £5m invested in the Digital Engineering Technology and Innovation [DETI] project, this will reduce carbon emissions by developing better products that are lighter, more fuel efficient and have less waste.
- £10 million invested in The Institute for Advanced Automotive Propulsion Systems [IAAPS] global centre of excellence developing ultra-low and zero emission vehicles
- 54 SMEs have received a free energy survey as part of Green Business Grant scheme [Autumn 2020]

Our strategy

Low carbon business

Help business and local people benefit from growth in the green economy; maximising government investment in the region and supporting our businesses to build back better

Support business to transition to energy efficient practises at pace

Actions to improve the energy efficiency of businesses including upscaling Low Carbon Challenge Fund and Green Business Grants to support even more SMEs

Stimulate zero carbon innovation

Actions that build on existing platforms such as DETI and the Business Innovation Fund to promote the design and manufacture of low carbon goods and services

Support local people to access new green jobs

Actions that support the increase of low carbon skills including using the new Government funding programme to encourage the provision of green skills programmes

Develop and strengthen local green business

Actions that help to develop and strengthen local green businesses through business networks that share best practice

Delivering further action

Appendix A sets out the next steps WECA will take to support a net zero region, building on the carbon reduction programmes and initiatives already underway in this challenge area. It includes actions to support businesses to transition to low carbon ways of doing things through the Low carbon Challenge Fund and stimulating green innovation building on existing platforms such as the Digital Engineering and Technology Institute [DETI].

How we will measure success:

Reduction in emissions from business as a result of:

- More businesses have transitioned to energy efficient practices and the use of renewable energy
- Benefit from growth in the green economy
- Business has led and developed new zero carbon products and services
- Local people have developed green skills and accessed new green jobs
- Our local green business market has developed, strengthened and grown

There are also co-benefits of acting in this area including:

- Improved air quality through businesses improving their energy efficiency – particulate matter and nitrous oxides contribute to around 40,000 air pollution-related deaths per year in the UK[7]
- Investing in energy efficiency and low carbon options could save industry up to £20m a year on fuel costs. [8]

Low carbon challenge fund: Bascom Ltd

With a Green Business Grant, this printer and mailing house replaced an inefficient air compressor with a new unit and automatic controls. The project cost £7,745 and was awarded £3,098 grant.

The new equipment will reduce energy use by 10%, meaning an annual reduction of 3 tonnes of greenhouse gases and annual saving the business £830 on energy bills.

[7] Ashden, p.14
[8] https://pcancities.org.uk/energy-and-carbon/west-of-england

Challenge area 3: Renewable energy

The challenge

- 91% of the region's energy comes from fossil fuels, including gas and petroleum [BEIS 2017]
- Renewable energy generation in the region has increased rapidly [mainly solar] but represents a relatively low proportion of energy use
- Average domestic fuel bills have more than doubled in the last ten years in real terms, pushing some households into fuel poverty[9], but fuel poverty is caused by several factors including low income, poor energy efficiency and higher energy prices
- National Grid regulates energy production and distribution across the UK. It is aiming to deliver carbon neutrality by 2050

Opportunities to build back better

- A reduction in energy consumption during lock down saw Britain have the longest period since 1880s without using coal-powered electricity, relying instead on renewable energy sources
- Lock down measures reduced electricity demand by at least 15% but this is likely to be the result of industry temporarily stopping or reducing and is likely to bounce back as industry resumes
- Research from Uswitch estimates that those working from home could use 25% more electricity and 17% more gas per day than they normally would, highlighting a potential shift in the transfer of energy use and those who bear the cost

Our action so far

- West of England Energy Strategy is already taking steps towards the decarbonisation of the energy system and increasing local renewable energy
- We host the South West Energy Hub – a £4m project funded by Government to increase the number and quality of local energy projects across the South West. It supports a range of different projects, from home energy retrofit to low carbon electricity and heat generation
- £1.7m Low Carbon Challenge Fund includes £500,000 for a local wind turbine as part of a community energy project

[9] Ashden, p.48

Our strategy

Renewable energy

Work to decarbonise the energy system and increase local renewable energy

Increase local energy generation

Actions that increase local renewable energy generation including steps to expand and enhance the West of England Local Energy Scheme and accessing support for local projects through the South West Energy Hub

Work in partnership to develop new smart approaches to the storage, management and distribution of energy

Actions that support the development of new smart approaches to the distribution of energy including collaboration with utility companies to plan new whole system approaches

Delivering further action

Appendix A sets out the next steps WECA will take to support a net zero region, building on the carbon reduction programmes and initiatives already underway in this challenge area. It includes actions to increase local energy generation through the Low Carbon Challenge Fund and through working in partnership with the South West Energy Hub to increase the number, quality and scale of low carbon energy projects.

How we will measure success:

- Renewable energy generation has increased
- New smart approaches to the distribution of energy have been implemented

There are also co-benefits of acting in this area including:

- Community energy projects can deliver economic and social benefits for disadvantaged groups with the potential for significant reductions in energy bills

The South West Energy Hub

The South West Energy Hub works with public sector and not-for-profit organisations to increase the number, scale and quality of low carbon energy projects across the West of England and wider South West, reducing the region's carbon footprint.

The Energy Hub provides expert advice and support to get energy projects started, including solar panel installations, battery storage, public building retrofit and biomass boilers and supply. Current projects will save an estimated 16,800 tonnes of CO_2 *emissions each year.*

The Hub also runs the Rural Community Energy Fund which has granted £462,470 across 27 renewable energy projects.

The £4m South West Energy Hub is funded by the Department for Business, Energy and Industrial Strategy and hosted by the West of England Combined Authority.

Challenge area 4: Low carbon buildings and places

The challenge

- Emissions from heat is one the largest contributors to greenhouse gas and CO_2 emissions [around 35%] in the region. Most of our heat is supplied by gas
- Population growth, and government requirements, mean an increase in housing. This in turn could 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
- Retrofitting and improving the energy efficiency in buildings and homes is complex as a result of different levels of ownership and responsibility for property maintenance

Opportunities to build back better

- Government is investing £3billion in a green recovery package, this includes the Green Homes Grant [£2bn] which will focus on green home improvements and upgrade over 600,000 homes
- Government will invest £1bn over the next year in a Public Sector Decarbonisation Scheme to fund energy efficiency and low carbon heat upgrades

Our action so far

- Work on evidence for the Spatial Development Strategy on the delivery of carbon neutral newbuild homes
- WECA hosts the South West Energy Hub helping to identify, develop and implement local energy efficiency projects.

Our strategy

Low carbon buildings and places

Increase the energy performance of buildings and develop low carbon standards in new developments

Increase the energy performance of homes and buildings

Actions that increase the energy performance of homes and buildings including maximising the regions share of the £3bn government grant to increase the energy performance of homes and buildings

Increase the number of carbon neutral homes and buildings

Actions that increase the number of carbon neutral homes and developments within the region

Delivering further action

Appendix A sets out the next steps WECA will take to support a net zero region, building on the carbon reduction programmes and initiatives already underway in this challenge area. It includes actions to increase the energy performance of homes and buildings and steps to support the delivery of carbon neutral homes.

How we will measure success:

- An increase in energy efficient homes and buildings
- An increase in the number of carbon neutral homes and buildings

There are also co-benefits of acting in this area including:

- The cost of cold homes to the NHS is estimated at £2.5 billion/year[10]
- Poor quality housing negatively affects the ability of young people to learn at school and study at home, leading to lower educational attainment, subsequently increasing their chance of unemployment and poverty[11]
- Phasing out of gas boilers and the need for new heating systems could create in skills and training opportunities for local people.
- Energy efficient buildings can help businesses and industry to reduce their operating costs and improve their productivity.

Low Carbon Challenge Fund: 150-meter Wind Turbine

As part of the Local Energy Scheme, a £500k grant has been awarded to a wind turbine project which will be based in Avonmouth, Bristol. The turbine will not only help decarbonise electricity, it will also support delivery of the Lawrence Weston Community Plan to achieve local community goals.

[10] Ashden p14
[11] Ashden p.67

Challenge area 5: The green environment

The challenge

- Developing, protecting and enhancing the natural environment through the delivery of green infrastructure can help protect us against the impacts of climate change and can help towards reducing our emissions.
- The UK Climate Change Risk Assessment identifies the need to plan strategically for delivering Green Infrastructure, a key opportunity to lessen many of the risks from climate change including biodiversity decline and extreme weather events.
- 6% of the region is semi-natural broadleaved woodland, including ecologically important ancient woodland such as Lower Woods, King's Wood and Urchin Wood and Leigh Woods.

Opportunities to build back better

- Government is investing up to £40 million in a Green Recovery Challenge Fund for environmental charities and public authorities to create and protect 5,000 jobs
- Nature on our streets, gardens and woodlands, as a result of lock down, has increased public support for a greener more bio-diverse future

Our action so far

- The Joint Green Infrastructure Strategy [JGIS] is already taking a significant step towards developing, protecting and enhancing green infrastructure. The overall aim of the West of England JGIS programme is to secure investment in GI planning and provision
- £300,000 WECA Investment Fund allocation to support the development of Green Infrastructure Projects

Our strategy

The green environment

Protect and enhance the environment through a proactive approach to green infrastructure

Work with partners through the Green Infrastructure Strategy to develop climate resilience

Work in partnership to support the delivery of the Joint Green Infrastructure Strategy Action Plan including actions that lead to the increased provision of green spaces

Work with partners to protect and enhance the environment

Actions that protect and enhance the environment including encouraging consultants to specify lower carbon materials and landscaping proposals that maximise carbon capture

Delivering further action

Appendix A sets out the next steps WECA will take to support a net zero region and adapt to the impacts of climate change, building on the carbon reduction programmes and initiatives already underway in this challenge area. It includes actions to support the delivery of the Joint Green Infrastructure Strategy and encouraging the consultants that we work with to specify and adopt low carbon ways of doing things.

How we will measure success:

- Adaption measures are protecting us against the impact of climate change [e.g. flooding]
- An increase in green infrastructure and biodiversity

There are also co-benefits of acting in this area including:

Protecting against the impact of climate change and extreme weather events could help to safeguard businesses and their income. Prudential Regulation Authority stated in 2018 *'global insured losses from natural disaster events in 2017 were the highest ever recorded'* and that *'the number of registered weather related natural hazard loss events has tripled since the1980s and inflation-adjusted insurance losses from these events has increased from an annual average of around US$10bn in the 1980s to around US$55bn over the last decade'*.

Appendix A: Action Plan

Key to understanding timelines:

S	0-2 years
M	3-5 years
L	5+ years

Low carbon transport

Reduce the number of car trips

	Action/Opportunity	Description	Timeframe
	Take steps towards implementing the demand management measures within JLTP4 [as appropriate] and ensure that they are a central feature of JLTP5	Suggestions for demand management within JLTP4 include management of parking provision, reallocation of road space to sustainable transport, road user charging, workplace parking levy. Revenue raised from demand management measures could be reinvested in active travel & public transport.	M
	Use appropriate levers WECA/unitary authorities [UAs] hold to make it less attractive for cars to enter city centres	This could include measures such as speed limits, traffic calming, pedestrianisation, fewer routes and parking charges, whilst also making it more attractive to use alternative travel options.	M
	Support unitary authorities to consider appropriate mechanisms to reduce congestion and improve air quality e.g. Congestion and Air Quality Zone Charging	Clean Air Zones and Congestion charging is already being considered by some unitary authorities to promote improvements in air quality.	M

	Develop a better understanding of why people travel and then base transport plans on this. Undertake first principles approach to people movement - commuting, school run, shopping, other requirements to help inform JLTP5	Use existing research e.g. ClairCity Research at University West of England to understand why people travel and how they can most effectively / efficiently make their journeys	M
	Support unitary authorities to consider the expansion of car-share / car club service [potentially using Electric Vehicles]	A local car club model could significantly reduce the number of cars in the region. Appropriate infrastructure and business models need to be developed and supported within the region to expand current provision and facilitate Ultra Low Emission Vehicle [ULEV] car clubs	M
	Use strategic planning powers to facilitate the development of Park and Ride/share developments	A cycle option from P+R sites combined with safe storage could increase P+R use during the pandemic	S
	Review all proposed major transport schemes in the JLTP4 against the emerging evidence base for meeting our jointly stated ambition of carbon neutral emissions by 2030.	JLTP4 contains several road schemes which may have an impact on carbon emissions. All schemes will be looked at in the context of the proposed physical infrastructure, the mode of transport, its effects on the wider transport network and the environment.	S

Increase active travel across the region, capitalising on recent behaviour change [created by the covid-19 lock down period]

	Action/Opportunity	Description	Timeframe
	Work with the unitary authorities to take steps towards implementing cycling and walking lanes and improve maintenance [raising additional funds where necessary]	The Local Cycling and Walking Infrastructure Plan covers some of this but there is a funding shortfall to deliver all improvements to cycle routes detailed in the plan.	S
	Work with unitary authorities to support the pedestrianisation of streets [potentially including mixed mode street use] building on the social distance measures put in place as a result of the covid-19 pandemic	Pedestrianisation of the streets for local shopping areas could encourage more people to leave their car at home and walk or cycle instead	S
	Continue the public information campaign to promote active travel/reduced car travel	As a response to the covid-19 pandemic, WECA has co-ordinated a regional publicity campaign to promote the use of active travel. This campaign includes information on the emissions impact of cars.	S

Increase the uptake of public transport

	Action/Opportunity	Description	Timeframe
	Use strategic planning and transport powers to facilitate active travel and public transport	This should encourage new developments to prioritise the use of active travel and public transport so that the car is only used when essential.	S
	Consider how to support the development of better transport interchanges and bus prioritisation including the reallocation of road space, enhanced local rail services and development of smart ticketing/journey planning tools.	To make people's journeys easier, transport interchanges should facilitate the easy transfer of one mode to another. Reallocating road space to buses will improve the reliability and speed of services and increase their attractiveness over car use. WECA's MetroWest schemes and the joint WECA/Network Rail 10 Year Rail Delivery Plan will deliver more frequent services and new opportunities to travel by rail. Contactless tickets and interchanges	S

		may help to improve public confidence in using public transport post covid-19.	
	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.	This could include powers over routes and fares	S
	Work with unitary authorities and partners to secure safe and easy first and last mile access to public transport to encourage more people to use public transport.	Public transport requires people to walk/cycle to access it - this needs to be made as safe and as pleasant as possible if more people are to use public transport	S
	Work with unitary authorities to consider how to develop 'on demand' provision of bus services in rural areas	A hybrid between a local bus service and a taxi could increase rural public transport uptake and reduce emissions per traveller	S
	Continue to develop mass transit proposals	Continue to plan a mass transit system, other public transport improvements and consider the expansion of metro bus	S
	Continue to work with providers to improve and promote reliability to increase uptake	Work with bus and rail operators to promote reliability, accessibility and convenience to increase uptake	S
	Support and promote the development of real time reporting	Real time reporting is limited with only some bus companies making it available. WECA could play a role working with bus companies to expand and promote this across the region	S

Increase the uptake of low carbon vehicles

	Action/Opportunity	Description	Timeframe
	Lobby government to update national transport policy to enable authorities to accelerate progress towards net zero carbon	Government policy needs to change to enable net zero carbon for example Green Book and government methodologies	S
	Work with partners to develop an approach to identify and address the infrastructure needs and barriers to the uptake of ULEVs	Uptake of EVs remains slow, partially because of cost but also because of other issues such as range anxiety and charging availability	S
	Work with partners, including government, to develop a regional freight strategy that reduces emissions from movement of goods as stated in JLTP4	Work with partners, including local businesses, to develop a regional approach to reducing emissions generated from freight services. In line with the JLTP4 the aim is to encourage a shift from partially filled, heavily polluting freight road vehicles to fewer, fuller, cleaner vehicles and seek to transfer road freight to alternative methods such as rail and water.	M

Low carbon business

Stimulate zero carbon innovation

	Action/Opportunity	Description	Timeframe
	Work with partners to encourage innovation in low carbon services, goods and technologies [e.g. hydrogen, carbon capture and renewable energy technologies].	Work with partners to use existing platforms such as the Digital Engineering and Technology Institute and Business Innovation Fund to promote low carbon innovation and apply to future funding opportunities. For example, innovation in clean hydrogen technology to power HGV.	S

Support businesses to transition to energy resource efficient practices

	Action/Opportunity	Description	Timeframe
	Secure funding to extend and enhance the Green Business Grants [part of the Low Carbon Challenge Fund [LCCF]] so that more businesses can access it	LCCF Green Business Grants help businesses to lower their emissions through investing in new equipment or improving the efficiency of their existing buildings. It is funded by ERDF until 2022, and a business case will need to be developed to extend and expand the programme.	S
	Through the Growth Hub and LCCF encourage and support businesses to measure their carbon footprint and make low carbon changes	Support small and medium sized enterprises [SMEs] to measure their carbon footprint and make low carbon changes Upscale and expand LCCF Green Business Grants surveys to support more SMEs to understand their carbon impact and the changes that they can make	S

	Promote low carbon business practices through the Growth Hub	Ensure low carbon is included in projects being delivered through the Productivity Challenge, which will include; - resource efficiency - environmental management - sustainable travel - supply chain management.	S
	Support businesses to implement digital ways of working including remote access to enable more people to work from home	Support businesses to introduce digital transformation / new ways of doing things that support working from home, flexible working, local hubs and other digital innovations that help to reduce commuting travel and facilitates more trade online.	S
	Support businesses to use more sustainable products and supply chains - locally, nationally and internationally.	Support businesses to choose more sustainable products and supply chains through the Growth Hub and Invest in Bristol and Bath.	M
	Work with partners to help business plan for climate resilience	Work with partners to help business plan for climate resilience reducing the risk and impact of extreme weather events such as flooding and drought	M

Support local people to develop their skills and access new green jobs

	Action/Opportunity	Description	Timeframe
	Support local people and business to take advantage of new opportunities in green growth including buildings retrofit.	Develop a programme of work, building on existing programmes such as the Growth Hub, Adult Education, Future Bright, Careers Hub and Workforce of the Future, to help local people and businesses take advantage of new jobs and market opportunities in green growth and buildings retrofit.	S
	Identify funding sources that could be used to commission green skills courses.	Work with education providers to identify funding sources and a commissioning process that prioritises green skills gaps and encourages	S

		education providers to offer green skill training. This could include the Adult Education Budget or funding from external sources.	
	Use the careers hub to inspire young people into 'green' skills and careers	This could include a range of activities, including: • Recruit Enterprise Advisers from "Green" sectors or roles. • Recruit cornerstone employers from the "Green" sector. • Ensure the Climate emergency agenda is built into development and implementation of WECA's careers focused work.	S
	Promote green skills opportunities through Future Bright	Support Future Bright participants to access green skills opportunities through support, information and advice.	S
	Embed low carbon approaches through Workforce for the Future	Ensure all funded projects through Workforce for the Future [WftF] complete a Sustainable Development Plan [outlining environmental measures that will be taken during the project's delivery]. Explore the possibility of future funding rounds focussing exclusively low carbon.	M
	Use Further Education capital investment to encourage low carbon skills development e.g. through the City of Bristol College Construction Skills Academy.	Work with WECA funded construction centres to support them in the delivery of low carbon skills training including Weston College; Bath College Construction Skills Centre; City of Bristol College Advanced Construction Centre and South Gloucestershire and Stroud College.	M
	Lobby government for further funding to develop a low carbon fund for new apprenticeships.	Develop proposals to lobby government for further low carbon apprenticeship funding.	M

Develop and strengthen local green business

	Action/Opportunity	Description	Timeframe
	Work to support networking and collaboration to promote good practice in low carbon and resource efficiency.	Sharing best practice provides business with greater confidence to invest in low carbon initiatives.	S

Renewable energy

Work in partnership to develop new, smart approaches to the distribution of energy

	Action/Opportunity	Description	Timeframe
	Work with partners to lobby government for regulation change to support innovation in energy distribution and renewable energy generation	Energy generation and distribution is highly regulated through Ofgem and planning regulations which can prevent renewable energy schemes from being built. WECA can work with partners to identify legislative or regulatory barriers and lobby government for change	S
	Work with partners to develop a business case to enable grid reinforcement where appropriate	Where there are grid constraints consider working with partners to build a business case to enable new approaches to cover the cost of grid reinforcement, which then can be recovered as other new connections come online	M
	Work with partners to support research and development into new, smart approaches to the distribution and generation of energy	Work with partners [including the South West Energy Hub] to support innovative approaches to increase the generation and distribution of renewable energy. This could include securing new sources of funding	S

Increase local renewable energy generation

	Action/Opportunity	Description	Timeframe
	Provide direct scheme funding & technical support to increase community energy generation	Continue to provide funding and technical support for local energy projects. These are currently delivered through Low Carbon Challenge Fund [LCCF] and South West Energy Hub	S

	Work with partners to explore the potential for a local renewable energy tariff	Explore potential for a local renewables tariff, building on existing work within unitary authorities: Role to understand the market potential/interest; coordinating a trial/demonstration project; and liaising with a licensed supplier to set it up	L

Low carbon buildings and places

Increase the number of new carbon neutral homes and developments in the region:

	Action/Opportunity	Description	Timeframe
	Lobby government for regulatory and legislative changes required to promote carbon neutral developments through the New Homes Standard and Building Regulations.	Support unitary authority areas of common ambition on heat, built environment and standards and adopt a joint position to lobby government on changes to legislation creating a more powerful voice on how to improve the built environment and reduce emissions.	S
	Use strategic role in the master planning process to take a holistic view on low carbon development	Bring unitary authority, utilities, distribution network operator together to view masterplans holistically and develop a 'joined up' approach. WECA can also be the evidence agent avoiding duplication.	M
	Use strategic planning powers and forthcoming documents such as Spatial Development Strategy and Joint Local Transport Plan 5 to promote low carbon and carbon neutral developments/locations	Strategic documents that are being worked on now could have a strong focus on carbon accountability and encourage net zero carbon development. WECA could work towards building a core approach to carbon accountancy and assessing impact, including investigating building evidence bases, carbon implications of site locations, other spatial decisions relating to the amount and nature of development and understanding potential co-benefits of low carbon housing	M

Increase the energy efficiency performance of existing homes:

	Action/Opportunity	Description	Timeframe
	Explore opportunities to support homeowners to take up government sponsored retrofit programmes designed to support carbon neutrality ambitions and economic recovery	Government have announced a £2bn Green Homes Grant scheme designed to improve the energy efficiency of homes. This includes additional support to low income households. WECA can play a role in raising awareness; promoting the scheme and how to apply. WECA can	S

		also support local construction firms and people to benefit from the potential new source of work [see also low carbon business]	
	Work with partners, including the South West Energy Hub to help social landlords access the Social Housing Technical Assistance Pilot [and similar future initiatives]	There are over 73,000 social housing homes in the West of England region, nearly 15% of all homes. The Social Housing Technical Support Pilot aims to support social housing providers access funding for energy improvements and set the path to net zero carbon. Government are looking to pilot support in key areas across the country.	S
	Support Innovation in home retrofit through the Innovative Home Retrofit programme [part of the Low Carbon Challenge Fund]	A capital grant funding scheme of £200,000 available to private and social landlords. It will reduce the carbon emissions and pilot innovative retrofit technologies, techniques or financing in 25 homes across the region.	S
	Work with existing support services to promote the co-benefits of retrofit energy efficiency measures, using existing case-studies and evidence base as appropriate.	WECA could play a role in sharing best practice, signposting to support services and compiling an evidence base to identify and promote the benefits of home retrofit.	M
	Lobby government or private finance to develop long term sustainable schemes for whole house retrofits	Homes are one of the biggest sources of emissions, but funding retrofit work is often a barrier for home owners and private/social landlords. Previous and current funding streams are time limited and do not reach all households or all retrofit needs as a result. Long term sustainable funds could pump prime large-scale retrofits and could unlock dramatic falls in costs through economies of scale benefitting all types of home tenure and creating a new market for quality, holistic retrofit	L

Increase the energy efficiency performance of existing buildings and businesses:

	Action/Opportunity	Description	Timeframe
	Extend and enhance the Green Business Grants [part of the Low Carbon Challenge Fund] to increase the energy efficiency of business units and operations	Green Business Grants help businesses to lower their emissions through investing in new equipment or improving the efficiency of their buildings. It is funded by ERDF until 2022, so a business case will need to be developed to extend and expand this programme.	M

The green environment

Work with partners through the Green Infrastructure Strategy to develop climate resilience

	Action/Opportunity	Description	Timeframe
	Mainstream green infrastructure within planning policy to enhance and protect the natural environment and meet legislative requirements set out in UK planning Law	A coordinated and strategic approach to climate change adaptation and mitigation in planning policy is required to facilitate building resilience for people, place, infrastructure and the environment.	S
	Understand the implications of and develop an approach to achieving 10% biodiversity net gain across all development under the Town and Country Planning Act [2004] - requirements being introduced through the Environment Bill	The Environment Bill [currently being considered by government] may require 10% biodiversity net gain across all development under the Town and Country Planning Act [2004]. WECA are working with the unitary authorities, Natural England and key partners to understand the implications of achieving 10% biodiversity net gain and how an approach can support climate adaptation and resilience, as well as biodiversity enhancement.	S
	Work with Natural England to pilot the National Framework of Green Infrastructure standards that will support the development of a consistent and nationally agreed approach to assessing and delivering green infrastructure policy and projects that supports climate adaptation and resilience	Natural England is working with partners and stakeholders to deliver the 25 Year Environment Plan commitment to develop a National Framework of Green Infrastructure Standards for soft launch in Spring 2021. This approach will help to embed multifunctional green infrastructure within future development, supporting climate change mitigation, adaptation and resilience.	M/L
	Work with Environment Agency to develop a regional natural capital account that will help us to	Understanding the value of the natural environment through Natural Capital Accounting will help to quantify the services our natural	S

	understand our natural environment and the benefits it provides both directly and indirectly and could help lessen the impacts of climate change	environment provides including for carbon sequestration and wider climate adaptation such as flood mitigation and air quality	
	Work with the West of England Nature Partnership to develop and deliver a regional Nature Recovery Network to address wildlife decline and provide wider environmental benefits	The Environment Bill [currently being considered by government] may require the development of Local Nature Recovery Strategies and Nature Recovery Networks. The West of England Nature Partnership is working to develop a regional Nature Recovery Network evidence base for the West of England, aligning with shared principles developed across the South West [by the South West Local Nature Partnerships] to ensure coherence and strengthened networks across the wider region.	S
	Secure funding and undertake a regional assessment of economic impact of climate change vulnerability [to assets, infrastructure, communities] to help provide an evidence base for regional hot spots and to plan for key adaptation measures	Working with organisations such as the Met Office, UKCIP18 and reviewing the UKs Climate Change Risk Assessment 2017, to understand the key areas where we need to plan for climate adaptation	M

Work with partners to protect and enhance the environment

	Action/Opportunity	Description	Timeframe
	Work to develop planning policies that understand the range of benefits the natural environment provides, including carbon sequestration and ecological issues when planning and implementing new infrastructure.	Consider wider benefits including carbon sequestration opportunities when delivering new infrastructure. For example, increased use of tree and woodland planting or landscaping that leads to net gains and sequestered carbon during development and long-term maintenance.	S
	Consider the whole life carbon implications, of Investment Fund Projects delivered by WECA,	WECA can work with contractors to review and amend specifications to encourage use of low carbon and potentially recycled materials where possible.	S

	including embedded carbon, with the objective of ensuring designs and specifications are as carbon efficient as practically possible.		
	Use procurement processes to encourage contractors to use local labour and suppliers	Use of non-local sub-contractors has the potential to increase carbon emissions if they travel daily but this is not recognised when evaluating tenders	S
	Utilise an appropriate methodology to measure and reduce the carbon impact of construction and operation, starting with Investment Fund projects delivered by WECA	WECA will work towards applying appropriate carbon assessments on its own projects [particularly larger ones] to demonstrate best practice in managing carbon impacts on its projects	S