

**West of England Local Enterprise Partnership
Board meeting – 24 JANUARY 2020**

UPDATE ON CLIMATE EMERGENCY PLANNING

Purpose of the report

In July 2019, WECA committee declared a climate emergency, committing the West of England to carbon neutrality by 2030. As part of the emergency declaration, we are required to report back to committee every six months on progress.

This is the first of these update reports and provides a high-level review of climate emergency data, identifies some of the complexities around addressing the climate emergency and progress with the Climate Emergency Action Plan.

LEP Board is asked to

- Note and comment on the update report on climate emergency planning in advance of the 31 January meetings of the WECA Committee and West of England Joint Committee.
- Recognising that addressing the climate change emergency will require action from a wide range of partners across the region, consider the role the LEP Board can play in focusing and coordinating that activity. In particular considering:
 - actions Board members organisations are able to take;
 - the Board's role in stimulating, and providing a focus for activity both between Board members organisations and with the wider business community;
 - the Board's role in identifying and championing best practice examples and low carbon innovation;
 - the role the Board wants to take in the development of the Climate Emergency Action Plan including whether the Board wishes to establish a climate emergency sub-group to take forward work in this area.

Background

Context

Climate change poses a clear and serious threat, affecting our future environment and prosperity of our region. The IPCC's 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. WECA 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 significantly reduce carbon emissions in the region. This will require changes in the way that we act and make decisions. However, WECA

recognise that simply reducing emissions will not be enough. The scope of our action will need to be broader. We will need to consider how to adapt to the impact of climate change, recognising the impact it has had on the environment. We will also need to work closely with our businesses to foster innovation and grow the skills of our region to reduce emissions and take advantage of the economic benefits available within the pathway to carbon neutrality.

The way to achieve this goal is complex and will require action by national government, unitary authorities, individuals, business and international government.

Evidence – Baseline and Priority Areas

Baseline Emissions

The West of England emitted 5,230kt CO₂ in 2017, this is a reduction of 23.6% per head from 2012, compared with 25.2% per head across England.¹ CO₂ makes up 81% of Green House Gases that are either emitted directly (e.g. through burning of fuels directly) or indirectly (e.g. from electricity purchased and used by the consumer or businesses). These are also known as production emissions, measuring the emissions of goods and services produced within the region.

An alternative approach is to estimate the emissions impact of all goods and services consumed by residents of the West of England ('consumption emissions'). This equates to production emissions, 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 emissions for the West of England could reach 10,500kt CO₂, 1.9 times production emissions². (Note there is significant double counting between these two measures).

The difference is significant: UK production emissions have been falling since 1973, whereas consumption emissions peaked in 2007³. This reflects the deindustrialisation of the economy, as consumers have become more reliant on imported manufactured products. Purchases by the region's residents are responsible for emissions elsewhere in the world. Since 2007 consumption emissions have fallen by 20%.

Sources of Emissions

Excluding motorways, rail, and large industry, 33% of the region's emissions came from business, 35% from households and 32% from transport.⁴ Most emissions from both businesses and households are generated by heating.

¹ End-use carbon dioxide (CO₂) emissions at local authority level, kilotonnes, 2017. BEIS, UK Local CO₂ emissions, June 2019; WECA calculations

² University of Leeds and DEFRA, UK Consumption Emissions <https://www.gov.uk/government/statistics/uks-carbon-footprint-and-weca-calculations>

³ ONS, The decoupling of economic growth from carbon emissions <https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/october2019/thedecouplingofeconomicgrowthfromcarbonemissionsukevidence>

⁴ Motorways, rail, and large industry were responsible for 959 kt of CO₂ in 2017, 18% of full emissions. In this case we have used the data subset which excludes large industrial plants (i.e. those included by the EU Emissions Trading Scheme) and rail and motorway transport. This also excludes emissions from aviation and

Energy Generation

The majority of the region's energy comes from fossil fuels, including gas and petroleum. According to BEIS statistics, in 2017, 91% of energy used in the West of England was from fossil fuelled sources (including those used to generate electricity). 33% of grid electricity comes from renewable sources, but the region makes a limited contribution to that.⁵ Renewable energy generation within the region has increased rapidly (mainly solar), but still only represents 9% of our electricity consumption, and most of the electricity used in the region is generated outside it.⁶ If we want to achieve carbon neutrality, we cannot continue to rely on fossil fuels.

Priority Areas

Reducing the emissions from transport, heating and the generation of electricity will form the priority areas of action for the region. As an indication of the scale of the task, 883 renewable heat schemes have been completed in the region under the government Renewable Heat Incentive since 2014, out of the region's 494,880 dwellings.⁷ 4,595 electric vehicles are licenced in the region, against 785,000 vehicles in total.⁸

Clean and Inclusive Growth

To meet the carbon neutrality ambitions, we will also need to support the innovative businesses based in the region, and those others that we can attract here, to go further and faster to develop the technologies to help tackle climate change on a global scale.

Whilst the way forward to achieve this is unclear, the strong history of engineering and innovation within the West of England means that the region is well placed to be at the forefront of innovative research and development to help reduce emissions, including:

- providing a base for global energy consultancies such as DNV - GL, Everoze, and Lloyd's Register who provide renewable energy services (particularly wind, wave, tidal and solar), and employ over 300 staff in Bristol.
- Aura Power, based in Bristol, is leading the development of large-scale renewable energy projects (particularly solar) creating a competitive edge over fossil fuel generation.
- Many of the region's law firms, planning and engineering consultancies have a strong renewable energy expertise. Examples include Renew Legal, TLT Solicitors and ESOS Energy.

ports as these counted as part of international emissions. This is designed to reflect those emissions over which local authorities and regions may be expected to exert some direct influence.

⁵ Renewable energy is energy derived from a source that is not depleted when used e.g. wind, solar, hydro and biomass. Renewable energy generation at local authority level, BEIS, Regional renewable statistics, September 2019 (link); BEIS, Sub-national total final energy consumption statistics, September 2019 (link); WECA calculations.

⁶ National proportion – 33% in 2018 – BEIS, Digest of UK Energy Statistics chapter 6

<https://www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes>

⁷ BEIS Renewable Heat Incentive monthly deployment statistics, October 2019

⁸ DfT, Licensed Vehicle statistics, September 2019

- Triodos Bank, one of the most sustainable banks in the world, has its UK headquarters in Bristol.

We also have some leading global players in high value design, such as Airbus, which is designing the next generation of aeroplane wings, making them more fuel efficient.

Taking action on climate change should also have substantial economic benefits for the region. Growth in carbon efficiency amongst businesses and within the green economy can help to increase productivity and help to create good jobs as well as protecting the climate and environment. According to a recent BEIS survey, 65% of all 18-24-year olds are interested in working in the green economy.⁹ The government estimates that the green economy will create two million jobs between now and 2030, with analysis from the Committee of Climate Change estimating that low carbon markets will grow significantly in the near future:

- Low carbon electricity products and services – 5-7% growth per year to 2030
- Low emission vehicles products and services – 25-30% per year to 2030
- Low carbon financial services – 10%+ per year to 2030¹⁰

If we are to successfully deliver the actions required to meet the region's carbon target, we will need significant growth in the supply chain for a range of green services, including building insulation and renewable heating. There is an opportunity to ensure that the benefits of this growth are captured within the region. This should help to good job opportunities within both high and low skilled sectors, ensuring that economic growth benefits generated by the low carbon sector can be inclusive and benefit all our residents.

If the West of England wants to take advantage of these opportunities, we will need to start considering now the action we need to take to tackle climate change, ensure our businesses are resilient to its effects and start to build the skills and supply chains required within these new and emerging sectors.

Promoting inclusive economic growth is not the only co-benefit of reducing carbon and tackling climate change. It can also help support the most deprived communities within the region to live better, healthier lives.

Action to decarbonise the region and improve the energy efficiency of our homes and buildings can also help to address the issue of cold homes and poor air pollution. Particulate matter and nitrous oxides contribute to around 40,000 air pollution related deaths per year in the UK. The cost of cold homes to the NHS is estimated at £2.5billion per year.¹¹ Taking action to reduce the emissions from transport and improve the way we heat our homes will help to address and minimise these issues.

⁹ Ashden, Climate Action Co-Benefits Toolkit – Chapter 3 Economic Opportunity and Job Creation, <https://www.ashden.org/programmes/co-benefits>

¹⁰ Committee on Climate Change, Net Zero: the UK's contribution to stopping global warming, May 2019, p. 236

¹¹ Ashden, Climate Action Co-Benefits Toolkit – Chapter 1 Health and Wellbeing, <https://www.ashden.org/programmes/co-benefits>

In addition, energy efficiency measures offer the potential to reduce energy bills, which amounted to £1.7bn in 2018. The Committee on Climate Change estimates that energy efficiency improvements could reduce household bills by £150 per year by 2030.¹²

To ensure that we are fulfilling the ambition within the Local Industrial Strategy to promote clean and inclusive growth across the region, we need to start tackling climate change throughout all of our work.

Reducing Carbon – the challenge ahead

The carbon reduction target for the West of England is to achieve carbon neutrality by 2030.

The West of England has achieved a lot in terms of reducing emissions and fostering innovation to support new, cleaner innovations. Since 2005 emissions in the region have steadily fallen. However, this is largely due to national measures such as progressive decarbonisation of the national grid.

Research has shown that if we want the best chance of limiting climate change to 1.5 degrees, the maximum amount of carbon that can be put into the atmosphere is 420 billion tonnes globally. Across the world, 42 billion tonnes per year are currently emitted. So, if emissions were to stay at this level, the global carbon budget would be exhausted at the beginning of 2028.¹³

Extending these targets to the UK, provides a carbon budget of around 2.5 billion tonnes. On a production basis, UK carbon emissions in 2018 were 364 million tonnes.¹⁴ If emissions continue at this level, the UK's budget would be exhausted by 2025. To stay within budget, we need to reduce emissions by 15% per year. Production-based emissions have only been falling at a rate of around 4% per year.

Measured on a consumption basis, UK emissions are about 60% higher. To stay within this budget on this basis we'd need to cut emissions by 24% per year. Emissions on a consumption basis have been falling by only 1.5% per year.

Analysis of historic emissions and suggested pathways to carbon neutrality, shows that continuing business as usual will not achieve the 2030 target. If we do not act now, we will need to take more drastic action in the future, requiring expensive carbon capture and storage in order to meet our target.

Possible pathways to reducing carbon

Whilst there are other causes, energy usage and generation form a significant majority of carbon emissions. As such, we can use them as a proxy for understanding what actions the region may need to take in order to reduce our emissions and meet the carbon neutrality ambitions.

¹² Committee on Climate Change, Net Zero the UK's contribution to stopping global warming, May 2019, p. 246

¹³ <https://www.cityscience.com/blogs/events/if-we-were-serious>

¹⁴ BEIS, Provisional UK greenhouse gas emissions national statistics 2018

The National Grid Future Energy Scenarios¹⁵ outline different credible pathways for the future of energy usage across all sectors including domestic consumption, transport, energy generation and industrial use for the next 30 years. They consider how much energy we might need and where it could come from, including looking at what the changes might mean for industry and consumers.

The Future Energy Scenarios are based on projections to 2050 in line with the national target, but the actions they produce show what will need to be achieved to reach carbon neutrality against any timeline. Based in these scenarios, in order to achieve carbon neutrality, it is likely that we will need to:

- Transport – decarbonise the transport system including ensuring that most forms of transport are electric vehicles or ultra-low emissions vehicles and that there has been a significant modal shift towards walking and cycling
- Heating – stop building homes and buildings that will need to be retrofitted in the future. Start building zero carbon homes with high levels of heating efficiency and embark on a wide-scale retrofitting programme for existing buildings and homes.
- Energy – reduce energy consumption to lowest possible demand, fostering innovative new business practices and ensure that there are high levels of sustainable energy generation including solar, onshore and offshore wind

These scenarios and pathways are not set in stone, they are subject to annual review as new data, science and technology emerges to help reduce emissions.

Action already taken to address the Climate Emergency:

WECA has already taken some action to help address the climate emergency, including:

- Setting a regional strategic objective for clean and inclusive growth within the Local Industrial Strategy
- Working to tackle congestion and improve public transport options, encouraging people to leave their cars at home – we have made significant investment in rail, buses and walking and cycling.
- Launched a new £4.2m West of England Low Carbon Challenge Fund to support micro, small and medium-sized business to adopt energy efficiency measures, along with community energy schemes and retrofit energy efficiency measures for homes.
- Helped fund the National Composites Centre in South Gloucestershire, which is developing lightweight materials that are stronger and have the potential to reduce weight and increase carbon efficiency and is already making a difference in aerospace, automotive and construction and so much more.
- Hosting the South West Energy Hub which supports projects ranging from energy efficiency retrofit for homes, business and the public sector, to renewable or low carbon electricity and heat generation.
- Provided a multi-million-pound investment in the Institute of Advanced Automotive Propulsion Systems at the Bristol & Bath Science Park, a global centre of excellence, delivering transformational research and innovation in low-emission vehicles to improve the air we breathe

¹⁵ National Grid Future Energy Scenarios, July 2019 - <http://fes.nationalgrid.com/media/1409/fes-2019.pdf>

- Supported the delivery of a West of England Green Infrastructure Strategy and promoting the role of the natural environment in climate adaptation

What are we going to do next?

Achieving carbon neutrality will require a whole system approach – requiring change from national government, the UAs, residents and businesses. WECA can play a key role in convening and influencing within this area and in the decisions, we make in terms of procurement, capital spends, and policy setting (incl. spatial, transport, skills). However, WECA does not have the power or resources to deliver this ambition on our own. We will need to work in partnership to achieve the ambitions of the emergency declaration (see appendix one for further explanation).

Work is underway to prepare a regional Climate Emergency Action Plan. This Plan will set out our next steps to delivering the CE ambition for decarbonisation and several high-level principles. These principles will provide clear regional direction but will allow flexibility in terms of delivery. The CE Action Plan will also provide a basis for strategic discussions with Government on funding, regulation and delivery. This approach respects that regional and local actors will have different ambitions and approaches, whilst creating a space to find innovative solutions together.

The CE Action Plan will have a broad scope, taking both adaptation and mitigation into account. Reducing our emissions by acting on the causes of climate change (e.g. decarbonising transport, building zero carbon homes and increasing the sources of clean energy) is more commonly known as mitigation. However, addressing the emissions that cause climate change will not be enough.

The CE Action Plan will also need to consider how we can adapt and act to manage the risks of climate change impact. This will include how we manage and use our natural habitat and environment.

To ensure we take a robust evidence-based approach we are proposing to spend some of the resource allocated to the climate emergency to pull together a regional integrated evidence base. This will build on the work already done by Unitary Authorities.

Developing the Climate Emergency Action Plan

Over the coming months, WECA officers will work in liaison with the Unitary Authorities to develop a Climate Emergency Action Plan. The Unitary Authorities are at differing stages of responding to their own climate emergency declarations:

- Bristol – published an action plan in September 2019, currently in the process of developing a gap-analysis evidence base to help prioritise action and a climate change strategy (due in March 2020)
- B&NES – published their first report and evidence base in October 2019, they have committed to including climate change considerations within all their decisions and are refreshing their Climate Change Strategy
- South Gloucestershire – due to publish first report to committee and evidence base highlighting priority areas for action in January/February 2020
- North Somerset – published an action plan and evidence base is in development

Whilst the exact pathway to carbon neutrality cannot be fully known at this time, this does not mean we should not act towards carbon neutrality using our existing levers of power and influence. The Climate Emergency Action Plan will begin to consider how this can be achieved, following the below basic principles and investigating the feasibility of the suggested actions within each principle:

- **Fostering Clean Growth & Innovation** e.g:
 - Use AEB Commissioning powers, careers hubs and skills teams to increase the number of people with green skills (e.g. home retrofitting, clean tech, green finance, renewable energy) within the region to facilitate the transition to zero carbon
 - Strengthen enterprise support and innovation provision to help businesses understand their carbon footprints; implement mitigation activities and zero-carbon innovation; and develop the region's low carbon supply chain.
- **Accelerating the shift to low carbon transport** Using our planning transport levers (Interim JLTP4, Bus Strategy, LCWIP) to:
 - Fewer car journeys e.g. investment in transport hubs to allow easy and efficient interchange between modes
 - Work towards decarbonising the public transport system
 - facilitate a modal shift towards walking and cycling.
- **Improving our buildings & placemaking** - Integrating climate resilience into new development including exploring the potential for a zero carbon homes standard, considering solution for renewable energy supply and integrating good quality design that incorporates GI within new development and working with UAs to increase the opportunities for retrofit
- **Enabling clean smart affordable energy** - Upscale the Low Carbon Challenge Fund including the Rural Community Energy Fund to encourage more renewable energy within the region
- **Protecting, preserving & enhancing the environment** - Publishing and continuing to support the WOE Joint Green Infrastructure Strategy that will evidence the multi-benefits of GI, including climate change adaptation, across the West of England, exploring opportunities to deliver GI within new and existing projects, plans and programmes.
- **Leading the way as a public sector organisation** - Provide political leadership in lobbying government for additional funding & legislative powers for:
 - Widescale homes & buildings retrofit – spatial planning can move new builds towards zero carbon but does not address existing homes
 - Changes to National Grid to improve grid capacity and improve its ability to incorporate renewable energy that is locally generated
 - New planning powers and funding to increase the amount of renewable energy

Governance

WECA will champion the Climate Emergency throughout its governance and decision-making structures. Mayor Tim Bowles will continue to provide political leadership, alongside Unitary Authority Mayors and Leaders, of the Climate Emergency – championing the issue and helping WECA to make the right decisions to deliver the ambition.

WECA committee has been asked to consider governance options to support this, including:

- The option of adding a requirement to the terms of reference of the 'Regional Capital Board' to provide guidance and oversight of the delivery of climate emergency action plans (subject to committee approval of this)
- The option of adding a requirement to the terms of reference of all governance boards to consider the impact of all decisions and advice on the climate emergency (subject to committee approval of this)

Author: Helen Edelstyn, Senior Policy Manager