

Worcestershire County Council

Net Zero Carbon Plan

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FOREWORD

I am delighted to present the Council's Net Zero Carbon Plan, which highlights how we, Worcestershire County Council, aim to reduce our own carbon emissions to net zero by 2050.

The Council have been working to reduce carbon emissions over many years; in the last decade our own emissions have reduced by 40%. Much of this progress has been realised through improvements to our buildings, street lighting, reductions in staff travel and a change in the way that household waste is disposed of in the county - namely from landfill to energy from waste. We have taken significant action on our emissions reduction journey; from starting to invest in electric fleet vehicles, upgrading street lighting to LED and investing in renewable energy generation on our sites. Whilst this is not an exhaustive list, we realise that there is much more we need to do to reduce our emissions, and we intend to rise to the challenge.

Among the considerations are transitioning to non-fossil-fuelled heating systems and fleet vehicles; further investment to improve energy efficiency in Council property and streetlights; further investment in renewable energy, and the ability of the Council to offset remaining GHG carbon emissions.

Everyone has a very important part to play in reducing carbon emissions, and the Council is working hard to reduce our direct impact in this area, as well as playing our part in delivering the county's Energy Strategy, which aims to halve Worcestershire's countywide carbon emissions by 2030.

Now, more than ever, it is fundamentally important for us to act to protect our environment, for the benefit of all.



Councillor Tony Miller

Cabinet Member with Responsibility for Environment

INTRODUCTION

This Net Zero Carbon¹ Plan focuses on cutting Worcestershire County Council's (WCC) own carbon emissions². Through its own operations, WCC emits at least 1.5% of Worcestershire's total emissions and influences many more. The Council takes its responsibility to reduce its own emissions seriously and, since 2002, has delivered a series of [carbon management plans](#), of which this is the fourth.

The Council also has a significant role to play in addressing Countywide carbon emissions and addressing the impact of climate change on the County. This role is referred to in the latter sections of this document.

WCC is seeking to cut carbon emissions from its property, transport and street lighting, as well as emissions from contracts, such as highways maintenance and household waste management. A total emissions reduction of 40% since 2009/10 has been achieved to date, with annual energy savings of c£400,000.

WCC has [a long history of action on climate change](#). The Council led one of the UK's first countywide climate change strategies in 2002, agreeing with partners to set and work towards what were then ambitious targets for countywide carbon emissions reduction, and adaptation to climatic change. The Council was awarded Beacon Council Status for its work in 2008/9.

With urgency for rapid reduction of carbon emissions never greater, the Council recognises the need to take more ambitious action. The current [Worcestershire Climate Change Strategy](#) expires at the end of 2020 and WCC is now working with the Worcestershire Local Enterprise Partnership (LEP) to deliver the [County Energy Strategy](#), with its aim of cutting Countywide emissions by 50% from 2005 levels by 2030.

Throughout the life of the Worcestershire Climate Change Strategy and the Council's carbon management plans, the Council has generated hundreds of thousands of kilowatt hours of renewable energy, supported residents and businesses to reduce their greenhouse gas emissions, lobbied Government and worked with partners to improve the resilience of the county to the impact of climate change.

On 16th May 2019, the Council reaffirmed its commitment to tackle climate change. It agreed to:

- 1. Make Worcestershire County Council, in all areas where it is directly responsible, carbon neutral¹ by 2050, taking into account both production and consumption emissions;**
- 2. Call on Westminster to provide the powers and resources to make the 2050 target possible;**
- 3. Continue to work with partners across the county and region, such as district, town and parish Councils, and Worcestershire LEP, to deliver this goal;**

This document sets out progress to date, provides a baseline carbon emissions assessment and outlines the strategy that the Council will take to deliver on these commitments.

This plan builds upon the Council's work over many years, taking into account new scientific information, policy developments and new technology to further respond to what UK Government has declared a Climate Emergency.

This document has been published during the Covid-19 pandemic, which brings uncertainty as well as opportunity. As such, WCC are aware that some targets may be met sooner than anticipated, whilst others might become more difficult.

Everyone in the Council has a role to play in achieving net zero emissions, from deciding if and how to travel for work, to factoring carbon reduction into service planning and project development.

¹ Net zero carbon /carbon neutral - net amount of carbon dioxide or other carbon compounds emitted into the atmosphere is reduced to zero because it is balanced by actions to reduce or offset these emissions. Achieving an overall balance between emissions produced and emissions taken out of the atmosphere.

² Carbon emissions - includes carbon dioxide and other carbon compound gases (e.g. Greenhouse Gases (GHG), including methane), that have the property of absorbing infrared radiation (net heat energy) emitted from Earth's surface and reradiating it back to Earth's surface, thus contributing to the greenhouse effect.

United Nations Sustainable Development Goals

The Local Government Association (LGA) passed a motion in 2019 supporting the UN international Sustainable Development Goals (SDGs) and promoting the role of local government in delivering them.

The SDGs have clear links to this Net Zero Carbon Plan, the Council’s [Sustainability Policy](#) and [Corporate Environmental Reporting](#).

The United Nations introduced the SDGs in 2015. Adopted by all UN member states, including the UK, they set out 17 Global Goals to achieve by 2030 – a blueprint to achieve a better and more sustainable future for all.



All the SDGs go hand-in-hand and strive to deliver global prosperity whilst also protecting the planet.

WHY NET ZERO CARBON?

Climate Change and the IPCC Special Report

Climate change has risen back up the international agenda since the October 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report was published. This report asserted that limiting global warming to 1.5°C would significantly reduce catastrophic impacts of climate change on ecosystems, human health, and well-being. Such impacts include stronger storms, more erratic weather, dangerous heat waves, rising sea levels, and large-scale disruption to food production, infrastructure and human migration patterns.

The report made recommendation on measures required to meet this 1.5°C target. It cautioned a rapid and transformative approach to carbon emission reduction up to 2030 in order to avoid catastrophic climate change and advised achieving net zero carbon emissions by 2050 at the latest. The UK government adopted that target in 2019.

“Without increased and urgent mitigation ambition in the coming years, leading to a sharp decline in greenhouse gas emissions by 2030, global warming will surpass 1.5°C in the following decades, leading to irreversible loss of the most fragile ecosystems, and crisis after crisis for the most vulnerable people and societies.” (Source: IPCC, 2018: Global Warming of 1.5°C.)

A global temperature increase of 1°C since the preindustrial era has already occurred, (1.1°C West Midlands), with observed increase in extreme weather. The world is currently on course for 3 to 4°C increase by the end of this century.

Climate change is already having significant effects on Worcestershire.

There has been an increase in the severity, depth and regularity of flooding from surface water and rivers due to increasing intensity of rainfall. Although the trend is for drier summers, the intensity of storms is set to increase.

Hotter summers will also lead to increased heat stress, particularly for vulnerable members of the community, such as the elderly, and on the environment, with particular stress on water supply, tree and wildlife survival and agriculture.

It is important, in parallel to this carbon reduction plan, that the Council addresses the risk climate change poses to Council assets, services and the wider county. UK Government has established the National Climate Change Adaptation Programme. The corresponding UK Climate Change Risk Assessment identifies six priority risk areas: flooding, high temperatures, water supply shortages, natural capital, food production, and pest and diseases.

The ability of WCC to achieve net zero carbon emissions will be influenced by:

- technological development, for example the complete decarbonisation of the UK’s grid electricity, the availability of ultra-low emission (ULEV) HGVs, including gritter lorries; and the viability of carbon capture and storage (CCS) technology for energy from waste plants;
- investment by WCC in knowledge and resource to:
 - improve the energy efficiency of property and street lighting;
 - transition to new non-fossil fuelled heating systems and fleet vehicles;
 - enable the generation of more renewable energy;
 - negotiate low or zero carbon service contract requirements.
- the ability to offset² carbon emissions. As the Council reduces its carbon emissions, offsetting requirements will be subsequently reduced.

² a **Carbon offset** is a reduction of emissions of carbon dioxide or other greenhouse gas made in order to compensate for emissions made elsewhere

WORCESTERSHIRE COUNTY COUNCIL'S CARBON EMISSIONS

The Council monitors and reports on carbon emissions from the following sources:

Direct emissions from WCC owned or controlled sources - Scope 1

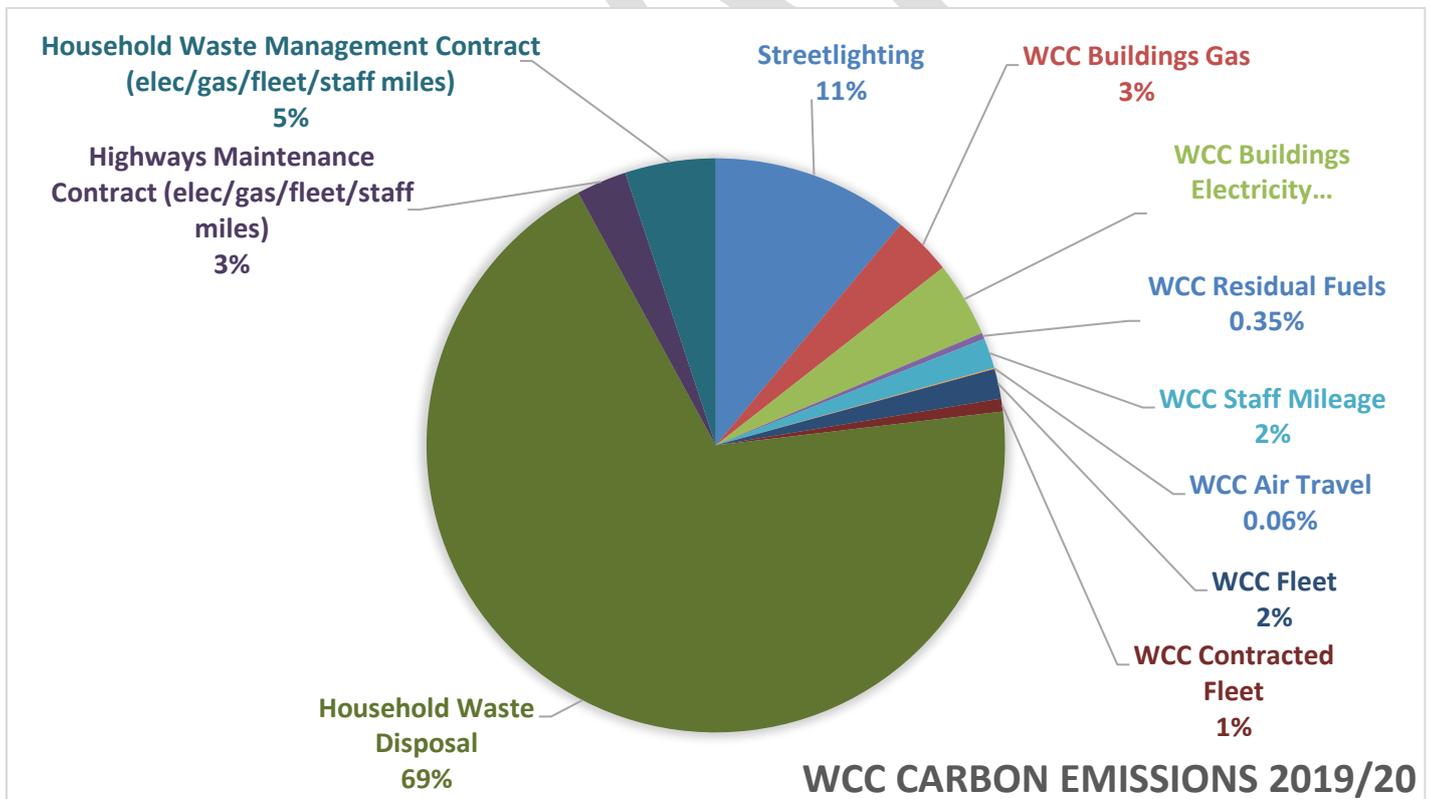
- Gas and other fossil fuels used to heat WCC buildings
- Petrol and diesel used to power WCC fleet vehicles

Indirect emissions from generation of electricity purchased by WCC - Scope 2

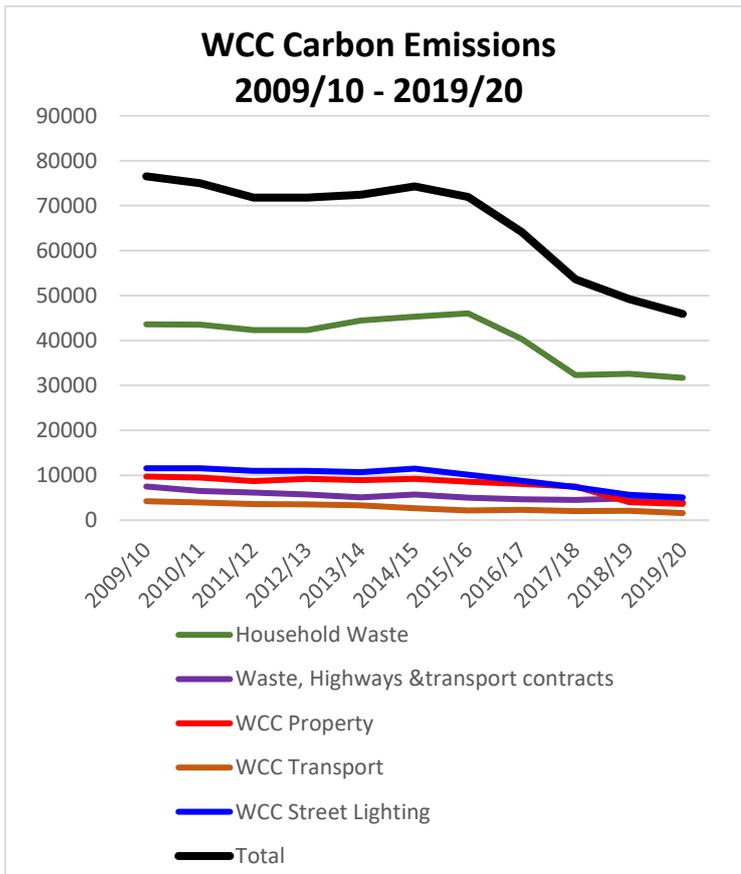
- Grid generated electricity used to power WCC buildings, street lighting and electric fleet vehicles

Other indirect emissions from sources not owned or controlled by WCC - Scope 3

- Grid electricity transmission and distribution
- WCC business travel
 - Staff grey fleet (business mileage)
 - Air travel³
- Contracted services
 - Household waste management contract
 - Highways maintenance contract
 - Contracted fleet



³ N.B. data availability issue with air travel data due to different financial arrangements for purchasing flights. WCC will work to ensure data reliability in emissions accounting going forwards



In 2019/20 Worcestershire County Council emitted 45,911 tonnes of carbon dioxide equivalent (CO₂e) from the above sources.

19% of these emissions were in the Council’s direct control (Scope 1 and 2), the remaining 81% were associated with sources not owned or controlled by WCC.

The baseline year for emissions reporting is 2009/10. This is the baseline which WCC uses to [report the Council’s emissions](#) to central government through its [Emissions Reduction Pledge](#).

The Council have reduced Scope 1 emissions by 46% and Scope 2 emissions by 61% respectively since 2009/10.

Overall, the Council’s total accounted carbon emissions have reduced by 40% since 2009/10.

Carbon Emissions Currently Not Reported

WCC do not report on emissions from the following sources due to limited data availability and reliability:

- other contracted services e.g. care providers, financial services, construction, IT ‘cloud’ systems
- employee commute
- employee business travel by public transport
- WCC waste disposal from own corporate sites
- emissions from closed landfill sites
- production and transportation of procured goods
- investments, including employee pension scheme
- leased WCC properties for which the Council do not pay the energy bill

WCC will work to establish reliable figures for these sources where possible. Where this is not possible, the Council will work to establish estimated emissions.

Emissions from schools are not reported. As schools transition to Academy status, energy consumption data for these sites⁴ is not always possible for WCC to obtain.

⁴ The Council fully appreciates that schools contribute a significant amount of carbon emissions. Place Partnership Limited currently supports and advises schools on energy efficiency and reducing associated carbon emissions through Service Level Agreements with county schools including supporting schools wishing to bid for energy efficiency funding (e.g. Salix funding).

THE COUNCIL'S APPROACH

The Council's approach to achieving net zero carbon emissions is set out below.

WCC will:

- **ensure Council decisions consider the potential environmental impact of all WCC projects** - Council reports will include information on the environmental impact of all proposed projects. The completion of a Joint Impact Assessment (JIA), and any consequent full impact assessment for environmental sustainability, will be required for all proposed projects. This will include assessment of carbon emissions;
- **seek to reduce the Council's carbon emissions as far and as fast as possible and practical** by seeking first to:
 - avoid use of energy and other resources, then
 - use energy and other resources as efficiently as possible
 - use renewable energy
 - explore carbon capture and storage where appropriate
 - offset remaining carbon emissions as a last resort
- **offset emissions where necessary, prioritising local approaches to carbon offsetting** which lead to local environmental and/or social improvements;
- **be flexible in its approach** - recognising there may be solutions for reducing emissions that are not yet available, or are not yet market ready or cost effective, which may become so in the future;
- **seek to make Council operations zero-carbon ready**, for example, by making cost effective changes to heating systems and building fabric to ready Council buildings for heating by heat pumps or hydrogen, by installing further electric vehicle charge points etc.;
- **seek to take the most cost-effective measures it can and take opportunity to generate income where possible;**
- **communicate the challenge of Climate Change** raising the awareness of residents and staff of the need to cut carbon emissions and improve resilience to climatic change; the Council's role in this and how everyone can play their part; linking into the Council's staff network of sustainability champions – the 'Zero Heroes';
- **share best practice with partners, working together with them where possible;**
- **continue to play its role in cutting carbon emissions and promoting environmental improvement across the county**, initiating, leading and contributing to projects with partners, businesses and communities to achieve this aim;
- **lobby Government** to provide the powers and resources needed to achieve its aim.

For each source of County Council carbon emissions, the following sections outline a carbon reduction target*, current status, progress made to date* and actions to be taken over the next few years.

The appended Action Plan (Annex 1) details short term - 2 years - and longer-term actions required to achieve net zero emissions.

* base line is 2009/10

Buildings

Target: 82% reduction in carbon emissions by 2021 [87% reduction by 2030]

7% of the Council's accounted carbon emissions are from electricity and gas consumption in Council buildings. The Council operates from just under 100 buildings, including offices, libraries, depots, care homes and Country Park visitor centres. As property owner, landlord and lessee, WCC's property management decisions have a significant impact on carbon emissions.

Heating and powering WCC buildings is set to cost more than £1.2million next year. Energy prices have significantly increased in the last few years and this trend is set to continue. Action taken to reduce building energy consumption will lessen the impact of this trend.

Changes in UK legislation mean that from April 2020 all property rented out by the Council must meet minimum energy efficiency standards, (EPC rated 'E' or better). The Council must ensure compliance with this legislation.

Covid-19 has meant many Council staff are currently working from home. The long-term implications of this on building occupancy and associated carbon emissions are currently unclear, however an increased level of home working and online meetings is anticipated, which will impact on building requirements and the council's strategy for delivery. The above target will be reviewed accordingly to reflect these changes.

What have WCC achieved so far?

Carbon emissions from energy use in WCC properties have reduced by 63% since 2009/10.

This is due to:

- a move by WCC away from higher to lower carbon heat sources e.g. from oil to gas, from gas to biomass;
- reduction in carbon intensity of UK grid electricity (see Annex 2);
- contraction of WCC's property portfolio;
- continued investment in the energy efficiency of Council buildings through the Council's £3m Energy Efficiency Spend to Save scheme (which has been running since 2010 making c.£400k savings a year), and the Capital Maintenance Programme;
- investment in and operation of renewable energy systems. WCC have installed:
 - wood fuelled biomass boilers in some properties, including County Hall and The Hive, generating approximately 1,700 MWh annually;
 - solar power on five corporate properties (the Council has also installed Solar PV on many Worcestershire schools. In total, over 0.7MWp installed to date);
 - river water cooling and ground source heat.
- energy efficient new build and refurbishment programme (including development of a Sustainable Design Guide).

To achieve net zero emissions, WCC will:

- purchase 100% renewable electricity for all Council buildings from April 2020⁵;
- as part of the Strategic Property Asset Management Plan Review, the Council will review the property portfolio for further opportunities to invest in energy efficiency, renewable energy generation and energy storage, and create a short to medium term investment plan. The Council will aim for 3% year on year reduction in energy consumption;
- develop a 5-year Capital Maintenance Programme to align with the zero carbon objectives of this plan;

⁵ 100% renewable electricity with REGO (Renewable Energy of Guarantees of Origin) certification can be reported as zero emissions in Scope 2 (electricity generation) under the GHG Protocol. In terms of reporting the Council's annual carbon footprint, and to ensure transparency, WCC will publish 1) absolute emissions, and 2) emissions which account for offsetting (e.g. purchasing green electricity, tree planting etc.). The Council will measure progress of the Net Zero Carbon Plan against the latter, which accounts for offsetting.

- undertake an assessment of Council properties to ascertain what measures need to be taken to ready them for cost effective ultra-low/zero carbon heating systems e.g. air source, hydrogen;
- seek to increase energy efficiency standards for new build, refurbishment and capital maintenance programmes;
- review the payback required for investment via the Council's Energy Efficiency Spend to Save fund.

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Street Lighting

Target: 97% reduction in carbon emissions by 2021

11% of the Council's accounted carbon emissions are from electricity used to power the Council's 56,800 streetlamps and traffic signals. WCC's streetlight management decisions have a large impact on the Council's emissions.

Powering Worcestershire's streetlights cost £2.7million last year. Energy prices have significantly increased in the last few years and this looks set to continue. Action taken to reduce street lighting electricity consumption will lessen the financial impact of this trend.

Replacing streetlamp luminaires with long life LEDs reduces energy consumption by 59% and significantly reduces maintenance costs.

What have WCC achieved so far?

Carbon emissions from energy use in street lighting has reduced by 56% since 2009/10, despite an increase in the number of streetlights.

This decrease is due to:

- replacement of approximately 21% of luminaires with more energy efficient LEDs;
- the instigation of part-night switch-off of streetlights on some roads;
- delumination of some traffic signs;
- reduction in carbon intensity of UK grid electricity (See Annex 2).

To achieve net zero emissions, WCC will:

- purchase 100% renewable electricity for all WCC streetlights from April 2020;
- replace a further 20% of luminaires with LEDs by 2022/23;
- continue to review further opportunities to invest in more energy efficient street lighting technology e.g. smart lighting controls and management systems;
- aim for 33% reduction in street lighting energy consumption by 2025.

Fleet and Staff Travel

Target: 68% reduction in carbon emissions by 2021 [90 % reduction by 2030]

4.06% of the Council's accounted carbon emissions are from WCC's 200 fleet vehicles (2% of emissions), 1914 private staff vehicles used for work related travel (2% of emissions), and air travel for business purposes (0.06% of emissions). WCC's fleet management and staff travel decisions have a significant impact on the Council's emissions.

Fuelling fleet and other Council-owned vehicles with petrol and diesel cost £315,900 in 2019/20. With fuel price increases set to continue, action taken now to reduce fuel consumption will lessen the financial impact of this trend.

Investment in lower maintenance vehicles, such as electric vehicles, will also reduce maintenance costs significantly.

Staff mileage (grey fleet) cost the Council £1.3million in 2019/20, with staff travelling 2.75 million miles for work purposes. Notably, just over 10% of that mileage was undertaken by 30 employees each travelling over 8,000 miles last year on Council business, accounting for 290,000 miles between them.

Gritters, followed by welfare minibuses, are the most significant sources of Council fleet emissions. Less than a quarter of WCC fleet vehicles meet EURO 6 standard. NOx and particulate emissions from the Council's vehicles are contributing to poor air quality. WCC gritters and grey fleet emitted 3 tonnes of NOx and 48kg of particulates last year. There are several air quality management areas in Worcestershire, including the whole of Worcester City.

Current UK legislation requires all new vehicles to be ultra-low emission (ULEV) by 2040. Following a recent government consultation, it is expected this will be brought forwards to 2035, or earlier if a faster transition is feasible.

What have WCC achieved so far?

Carbon emissions from WCC transport have reduced by 62% since 2009/10.

This is due to:

- reduction in numbers of WCC staff claiming mileage;
- reduction in numbers of fleet vehicles;
- replacement of staff and fleet vehicles with lower emission models, including 2 electric pool cars, an electric courier van and electric pool bikes;
- increasing use of online meetings.

The Council has also installed 39 public rapid and fast Electric Vehicle (EV) chargers at sites across the county, including County Hall. WCC is also taking part in a vehicle to grid EV charging trial at County Hall.

A zero-carbon fleet review has been carried out by the Energy Savings Trust (EST). Several of its recommendations are included in this plan.

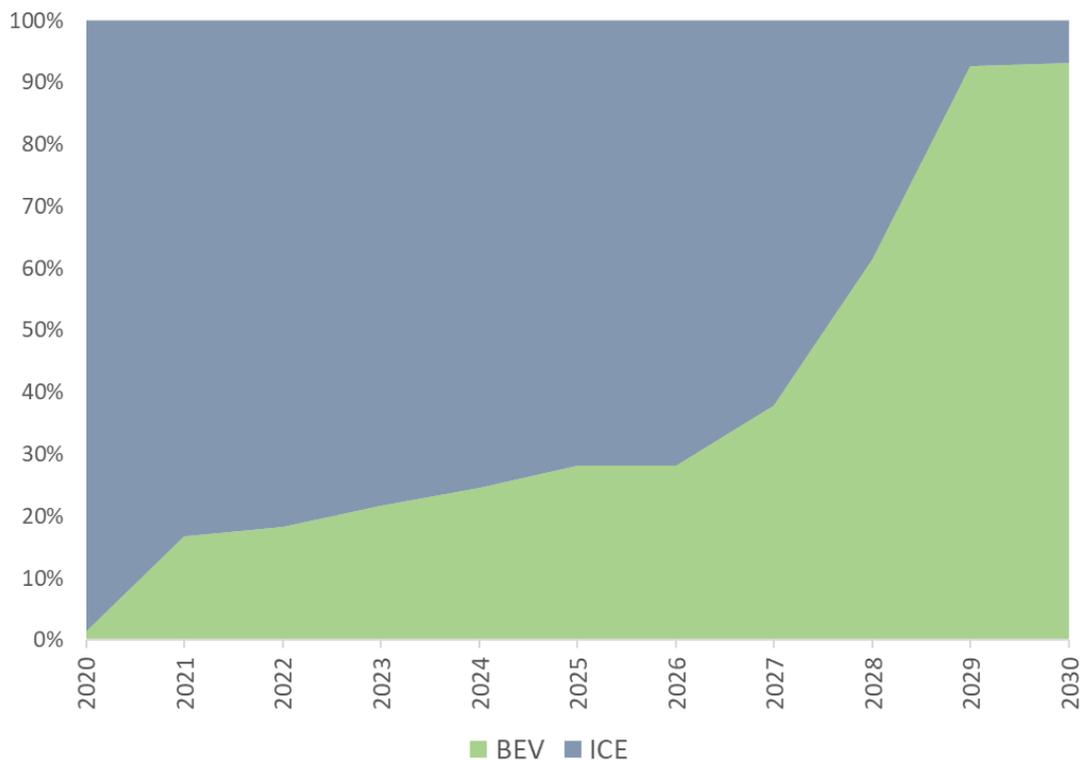
Covid-19 has had a significant impact on staff travel with many staff currently working from home. The long-term implications of this on staff travel patterns are currently unclear, however an increased level of home working and online meetings is anticipated. The above target will be reviewed accordingly.

Fleet

To achieve net zero emissions, WCC will:

- introduce a ULEV-first (ultra-low emission vehicle) procurement policy and fleet investment decision process, developed and implemented through the Fleet Procurement Panel;
- implement monitoring of fuel use and reporting of fuel consumption data (mpg) to determine current energy cost £/mile;
- use telemetry to identify vehicles that could be replaced by a BEV⁶ car or van - identifying daily mileage records, return to base, charging opportunities;
- establish a 5-year fleet replacement plan with the aim of achieving a 97% ULEV fleet by 2030;
- where replacement with a ULEV is not possible, WCC to replace with a minimum EURO 6 standard vehicle. Six gritters and nine minibuses will be replaced with EURO 6 vehicles in 2020;
- deliver a targeted driver training programme including driver rewards and appointing champion or lead drivers;
- Investigate opportunities to install EV charge points at Council properties where staff are based, including depots, to support the transition to BEV fleet vehicles.

Graph - Moving WCC fleet to zero emissions by 2030 (EST 2019)⁷



ICE (Internal Combustion engine) and BEV (Battery powered electric vehicle)

⁶ BEV – Battery powered electric vehicle

⁷ Graph is based on conservative assumptions about the lifespan of ICE and BEV vehicles as well assumed date for BEV availability. During this 10-year period some vehicles (e.g. cars) may be replaced twice. Because a large part of the WCC fleet is already old it is replaced early on with ICE vehicles (BEVs are not available) and this leads to a large BEV replacement programme at the end of the period. May be necessary to prepare a bespoke programme of replacement for WCC that defers some purchases of ICE vehicles if a viable BEV alternative is expected within 12-18 months.

Staff Travel

To achieve net zero emissions, WCC will:

- continue to enable and encourage working from home and online meetings;
- allocate officer time to establishing and delivering a strategy to further reduce grey fleet mileage;
- commission an independent review of grey fleet travel;
- review County Hall's Travel Plan in line with the Council's Zero Carbon objectives and targets, as identified within this plan. Further develop the Travel Plan to include wider grey fleet reduction; support and enable staff to travel to and from the campus in a sustainable manner, promoting active travel options and car share opportunities for both commuting and business travel; provision of safe cycle storage and shower/changing facilities for staff;
- promote further use of the electric pool bikes, which are available for all staff to use on Council business;
- promote the Bike to Work salary sacrifice scheme, (which includes electric bikes);
- increase the number of EV charging points in WCC car parks;
- seek to make the EV pool cars free to use for Council business;
- investigate the provision of ULEV company cars for staff driving more than 8,000 miles a year for work;
- investigate a salary sacrifice scheme for staff EV purchase;
- consider more electric pool cars at key sites and easy access to hire cars for long trips or when a pool car is not available.

Household Waste Disposal

69% of the Council's accounted carbon emissions are from household waste disposal (c.1% of Worcestershire's emissions). This is by far the largest proportion of emissions WCC account for and currently appears one of the most difficult to reduce. WCC's role as a waste disposal authority means the Council have control over how household waste is disposed of through the household waste management contract. Currently, 43% of this waste is recycled or composted. Most of the remaining waste is disposed of at EnviRecover, the Council's Energy from Waste (EfW) plant, emitting carbon dioxide into the atmosphere in the process. A small proportion of household waste is landfilled. The amount of waste produced by Worcestershire's households is increasing as the number of homes and population of the County grows. Close working with the Council's waste management contractor and District Councils will be required to find a zero-carbon solution to household waste. There will be thousands more homes built in the county over the next few decades. This is likely to place an upward pressure on the amount of household waste dealt with.

Carbon Capture and Storage⁸ (CCS) technology could potentially be retrofitted to EnviRecover at some point in the future, which would effectively reduce emissions by approximately 90%. Globally this technology is currently at development stage.

Managing household waste costs the Council approximately £30million a year. Action taken to prevent household waste will reduce this cost.

The Council is also responsible for several closed landfill sites, which emit methane and carbon dioxide into the atmosphere. Landfill gas contains approximately 50% methane, which is 30 times more potent than carbon dioxide as a heat trapping gas.

What have WCC achieved so far?

Carbon emissions from the disposal of the county's household waste have reduced by 27% since 2009/10.

This is mainly due to a significant reduction in waste sent to landfill following the opening of EnviRecover EfW plant.

To achieve net zero emissions, WCC will:

- continue to invest in and also seek external funding for household waste prevention initiatives;
- integrate requirement for carbon reduction into the Council's household waste disposal contract;
- keep under review the viability of CCS for EfW with the aim of integration into engineering refit of EnviRecover when viable;
- seek to establish and where possible address the amount of carbon emissions emitted from our closed landfill sites.

⁸ Carbon capture and storage (CCS) is the process of capturing and storing carbon dioxide (CO₂) before it is released into the atmosphere. The technology can capture up to 90% of CO₂ released by burning fossil fuels in electricity generation, industrial processes such as cement production and waste to energy plants. Based on [recent research](#) it is estimated this technology could be viable for installation before 2040.

Supply Chain

Work with suppliers to cut associated carbon emissions

9% of the Council's accounted carbon emissions are from three major contracts: highways maintenance, waste management (excluding emissions from waste disposal), and contracted fleet. The Council is aware there will be significant emissions associated with many other contracts and WCC investments too. For example, c.5% of the Worcestershire Pension Fund is currently invested in oil companies. The Council's procurement and investment decisions have the potential to make a significant impact on WCC's attributed emissions.

What have WCC achieved so far?

Accounted carbon emissions from the above three contracts have reduced by 47% since 2009/10.

This is due in part to:

- reduction in carbon intensity of UK grid electricity;
- replacement of contractor's vehicles with more energy efficient models.

To achieve net zero emissions, WCC will:

- establish reliable figures for carbon emissions from Council procurement where possible. Where this is not possible, WCC will work to establish estimated emissions;
- work with partners to review the carbon intensity of the Worcestershire Pension fund and reduce it;
- incorporate requirements for carbon reduction over the lifetime of new medium to long term contracts;
- run carbon reduction advice sessions with service providers.

Staff and Member Awareness

The decisions that WCC staff and councillors make, from day to day activities to service planning, procurement and project development, have a significant impact on how far and fast the Council can reduce its emissions, and can also influence countywide carbon reduction to a greater or lesser degree.

What have WCC achieved so far:

- Staff training on sustainability and climate change is available via the Council intranet. Face to face training sessions have also been run for a number of years;
- Use of the Joint Impact Assessment (JIA) tool that requires review of the environmental impacts (including carbon emissions), and is required for all new Council projects;
- 'Zero Heroes' staff sustainability champion scheme, including section on staff intranet and briefing sessions.

WCC will:

- Review training materials and delivery with the aim of achieving 'carbon literacy' across the organisation;
- Run Member briefing sessions on climate change.

Carbon Sequestration and Offsetting

Where the Council is unable to cut emissions fast enough, consideration will need to be given to offsetting or sequestering carbon emissions⁹. Where offsetting is necessary, local approaches to carbon offsetting, which lead to local environmental and/or social improvements, will be prioritised

There are many options including:

- appropriate tree and other vegetation planting -
The Council has committed to planting 150,000 trees on its own land over the next 5 years. This will sequester an average of 350 tonnes CO₂ a year over 100 years (0.8% of our current emissions);
- contribution to an energy efficiency fund for fuel poor households -
The Council is currently coordinating external funding sources to tackle fuel poverty, where available;
- investment in renewable energy generation on WCC land, elsewhere in the county or elsewhere in the UK -
Review of land holdings in consultation with partners.

Resources

Business cases will be developed for all activities within the plan. These will be prioritised by the Zero Carbon and Sustainability Board and funding sought, where necessary, in order to deliver the plan within agreed timescales.

Funding sources:

- WCC Energy Efficiency Spend to Save fund
- WCC Environmental Technology Capital fund
- WCC Capital Programme
- Salix¹⁰ loan
- Grant funding e.g. Worcestershire Public-Sector Energy Efficiency Programme (PEEP)¹¹, Public Sector Decarbonisation Fund
- Other finance options – e.g. Pension Fund investment

Governance

This plan will be overseen by the Council's Zero Carbon and Sustainability Board, which will act as the main programme board for activities across the organisation. The Board will meet regularly to review progress of actions and approve investment in measures.

There is representation on the Board from each directorate, including key functions such as: Waste Management, Street Lighting, Property Management, Fleet, Procurement, Finance, IT, Communications, Learning and Development, Countryside Service and Flood Risk Management. The Cabinet Member with Responsibility for the Environment and a member of the Economy and Environment Scrutiny Panel also attend.

A rolling action log will be kept detailing progress on short- and medium-term actions.

WCC will publish an annual GHG emissions report to track progress of the Net Zero Carbon Plan.

⁹ Carbon Sequestration - the removal and storage of carbon from the atmosphere in plants, soils and geological formations

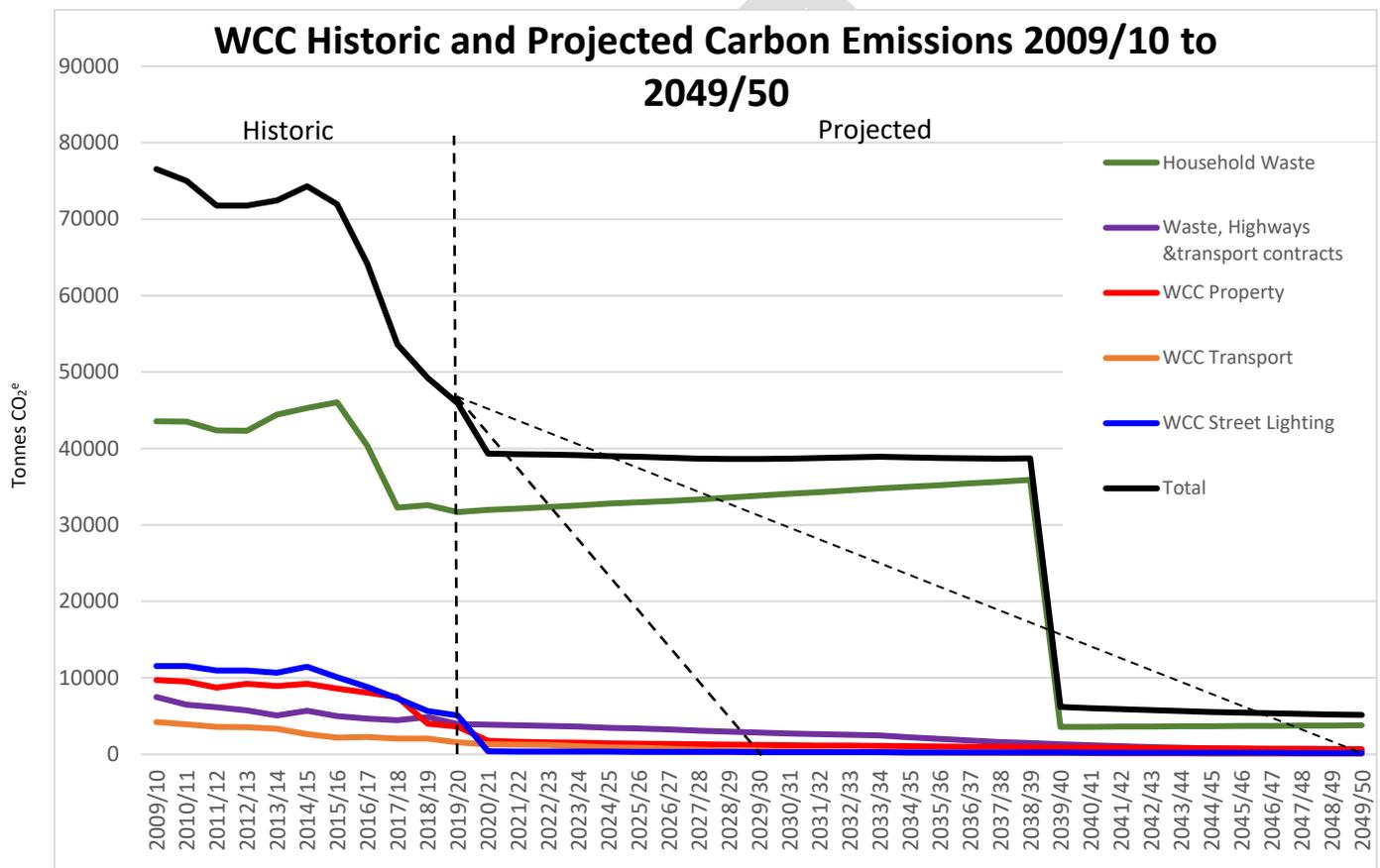
¹⁰ Salix - provides interest free loans for public sector to reduce energy costs through the installation of energy efficiency technologies. Paid back through the predicted savings on energy usage.

¹¹ The County Council is running the Worcestershire Public-Sector Energy Efficiency Programme. This European Regional Development funded programme offers grant funding for energy efficiency and renewable energy measures for public sector organisations across the county.

Net Zero Carbon Plan Summary

The graph below illustrates historic and **projected trajectory** for the Council’s organisational carbon emissions to 2050 from a 2009/10 baseline. **NB. The projection is based on the following assumptions and aims**, many of which are detailed in preceding sections of this plan:

- 100% renewable electricity procured for property and street lighting from 2020 onwards
- Ongoing 3% annual improvement in property energy efficiency
- 97% fleet ULEV by 2030, 100% by 2050
- 50% grey fleet ULEV by 2030, 100% by 2050
- Aspiration to achieve 3% annual emissions reduction of contracted services
- Projected household waste emission figures relate to projected number of households in the County in years to come¹²;
- Carbon Capture and Storage retrofitted to energy from waste plant by 2040



For reference, the dotted lines show straight-line trajectories to zero emissions by 2030 and 2050.

The solid lines show historic and projected emissions and illustrate the following¹³:

- **50%** reduction in all reported carbon emissions & **93%** reduction in Scope 1 & 2 carbon emissions by **2030**
- **93%** reduction in all reported carbon emissions & **96%** reduction in Scope 1 & 2 carbon emissions by **2050**

¹² Projections per annum vary from 0.9% to 0.56% increase in households per year

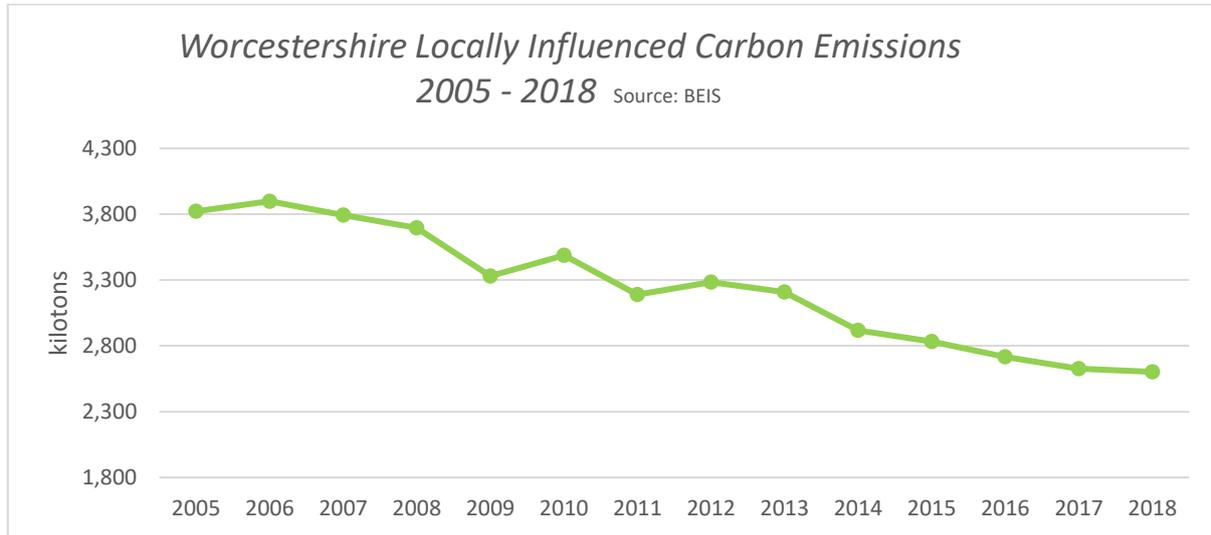
¹³ Further details available in Annex 3

Aim	Emissions Reduction tCO ₂ ^e (from 2019/20)	Target Date	Financial Impact	Notes
100% renewable electricity for property and street lighting	6,513	2020/2021	Low	Implemented April 2020
3% annual improvement in property energy efficiency	633	2029/2030	Investment in energy efficiency requires approved payback time	Dependant on financial resource
Plant 150,000 trees	Average 350 t/CO ₂ per year over 100 years	2025	£100k a year to plant and then maintain sites	Project planned to start winter 2020/21
97% fleet ULEV	716	2029/2030	Equivalent to or cheaper than non ULEV replacement	Dependant on financial resource
50% grey fleet ULEV	402	2029/2030	Cost of charge points for staff use	Dependant on financial resource
Carbon Capture and Storage retrofitted to EnviRecover	28,089	2040	Incorporated into waste contract when technology viable	Dependant on technology development
3% annual emissions reduction through contracted services	1,113	2029/2030	To be incorporated into new contracts and contract reviews	To be reviewed with contractor

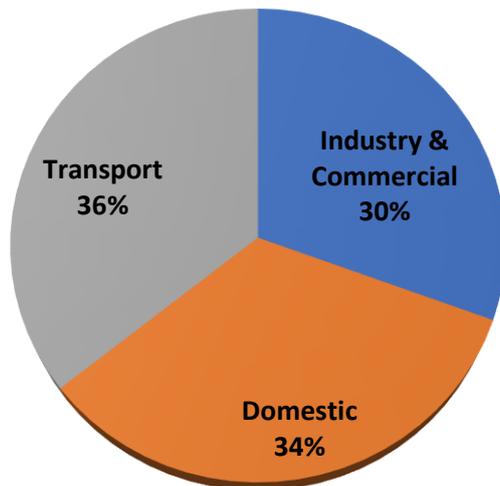
The Council's County Wide Impact

County Carbon Emissions

Worcestershire's total carbon emissions were c.3.3 million tonnes CO₂ in 2018, (latest available data). Locally influenced emissions, excluding, for example, emissions from motorway traffic passing through the county, were c.2.6 million tonnes CO₂ and have reduced 32% since 2005.



The source of these locally influenced emissions is broadly evenly distributed between homes, workplaces and transport, as illustrated below.



Worcestershire locally influenced carbon emissions 2018 by source BEIS

By working together with partners the County Council can have significant influence in reducing these emissions and is continuing to work to this aim. Further information is included in WCC's annual [environmental report](#) and outlined below:

The County Council led [Worcestershire Partnership Climate Change Strategy](#) concludes at the end of 2020. All six Worcestershire district councils are now developing their own district wide climate change plans and aligning them with Worcestershire's Energy Strategy below.

Worcestershire Energy Strategy

WCC are working with the Worcestershire Local Enterprise Partnership to coordinate the development of the Worcestershire Energy Strategy, which was launched in 2019. The aim is to achieve the following targets by 2030:

- Halve Countywide emissions from 2005 levels
- Double the size of Worcestershire's low carbon sector
- Triple the generation of renewable energy in the county (to 15% of electricity demand)

The County Council supports the Energy Strategy's steering group, monitors progress and has developed, and is managing, a range of projects supporting the strategy. A selection of these activities are grouped under the Energy Strategy's four priorities below.

- **Access to Affordable Clean Energy**
 - Coordination of the Warmer Worcestershire home energy efficiency network and the county's fuel poverty plan. (C.10% of Worcestershire households are in fuel poverty. More than 1000 households assisted 2019/20.)
 - Project management of home energy efficiency schemes currently focused on tackling fuel poverty. To date this work has been predominately funded by domestic energy suppliers through ECO (Energy Company Obligation)
- **Clean Economic Growth**
 - Design and management of EU funded business support programmes providing free advice and grants to:
 - improve [energy & water efficiency, reduce waste](#)
 - [generate renewable energy](#)
 - [innovate, develop and commercialise new low and zero carbon products](#)
 - [improve biodiversity](#)(More than 400 local businesses assisted to date)
- **Overcoming Infrastructure and Development Barriers**
 - Commissioning of research into heat network development e.g. South Worcestershire's deep geothermal heat resource and Countywide heat network master planning.
 - Provision of climate change related advice and response to neighbourhood plans, major planning applications and local development plan reviews.
 - Engagement with the distribution network operator on increasing the capacity and flexibility of Worcestershire's power grid.
 - Investment in digital infrastructure, which has enabled changes in patterns of working and travel. An accelerated impact of this was observed during Covid 19 lockdown.
- **Promoting Low Carbon Transport and Active Travel**
 - Installation of electric vehicle charge points in car parks across the county. These have predominantly been funded by central government. (39 charge points installed by WCC to date.)
 - Pursuing the development of active travel corridors for walking and cycling, linking major centres of population.
 - Developing Worcestershire's rail network, including the creation of a new station at Worcester Parkway and upgrading Bromsgrove and Kidderminster stations.

The Council also coordinates **shared working** sessions **with district councils and other public sector partners** on various aspects of the challenges posed by climate change, such as carbon sequestration, climate change adaptation and community engagement, and is operating an EU funded advice and grant funding programme supporting energy efficiency and renewable energy measures across Worcestershire's public sector.

Adaptation to Climate Change

It is extremely important, in parallel to its carbon reduction work, that the Council addresses the risk climate change poses to council assets, services and the wider county. However far and fast carbon emissions are reduced, carbon emissions remain in the atmosphere for many years. Climate scientists predict that, even when emissions reduce to net zero, a certain amount of the observed warming of our climate will continue, with increasing incidence of extreme weather, such as severe flooding and heat waves and increased pressure on our natural resources, such as water and biodiversity.

Climate Change is already having significant impact on Worcestershire. There has been an increase in the severity, depth and regularity of flooding from surface water and rivers due to increasing intensity of rainfall. Although the trend is for drier summers, the intensity of storms is set to increase. Hotter summers will also lead to increased heat stress, particularly for vulnerable members of the community, such as the elderly. It will impact on road maintenance, (melting tarmac, storm damage), and on the wider environment, with particular stress on our water supply, tree and wildlife survival and agriculture.

UK Government has established the National Climate Change Adaptation Programme. The corresponding UK Climate Change Risk Assessment identifies six priority risk areas: flooding, high temperatures, water supply shortages, natural capital, food production, and pest and disease.

In terms of preparing the County for the impact of climate change, the Council's work includes the following:

- It is the lead Local Flood Authority with a [duty to manage flood risk](#) from surface water, groundwater and ordinary watercourses across the county;
- It coordinates Worcestershire's Local Nature Partnership, which addresses natural capital, water quality and climate change as its main foci;
- It is actively delivering the Worcestershire Green Infrastructure Strategy to ensure protection and enhancement of environmental quality throughout the county.
- It has designed new buildings to cope with future climatic change. Buildings such as Redhill School, Worcester and [The Hive](#) were designed to cope with intense rainfall and hotter summers;
- WCC project managers must complete a Joint Impact Assessment for new County Council projects that includes consideration of the impact of severe weather and climatic change.

ANNEX 1

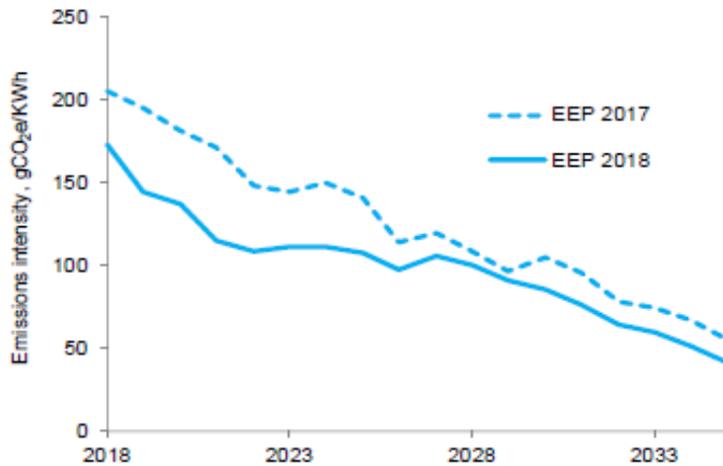
Action Plan

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ANNEX 2

Forecasted reduction in carbon intensity of UK electricity generation

(Source: [BEIS Energy and Emissions Projections 2018](#))



The graph above, taken from the BEIS Energy and Emissions Projections (EEP) 2018, shows a lower trajectory of power sector carbon emissions intensity in EEP 2018 when compared with EEP 2017. The change is predominantly due to the higher level of renewables generation than projected in EEP 2017, along with earlier closure of coal plants and slightly lower gas generation after 2030.

ANNEX 3

WCC Carbon Reduction to Date and Projected

Baseline & 2019/20 Emissions

Reduction Milestones (from 2009/10)

ALL	2009/10	2019/20	% Change	2020/21	% Change	2025/26	% Change	2029/30	% Change	2049/50	% Change
Household Waste	43,566	31,678	27	31,963	27	32,960	24	33,825	22	3,799	91
Waste, Highways & transport contracts	7,494	3,951	47	3,866	48	3,377	55	2,838	62	459	94
WCC Property	9,707	3,634	63	1,791	82	1,411	85	1,246	87	677	93
WCC Transport and staff travel	4,221	1,583	62	1,330	68	843	80	439	90	55	99
WCC Street Lighting	11,547	5,066	56	396	97	340	97	301	97	164	99
Total	76,535	45,912	40	39,346	49	39,326	49	38,649	50	5,154	93
Scope 1&2 ONLY	2009/10	2019/20	% Change	2020/21	% Change	2025/26	% Change	2029/30	% Change	2049/50	% Change
WCC Property	9,707	3,634	63	1,791	82	1,411	85	1,246	87	677	93
WCC Fleet Transport	1,335	774	42	589	56	336	75	58	96	19	99
WCC Street Lighting	11,547	5,066	56	396	97	340	97	301	97	164	99
Total	22,589	9,474	58	2,776	88	2,087	91	1,605	93	860	96

NB. Assumptions:

- 100% renewable electricity for property and street lighting from April 2020
- 3% annual improvement in property energy efficiency
- 97% fleet ULEV by 2030, 100% ULEV by 2050
- 50% grey fleet ULEV by 2030, 100% ULEV by 2050
- Aspiration to achieve 3% annual emissions reduction of contracted services
- Projected household waste emissions related to projected number of households in the County in years to come;
- Carbon Capture and Storage for Energy from Waste plant by 2040

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