worcestershire
countycouncil

Economy and Environment Overview and Scrutiny Panel
Tuesday, 21 July 2020, 2.00 pm, Online only

Membership

Councillors:

Mr A A J Adams (Chairman), Mr P Denham (Vice Chairman), Mr G R Brookes, Mr B Clayton, Mr M E Jenkins, Mr A D Kent, Mr J A D O'Donnell and Mrs R Vale

Agenda Supplement

Agenda produced and published by the Assistant Director for Legal and Governance (Monitoring Officer) Legal and Governance, County Hall, Spetchley Road, Worcester WR5 2NP. To obtain further information or hard copies of this agenda, please contact Emma James or Jo Weston 01905 844965, email: scrutiny@worcestershire.gov.uk

All the above reports and supporting information can be accessed via the Council's website websitehttp://www.worcestershire.gov.uk/info/20013/councillors_and_committees

Date of Issue: Monday, 13 July 2020

This page is intentionally left blank

worcestershire countycouncil

AGENDA ITEM 5

ECONOMY AND ENVIRONMENT OVERVIEW AND SCRUTINY PANEL 21 JULY 2020

THE COUNCIL'S WORK AND ROLE IN TACKLING CLIMATE CHANGE

Summary

1. The Panel has requested an overview of the Council's role in tackling the effects of climate change in Worcestershire, as part of its current work programme. A presentation will be provided at the meeting, which is attached at Appendix 1.

2. The Cabinet Member with Responsibility (CMR) for Environment, the Sustainability Manager, Directorate of Economy and Infrastructure, and the Director of Operations, Worcestershire Local Enterprise Partnership (WLEP) have been invited to the meeting.

Background

3. Worcestershire County Council (the Council) has a long history of action on Climate Change, as shown in the Climate Action Timeline attached at Appendix 2.

4. Additionally, in 2009, a Scrutiny of how the Council was tackling climate change recognised that, while there was much more to be done, the Council was, at that time, performing better than most local authorities in terms of action taken. The Scrutiny recommendations were broadly accepted and implemented. The link to the Scrutiny Report and Cabinet Member Response are detailed in the Background Papers below.

5. In October 2018, the United Nations Intergovernmental Panel on Climate Change report heralded a global resurgence of public interest in tackling climate change as a matter of urgency. The report stated that greenhouse gas emissions would have to be lowered to carbon neutral / net zero (where the 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.) by 2050 to limit global warming to 1.5ºC. The report urged governments to act quickly to avert catastrophic climate change.

6. In May 2019 UK Parliament declared a Climate Emergency. The Government committed to achieving net zero carbon emissions by 2050, recognising much of this reduction must happen before 2030.

7. At its 16 May 2019 Council meeting, Worcestershire County Council reaffirmed its commitment to tackle climate change. It agreed to:

- Note that Parliament had declared a "Climate Emergency"

- Pledge to make Worcestershire County Council in all areas where it was directly responsible, carbon neutral by 2050, taking into account both production and consumption emissions
- Call on Westminster to provide the powers and resources to make the 2050 target possible
- Continue to work with partners across Worcestershire and the region, such as district, town and parish councils and WLEP, to deliver this new goal
- Request the Economy and Environment Overview and Scrutiny Panel monitors the progress made by Worcestershire County Council towards this goal.

8. A brief outline of some of the County Council's work and its role in tackling climate change, both within its own operations and countywide, is detailed below.

County Council Carbon Management Plan

9. Through its own operations, the Council emits at least 1.5% of Worcestershire's total carbon emissions, (i.e. carbon dioxide or other carbon compound gases (e.g. methane and chlorofluorocarbons (CFCs)), 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) and influences many more.

10. Since 2002, the Council has delivered a series of carbon management plans aimed at reducing these emissions and has cut emissions from Council property, transport and street lighting. Emissions from contracts, such as highways maintenance and household waste management, have also reduced.

11. The most recent figures show a total emissions reduction of 36% since 2009/10, with associated annual energy savings of around £400,000. Measures taken include investment in energy efficiency measures in buildings and street lighting, installation of renewable energy systems, such as solar PV and wood fuel and ground source heat, inclusion of 3 electric vehicles in the council's fleet and a move to increased working from home and video conferencing.

12. In 2018/19 the council emitted c.49,000 tonnes of Greenhouse Gases. The largest source (67% of emissions) arose from the disposal of household waste. The next largest source (12%) was street lighting.

13. A new Carbon Management Plan, aiming for net zero carbon emissions by 2050, is currently in draft form, pending Cabinet approval later this year.

14. The ability of the Council 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 technology for energy from waste plants
- investment by the Council in knowledge and resource to:
    - improve the energy efficiency of property estate 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 of the Council to offset, (i.e. a reduction of emissions of carbon dioxide or other greenhouse gas made in order to compensate for emissions made elsewhere) remaining carbon emissions. As the Council reduces its carbon emissions, offsetting requirements will reduce.

Joint Impact Assessment (JIA)

15. Council reports are now required to include information on the environmental impact of all proposed projects. The completion of a JIA, and any consequent full impact assessment for environmental sustainability, is required for all proposed projects. This includes assessment of carbon emissions.

Worcestershire Partnership Climate Change Strategy

16. The Worcestershire Partnership Climate Change Strategy expires 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. The Worcestershire Partnership Executive Group (PEG) is keen to ensure effective joint working on Climate Change. The County Council is currently coordinating shared working sessions with 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 shortly due to launch an EU funded advice and grant funding programme supporting energy efficiency and renewable energy measures across Worcestershire's public sector.

Worcestershire Energy Strategy

17. Published in March 2019, and funded by the Department for Business, Energy and Industrial Strategy (BEIS), the Council coordinated the development of the WLEP Energy Strategy. It aims to deliver the following targets:

    - Halve Countywide emissions from 2005 levels by 2030 (aspiration for net zero carbon emissions by 2040)
    - Double the size of Worcestershire's low carbon sector by 2030
    - Triple the generation of renewable energy in the county by 2030 (to 15% of electricity demand).

18. The Council provides support for the Energy Strategy Steering Group and monitors progress. It has also developed, and is managing, a range of projects supporting the Strategy. Examples of these activities, grouped under the Energy Strategy's four priorities, are detailed in Appendix 3 (attached).

19. Progress on the Energy Strategy's targets is as follows:

    - Countywide carbon emissions have fallen by 32%, (37% per capita), since 2005
    - The value of Worcestershire's Low Carbon and Environmental Goods and Service Sector (LCEGS) was estimated as £1.1bn GVA for 2013/14. The Council has initiated a BEIS funded study into the current nature of the Midlands' LCEGS sector, (down to district level)
    - 12% of Worcestershire's electricity demand is now generated from renewable sources (up from 5% in 2015).

Adaptation to Climate Change

20. It is important, in parallel to its carbon reduction work, that the Council addresses the risk that climate change poses to its assets, services and the wider County. However far and fast carbon emissions are reduced, carbon emissions remain in the atmosphere for many years. 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.

21. 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.

22. In terms of preparing the County for the impact of climate change, the Council:

- is the lead Local Flood Authority and has a duty to manage flood risk from surface water, groundwater and ordinary watercourses across the County
- coordinates the Local Nature Partnership which addresses natural capital, water quality and climate change as its main foci
- was the lead nationally in designing its new buildings to cope with future climatic change. Buildings such as Redhill Primary School and The Hive were designed to cope with intense rainfall and hotter summers.

23. Project Managers must complete a JIA for new Council projects that includes consideration of the impact of severe weather and climatic change.

Summary

24. Throughout the life of the Worcestershire Climate Change Strategy, and the Council's own 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.

25. Much more will be required, however. Far reaching and transformative action will be necessary at both national and local level to achieve net zero emissions for Worcestershire and to deal with the impact of climate change.

26. Central Government has recently announced a series of measures aimed towards this, including funding for a 'green recovery' from the COVID-19 pandemic. The COVID-19 crisis offers both challenge and opportunity in terms of the Council's ability to tackle climate change.

Purpose of the Meeting

27. The Panel is asked to consider the information provided, and to discuss the Council's work and role in tackling Climate Change. In doing so Members may wish to consider:

- whether there are areas of this work that the Panel would wish to scrutinise in more detail
- whether any further information is required at this time
- determine any comments or recommendations for Cabinet.

Supporting Information

Appendix 1 – Presentation
Appendix 2 – Worcestershire County Council Climate Action Timeline
Appendix 3 – Examples of activities supported by the Energy Strategy

Contact Points

Emma James / Jo Weston, Overview and Scrutiny Officers, Tel: 01905 844964 / 844965
Email: scrutiny@worcestershire.gov.uk

Background Papers

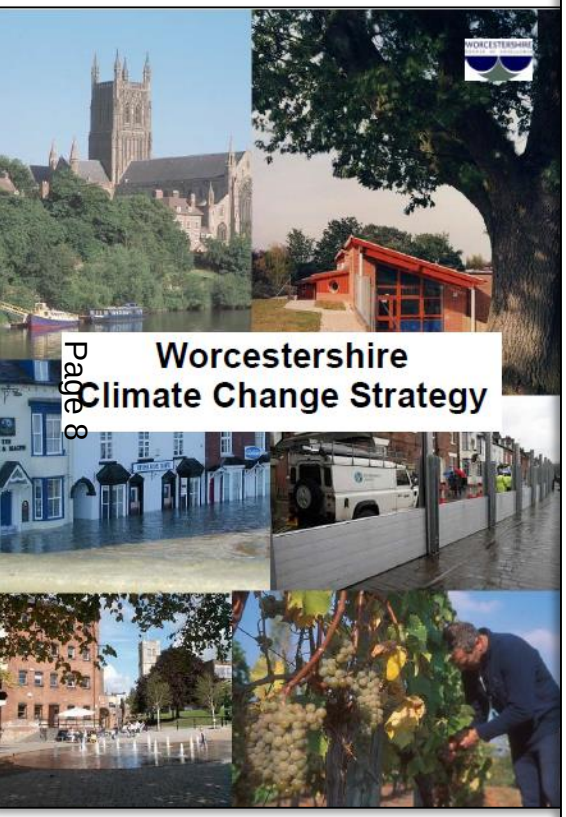
In the opinion of the proper officer (in this case the Assistant Director for Legal and Governance) the following are the background papers relating to the subject matter of this report:

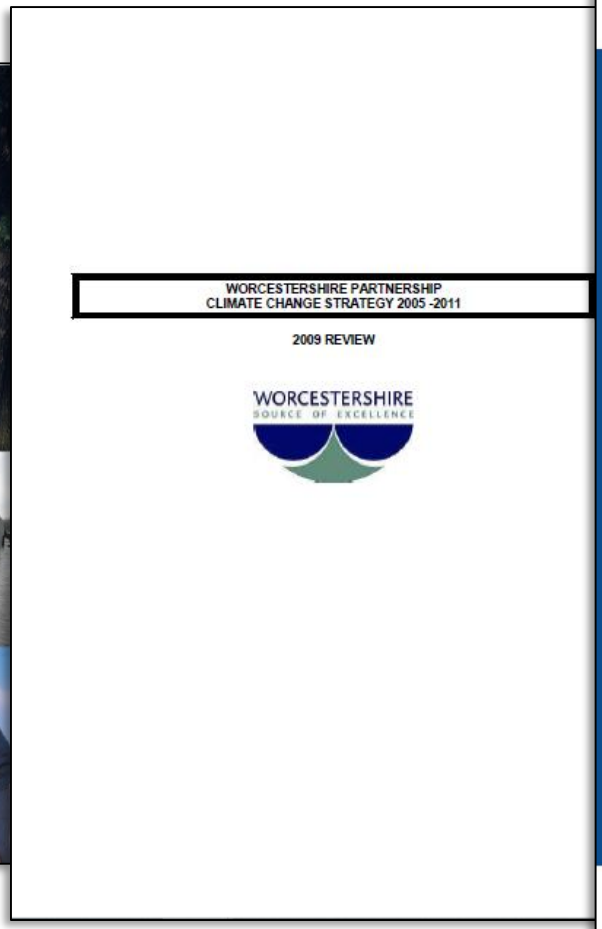
- 2009 Scrutiny Report 'Tackling Climate Change'
- CMR response to 2009 Scrutiny Report 'Tackling Climate Change'
- United Nations Intergovernmental Panel on Climate Change Report 2018
- 16 May 2019 Council Agenda and Minutes (Council's commitment to tackle climate change)
- Worcestershire County Council Corporate Environmental Report 2019
- Worcestershire County Council Energy and Carbon Management Plan 2016-2021
- Worcestershire Partnership Climate Change Strategy 2012-2020
- Worcestershire Local Enterprise Partnership Energy Strategy 2019-2030

This page is intentionally left blank

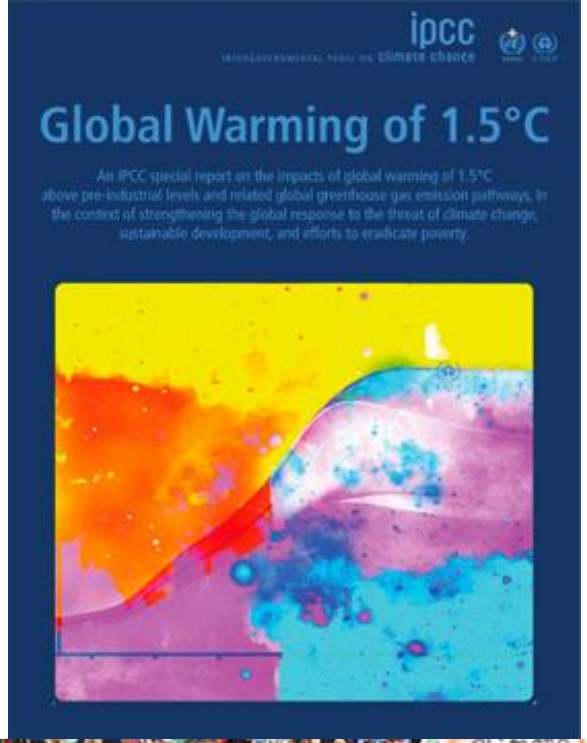
THE COUNCIL'S WORK & ROLE IN TACKLING CLIMATE CHANGE

Economy & Environmental Scrutiny Panel
21st July 2020


Worcestershire
Climate Change Strategy


WORCESTERSHIRE PARTNERSHIP
CLIMATE CHANGE STRATEGY 2005 -2011
2009 REVIEW
WORCESTERSHIRE
SOURCE OF EXCELLENCE

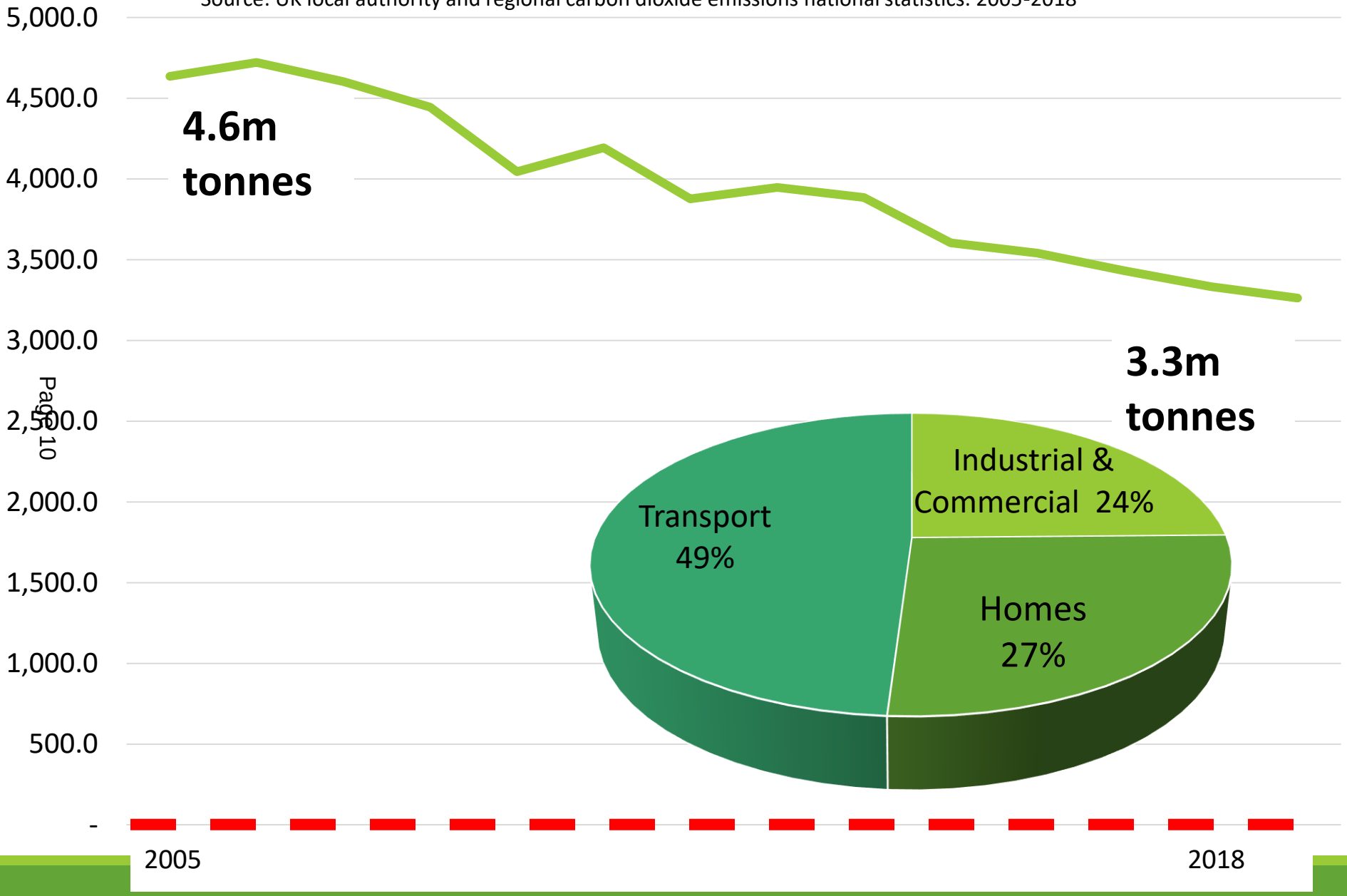

WORCESTERSHIRE
SOURCE OF EXCELLENCE
Worcestershire
Climate Change Strategy 2012-2020
A Framework for securing a low carbon & climate resilient County


ipcc
Global Warming of 1.5°C
An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.


RISE UP
ACT NOW
REBEL FOR LIFE

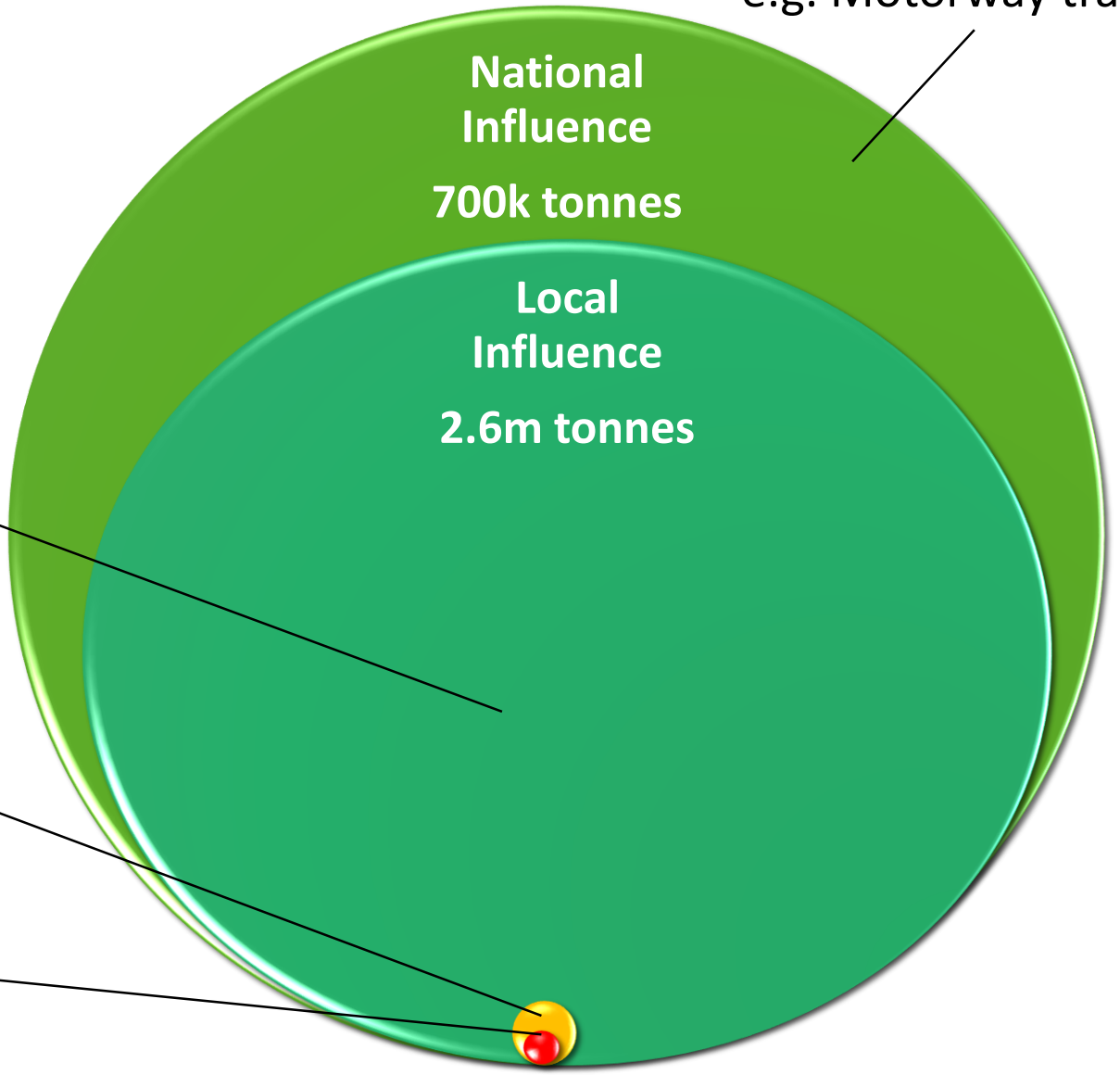
Worcestershire's CO2 Emissions 2005 - 2018

Source: UK local authority and regional carbon dioxide emissions national statistics: 2005-2018



Scope of Council's Influence

e.g. Motorway traffic



Homes,
Businesses & Public Sector,
Local Transport

Indirect control
c.37k tonnes
Waste, Highways and fleet contracts

Direct control
c.12k tonnes
Street Lighting, Property, Vehicles,

Source: UK local authority and regional carbon dioxide emissions national statistics: 2005-2018 & WCC emissions data

Direct Control

Energy management 1980s - BEMS

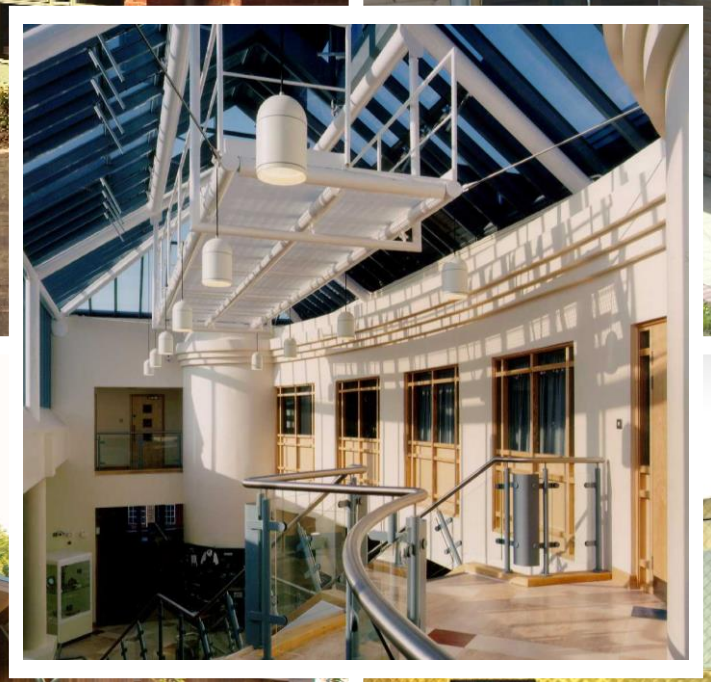
Sustainability programme mid 1990s

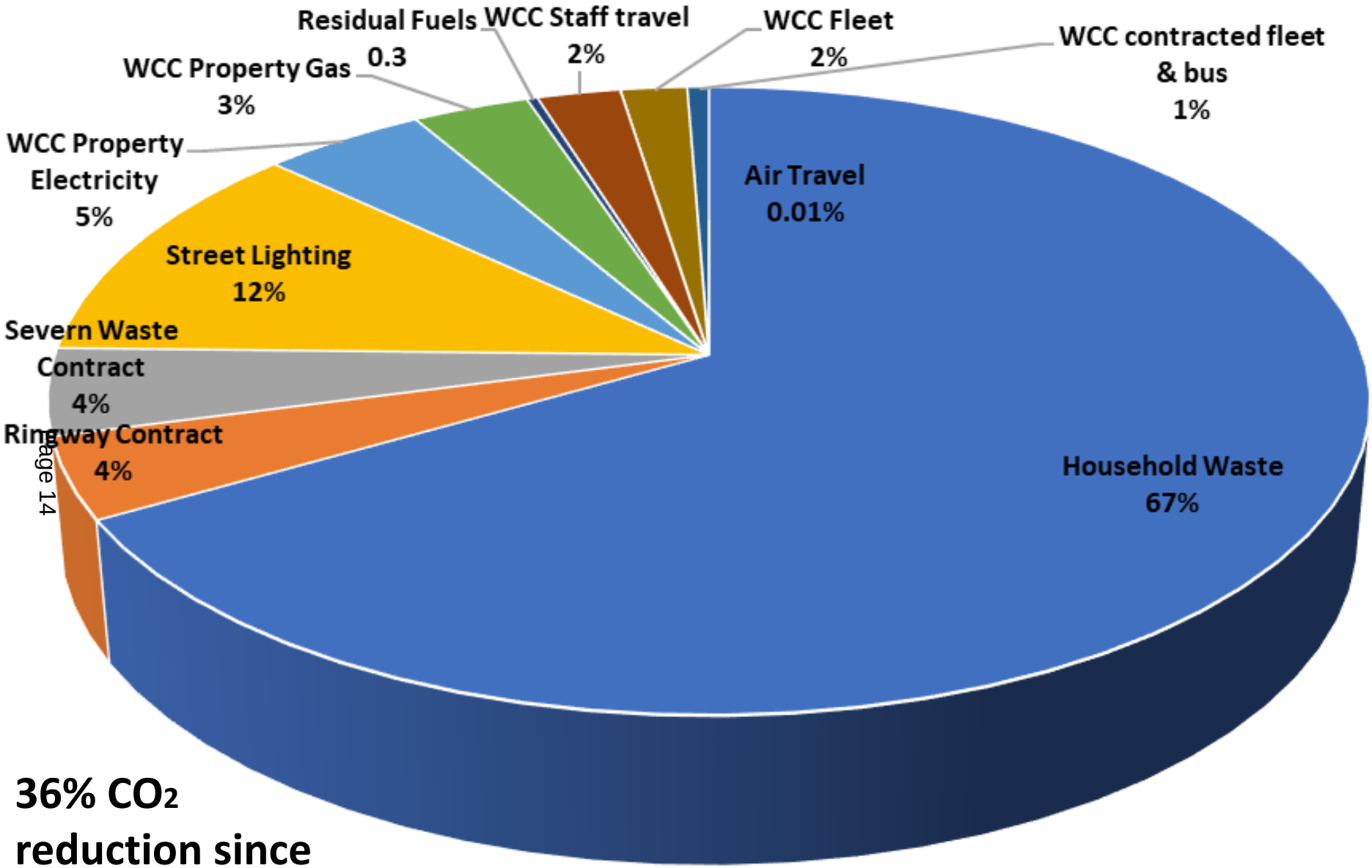
Carbon Management 2002

- £3m energy efficiency spend to save fund - £400k annual savings
- c.750kWp solar panels on 50+ schools & other WCC buildings
- Biomass heat – County Hall etc.
- Street lighting – move to LED

Electric pool cars, van, bikes

Sustainable new build

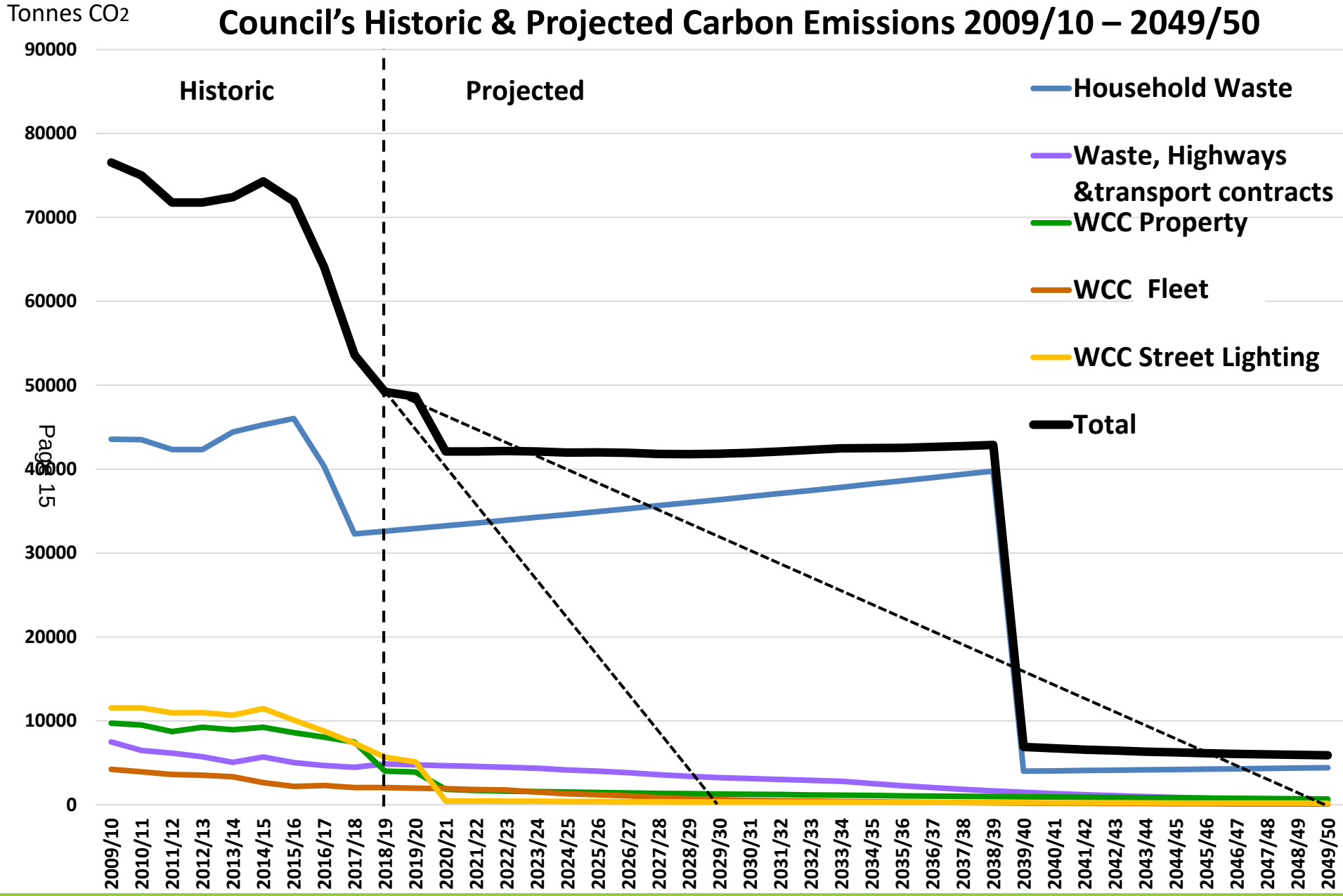




36% CO_2 reduction since 2009/10

WCC's reported Carbon Emissions 2018/19

Council's Historic & Projected Carbon Emissions 2009/10 – 2049/50



Actions Already Underway

Purchase green electricity from April 2020

Ultra Low Emission Vehicles

Increase property energy efficiency - 3%/yr (zero emissions ready buildings)

Increase street lighting energy efficiency (further LEDs)

Renewable energy

Procurement

Joint impact screening for WCC projects

Tree planting – c.350 tCO2/yr

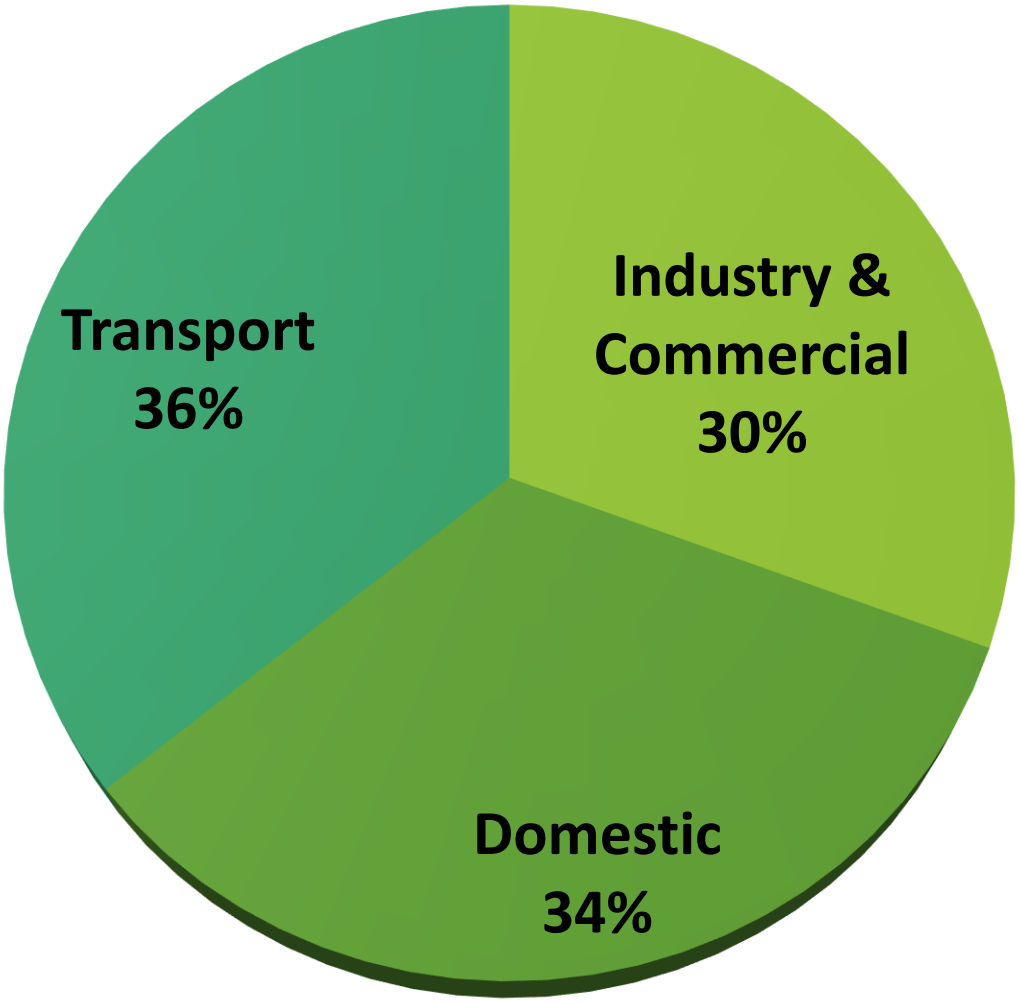
Innovation Required

Zero carbon retrofit of existing properties

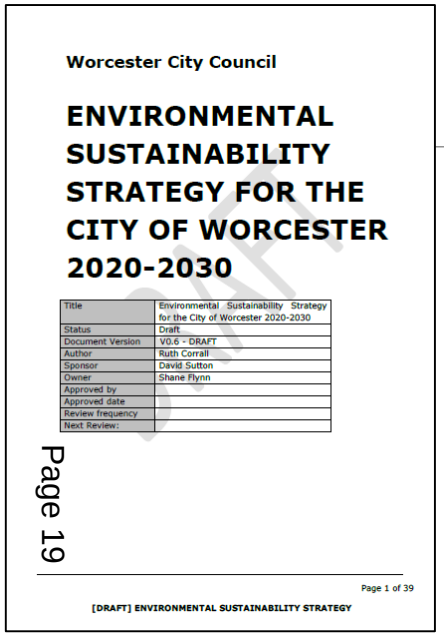
Household waste disposal

Ultra Low Emission HGVs

Contractual requirements



2.6m tonnes county carbon emissions within local influence



Worcester City Council

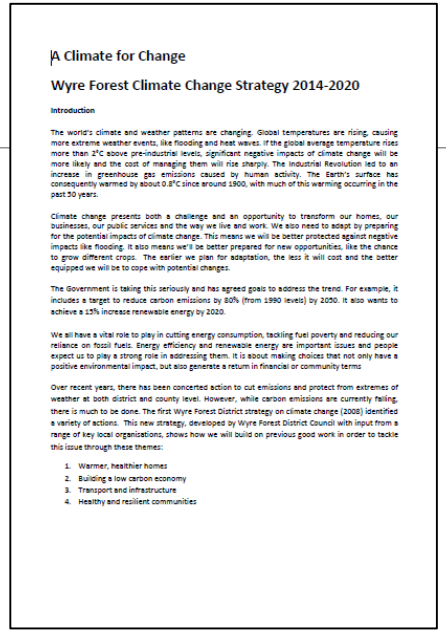
ENVIRONMENTAL SUSTAINABILITY STRATEGY FOR THE CITY OF WORCESTER 2020-2030

Title	Environmental Sustainability Strategy for the City of Worcester 2020-2030
Status	Draft
Document Version	V0.6 - DRAFT
Author	Ruth Corrall
Sponsor	David Sutton
Owner	Shane Flynn
Approved by	
Approved date	
Review frequency	
Next Review:	

Page 19

Page 1 of 39

[DRAFT] ENVIRONMENTAL SUSTAINABILITY STRATEGY



A Climate for Change

Wyre Forest Climate Change Strategy 2014-2020

Introduction

The world's climate and weather patterns are changing. Global temperatures are rising, causing more extreme weather events, like flooding and heat waves. If the global average temperature rises more than 2°C above pre-industrial levels, significant negative impacts of climate change will be more likely and the cost of managing them will rise sharply. The Industrial Revolution led to an increase in greenhouse gas emissions caused by human activity. The Earth's surface has consequently warmed by about 0.8°C since around 1900, with much of this warming occurring in the past 50 years.

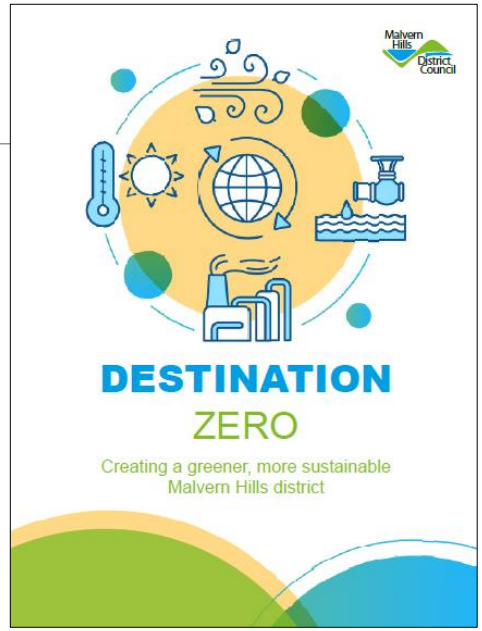
Climate change presents both a challenge and an opportunity to transform our homes, our businesses, our public services and the way we live and work. We also need to adapt by preparing for the potential impacts of climate change. This means we will be better protected against negative impacts like flooding. It also means we'll be better prepared for new opportunities, like the chance to grow different crops. The earlier we plan for adaptation, the less it will cost and the better equipped we will be to cope with potential changes.

The Government is taking this seriously and has agreed goals to address the trend. For example, it includes a target to reduce carbon emissions by 80% (from 1990 levels) by 2050. It also wants to achieve a 15% increase renewable energy by 2020.

We all have a vital role to play in cutting energy consumption, tackling fuel poverty and reducing our reliance on fossil fuels. Energy efficiency and renewable energy are important issues and people expect us to play a strong role in addressing them. It is about making choices that not only have a positive environmental impact, but also generate a return in financial or community terms

Over recent years, there has been concerted action to cut emissions and protect from extremes of weather at both district and county level. However, while carbon emissions are currently falling, there is much to be done. The first Wyre Forest District strategy on climate change (2008) identified a variety of actions. This new strategy, developed by Wyre Forest District Council with input from a range of key local organisations, shows how we will build on previous good work in order to tackle this issue through these themes:

1. Warmer, healthier homes
2. Building a low carbon economy
3. Transport and infrastructure
4. Healthy and resilient communities

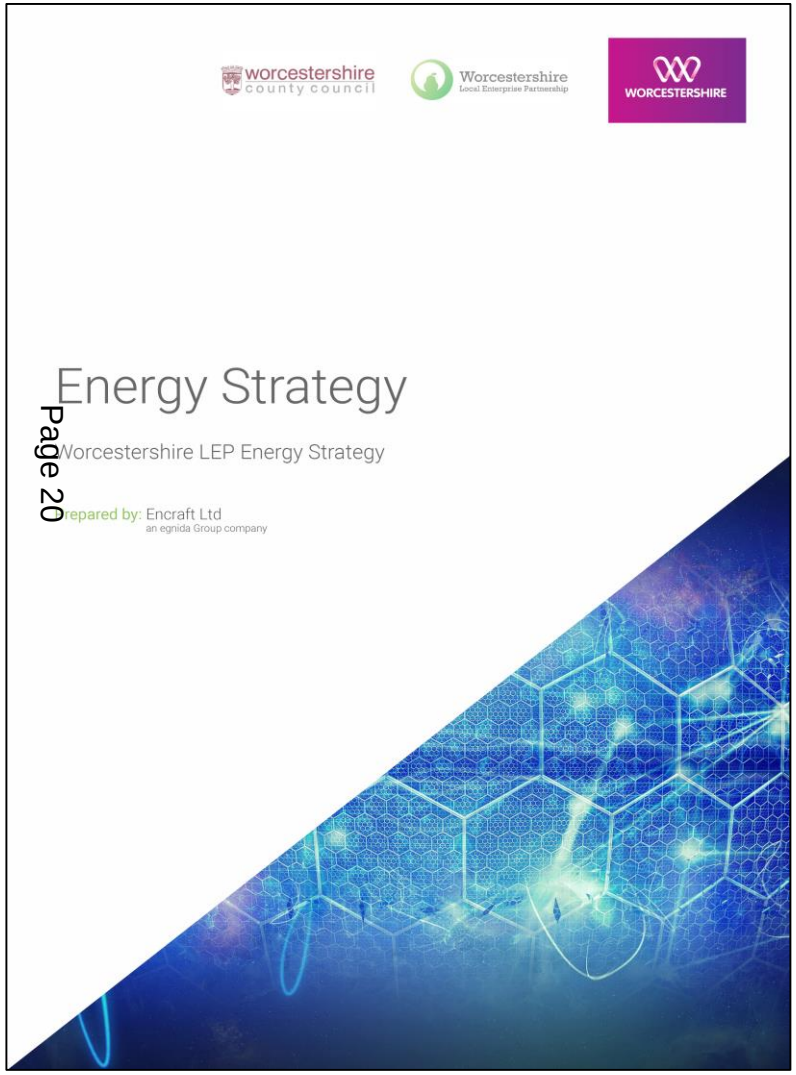


Partners' Plans

Worcestershire LEP Energy Strategy

Launched March 2019…

Worcestershire
Local Enterprise Partnership



1 triple renewable energy

2 LOW CARBON ECONOMY £662m 2030 £334m 2016

3 50% REDUCTION CARBON EMISSIONS on 2005

National Landscape…

Worcestershire Local Enterprise Partnership

- **Energy system changing rapidly**: UK shifting to lower carbon energy mix & local generation increasing

- **Government** recently announced **£3bn package of environmental initiatives** incl. decarbonisation of public buildings & Green Jobs Fund

- **Government championing green recovery & climate resilience** – evidenced in criteria for LEP's recent 'Getting Building Fund' allocations

- This follows **BEIS funding allocations to each LEP to develop local Energy Strategy**, as well as **Regional Energy Hub** delivery model providing resources & expertise to LEPs

Local Context…

Worcestershire
Local Enterprise Partnership

- **Worcestershire needs to adapt** to national shift in energy system & understand impacts of these changes, particularly on local economic growth
- Worcestershire **historically net importer of energy**
- Important to **increase local renewable generation**; improves resilience & keeps value stream within local economy
- Limited scope for large scale generation
- But **we can be smarter about using what we have**:
  - Utilising & developing **skilled low carbon economy workforce**
  - Leveraging **5G testbed** to pioneer **large scale demand management**
  - Commercialising **deep geothermal heat** IDed in locations across county e.g. Offenham, nr Evesham
  - Exploiting opportunities to **accelerate change e.g. District Heat Networks, use of Hydrogen**

Partnership Working…

Worcestershire
Local Enterprise Partnership

- WLEP plays key role in **identifying, coordinating & influencing opportunities** which is borne out of collaboration & networking

- Extensive **stakeholder engagement** programme undertaken in development of Energy Strategy; **good business representation**

- **Significant partnership working underway across county** – enabled as result of having Energy Strategy and access to resource & expertise via Midlands Energy Hub

- **Increase in appetite across Worcestershire's business community** in terms of exploration & implementation of energy efficiency & sustainability measures

Role of WCC to date…

- key role in **development of strategy**; providing resource, knowledge & expertise
- instrumental in **strategy implementation & project development** e.g.

Securing Funding, Management & Delivery of Programmes:

- BEEP – Business Energy Efficiency Programme
- LoCOP – Low Carbon Opportunities Programme (supporting innovation)
- Warmer Worcestershire – delivering home energy efficiency measures – County Fuel Poverty Plan
- PEEP – Public Sector Energy Efficiency Programme (due to launch)

Lobbying & Coordination:

- Regional Energy Hub collaboration for LCEGS survey
- Council Tax & Business Rates study – potential to link CT & BR to energy efficiency of homes & businesses
- Central Govt initiative – looking at potential of delivering energy efficiency measures to 6,000 homes across county
- Energy Strategy Steering Group support
- Working Together Days – facilitation & collaboration across local stakeholders

European Union
European Regional
Development Fund

Energy Strategy Project Pipeline…

Worcestershire Local Enterprise Partnership

- **15 new projects** directly related to the targets & themes of energy strategy underway, (led by a range of organisations.)

- Approximate pipeline value: **£50 million**

- Approximate carbon savings: **28,000 tonnes** per year when completed.

**Some of the projects are based around decarbonisation of heat with high capital cost, (businesses cases have been approved or are under development), but lower current carbon savings due to gas having a lower carbon factor than electricity at present. In future, however, grid electricity set to be lower carbon than gas.*

Focus on Delivery…

Worcestershire Local Enterprise Partnership

Moving from Strategy into Action

- **Work with Midlands Energy Hub & partners** to support emerging projects with both facilitation & funding – consistency of definition / approach across geographies

- **Energy Strategy steering group** established to oversee Strategy implementation – chaired by WLEP Board vice-chair

- **Partnership working group** established: provide peer support & tackle particular topics across energy & climate resilience agenda

- **Leverage external funding** to support strategy implementation
  - Industrial Strategy Challenge Fund
  - European Funding (while available)
  - Getting Building Fund
  - Rural Community Energy Fund (RCEF)

- Use Energy Strategy outputs to feed into **Local Industrial Strategy & Economic Recovery**

Innovation Required

- Zero carbon retrofit at pace & affordability
- ULEV transition at pace – energy infrastructure
- Grid Capacity

Est. 3oC global temperature increase by end of century

Worcestershire

- Warmer wetter winters
- Hotter drier summers
- Increased intensity rainfall
- Heatwaves

2003 HEATWAVE

- increase emergency hospital admissions Worcestershire
- 10% increase excess deaths 75+ W Mids
- 63% increase outdoor fires Worcestershire

2007 FLOODS

- £150 million+
- 3366 properties flooded

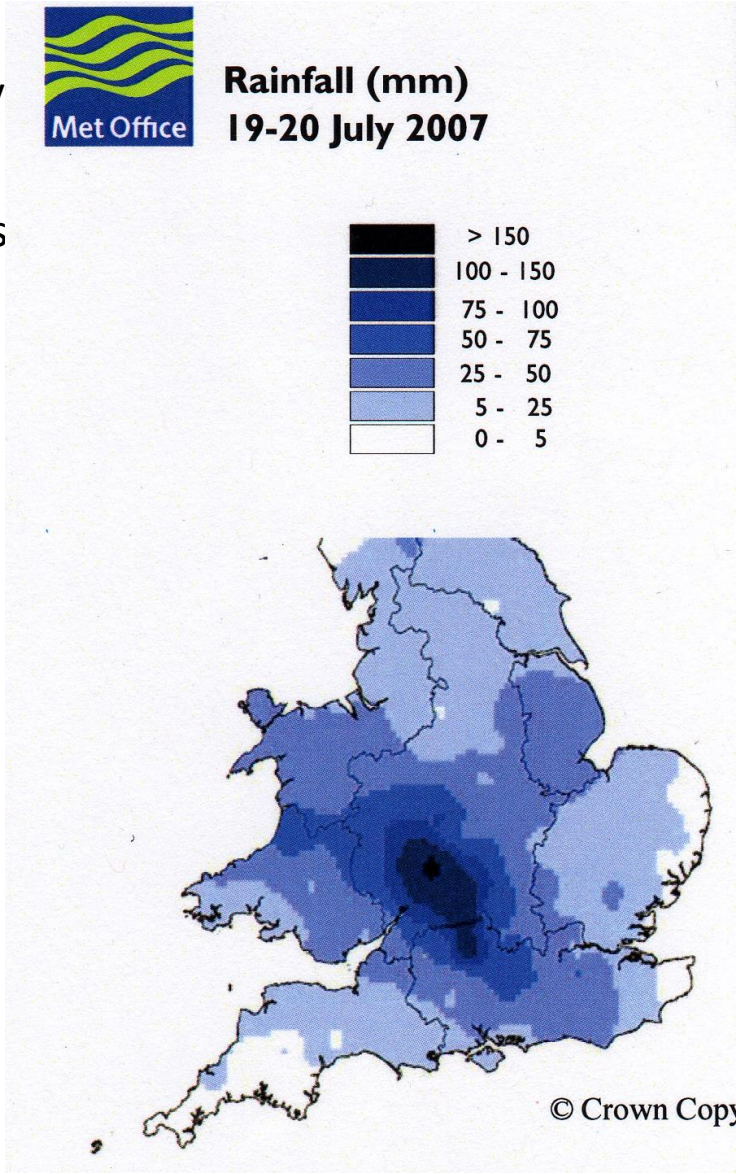
2014 FLOODS

2019 HEATWAVE

July 38.7oC

2020 FLOODS

- 3x av rainfall



Climate Change Adaptation

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

- **Lead Local Flood Authority** - duty to manage flood risk from surface water, groundwater and ordinary watercourses across the county.

- **Coordinates Local Nature Partnership**: addresses natural capital, water quality and climate change as its main foci.

- **Designed new buildings** to cope with future climatic change. e.g. Redhill School, Worcester and The Hive

- **Joint impact assessment** for new County Council projects includes consideration of impact of severe weather and climatic change.

Accelerated action required

Gov. announcements, strategies & consultations:

- **Further strengthening of building energy performance standards**
- **No new gas connections from 2025**
- Further improvement of existing household & business energy efficiency
- **Rapid electrification of heat & transport – develop hydrogen**
- Increased push for heat network development & accelerated adoption of heat pump technology
- **Rapid roll out of ultra-low emission transport infrastructure**
- **Reduction of travel via private car**
- Rapid move to **flexible & smart energy** distribution/enhancement of electricity grid capacity
- **Increased afforestation**
- **Zero biodegradable waste to landfill e.g. food waste collection**
- Likely mandatory requirement to report on and seek to decrease carbon emissions large orgs (as well as business)

Worcestershire County Council (WCC) Climate Action Timeline

Early 1980s

Building Energy Management System (BEMS) installation commenced across Council buildings. WCC schools with BEMS used 25% less energy than those without.

1993

Opened Bishops Wood Environmental Education Centre - Cutting edge sustainable design that paved the way for future sustainable design of WCC buildings.

1995

Local Agenda 21 Action Plans produced – one of the first in the Country.

1996

WCC biomass heating programme commenced.

1997

Established Learning for Sustainability Programme to support schools around education for sustainable development, and support for Worcestershire Schools working towards the international Eco Schools Awards

2000

WCC develops the Council's first Sustainability Strategy.

Continue to 2001

2001

Installed largest Public Sector wood fuel biomass boiler in Europe at County Hall

2002

County Council's First Carbon Management Plan launched.

Countywide Climate Change Strategy launched - one of first in the UK

2004

'Choose How You Move' 5-year programme launched with the aim of reducing congestion and car dependency, alongside the added benefits of improved. health and fitness..

2006

Won National Green Apple Award for "Mission Impossible" Waste Action Pack.

GREEN APPLE ENVIRONMENT AWARD WINNER

2007

Red Hill Primary School, Worcester – First school in the UK designed to take account of climate change projections.

2009

Beacon Council Award for Tackling Climate Change for action on both mitigation (reducing emissions) and adaptation to climate change.

LSP Green Flag Award for partnership working on climate change.

Beacon Authority

Continue to 2010

2011

First solar PV installation through the Council's Energy Efficiency Spend to Save Fund

To date we have installed 750 kWp of renewable solar energy on our buildings, including schools, most of which has been funded through the Spend to Save programme. This has resulted in a financial benefit of just under £0.5 million over the last 6 years.

2013

Resource Efficient Worcestershire Business energy efficiency advice and grant support programme launched

2015

Habberley Learning Campus - a sustainable development (both new build and refurbishment) to create a shared learning environment for three Kidderminster Schools. Built to low energy principles using high insulation and airtightness values, and utilised PassivHaus approaches.

Worked alongside the Energy Saving Trust to support renewable installers with accreditations and training.

The Council received £3million funding to offer grants to private households towards the cost of solid wall insulation for around 750 homes under the Green Deal Communities fund.

2010

WCC Energy Efficiency Spend to Save programme commenced to invest in energy efficiency measures across the Council's property portfolio.

2012

The Hive, Worcester[1] – multi award winning public and University library opened by HM The Queen. The building hosts a number of sustainable design features, including river water cooling; biomass heating; and natural ventilation. Utilised UK Climate Projections in the design of the building to increase preparedness for future climate and more extreme weather events.

[1] **www.thehiveworcester.org/sustainability.html**

2014

Programme to convert street lights to LED, and part-night switch off programme commenced.

Installed 12 rapid electric vehicle chargepoints around County following successful Government funding bid.

Continue to 2016

2017

Completed 'Boilers on Prescription' project which upgraded heating systems in 70 Worcestershire households where a resident has a long-term health condition that could be made worse by living in a cold home. Won Vulnerable Customer Support Campaign for this project in the Regional Energy Efficiency Awards.

2019

Launched Worcestershire LEP Energy Strategy.

The Council recorded a 36% reduction in Greenhouse Gas (GHG) emissions since 2009/10.

Running the Warm Homes Fund project for first. time gas central heating for fuel poor households.

Won Council of the year at the Regional Energy Efficiency Awards.

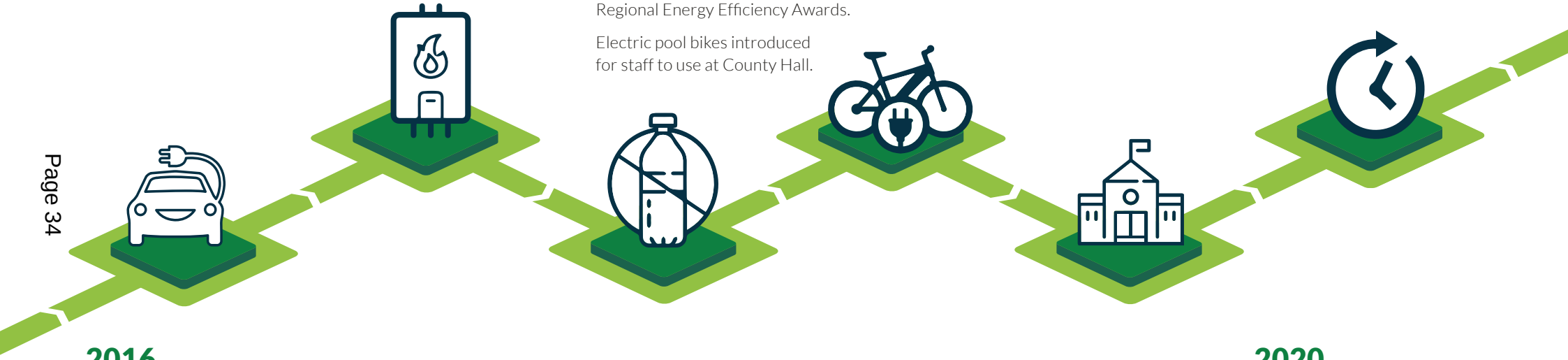
Electric pool bikes introduced for staff to use at County Hall.

Coming up in 2020...

Energy efficiency and renewable energy advice and grant programme for Worcestershire public sector organisations (Public Sector Energy Efficiency Programme – PEEP).

Continued investment in energy efficiency and renewable energy across the Council's portfolio.

Development of the Council's Zero Carbon Plan and how we will achieve Net Zero emissions by 2050.



2016

Two electric pool cars and one electric courier van introduced to WCC fleet.

New phase of business energy advice programmes launched, including renewable energy advice, low carbon innovation, and grant programmes (Business Energy Efficiency Programme – BEEP[2]; and Low Carbon Opportunities Programme – LoCOP[3]).

[2] **www.worcestershire.gov.uk/info/20289/business_energy_efficiency_programme**

[3] **www.worcestershire.gov.uk/info/20323/low_carbon_opportunities_programme**

2018

Single-use plastic packaging removed from all food and drink made on County Hall campus, replacing the packaging with compostable plant based products.

Natural Networks Programme[4] launched – biodiversity advice and grant programme for Worcestershire organisations.

Let's Waste Less[5] volunteer programme launched to support residents to reduce the amount of waste produced.

Won Council of the Year at the Regional Energy Efficiency Awards and Third place in the National Energy Efficiency Awards.

[4] **www.worcestershire.gov.uk/naturalnetworks**

[5] **www.worcestershire.gov.uk/info/20709/lets_waste_less_volunteer_events**

2020

Currently 100% of Worcestershire schools are registered on the international Eco Schools Programme, 10% of which hold the coveted Eco Schools Green Flag Award[6]

[6] **www.eco-schools.org.uk**

Worcestershire Energy Strategy

Examples of County Council activities, grouped under the Energy Strategy's four priorities

- *Access to affordable clean energy*
    - Co-ordination of the Warmer Worcestershire home energy efficiency network and the County's fuel poverty plan (around 10% of Worcestershire households are in fuel poverty and more than 1,000 households were assisted 2019/20)
    - Project management of home energy efficiency schemes currently focused on tackling fuel poverty. This work is predominately funded by domestic energy suppliers through 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, improve biodiversity and innovate, develop and commercialise new low and zero carbon products (more than 400 local businesses have been assisted to date).

- *Overcoming infrastructure and development barriers*
    - Commissioning of research into heat network development, such as 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.

- *Promoting low carbon transport and active travel*
    - Pursuing the development of active travel (walking and cycling interurban corridors and urban networks to enhance travel choice, as set out in the Worcestershire Local Transport Plan (www.worcestershire.gov.uk/LTP)
    - Installation of electric vehicle charge points in car parks across Worcestershire (39 have been installed by the Council, predominantly funded by central government)
    - Developing the County's rail network, as set out in the Worcestershire Rail Investment Strategy (www.worcestershire.gov.uk/wris), including lobbying for service capacity and frequency enhancements and investment in station facilities, passenger capacity and access.

This page is intentionally left blank

worcestershire countycouncil

AGENDA ITEM 6

ECONOMY AND ENVIRONMENT OVERVIEW AND SCRUTINY PANEL 21 JULY 2020

STREET LIGHTING

Summary

1. The Panel will receive an update on Street Lighting as part of its work programme, following an overview in 2018 and an update in 2019. The update will include progress with LED roll-out, outcomes so far from the concrete column survey and other related areas raised during the previous discussions.

2. Officers from the Economy and Infrastructure Directorate have been invited to attend the meeting.

Background

3. The Panel received an overview of Street Lighting during its meeting on 7 March 2018 and an update at its meeting on 5 March 2019. The Reports and Minutes of those discussion are available under Background Papers.

4. The Panel will recall that the Street Lighting service is led by Worcestershire County Council (the Council) and delivered by the Council's Lighting Maintenance contractor, Prysmian, who is responsible for maintaining all of the Council's street lights.

5. The Council has a duty of care under the Highways Act 1980 to maintain a safe highways network, including street lighting and illuminated signs and bollards. This is not a duty to provide lighting, but it does mean that all lighting and sign installations must be maintained in a safe condition.

6. The street lighting service in Worcestershire provides benefits to the communities of the County in many ways. Reduction in night-time accidents and reducing both crime and in the minds of many people, fear of crime. The economic development contribution to towns in the County cannot be under-estimated, good street lighting engenders a feeling of well-being by enabling people to continue their business and leisure activities during the hours of natural darkness. Recent Public Realm initiatives in many of our towns have included elements to upgrade the street lighting and this helps to improve the night-time environment.

7. The Council’s street lighting service consists of a small team of specialist Council staff with expertise to enable effective operation of the service. This is supplemented, where required, by the current term street lighting Contractor, Prysmian Cables and Systems Limited, and Jacobs. The support given by the two external suppliers includes assistance with specific project management, undertaking new designs, additional lighting engineer capacity.

8. The street lighting service work with other highway teams within the Economy and Infrastructure Directorate when working on projects, highway safety schemes and new developments, together with regular engagement with the Liaison Engineers regarding street lighting matters raised by Local Members.

Service Aims and Objectives

9. The aim of the Council's Street Lighting service is to create a safer and more secure night-time environment by providing energy efficient and cost-effective system of street lighting and illuminated signs.

10. The objectives of the street lighting service are primarily to:

- Ensure the safety of the public, contractors and staff
- Provide a high quality, cost effective service. All new lighting installation are specified to use the latest energy saving and effective LED lanterns resulting in energy saving and reduction of the carbon footprint
- Reduce crime and fear of crime
- Minimise environmental impact. The new LED lanterns provide very controlled distributions of light with almost zero light loss above the horizontal plane
- Implement best practice in systems and operations.

Street Light Part Night Switch Off

11. The Street Lighting Initiative, or 'part night switch off' as it became known, was approved by Council in February 2014 and was rolled out across Worcestershire in residential areas with the project being completed at the end of 2016.

12. On average two out of three of the less efficient sodium lamps have been switched off between midnight and 6am (GMT). In total approximately 16,000no lights have been subject to this initiative resulting in a reduction in the use of energy (and therefore cost savings) and savings in carbon emission charges.

13. It is important to note that major traffic routes were exempt from the project. On average one in three lamps in the areas subject to switch off remain lit all night and these tend to be at more strategic locations such as on bends, junctions, near steps and other key sites. The objective was to achieve savings whilst still retaining a reasonably consistent and spaced distribution from the lights left on.

14. Today there are circa. 9,780 ‘part night’ burning street lights in the County. In the last two years the Council has converted around 8,000 that had been previously been changed as part of the part-night switch off initiative. These lights have been converted to LED as part of the LED roll out where we’ve been targeting the obsolete SOX lanterns and are now back to dusk till dawn burning.

15. Despite changing from ‘part night’ to ‘all night’ burners these 8,000 LED lanterns will still save a significant amount of energy totalling approx. 595,000 kwh (monetary equivalent of £80,068 based on 13.445p per kwh) per annum.

16. The Lighting Team are still receiving enquiries where customers ask for lights to be changed back to all night burning but the volume of faults have reduced significantly since the LED roll out commenced.

17. A number of Local Members have used part of their Councillors' Divisional Fund to convert part night lights to LED for their constituents.

18. Regarding possible anti-social behaviour and other crimes being associated with the part nigh switch off scheme. The Lighting Team have been in liaison with West Mercia Police. It is generally viewed that the turning off of street lighting in the majority of areas has little or no impact on crime and disorder, but just occasionally a hot spot occurs. Where those occasional hot spots occur, the lighting team have assisted on an agreed case by case basis. One recent example being where 20 street lights were converted to LED and are now on all night.

Low Pressure Sodium Lanterns

19. Low pressure sodium (SOX) lighting was introduced in the 1970's and quickly replaced the previous lamp type based on mercury. SOX lamps provided a 50% decrease in energy compared to other lighting around at the time. Quickly it became the standard light source in the UK and Europe.

20. Since this time alternative light sources have been developed including High Pressure Sodium, ceramic metal halide and most recently LED. Both High Pressure Sodium and ceramic metal halide have very limited application compared to LED.

21. Over 20,000 of the County's lanterns are Low Pressure Sodium (SOX). As part of the existing Term Lighting Contract these lanterns are bulk changed after a set number of hours to prevent (as far as possible) 'bulb failures'. This has proven to be the most cost effective way of dealing with maintenance of this type of lantern.

22. With the advent of LED lanterns, the call for these SOX Lanterns has diminished and the, already limited number of, manufacturers have significantly reduced the number they produce to the point where there are implications on supply, even with significant advanced orders being placed by our Contractor. Working with the Contractor we have agreed a new interim maintenance strategy to cope with any 'outages' which replaces these SOX lanterns with an LED equivalent.

23. There are a significant number of SOX lanterns atop of steel columns that are in good or reasonable condition. It is therefore feasible and cost effective to simply change the lantern to an LED type and retain the existing column.

Street Lighting Programme – Phase 2 and 3

24. Phase two of the Street Lighting Programme, beyond the part night switch off, and the 2018 approval of the Highways Infrastructure Investment Fund provided for the roll out of two significant initiatives. The first helps deal with the ageing concrete column issue (see below) in addition to facilitating new LED lanterns, with the other replacing existing (relatively) low efficiency lanterns with new LED stock on existing steel columns.

25. The Lighting Team were asked to deliver the LED roll out and concrete column replacement project within two years rather than three. The reasons for this being twofold: to minimise the safety risk posed by the defective concrete columns and to maximise delivery of energy savings.

26. Phase 3: For 2020/21 and 2021/22 a further £1m per year has been allocated for the further roll out of LED replacements of SOX lanterns. There has been no specific additional capital allocation for further replacement, however current maintenance funds will enable replacement to continue, again on a worst first basis.

Progress to Date – Concrete Columns

27. As of August 2017, the Council maintained 49,819 lighting columns. Of this, 10,884 (24%) were shown on the inventory as constructed of concrete around steel reinforcing. These were predominantly installed in the 1960's and 70's.

28. Recognising the service life, a detailed survey of the concrete columns on the Worcestershire County Council network was carried out and completed in 2018. The condition of the stock has been ranked from 1 (good condition) to 5 (requires immediate attention).

29. The detailed programme of replacing the concrete columns with both a new steel column and an LED lantern was and remains largely driven by the requirement to deal with the worst first.

30. All the Category 5 and 4 columns were dealt with very early on in the project. Category 3 columns test results were further assessed and dealt with on a needs basis. From the start of the project date close to 700 have been replaced to date, 387 in the last year at a cost of £465,000. This compares with the number of pure lantern replacements of approx. 15,880 during Phase 2.

31. We are currently expanding on last year's testing of the remaining Concrete columns with a view to forming a new replacement programme. Numbers will be dependent on the results of the testing. We anticipate at least a further 300 will be changed to steel.

Progress to Date – LED replacements

32. We reported previously that where appropriate we had started using a new 'retro fit' lamp to directly replace an old SOX lamp in an existing lantern. Where this has been the case the 'control gear' was not changes and therefore if the lighting point was subject to part night switch off, it will still be so. This should have enabled a better response time in repairing simple SOX lamp faults going forward.

33. Unfortunately, the product turned out to be so unreliable we stopped using it. This has had a slightly detrimental effect on the overall programme as now all faults have to be dealt with by replacing the whole lantern. Relatively, a much more time consuming remedy.

34. In 2018/19 4,481 SOX to LED replacements were carried out. In 2019/ 20 a further 10,100 have been completed

35. The remaining 2,000 or so from Phase 2 will have been fitted by the end of September and these will be in Evesham, Droitwich and the Headless Cross area of Redditch.

36. As stated previously, the intention was to endeavour to complete all the conversions by 31 March 2020. However, this has not been possible. The two main reasons being the need to divert crews away from efficient conversion of lanterns by area to dealing with the growing number of individual faults occurring due to failing SOX lanterns and the inevitable impact of the COVID-19 pandemic. Although Prysmian have done a great job in keeping their crews working on our network throughout the COVID-19 period, productivity was slowed due to the additional practices and precautions the operatives had to take when attending each site.

37. The table below shows where the conversions have taken or will take place since April 2019 and the cost of those conversions.

AREA	**Lanterns fitted 19/20**	**Lanterns to be fitted by September**	**Cost**
North Claines/Fernhill Heath	102		18,360
Astwood Bank	52		9,360
Wythall	292		52,560
Barnt Green	90		16,200
Redditch	884	580	159,120
Droitwich	1,750		315,000
Kidderminster	3,204	720	576,720
Worcester	2,439		439,020
Pershore	492		88,560
Evesham	795	700	143,100
Number of lanterns fitted in 2019/20 and 2020/21 to complete the project	**10,100**	**2,000**	**1,818,000**
Predicted annual energy saving KWH	**1,282,700**	**254,000**	

Total Energy Savings

38. Once all of the proposed 16,581 LEDs are fitted by the end of September, the annual energy savings will total approximately 2,104.883kwh or equivalent to annual energy savings of £283,212 (based on 13.455p per kwh)

Percentage of LEDs in across our street lighting asset

39. Following Phase 2, when all the 16,600 are fitted by September and added to the existing number of LED lanterns installed before the £4m Highways Infrastructure Improvement Fund (HIIF) project, there will be approx. 23,000 LEDs lanterns which represents 42% of the total number of street lights. Currently there are around 54,500 street lights.

40. This figure of 42% is equal to the national average across all highway authorities.

Problems encountered

41. As there are still significant numbers of concrete columns in the County, we have been fitting LED lanterns on these assets providing they are in satisfactory condition. When these concrete columns and older steel columns are replaced then these LED lanterns can be re-installed on the new galvanised steel columns.

42. Due to access problems (being unable to get motorised or hydraulic platforms to the asset) Columns on divorced footpaths or 'alley ways' have not been targeted in great numbers as there would be additional costs for structural testing and recently developed 'safe' ladder work. We are looking to carry out more extensive LED conversions on footpaths with the £1m additional funding allocated this year.

43. Where we have rolled out LEDs in areas, i.e. converting all lanterns in the street, we seem to receive minimal adverse comment from residents.

44. We do receive small numbers of complaints mostly about the brightness of the LED light source. These issues can usually be addressed by fitting baffles/shields.

Additional Council Capital (£2m over two years) 2020/21 and 2021/22

45. As predicted, we are now experiencing growing failures of the SOX lanterns on a regular basis as predicted as the 'bulk change' programme obviously had to be suspended. The intention is therefore to use the additional capital funding to further roll out the replacement of SOX lanterns with LEDs.

46. The plan is to action those main areas where we would anticipate most failures of the exiting SOX assets and to that end Redditch and Malvern will be first in line. There are some 4,500 points in Redditch that will be replaced with LEDs.

47. We are finalising the exact assets to be treated in Malvern as there are many ornate columns/ anterns to be considered along with conservation areas. We anticipate approximately 2,400 assts will be converted.

48. Prysmian have now developed a safe method of working for gaining access to those columns sited in divorced Footpaths and alleyways where it impossible to gain access with powered equipment. Structural testing must be carried out on all columns where safe ladder access needs to be deployed. This currently being undertaken and a bespoke programme of works to these assets will be developed following the tests. This will eradicate a number of longstanding issues and complaints. There are over 4,000 such lighting points across the County.

Consequence of converting all street lights to LED

49. It is estimated that the Council could realistically reduce the energy bill (pre-LED), by 40 to 45%. The savings on the smaller wattage lanterns are significant, but less so on the traffic routes where it is more critical to light the roads to more compliant lighting levels to meet current standards. LED wattages for bigger lanterns on the traffic routes will be closer to the wattages of the existing conventional sodium lanterns and therefore energy savings will not be so significant.

Electric Vehicle (EV) Charging

50. The Council was due to take part in a trial site for street lighting combined with EV charging, in the Arboretum area of Worcester City. It transpired that the chosen site was not suitable due to location of existing columns and the Council not being able to specifically allocate Public Highway for EV parking

Fault Reporting

51. In response to issues reported at the last Scrutiny, it can now be reported that customers are only informed when work is complete and not when an order has been placed with the Contractor.

52. The Council is also endeavouring to ensure that the Lighting fault reporting service can be better integrated with the rest of the Highways and Transport Control Centre.

Innovations

53. There is an increasing view that the amount of blue light emitted from 4000k LED lanterns can have an effect on local ecology. There is an option to change the colour temperature of LED to a warmer white light with less blue light content to help address these issues. However, it comes at a cost. Where a 3000k LED lantern is used, an increase of energy costs of 5 – 10% can be expected compared to neutral white LED of 4000k.

54. Street lighting can have dramatic effects on local light sensitive creatures. Where there are sensitive lesser horseshoe bat populations Red and amber LEDs lighting is being specified, so lighting has less of an impact on the bat's behaviour. An example of this in the recently installed Toucan crossing on Trotshill Way, Worcester.

55. A Central Management System (CMS) is being considered on a new development site in Lea Castle, Kidderminster. This is due to acute ecological issues in the area which a CMS may well be able to assist in mitigating. Initial costs to be borne by the Developer.

56. Solar lighting is being considered as an option on a Council project in Norton, Worcester where there is currently no mains supply.

57. Passive infrared sensors (PIRs): The possibility and cost effectiveness of retro fitting this technology to existing lighting stock was investigated. It was found that as all our street lighting assets are on unmetered supply, PIR installation could not be supported as there is no definitive burning hour duration. Any PIR installation would need to be on a metered supply, therefore we have not taken this idea any further for our existing lighting stock

Purpose of the Meeting

58. The Panel is asked to:

- consider and comment on the latest information on Street Lighting
- determine whether any further information or scrutiny is required at this stage
- agree any comments to highlight to the Cabinet Member.

Contact Points

Emma James / Jo Weston, Overview and Scrutiny Officers, Tel: 01905 844964 / 844965
Email: scrutiny@worcestershire.gov.uk

Background Papers

In the opinion of the proper officer (in this case the Assistant Director of Legal and Governance) the following are the background papers relating to the subject matter of this report:

- Economy and Environment Overview and Scrutiny Panel on 7 March 2018 and 5 March 2019 - Agendas and Minutes
- Council on 8 November 2018 - Agenda and Minutes