Leicestershire County Council

Net Zero Carbon Leicestershire 2045

Strategy and Action Plan

NET ZERO LEICESTERSHIRE

Foreword

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Here in Leicestershire, we declared a climate emergency back in 2019, but we're proud of having a commitment to environmental action that dates back much further.

Since 2009, we've reduced our carbon emissions by 75%, and we're on track to reach our target of being a net zero council by 2030 - cutting carbon, reducing waste and boosting biodiversity is built into our services.

Despite all this, we cannot be complacent, there is a huge challenge ahead.

We can't do this alone, we need a team effort - and in this strategy you'll find out how we are facing the challenge by encouraging our residents, partners and businesses to help shape a greener future for the county, and for generations to come.

The strategy takes a long-term view - looking ahead to 2045, and our ambitions to be a net zero county by that date. We've developed an action plan for the next five years which we'll review annually and we'll report back on our progress each year.

The last two years have shown us the importance of working together, and how science and technology can provide us with the information and tools we need to do this. To realise our net zero ambitions will require further investment and commitment, but can deliver savings, and avoid the costs of not acting now.

A clean, green Leicestershire has much wider benefits for our health and our economy and everyone can make changes to help make it a reality. Collectively, we can make a big difference.

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What is climate change?

Climate change is the long-term shift in average weather patterns across the world. The release of carbon dioxide and other greenhouse gases have caused global temperatures to rise, resulting in long-term changes to our climate.

Why we must act

The last five-year period has been the hottest on record since 1850[1] and human influence is very likely to be the main driver of climate change. This trend is predicted to continue, with global temperatures continuing to rise, alongside more extreme heatwaves, droughts and flood events across the world, including here in Leicestershire.

We can make a difference if we act now.

What is net zero?

The term net zero means achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. This balance - or net zero - will happen when the amount of carbon we add to the atmosphere is no more than the amount removed.

[1] Source = 2021 Intergovernmental Panel on Climate Change Report

What we've achieved so far

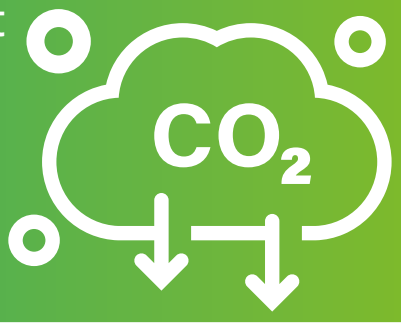
Leicestershire County Council carbon reduction

We are on track to reach our **2030** target

By the end of **2020-2021** net carbon emissions were

73.6% LOWER

than in 2008-09



Between 2006 and 2019, carbon dioxide emissions across Leicestershire

REDUCED BY 33%

A clear vision and goals

By 2045 Leicestershire will have ended its contribution to global heating and adapted to climate change. The just transition to net zero carbon emissions will have improved the local environment for people and nature, increased prosperity and supported resilient communities.

As a key place leader the County Council aims to:

- Achieve net zero carbon emissions for the council's operations by 2030.
- Enable carbon reduction across the county by delivering and facilitating the required infrastructure.
- Inspire partners and the public to develop a joined-up approach that delivers net zero carbon emissions across Leicestershire by 2045.

A strong approach

The Council's approach to delivering net zero will be guided by:

Principles	We're committed to our pledges, and at the heart of the council's approach to delivering net zero will be sustainability, equality and community.
Prioritisation	The focus will be on actions which have the largest impact on emissions.
Power	The council has various statutory duties, roles and responsibilities. The Strategy and Action Plan will reflect the County Council's areas of control and influence.

Alongside reducing carbon emission, it will be important to establish the right conditions for the transition to net zero carbon and action in the following areas.

Cross cutting action

Leadership	The council will demonstrate leadership by achieving net zero carbon emissions from its operations by 2030 and share knowledge and experience to promote best practice.
Collaboration	We need a team effort - and we're driving this by encouraging our residents and businesses to help shape a greener future for the county, and for future generations.
Research & Innovation	Working with others, the council will seek to fill gaps in knowledge to provide a robust evidence base for decisions and actions.
Informing, Engaging & Involving	Supporting informed choices for sustainable lifestyles and practices through regular communications and campaigns. Listening to the voice of local stakeholders and the public to shape net zero plans.
Finance	Financing net zero will require investment from across society, the council will prioritise initiatives with multiple benefits and income generation, maximise grant support to Leicestershire and seek to unlock investment from private sources and attract green business to the county.

Net zero objectives

Our key objectives to reduce carbon emissions and increase carbon capture and storage are:

Decarbonising Transport	Deliver sustainable, affordable transport choices for all that minimise carbon emissions.
Net Zero Infrastructure	Reduce demand for energy, support the switch to low carbon energy and heat, increase renewable energy generation and the sustainable use of natural resources.
Green Economy	Grow the County's low carbon economy and increase demand for low carbon goods and services.
Climate Friendly Communities	Inform, engage and involve our residents in identifying and delivering local solutions to achieve net zero carbon.
Nature and Land Use	Develop a growing and resilient network of land and water that is richer in plants and wildlife, optimises carbon storage and supports climate resilience.

Actions

Each objective is implemented in three ways, reflecting the council's level of control and influence:

Lead	In our Council activities - the buildings we own, the things we buy, how we travel, the open spaces we own or maintain and through the policies and decisions we take as a Council.
Ask	Actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders.
Influence	Seek support from all residents, businesses, other organisations and visitors to get involved and take action. Engage with national government for supporting policy and investment.

Implementation, monitoring and reporting progress

The Net Zero Strategy sets out a long-term vision and approach for achieving net zero carbon in Leicestershire by 2045. The Action Plan addresses the steps to be taken over the next five years to set the county on the path to net zero. The Strategy and Action Plan will be regularly updated, and progress will be reported on an annual basis.

Approval and implementation of the Net Zero Strategy and Action Plan will be overseen by the council's cabinet and guided by officers from across the council. Stakeholder engagement will guide the approach to partnership working and future plans for closer collaboration.

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Introduction

What is climate change?

Climate change refers to a large-scale, long-term shift in the planet's weather patterns and average temperature, caused by the release of carbon dioxide and other greenhouse gases.

The level of carbon dioxide in the atmosphere rose by 40% during the 20th and 21st century. In 2019, the level of carbon dioxide in the atmosphere was higher than at any time in at least two million years.

Evidence has shown that the high levels of greenhouse gases in the atmosphere are the leading cause of increasing global temperatures.

Why we must act

A clean, green Leicestershire has other benefits for health, business and jobs - by tackling climate change we will help to build strong, healthy and green communities, creating jobs and boosting skills.

In Leicestershire, our community insight survey showed that:

97% feel **PROTECTING** the **ENVIRONMENT** is important.

68% think council should do more to help **PROTECT** the **ENVIRONMENT**.

49% **FEEL INFORMED** about what the County Council is doing to help **PROTECT** the **ENVIRONMENT**, **REDUCE CARBON,** and **TACKLE CLIMATE CHANGE**.

Changes to the UK climate and weather events[2]

The UK Climate Change Committee published its third Independent Assessment of UK Climate Risk (3UKCR) in June 2021[3].

The report concluded that:

- Climate change is here, already dangerous and will get worse.
- The UK needs to prepare for the coming changes in order to protect people, economy and the environment.
- The natural environment, agriculture, forestry, supply chains and distribution networks (including food), power supply and health, wellbeing and productivity are the highest priorities for further adaptation in the UK.
- There are also multiple risks to the UK from climate impacts overseas.

This highlights the urgent need to plan and prepare for the inevitable consequences of climate change to increase resilience within Leicestershire's communities.

Climate impact in Leicestershire

Transport Networks

Disruption to transport networks from extreme weather events, (flood and heat) impacting on local economy, health and wellbeing

Flood risk to transport infrastructure

Heavy rain/high winds leading to more accidents, treefalls, road closures and delays

Risk of slope / embankment failures

Overheating/failure of signalling and comms

Risk of rails buckling, cables sagging and roads softening in heat

Discomfort on public transport

The Built Environment

Overheating risks in housing, offices, schools, hospitals and social care settings

Damage to buildings and infrastructure from extreme weather events

Need to retrofit buildings to build resilience

New design standards needed for drainage, insulation and building fabric etc Increased flood risk

Increased water stress

Disruption to power and communication networks

The Natural Environment And Agriculture

Risk to vulnerable species and habitats

Impacts on 'eco-system services' enjoyed by people

Impacts of increased drought

Damage to natural habitats from water stress

Pests and disease risk of invasive/non-native species colonising

Changes to growing seasons

Heat stress on livestock

Damage to crops and landscapes from flooding

[2] www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change

[3] www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/

Business And Industry

Costs to reduce emissions and adapt infrastructure to Climate Change

Disruption to transport, energy and communications

Risks to supply chains both local, national and global

Increased prices for raw materials, goods, and other imported commodities

Reduced comfort in buildings impacting on productivity

Changes to markets and demand

Water (Flood Risk And Drought)

Increase risk of coastal, pluvial and fluvial flooding

Increased flash flood risk from extreme weather events

Further stress on already under pressure water resources

Increased competition for water between agriculture, industry, households and the needs of the natural environment

Drought impacts on water quality and supply

Health And Wellbeing

Increase in heat-related illness and death

Risk to the elderly and very young with heart and respiratory disease

Disrupted access to services and facilities from extreme weather events

Flooding impacts on health, wellbeing and livelihoods

Air quality impacts exacerbated

Climate justice

In the UK, climate justice relates to concerns about the inequitable outcomes for different people and places associated with vulnerability to climate impacts and the fairness of policy and practice responses to address climate change and its consequences.

Climate change has been described as the biggest threat to public health this century. Some people will be more vulnerable to the impacts, as they will be more sensitive to negative effects on their health or wellbeing or may have less capacity to respond.

Reducing carbon emissions can provide a cleaner, greener, healthier and fairer future.

Co-benefits

There are many positive opportunities to support the council's other objectives arising from the actions that will deliver the transition to net zero carbon. Benefits that occur as a result of emissions reduction are known as 'co-benefits'.

Economic

Save on energy costs

Reduce maintenance and running costs

Increase asset values

Job creation and upskilling

Attract forward-thinking businesses

New economic sectors

Social

Improved health and wellbeing outcomes

Reducing health inequalities

Support social cohesion

Community resilience

Alleviating fuel poverty

Environmental

Reduced air and noise pollution

Improved soil quality

Biodiversity benefits

Reduced water demand

Climate change resilience

National and international commitments

In 2021, the United Kingdom (UK) hosted 'COP26', which brought together nearly 200 countries across the world to discuss and agree on taking action to tackle climate change. COP26 concluded with countries agreeing to the Glasgow Climate Pact, highlighting that urgent and accelerated climate action is needed to keep the ambition of limiting global temperature rise to 1.5°C in sight, originally agreed in the Paris Agreement in 2015.

The UK has the world's most ambitious climate change commitment to achieve net zero emissions by 2050 and to reduce emissions by 78% by 2035, compared to 1990 levels. National policies and legislation have been adopted to drive action and investment, including the ban on the sale of new petrol and diesel cars by 2030, Environment Act 2021, UK Net Zero Strategy, Heat and Buildings Strategy, and the Transport Decarbonisation Plan.

Alongside national commitments, strategies and plans, local authorities across the UK are leading the drive for climate action at local scales. Over 300 UK local authorities, including Leicestershire, have declared a climate emergency, with many setting their own net zero commitments too.

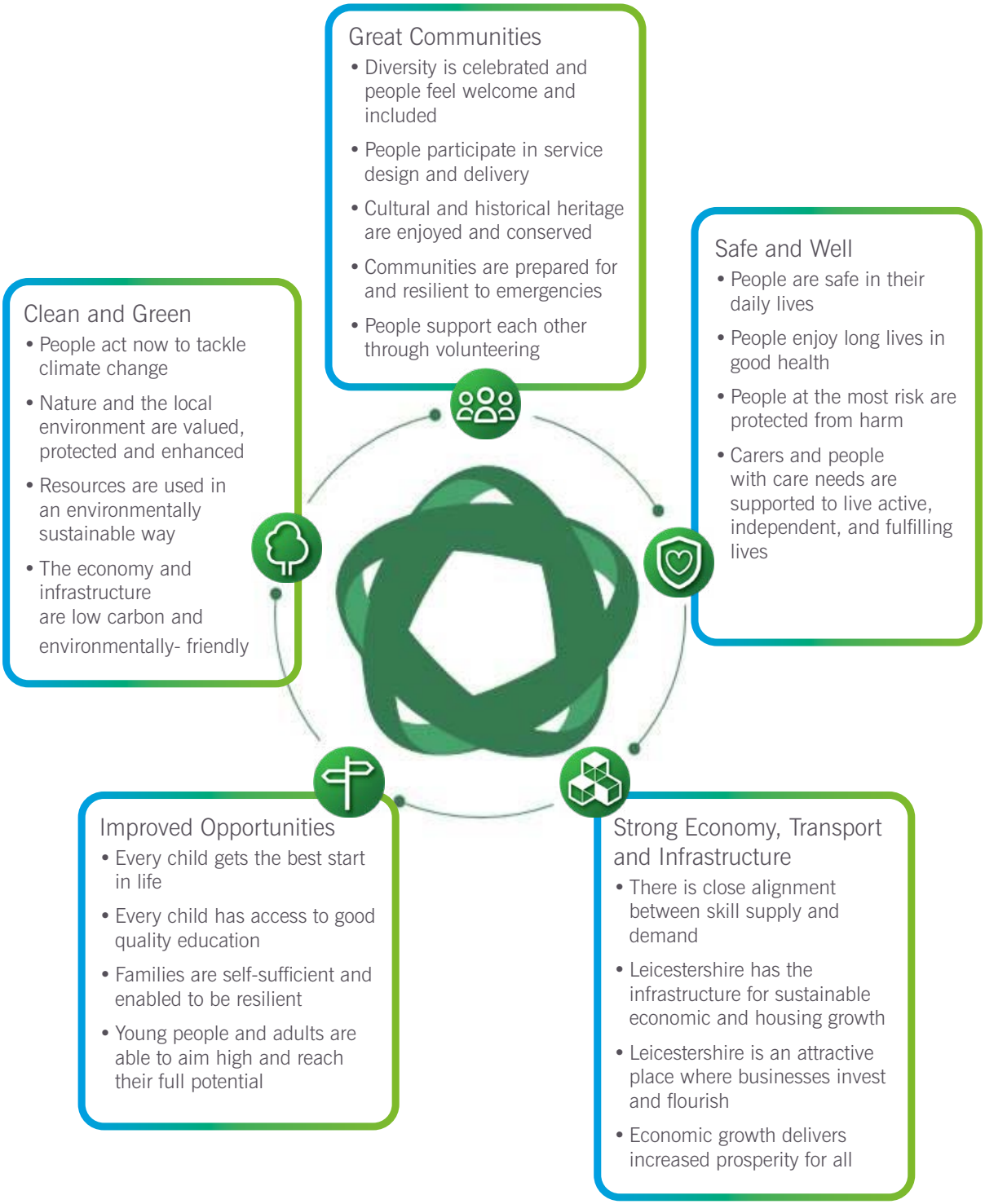
Our commitments to carbon reduction

The Council declared a climate emergency in May 2019 and the commitment to achieve net zero emissions for its own operations by 2030. Following the 2030 commitment, the Council's Carbon Reduction Programme was established with the main aim of achieving the Council's ambition and monitoring progress towards it.

The council's Environment Strategy was revised in 2020 to reflect the council's declaration of a climate emergency and includes a target to achieve net zero carbon emissions for Leicestershire by 2045.

The Council's Strategic Plan 2022-26 reflects its environmental commitment and includes Clean and Green Future as one of its five strategic outcomes. Although it is included as a separate outcome, environmental enhancement and protection will be integrated across all outcomes and decisions will balance the economic, environmental and social pillars of sustainable development. Reducing carbon emissions can provide a cleaner, greener, healthier and fairer future with economic benefits across the area.

Leicestershire County Council is a member of UK100 which is a network of highly ambitious local government leaders, which seeks to devise and implement plans for the transition to clean energy that are ambitious, cost effective and take the public and business with them. The Council has adopted the UK100 Net Zero Pledge demonstrating its strong place leadership for climate action.

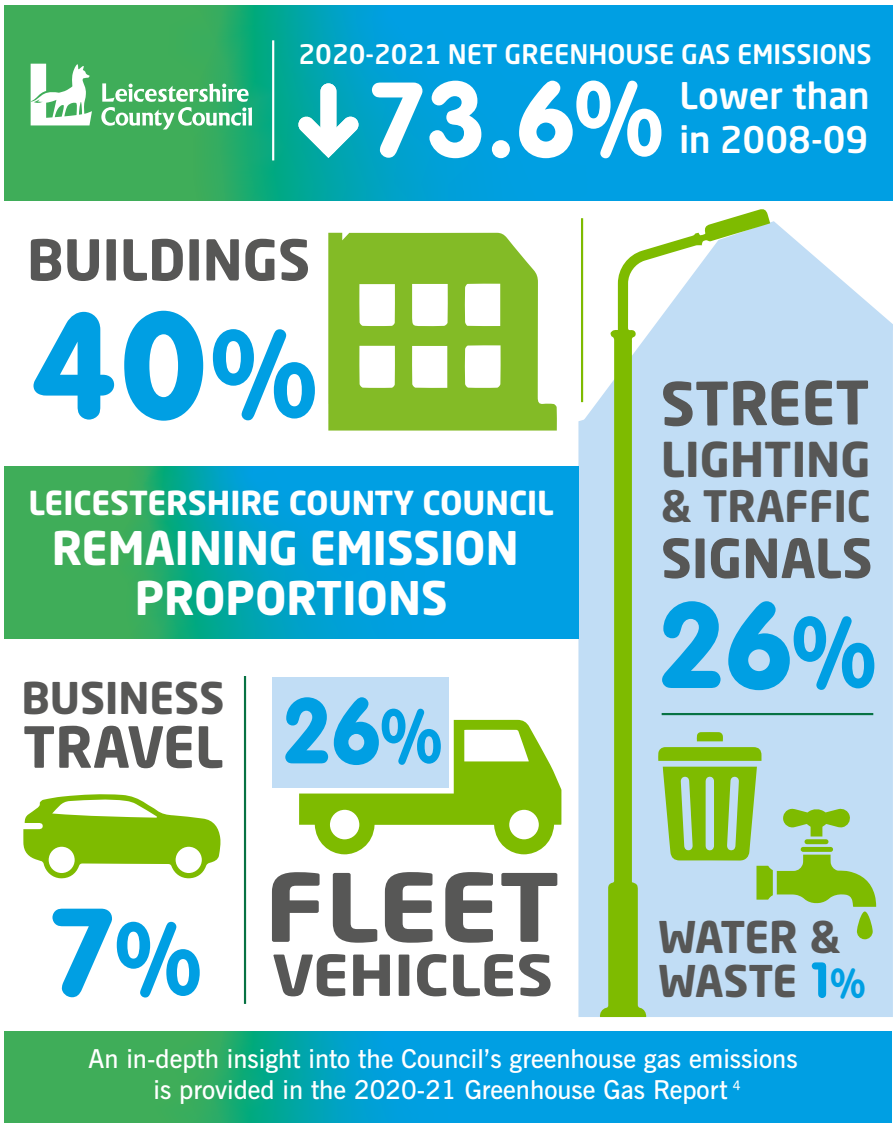


In addition, the Council is also a member of the UK 100 Countryside Climate Network (CCN) which is made up of ambitious local leaders from predominantly rural councils who are determined to amplify the rural voice in climate policy conversations.

What we've achieved so far

We're a green council – and cutting carbon, reducing waste and boosting biodiversity is built into our services.

The Council is investing in a net zero future alongside its policy commitments to deliver a combined 'plan and do' approach. Budget allocations have been made to review the council's operations and to develop plans for carbon reduction. Further investments in renewable energy, reducing energy demand in homes and providing electric vehicle charge point infrastructure have also contributed to the countywide carbon reduction target.



[4] www.leicestershire.gov.uk/sites/default/files/field/pdf/2022/2/28/greenhouse-gas-report-2020-21.pdf

What have we done to achieve reductions?

Renewable energy

The Council has invested in solar photo-voltaic (PV) panels on many of its buildings and uses biomass to provide heat to most buildings on the County Hall campus. When combined, 14.3% of energy used by the Council is from on-site renewables.

The Council sources biomass from a local supplier which provides benefits of cost savings, carbon reduction, and biodiversity improvement, as well as local economy and woodland management benefits. 90% of the material used is sourced within The National Forest under management plans and felling licences. The remaining 10% of material is sourced from local arboriculture waste. The distance travelled to transport biomass to County Hall is reduced through this contract, whilst supporting local sustainable forestry management and reinforcing green jobs across the county.

Public Sector Decarbonisation Scheme

In March 2022, the Council completed a £3.5 million portfolio of projects across three of its main buildings to further extend the biomass network, install solar panels and heat pumps, as well as upgrade LED lighting and building management systems. In all, these projects will produce a carbon saving of 388 tCO_2e and save the Council £137,000 a year.

Streetlighting dimming

The Council has made significant emissions savings by upgrading Leicestershire streetlighting with low energy LEDs over the last five years. In March 2022, the Council made additional reductions by completing a streetlight dimming project which reduced electricity consumption of streetlights across the County. At a one-off cost of £30,000 to cover staff time to carry out the project, the Council was able to generate a carbon saving of 86 tCO_2e per year and over £68,000 a year in financial savings.

Wider influence on emissions

Tackling climate change across the whole of Leicestershire is too big a job for any one organisation, but there are areas where the council may have a wider influence on carbon emissions, and will be able to work with partners to make a difference.

Greener bypass resurfacing

In 2021, the Council trialled new recycled and low carbon products and techniques in necessary highway improvements which recycled 5,000 tyres and saved 30 tCO_2e, compared to conventional resurfacing techniques. The Council's pilot project will go on to inform other local authorities as a case study on how to reduce emissions within highways projects across the UK.

Croft Quarry restoration

Leicestershire County Council also commissioned consultants to undertake a study of the GHG emissions associated with the transport of 14 million cubic metres of inert construction, demolition and engineering waste by rail, over a 20-year period, for the restoration of Croft Quarry, located in Leicestershire. The study assessed on site emissions, those arising from the transport of the waste and calculated the carbon sequestration arising from the habitat restoration scheme. This is a positive example of where the carbon impact of a project has formed a material consideration in the planning decision making process.

A tree for every person

The council wants to conserve and enhance Leicestershire's nature and landscapes (including trees) to benefit the county's biodiversity and for the enjoyment of everyone.

Leicestershire is one of the least wooded areas of the country, currently around 6% woodland - well below the national average of 10%. The Council's ambition is to help to plant 700,000 trees - a tree for every person who lives in the county, vastly increasing its tree cover. Trees and woodlands play an important part in carbon reduction, and help to enhance the environment, provide clean air, improve soil quality and reduce flooding.

Leicestershire emissions reductions since 2005

Since 2005, carbon dioxide emissions across Leicestershire have reduced by 33%. Local authority data breaks down Leicestershire's emissions into five key sources, industry, commercial, public sector and domestic emissions and transport. All of these sources except transport have reduced emissions considerably since 2005.

The slow pace of transport decarbonisation is a trend seen nationally across the UK.

Illustrative charts and graphs with further detail on this can be found in Appendix 1.

Leicestershire has a two-tier local authority system and the County's emissions can be further split by each Council area. North West Leicestershire and Charnwood districts have the greatest emissions in the County, primarily driven by greater emissions in transport, domestic (Charnwood) and industry (NW Leicestershire) sectors, compared to other local authorities.

Tables showing emissions by district can be found in Appendix 1.

How the Net Zero 2045 Strategy was Developed

To provide strong place leadership the council commissioned research to provide information on the baseline emissions from Leicestershire and pathways to net zero by 2045 which can be used by all local organisations. The Net Zero Carbon Leicestershire 2045 Roadmap[5] research also investigates the costs and co-benefits of the net zero transition.

The conclusions to be drawn from the research were:

1. The net zero carbon 2045 target for Leicestershire cannot be delivered by the Council working alone. Public and stakeholder engagement and action will be essential and integral to any future action plan. There is a role for the County Council to show leadership, convene partners and inspire commitment and action for net zero, beginning with the development of this Net Zero Strategy and Action Plan.

2. The pathway to net zero is challenging but feasible if all available policy levers are employed at pace and scale. This would require near total retrofit of buildings, full roll out of electric vehicles and decrease in vehicle mileage, very high PV (solar panel) installation, industrial heat sources switched to electricity or hydrogen and total reduction in embodied carbon in new buildings.

3. Investment will be required from all sectors but there are benefits to be accrued for the economy, society and the environment if the transition is just and fair.

4. Net zero should be progressed within the context of other environmental objectives to enhance biodiversity and provide resilience.

5. Carbon capture and storage should be built into plans but not relied upon, with offsetting carbon used as a last resort.

The findings and recommendations from the Roadmap research have informed the development of this strategy. A summary of the key findings is included in Appendix 2.

[5] www.leicestershire.gov.uk/netzero

Leicestershire County Council Net Zero Carbon 2045 Strategy

What is net zero?

The term net zero means achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. This balance - or net zero - will happen when the amount of carbon we add to the atmosphere is no more than the amount removed. This is the point at which there is no additional carbon being added to the atmosphere and the contribution to further global heating is halted.

To reach net zero, emissions from homes, transport, agriculture and industry will need to be cut. These sectors will have to reduce the amount of carbon they put into the atmosphere.

How will we achieve Net Zero?

The Strategy outlines the County Council's approach to working with others to achieve the net zero target for Leicestershire and takes a long-term view to 2045. A separate climate change adaptation and resilience strategy will be developed by the Council.

There is a need to take urgent action to avoid the worst consequences of climate change so we must act at scale and pace without delay.

The Council has ambitions to demonstrate both strong place leadership and to retain oversight of the 2045 target on behalf of the County. However, tackling climate change across the whole of Leicestershire is too big a job for any one organisation. We need a team effort - and we're driving this by encouraging our residents and businesses to help shape a greener future for the county, and for future generations.

The Roadmap research report demonstrates that the Council-influenced pathway, although highly ambitious, will only deliver 37% reductions by 2045 so this 'team effort' is essential.

Technology fixes must be combined with behaviour change to reduce demand and support the switch to clean energy so it is essential to have buy-in from residents and partners to achieve this ambitious and important goal.

This also maximises the benefits for economic prosperity, health, wellbeing and other environmental objectives such as nature recovery and climate resilience.

Vision

By 2045 Leicestershire will have ended its contribution to global heating and adapted to climate change. The transition to net zero carbon emissions will have improved the local environment - a cleaner, greener Leicestershire for people and nature, increased prosperity and supported, resilient communities.

Goals

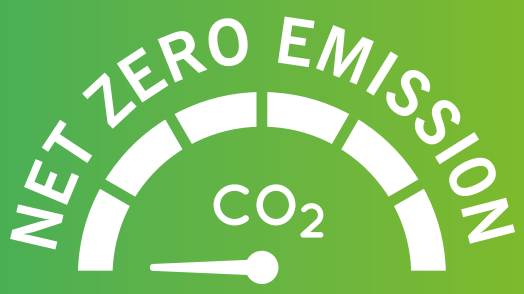
As a key place leader, the County Council will:

- Achieve net zero carbon emissions for the council's operations by 2030[6]
- Enable carbon reduction across the county by delivering and facilitating the required infrastructure
- Inspire partners and the public to develop a joined-up approach that delivers net zero carbon emissions across Leicestershire by 2045

Leicestershire County Council will work with others to achieve

NET ZERO CARBON

FROM LEICESTERSHIRE BY 2045 OR BEFORE



Leicestershire will reduce its greenhouse gas emissions in line with the UK target to cut greenhouse gas emissions:

↓78% **By 2035** compared to 1990 levels

This means a further reduction of 42% between the baseline year 2019 and 2035 ↓

[6] The scope of the council's operational target to become net zero by 2030 is explained in the Council's Greenhouse Gas Report available here www.leicestershire.gov.uk/environment-and-planning/conservation-and-sustainability/environmental-policies-and-reports

Scope of the emissions baseline and target

The scope of the countywide target has been developed based on several factors, these are:

- Availability of data to establish a robust baseline and provide annual progress updates.
- The level of control and influence the council has over the emissions.
- To avoid double counting of emissions, for example, transport emissions associated with consumption that are already included in road transport emissions from the county.
- To take as comprehensive an approach as possible to tackling greenhouse gas emissions from Leicestershire and to reflect the rural character of the county.

The target covers direct and indirect energy related greenhouse gas emissions, referred to as Scope 1 and 2. It also includes some Scope 3 or imported emissions, most notably the disposal of municipal waste[7], some of these Scope 3 emissions may occur outside of the county boundary. Land use, land use change and forestry has also been included as this is seen as a theme with large opportunities for carbon removal and storage.

The baseline emissions include 'other greenhouse gases' in addition to carbon dioxide. Many greenhouse gas emissions are released with the consumption of energy in addition to carbon dioxide, and the Kyoto Protocol requires reporting of several greenhouse gases, including methane, nitrous oxide and f-gases, which contribute to global heating.

Activities in Leicestershire will result in further consumption related emissions linked to the buying of goods and services, such as the carbon in construction and materials for new build and development and water use, often these will be produced in other areas and sometime other countries. While these are not included in the scope of the target, wherever possible the council aims to tackle these through its influence by working in partnership with stakeholders and by providing information and campaigns to support sustainable lifestyles and consumption.

Emissions included in the scope of the target:

- Domestic, commercial, industrial and public building emissions
- Road and rail transport
- Household waste management
- Other greenhouse gases (in addition to carbon dioxide)
- Land use, land use changes and forestry

Appendix 2 shows the baseline emissions for 2019 in $ktCO_2e$ (kilo tonnes of carbon equivalent). The final scoped baseline annual emissions in 2019 for the Leicestershire target are 5,003 $ktCO_2e$

[7] Note: this figure relates to the greenhouse gas emissions from waste disposal and does not include a whole life analysis of the emissions impact of different options for waste management, as included in the Resources and Waste Strategy options appraisal

The Net Zero Approach

The Council's approach to delivering net zero will be based on a framework for action that includes:

1. Principles - this includes values and priorities that will be at the heart of the council's approach to delivering net zero.

2. Prioritisation - the transition to net zero will include approaches which follow the 'carbon reduction hierarchy'. Although all policy levers will need to be used to achieve net zero by 2045, the focus will be on those actions which have the largest impact on emissions.

3. Power - the council has various statutory duties, roles and responsibilities. The Strategy and Action Plan will reflect the County Council's areas of control and influence.

Principles

In 2020, Climate Assembly UK brought together over 100 people with diverse opinions to discuss how the UK should meet its net zero carbon by 2050 target. They heard balanced evidence on the choices the UK faces, discussed them and made recommendations about what the UK should do to become net zero by 2050. Their final report was published in September 2020[8].

The prioritised principles (which will guide action for net zero in Leicestershire) recommended by the Climate Assembly UK are:

1. Education and information: there is a need for information and education for everyone - individuals, businesses, government and others - about climate change and the steps needed to tackle it. It is essential for buy-in to the changes that are needed.

2. Fairness: as with most things in life, the solutions to climate change are neither easy nor free, but they need to be fair. Fair to people with jobs in different sectors. Fair to people with different incomes, travel preferences and housing arrangements. Fair to people who live in different parts of the UK.

3. Freedom and choice: we believe it is important to maintain, wherever possible, freedom and choice for both individuals and local areas so that they can choose the solutions that work best for them. This should not be at the expense of taking the steps necessary to ensure a safe and healthy environment for future generations. We have outlined in this report where we believe an acceptable balance lies.

4. Co-benefits: tackling climate change could bring with it many advantages. It could see benefits for local communities, high streets and local businesses. It could boost our economy and promote innovation, including in technology. And it could improve our health and reduce pollution. The UK should take advantage of these potential rewards.

5. Nature: we need to protect and restore our natural environment, and our access to it. We strongly support measures that have a positive impact on biodiversity and wildlife, whilst also helping the UK move towards its net zero goal.

[8] www.climateassembly.uk/report/

Prioritisation

Leicestershire County Council is committed to becoming a net zero local authority by 2030 and working with partners to achieve net zero for Leicestershire by 2045 through following international best practice and guidance. The Council's strategy can be explained in four approaches to achieve net zero emissions (see diagram below). The aim is to always look for solutions at the top of the 'mitigation hierarchy' to address carbon emissions, in preference to those at the bottom.

Eliminate	• Prevent greenhouse gas emissions across the lifecycle i.e. in extraction of materials, production of goods and services, in use and in disposal • Assess and adopt different models and ways of doing things; use innovative methods to avoid greenhouse gas emissions being produced at source
Reduce	• Real and relative reductions in carbon and energy • Efficiency in operations, processes, fleet and energy management • Use of digital and technology
Substitute	• Adopt renewable energy and low carbon technology • Reduce the carbon intensity of energy used and energy purchased • Purchase goods and services with lower carbon impact across the lifecycle
Compensate and neutralise	• Compensate unabated carbon emissions by helping wider society to avoid or reduce emissions • investigate measures to remove carbon from the atmosphere to permanently neutralise carbon emissions • Support climate action and developing carbon markets to go beyond carbon neutral

Carbon Sequestration and Offsetting

The first three approaches above which relate to the reduction of carbon emissions will be the priority for achieving net zero carbon across Leicestershire, with an aim to reduce carbon emissions by 90 - 95% by 2045 in line with best practice. However, there will be areas where residual carbon emissions persist, particularly linked to road transport, industrial and building emissions including agricultural emissions. If net zero is to be achieved, carbon removals (or compensation) will be required.

Leicestershire County Council is committed to increasing local carbon removal through natural strategies such as tree planting (notably, the council's ambitions to enable the planting of a tree for every person in the county – 700,000 in total), habitat restoration and improving soil carbon stores. Many of these initiatives will be driven by other objectives, for example tree planting and woodland creation for nature recovery or increasing wet woodland to increase flood resilience. This approach also includes carbon insetting, where carbon offsets can be gained within the council's value chain giving priority to carbon reduction within the local authority boundary. Local sequestration and insetting will be prioritised above wider carbon offsets, which will be considered only as a last resort.

The council looks to national government for the development of commercially viable removals technology at scale and to support negative emissions approaches wherever possible.

Prioritisation - Impact

The Council's net zero strategy and action plan is informed by the evidence provided in the Net Zero Leicestershire 2045 Roadmap report. It will be important to focus interventions and investments on areas which provide the greatest impact of reducing carbon emissions.

The Leicestershire net zero pathways modelling in the Roadmap research includes several emissions categories and interventions. The Impact Assessment considers the amount by which different emissions categories are reduced in each pathway, including the relative impact of some different interventions.

The Tailwinds Pathway which achieves 95% carbon reduction by 2045, illustrated by category in the table below. The greatest impact comes from Transport fuel switching.

Though Solar PV installation is associated with a relatively small amount of emissions savings in this pathway (78 ktCO2e), renewables are a critical precursor to decarbonising the grid, have fuel saving benefits and create resilience across the County; they should therefore not be overlooked.

High-levels of savings are achieved through industrial demand reductions and heat switching (665 ktCO2e), while the majority of the rest of emissions savings are the industry-wide reductions in consumption emissions in manufacturing and construction (new build embodied carbon and food & drink; over 1,000 ktCO2e) which highlights the need to address wider consumption and embodied carbon alongside direct energy use in Leicestershire.

Action	Emissions saving potential (ktCO2e – kilo tonnes of carbon equivalent)
Transport fuel switching	1,327
Water, waste and new build reductions	993
Heat switching (including grid decarbonisation)	829
Food and drink measures	682
Industrial measures	665
Demand reduction	539
Transport mileage	409
New PV installations	78
TOTAL	**5,522**

Power – control and influence

Local authorities are increasingly ambitious in their plans to tackle climate change. Leicestershire County Council is one of over 300 local authorities that have declared climate emergencies, and plan to deliver against ambitious net zero targets.

These plans represent the 'locally determined contributions' to the national net zero target. Local authorities have a range of existing levers that can be used to deliver local action that reduces emissions and prepares local areas for a changing climate.

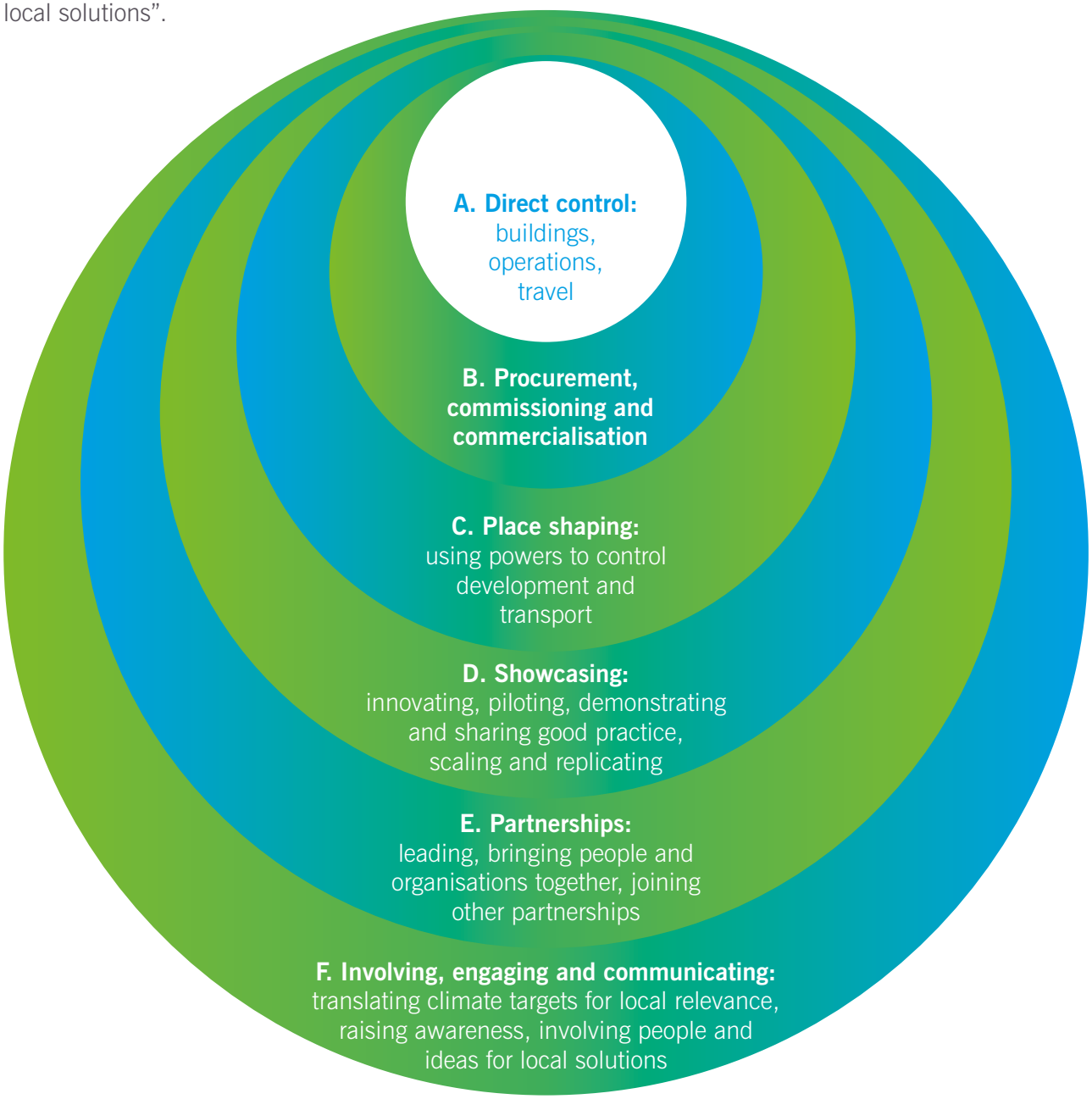
However, the Leicestershire Roadmap research confirms that the County Council cannot deliver the change required to deliver net zero carbon alone, due to gaps in powers, policy and funding barriers, and a lack of capacity and skills at a local level. Additionally, the UK Climate Change Committee suggest that without some level of coordination from Government, the UK risks pursuing a fragmented strategy towards net zero.

In the UK Climate Change Committee's report on Local Authorities and the Sixth Carbon Budget[9] the Committee found that more than half of the emissions cuts needed rely on people and businesses taking up low-carbon solutions - decisions that are made at a local and individual level. The report highlights that many of these decisions depend on having supporting infrastructure and systems in place and concludes that local authorities have powers or influence over roughly a third of emissions in their local areas.

Top-down policies can go some way to delivering change but can achieve a far greater impact if they are focused through local knowledge and networks.

[9] www.theccc.org.uk/publication/local-authorities-and-the-sixth-carbon-budget/

The figure[10] below shows local authorities' leverage and influence through their duties, services, roles, activities and investments with the amount of direct control and influence reducing from A to F. The Climate Change Committee's report states that "[Local Authorities'] leadership role in partnerships and with the public places them at the heart of the climate conversation and in developing and replicating local solutions".



The Leicestershire County Council Net Zero 2045 Strategy and Action Plan aims to take a comprehensive view of delivering net zero for Leicestershire whilst acknowledging the council cannot deliver the target alone.

To reflect the varying levels of control and influence of the County Council, the Net Zero Action Plan includes three categories of action.

[10] 'Onion diagram' based on internal Centre for Sustainability model and amended for the UK Climate Change Committee report

The Plan contains actions where the council will:

LEAD

Includes direct actions within the council's control. Also included are place shaping actions where the council can implement policy changes. The council will demonstrate best practice, enable and encourage sustainable choices and lead by innovating and piloting new solutions.

ASK

To deliver net zero infrastructure across the county, partners and organisations will need to contribute to and deliver policies and programmes of work which cut carbon emissions. There are some suggested actions included in the action tables which will be developed and built upon through dedicated consultation and engagement.

This section of the action tables includes areas where we want to collaborate with partners. This includes sharing good practice, bringing people together in partnership, pooling resources and the delivery of joint solutions.

INFLUENCE

Changes to national policy and provision of funding will be required to achieve the net zero targets. Government engagement will be used to influence these decisions and to promote the right policy and funding environment for the transition to net zero.

Everyone has a part to play in reducing carbon emissions; changes to the way we travel, run and maintain our homes and gardens, what we buy and how much we reuse, repair and recycle can all contribute to a clean and green future.

This section includes actions where we will add the council's voice to national government engagement on climate change action. Through information, education and campaigns the council can raise awareness, encourage public engagement and provide advice and guidance.

Net Zero Action Plan

Introduction

The 2045 Net Zero Action Plan sets out how we will deliver our strategy, including actions the council will lead over the next 5 years, asks of others to be defined through engagement, and areas we will seek to influence. The plan is split into cross cutting enabling actions, 5 emissions reductions themes and a governance and reporting framework.

Cross cutting actions to support the net zero transition

Leadership - the council will demonstrate leadership by achieving net zero carbon emissions from its operations by 2030 and share knowledge and experience to promote best practice.

The council will:

- Achieve net zero carbon emissions for the council's operations by 2030 by delivering the Council's 2030 Carbon Reduction Programme.
- Assess the emissions from the council's supply chain and investments and develop a prioritised action plan for carbon reduction from these wider indirect emissions.
- Publish a public annual progress update on its own operational Carbon Reduction Plan and report on its greenhouse gas emissions.
- Publish a public annual progress update on the countywide Net Zero 2045 Strategy and Action Plan and report on emissions reduction.
- Investigate publicly reporting through the Carbon Disclosure Project's questionnaire for government areas.
- Develop tools and guidance to inform decisions makers of the carbon impacts of policy and proposals
- Develop templates and guidance to integrate net zero carbon targets into decision making and project management.
- Work with our supply chain to reduce carbon emissions and develop tools and guidance to integrate carbon impact into procurement decisions.
- Deliver a package of communications, engagement, and training to develop a carbon conscious culture for all employees across the organisation
- Ensure that the way we work and deliver services support net zero for the council and the county.
- Complete Equality and Human Rights Impact Assessments on net zero policy and plans
- Plan and prepare for the inevitable consequences of climate change to increase resilience in the county.
- Develop a carbon offsetting policy and approach to neutralise unavoidable residual emissions, prioritising opportunities for 'insetting' by keeping carbon reduction benefits within the local authority boundary.

Collaboration - we need a team effort - and we're driving this by encouraging partners, businesses and other organisations to help shape a greener future for the county, and for future generations.

The Council will:

- Initially work in existing networks and partnerships to deliver the ambitious targets for the county and combine resources for this shared mission.
- Complete a review of local governance structures through consultation with other key stakeholders to identify gaps and prepare a Net Zero Partnership Plan.
- Develop a Leicestershire Climate Pact to inspire other organisations to join the council in setting targets and delivering carbon reduction.
- Work with local partners to agree a consistent approach to robust and transparent reporting on progress towards net zero targets in the county.
- Work with others to commission research and evidence to inform actions and interventions to achieve net zero carbon.
- Work with others to engage with national government to call for urgent action to deliver net zero carbon.
- Work with others to call for a clear framework and the resources required to define and support the role of local authorities in tackling the climate emergency.

Research and innovation - working with others, the council will seek to fill gaps in knowledge to provide a robust evidence base for decisions and actions.

The Council will:

- Work with partners, particularly knowledge-based institutions to support research, development and demonstration of low and zero carbon technologies.
- Take an evidence-based approach to assessing options and decision making to support the net zero transition.
- Support the development and deployment of carbon capture and storage approaches.

Informing, engaging and involving - supporting informed choices for sustainable lifestyles and practices through regular communications and campaigns. Listening to the voice of local stakeholders and the public to shape net zero plans.

The Leicestershire Community Insight Survey has been commissioned to collect regular information on public perceptions and attitudes to issues of importance to the council. The most recent results of the survey for the environment questions gives a powerful mandate for action on the environment but suggests the council could do more to inform, engage and involve people in their action to protect and improve the environment.

In order to ensure that everyone has an opportunity to be part of the transition to net zero and access to sustainable choices, it is essential for the council to raise awareness, provide good quality, honest information and to enable personal and community action to reduce carbon emissions.

We aim to deliver an ongoing, two-way dialogue to ensure diverse voices are heard, so that we can understand and respond to local feedback; testing what works and what doesn't, and where the council should consider different approaches to encourage more involvement.

This is a priority theme for the Council and has been included in the Action Plan tables under the Climate Friendly Communities theme, alongside the development of a long-term net zero engagement plan.

Finance - financing net zero will require investment from across society, the council will prioritise initiatives with multiple benefits and income generation, maximise grant support to Leicestershire and seek to unlock investment from private sources and attract green business to the county.

Financing net zero will require investment from across society. The council will prioritise initiatives with multiple benefits and income generation, maximise grant support to Leicestershire and seek to unlock investment from private sources, attracting clean, green businesses to the county.

The UK Climate Change Committee provides the most detailed set of cost projection models for UK-wide decarbonisation currently available. They find that the capital cost of a Balanced Net Zero Pathway nationally would cost £1,415b (2020-2050), and that of a Tailwinds Pathway would cost £1,440b (2020-2050) (excluding removals).

The Council will:

- Produce a financing plan for net zero.
- Prioritise projects with multiple benefits, that save money and/or provide income.
- Take maximum advantage of government funding for decarbonisation in Leicestershire.
- Work with business and finance institutions to attract green investment to the county.

Carbon Reduction Themes and Action Tables

To achieve net zero carbon, society must avoid and reduce carbon emissions and increase the amount of carbon that is removed from the atmosphere. Action for carbon reduction is addressed in five strategic themes within this plan: Decarbonising Transport, Green Economy, Net Zero Buildings and Infrastructure, Climate Friendly Communities, and Nature and Land Use as Carbon Stores.

Decarbonising Transport

Road transport emissions in Leicestershire, including A roads, minor roads and motorways, account for 46% of all Leicestershire's territorial emissions. This is a significant figure and is above average when compared with the UK, resulting from the key role of Leicestershire roads through-routes and interchanges in national logistics and distribution networks due to its central location and excellent transport links.

The Department for Transport's (DfT) Decarbonising Transport Plan provides a breakdown of fuel consumption based on vehicle type, by local authority. This breakdown shows that most of the fuel consumed is by petrol and diesel cars (54%) - approximately 25% of all Leicestershire's 2019 territorial carbon dioxide emissions. The second largest source is HGVs, which account for 26% of road transport energy consumption in Leicestershire, equating to approximately 12% of all Leicestershire's 2019 territorial carbon dioxide emissions.

Aim

To deliver sustainable, affordable transport choices for all that minimise carbon emissions.

Objectives

1. Encourage changes to travel behaviours
2. Reduce the need to travel by car
3. Encourage and enable more cycling, walking and other active travel
4. Support people to choose public transport
5. Support the transition to ultra-low emission vehicles for example, electric and hydrogen fuelled
6. Reduce the impact of freight movement within and across the county

Opportunities and co-benefits

- Improved air quality
- Less traffic noise
- Footpaths and cycleways offer opportunities for green space for people and nature
- Improved health and fitness from increased active travel
- New economic opportunities from charge point and hydrogen infrastructure and maintenance of vehicles
- High street vitality and social cohesion
- Reduced running costs as the public switch from petrol and diesel to electric vehicles

Action Plan Key:

Time scale: Short 0-2 years (S), Medium 2-5 years (M), Long >5 years (L)

ID	Objective	Action	Who may be involved	Timescales
LEAD – actions where Leicestershire County Council has control or major influence				
T1	All	Continue to work towards Net Zero operations by 2030 by implementing the LCC Carbon Reduction Programme, including for example: • Effective fuel management and efficient use of fleet vehicles • Adopting lower carbon fuels • Transitioning to electric vehicles for small to medium fleet • Investigate low emission vehicles for heavy fleet • Adopt policies to minimise business travel by car and decarbonise work journeys • Adopt remote and flexible work models as appropriate		S
T2	All	Develop a vision and strategy for decarbonised transport for Leicestershire in the new Local Transport Plan 4	All Partners Business Residents	S
T3	All	Continue to engage with the public and stakeholders to crowd source suggestions for travel improvements and infrastructure opportunities	All Partners Business Residents	S
T4	All	Collect baseline and annual monitoring data of transport carbon emissions for the county	Midlands Connect DfT	S
T5	All	Deliver sustainable travel planning advice and support to businesses and residents through Choose How You Move Campaign	Business Districts Health partners	S

ID	Objective	Action	Who may be involved	Timescales
T6	All	Revise the Leicestershire Highway Design Guide to incorporate environmental and net zero carbon objectives		S
T7	1, 2, 3	Deliver the Cycling and Walking Strategy in line with national policy and funding	District councils	S
T8	1, 2, 3	Identify and build key walking and cycling infrastructure in line with national policy and funding	District councils	S
T9	1, 2, 4	Improve public transport through the delivery of the Bus Service Improvement Plan for Leicestershire in line with national policy and funding	Bus operators	S
T10	1, 2, 4	Deliver the Demand Responsive Transport Scheme for rural mobility	Residents Contractor	S
T11	1, 5	Develop a strategy for increasing the uptake of ultra-low emission vehicles	Midlands Connect	S
T12	1, 5	Collect and collate information on demand for public charging in Leicestershire from residents	Districts Residents	S
T13	1, 5	Increase the charge point infrastructure at Leicestershire County Council sites	District Councils Energy Saving Trust	S
T14	1, 5	Develop and adopt policy to support the uptake of electric vehicles and highway planning policy to promote the deployment of charging infrastructure	District Councils	S

ID	Objective	Action	Who may be involved	Timescales
ASK – actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders				
T15		Work with others to investigate models and tools to quantify the carbon impact of policy decisions and scheme design	Midlands Connect MHA	S / M
T16	5	Investigate the council's role in Accelerating EV Charging Infrastructure	Midlands Connect	S
T17	5	Deliver the FLEX-D project to develop a business case for charging hubs with solar canopy/battery storage and seek funding to implements	Midlands Zero Carbon Hub Districts LLEP	S
T18	1, 2, 4, 5, 6	Support rail improvements	Leicester City Council LLEP Midlands Connect Transport for East Midlands Great British Rail HS2 Ltd	M
T19	5, 6	Investigate opportunities for low emission alternatives for freight and logistics	Midlands Zero Carbon Hub Districts LLEP	M / L
T20	5, 6	Investigate opportunities for reducing the impact of long-haul freight road mileage such as shift to rail freight	Midlands Zero Carbon Hub Districts LLEP	M / L

ID	Objective	Action	Who may be involved	Timescales
T21	5, 6	Investigate opportunities for reducing the impact of local delivery hubs and alternative 'last mile' delivery	Market Towns Group District Councils Leicester City Council LLEP	M / L
T22	5	Investigate opportunities to provide incentives for green number plate vehicles	Districts	M
T23	1, 2	Work with local employers to develop shared office space and work hubs	Business Districts Health partners	S
T24	1, 2	Work with local employers to encourage remote and flexible working to reduce the need for business travel	Business Districts Health partners	M
T25	All	Work with partners to promote sustainable travel and transport choices with their staff, customers, suppliers, residents and service users	All partners Residents Business	M
T26	5, 6	Work with others to plan for low emission vehicle fuelling infrastructure at a regional level	Midlands Connect Neighbour authorities Districts	S / M
T27	5, 6	Work with others in the H2GV project to develop a business case for use of Hydrogen in HGVs, apply for funding to pilot the project, disseminate knowledge and seek to develop local demand and supply chain	H2GV project group	S / M

ID	Objective	Action	Who may be involved	Timescales
T28	All	Support planning policies for development that reduce the need to travel for essential services and promote walking, cycling and public transport, for example through the 30 minute rural communities model	Districts	M
T29	1, 4	Investigate and support opportunities to deploy EV car clubs in Leicestershire	Districts Local councils VCSE	S
T30	All	Identify opportunities for research into clean transport technology and local demonstration projects	Universities Enterprise Zones LLEP Midlands Connect	M / L
T31		Encourage businesses, including logistics and other stakeholders to educate drivers in fuel efficient driving and other fuel efficiency strategies such as route planning, vehicle maintenance etc	LLEP Energy Saving Trust	M
T32	4, 5	Work with partners to consider options for joint procurement of low emission vehicles and refuelling infrastructure	Districts Health partners	S
INFLUENCE – actions where Leicestershire County Council will seek to influence and inspire others and where national government could help				

ID	Objective	Action	Who may be involved	Timescales
T33	All	National government policy and long term funding allocations to support the delivery of capital schemes and promotional activity to decarbonise transport and to clarify its role	Leicester City LLEP Midlands Connect Transport for East Midlands ADEPT	S
T34	5, 6	Support investment and policy to enable the transition of freight movements to low carbon alternatives with less impact on the environment	LLEP Midlands Connect Midlands Zero Carbon Hub	S / M
T35	5	Framework for charge point suppliers to provide consistent, simple payment options and support interoperability across networks	ADEPT Districts	S
T36	4	National investment in the electricity supply network to reduce the cost of connections to the grid linked to electric vehicle charge point infrastructure	ADEPT Districts	S

Net Zero Infrastructure and Development

Leicestershire buildings including domestic, public, industrial and commercial buildings contribute a significant proportion of the County's emissions - 47% of the scoped 2019 emissions. Of this, industry and commercial buildings contribute the greatest share this (24%), followed by the County's 264,000 domestic properties (21%). The remaining 2% of building emissions originate from the public sector.

The 2045 Roadmap identifies that heat switching is essential to decarbonisation and will occur in line with national guidance, gas phase-out targets and industry changes. However, the infrastructure needed for this transition and the high cost of electricity, requires Leicestershire to accelerate retrofit across the county to ensure a just transition. A wide-ranging programme of building retrofit will reduce energy demand and help save fuel costs, as well as extend building lifespans and improve quality of life. The County has a high level of owner-occupier households (77%), with 13% privately rented and 10% socially rented.

Minerals extraction forms a large part of the carbon generated by the building and construction industry There is a need to move towards more sustainable consumption, minimise waste and support the circular economy by keeping resources in circulation for as long as possible.

Achieving net zero also requires a regional-scale energy transition to deliver low carbon infrastructure that is secure, reliable and resilient. Not only will new electricity supplies be needed, renewable energy to contribute to national grid decarbonisation must be built.

Under all emissions pathways in the Roadmap study, Leicestershire would be left with some residual carbon emissions.

The largest residual emissions categories in both the Balanced and Tailwinds Pathways are:

- Road transport – a small amount of residual emissions resulting from HGV vehicles that have not switched to electric or hydrogen fuel by 2045.
- Industry and building emissions – as a result of latent carbon in the electric grid and hydrogen sources. Industry emissions categories also include agricultural emissions, which may prove hard to reduce.

If net zero is to be achieved in any pathway, carbon removals would be required in 2045 for these residual emissions.

The inability of even the most ambitious policy pathways to align with a Paris Agreement compliant pathway highlights the gap between current policy and technology and the required pace of action. This means that there is a dependence on removals and negative emissions technologies, for the national carbon budgets and local targets. This area of net zero infrastructure is subject to intense research and investment and provides opportunities for the Leicestershire economy.

Aim

Reduce demand for energy, support the switch to low carbon energy and heat, increase renewable energy generation and the sustainable use of natural resources.

Objectives

1. Change behaviour to reduce demand for energy
2. Improve the energy efficiency of homes and other buildings
3. Decarbonise the heat supply
4. Modernise the grid and ensure capacity is available to support net zero
5. Increase local renewable energy capacity
6. Minimise emissions from new builds in construction and use
7. Support the transition to a circular economy including the sustainable extraction, use and end of life management of natural resources
8. Engage with government and business to unlock joint solutions and investment
9. Increase carbon removals by supporting the development of carbon capture and storage solutions

Opportunities and co-benefits

- Reduction in energy costs and protection against future price rises
- Reduction in fuel poverty and associated health impacts including excess winter deaths
- Improved building quality and public realm
- Improved internal and external air quality
- Compliance with legislation
- Unlock high quality, sustainable growth which increases the attractiveness of new homes and commercial properties
- Increase energy security
- Encourage innovation, skills, job creation and investment

Action Plan Key:

Time scale: Short 0-2 years (S), Medium 2-5 years (M), Long >5 years (L)

ID	Objective	Action	Who may be involved	Timescales
LEAD – actions where Leicestershire County Council has control or major influence				
I1	1, 2, 3, 4, 5, 6	Continue to work towards Net Zero operations by 2030 by implementing the County Council Carbon Reduction Programme, including for example: - Ongoing programme of behaviour change, energy and water management and efficiency installations - Estate energy audits and decarbonisation plan - Renewable energy feasibility study on council land - Periodic updates of Zero Carbon Construction guidelines for building projects		S
I2	All	Consider how council investments can support the net zero transition		S
I3	1, 2, 3, 5	Provide information and materials to educate and engage residents in behaviour change, energy efficiency, low carbon sources of heating and renewable energy	Low carbon industry Government	S
I4	2, 3, 5	Engage with commercial building owners to share best practice on building retrofit and low carbon solutions including energy storage and renewables	Low carbon industry, Midlands Zero Carbon Hub Government	S

ID	Objective	Action	Who may be involved	Timescales
I5	2, 3, 5	Deliver the Sustainable Warmth programme for Leicestershire to increase the energy performance of homes across the county and reduce emissions	District Councils Midlands Zero Carbon Hub	S
I6	2, 3, 5	Apply for future funding to support building retrofit for homes and other buildings	District Councils Midlands Zero Carbon Hub	S / M / L
I7	3	Promote and encourage the uptake of government incentives for low carbon technologies including the Renewable Heat Incentive, Heat Pump Ready etc	Government	S
I8	2, 3, 5, 6	Explore opportunities for the Corporate Asset Investment Strategy to support net zero targets through retrofit, low carbon development, increased renewable energy generation and a zero-carbon flagship development		S
I9	6	Develop a vision and key principles for green growth and sustainable development in Leicestershire. Work with partners and as the County Planning Authority to adopt and integrate the vision into policies to protect and enhance the environment and support net zero	District Councils Leicester City Council	S
I10	3, 4, 5	Investigate options for developing a Local Area Energy Plan including decarbonised heating and low carbon energy, working with key partners	District Councils Leicester City Council Public Sector Universities	S

ID	Objective	Action	Who may be involved	Timescales
I11	6	Explore opportunities for developer contributions to support net zero infrastructure and carbon reduction projects in the revision of the County Council Planning Obligations Policy	Developers, District Councils	S
I12	7	Explore the opportunities for the Minerals and Waste Local Plan support the move to a circular economy	Districts Business	S
ASK – actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders				
I13	2	Enforce private rented and non-domestic Minimum Energy Efficiency Standards regulations	District Councils	S
I14	2	Promote ECO funding, including utilisation of LA Flex mechanism	District Councils	S
I15	2	Develop a new programme of business support for energy efficiency and carbon reduction to build on the success of Green Belle and Zellar pilot	Leicester City Council LLEP	S
I16	All	Improve the understanding of the building/ housing stock quality in Leicestershire	District Councils	S
I17	2, 3, 5	Secure funding to deliver retrofit programmes to social housing, increasing the energy performance of homes across the county and reducing emissions	District Councils Social Housing Providers	S
I18	2, 3	Deliver energy efficiency and decarbonisation of heat projects to a range of buildings including schools and education, health sector, public sector and business premises	Districts LLEP	M / L

ID	Objective	Action	Who may be involved	Timescales
I19	5	Deliver the Solar Together Leicestershire group buying project to support householders to install solar photovoltaics and battery storage	District councils i-Choosr	S
I20	2	Work collaboratively to deliver efficiencies or fuel switching to industrial processes	Businesses Universities	M / L
I21	5	Work collaboratively to increase renewable energy generation through innovative business models, sourcing of investment and technical solutions	Midlands Zero Carbon Hub, LLEP District Councils Investors	S / M
I22	5	Provide support for community energy including investment and business models	Midlands Zero Carbon Hub LLEP Government Investors	S / M
I23	5	Develop an action plan to deliver the Leicestershire Resources and Waste Strategy	District Councils	L
I24	4	Complete research to support investment in the electricity network in Leicestershire to deliver the capacity required for electrification of heat, transport and connection of generation assets	WPD National Grid Ofgem	M / L
I25	4	Promote and incentivise flexible energy and demand side management and facilitate increased energy storage capacity	WPD National Grid Ofgem	L
I26	3, 5	Undertake research including heat mapping and identification of potential locations for energy projects, and secure funding to test innovative technologies to reduce carbon	Universities	S / M

ID	Objective	Action	Who may be involved	Timescales
I27		Explore opportunities and plan for Hydrogen Infrastructure	Universities Midlands Zero Carbon Hub LLEP ERA	M / L
I28	6	Develop consistent planning policies to support the net zero transition in updated Local Plans using an evidence-led approach to decarbonise transport, infrastructure, buildings and homes (including embodied carbon in new builds)	District Councils Leicester City Council	S / M
I29	5, 6	Review and update the Strategic Growth Plan to ensure it supports the transition to net zero carbon	LLEP	S
I30	9	Work with partners to investigate and support the delivery of scalable carbon capture and storage technologies	Universities Districts Business	M
INFLUENCE – actions where Leicestershire County Council will seek to influence and inspire others and where national government could help				
I31	4, 5	Continue to support the Local Electricity Bill	Parliament	
I32	2, 3, 5, 7	Improve and extend the funding programmes for clean heat and energy efficiency	BEIS	S / M / L
I33	2, 3, 5, 7	Provide support to develop retrofit and renewable energy supply chains and skills	BEIS	S / M
I34	6, 7	Implement planning policy and building standards that support net zero, including a high level of energy efficiency	DLUHC	S

ID	Objective	Action	Who may be involved	Timescales
I35	1, 7	Continue to deliver and expedite smart metering programmes and introduce opportunities for new tariff structures which support flexible energy solutions	BEIS	S
I36	3, 7	Provide support with identifying potential locations for low carbon heat networks across the county	HNDU	S / M
I37	2, 3, 7	Provide an evidence base for new business models and financing options for low carbon technologies including Heat as a Service models	BEIS	S / M
I38	3, 7	Rebalance environmental levies between electricity and gas bills	OFGEM	S
I39	2, 3, 5, 6, 7	Consider carbon pricing and its role in achieving net zero	BEIS OFGEM	S / M
I40	5, 7	Create fair and consistent markets and regulatory frameworks for low carbon generation and storage	BEIS OFGEM	S / M

Green Economy

Achieving net zero will bring about structural changes to Leicestershire and the UK's economy, entirely new economic sectors will be created, the LCEGS sector (including wind power, solar systems, alternative fuels and building technologies) will grow and expand, whilst carbon intensive sectors of the economy will shut down. This will require the training and upskilling of Leicestershire's workforce.

For Leicestershire to become a net zero county, the 2045 Roadmap identifies that capital investment costs of between £3.1 and £3.8 billion are required to undertake building retrofits, solar PV installation and heat switching. Many investments in net zero can lead to economic co-benefits for the county's residents, businesses and the council, providing a return of investment. The 2045 Roadmap estimates capital investments in solar PV installations across the County could provide a return of investment of £1.16 and £1.66 billion between 2020 and 2045, 36% of total capital investment required to get to net zero.

Aim

Grow the County's low carbon economy and increase demand for low carbon goods and services.

Objectives

1. Support existing businesses to go green and benefit from the low carbon economy
2. Attract low carbon business, industry and investment and develop local supply chains and circular economy
3. Identify and develop skills to support the net zero transition
4. Stimulate demand for low carbon goods and services
5. Encourage the uptake of green tourism and opportunities for green spending

Opportunities and co-benefits

- Job creation
- Increased Gross Value Added
- Increased inward investment
- Increased productivity
- Place marketing opportunities including incentive packages, increased attractiveness to businesses and visitor economy
- Increased job variety and opportunities and associated wellbeing benefits

[11] Net Zero 2045 Roadmap Balanced and Tailwinds Pathway

Action Plan Key:

Time scale: Short 0-2 years (S), Medium 2-5 years (M), Long >5 years (L)

ID	Objective	Action	Who may be involved	Timescales
LEAD – actions where Leicestershire County Council has control or major influence				
E1		Continue to work towards Net Zero operations by 2030 by implementing the LCC Carbon Reduction Programme, including for example: • Stimulating the green economy and supply chains through our procurement decisions	Partners Suppliers	S
E2	1, 2, 3	Develop a Digital Strategy and consider the role of digital technology and skills in delivering net zero targets, including smart metering, artificial intelligence, weather modelling, smart grids, 5G rollout, enabling flexible working solutions etc	LLEP	S
E3	1, 2, 4	Develop an Inward Investment Strategy which considers low carbon goods and services	City	S
E4	1, 2, 3	Develop the Freeport around East Midlands Airport integrating low carbon solutions		S / M
E5	2, 4	Develop a pipeline of projects to enable raising of capital and innovative investment models, linking to development of the Net Zero Funding Strategy and specific opportunities such as the Levelling Up agenda, UK Shared Prosperity Fund and County Deal	Districts LLEP	S / M

ID	Objective	Action	Who may be involved	Timescales
E6	3, 4	Support the delivery of zero carbon new builds and energy efficiency retrofit by building the supply chain for local skilled labour, low carbon products and retrofit skills, including securing funding for delivery programmes and considering social value requirements in procurement exercises	Midlands Zero Carbon Hub	S
E7	4, 5	Consider approaches to maximising natural capital in the county, with economic benefits including growth in visitor economy, creation of forestry and land management jobs, and sale of carbon credits	National Forest, Woodland Trust LRWT	S / M
E8	1	Support landowners and land managers to access economic support including the Environmental Land Management Scheme, Biodiversity Net Gain opportunities etc	LRP NFU	S
E9	1, 5	Promote green tourism and green business opportunities in the county and review the tourism growth plan to support net zero ambitions and opportunities	City	S
E10	1, 4	Promote best practice through case studies and communications		S / M
ASK – actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders				
E11	1, 2, 3, 4	Deliver the Economic Growth Strategy and ensure economic plans and programmes support the net zero transition	LLEP City Universities Chamber	S / M

ID	Objective	Action	Who may be involved	Timescales
E12	1	Work with others to gather evidence on the large greenhouse gas emitters in Leicestershire	LLEP Universities City	
E13	1	Provide support to businesses to reduce their carbon emissions and develop low carbon goods and services through the Growth Hub provision	City Chamber	S / M
E14	1, 2	Consider options for low carbon business to business mentoring, peer support and knowledge share	LLEP City Districts Chamber	S / M
E15	1	Work with supply chains to reduce carbon and increase the offering of low carbon goods and services	Various inc. Public Sector Universities, Large Businesses etc	S / M
E16	1, 2, 3, 4	Support businesses to reduce costs and mitigate against energy price rises and ensure continued growth and job creation within the renewable energy sector through generation of on site renewable energy and development of joint ventures for large scale local energy projects	Midlands Low Carbon Hub Industry	S
E17	1, 2, 4	Use of Enterprise Zones to support low carbon sector industry and business clusters and increase R&D capacity in the county through securing investment and delivery of pilot projects	LLEP Universities	M

ID	Objective	Action	Who may be involved	Timescales
E18	2	Seek opportunities to increase SME incubation and business development provision and consider how to optimise links between R&D funding and investment in industry, to attract venture capital, start-up entrepreneurs and investors to grow a larger and dynamic start-up community	Districts LLEP	M / L
E19	2	Promote circular economy principles to decouple economic growth from the consumption of finite resources	LLEP Universities	S / M
E20	1, 2, 4	Support the delivery of low carbon transport by promoting and expanding existing advanced manufacturing facilities and research organisations	Industry local businesses Universities	S
E21	2	Support innovation in renewable energy technology through research and pilots	CREST Universities	M
E22	2, 4	Build the hydrogen value chain in the county including hydrogen skills, production, distribution and demand, particularly within the logistics sector, including participation in the Hydex project, launch of the Freeport hydrogen skills hub pilot and building on the success of existing projects such as H2GEAR	ERA, Universities, Midlands Low Carbon Hub Midlands Connect	S / M
E23	3	Develop a Skills Strategy, addressing the skills shortages and weaknesses in training provision identified in the Midlands Energy Hub Low Carbon Environmental Goods and Services Market Insight Study, and promoting acceleration and diversity in upskilling and reskilling	LLEP, Universities FE Colleges	S

ID	Objective	Action	Who may be involved	Timescales
E24	3	Work with partners to raise awareness of green jobs with school age children, including producing pen portraits of different job roles	LLEP Careers Hub Industry	M
E25	3	Work with partners to promote green courses and increase availability of different courses.	FE colleges	M
INFLUENCE – actions where Leicestershire County Council will seek to influence and inspire others and where national government could help				
E26	3, 4	Continue to provide funding for skills and product development and long-term programmes of delivery		S / M / L
E27	2	Enable innovation through innovation pilots and dissemination of knowledge		S / M
E28	1, 2	Incentivise the low carbon economy through financial mechanisms such as VAT and other tax relief, enhanced capital allowances etc		S / M / L
E29	4	Provide consistent policy which stimulates growth in the low carbon goods and services sector		S / M / L

Climate Friendly Communities

It is important that everyone is aware of how we all contribute to climate change through the things we do and the things we buy. Achieving the net zero targets will require transformational change across our energy, building and transport systems but these technological solutions alone will not be enough. by encouraging our residents and businesses to play their part and shape a greener future for the county, and for future generations

The council believes the role of local people should go beyond receiving information to one where they are fully engaged and participating. It is important that we have an ongoing dialogue to hear and respond to a diverse set of views to understand what works, and what doesn't.

The results of the Community Insight Survey demonstrate strong support for action on the environment but highlight that people need more information. There are already many active community groups involved in protecting and enhancing the environment in Leicestershire, the council is committed to working with these groups to enable them to fulfil their ambitions.

Aim

To inform, engage and involve our residents in identifying and delivering local solutions to achieve net zero carbon.

Objectives

1. Raise awareness of the climate emergency and the net zero targets
2. Promote sustainable consumption and behaviours that reduce carbon emissions
3. Deliver a fair and just transition to net zero carbon emissions that maximises the co-benefits for health, the economy and nature
4. Deliver inclusive information, engagement and consultation to help everybody to have their say on our plans
5. Enable individual behaviour change and sustainable choices
6. Enable community climate action
7. Embrace innovative models of providing community information, public involvement and action

Opportunities and co-benefits

- Active, healthy lifestyles
- Reduced costs
- Improved local environment for wellbeing and health
- Increased social cohesion
- Community development, connection and inclusion
- Participation in public life
- Skills development and employment opportunities

Action Plan Key:

Time scale: Short 0-2 years (S), Medium 2-5 years (M), Long >5 years (L)

ID	Objective	Action	Who may be involved	Timescales
LEAD – actions where Leicestershire County Council has control or major influence				
C1	1, 2	Continue to work towards Net Zero operations by 2030 by implementing the LCC Carbon Reduction Programme: • Continue to provide information on what the council is doing to address its own emissions and share best practice through regular communications • Deliver staff engagement events on Net Zero • Roll out a suite of staff training and support, for example, Carbon Literacy	Carbon Literacy partners Districts	S
C2	All	Develop a Leicestershire Climate Pact for organisations, businesses and residents to join and pledge action	All partners Business Residents	S
C3	2, 3, 4	Develop a coordinated and integrated information campaign to help residents make environmentally sustainable choices for their homes, travel and consumption	Districts Local Councils Health partners Universities	S
C4	All	Provide information and training to the County Council's Environmental Action Volunteers to support net zero		S
C5	3	Deliver public and stakeholder engagement that is representative and inclusive to develop and deliver a just transition to net zero with widespread public participation		

ID	Objective	Action	Who may be involved	Timescales
C6	1, 2, 3, 4, 5	Develop a public engagement plan to facilitate an ongoing two-way conversation on climate change action to understand and respond to community experience	Districts Health partners	S
C7	1, 5	Create opportunities for 'climate conversations'	Districts Voluntary and Community Groups	S
C8	4	Integrate net zero into linked consultation and engagement activity to test public attitudes and experience		S
C9	1, 2, 5	Promote climate action in council museums and libraries	Community Managed Libraries	S
C10	3, 4	Develop targeted campaigns and opportunities to involve young people in shaping climate action	Voice Network LLEP Careers Hub Youth Council Children in Care Council Schools Youth groups	S
C11	3, 4, 5, 6, 7	Work with Public Health services e.g. Local Area Coordinators, community recovery, green social prescribing, Warm Homes to maximise the opportunities to promote climate action with co-benefits for health	Health partners	

ID	Objective	Action	Who may be involved	Timescales
C12	6, 7	Support community action to reduce carbon through the SHIRE Environment Grants programme		S
C13	6, 7	Explore opportunities to include support on net zero activities from community sector support organisations	Voluntary Action Leicestershire Rural Community Council	S
C14	6, 7	Investigate funding opportunities to increase the capacity of the Voluntary and Community Sector for net zero in Leicestershire, for example, the National Lottery Climate Action Fund	National Lottery	S
ASK – actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders				
C15	1, 2 5	Deliver the Sustainable Food Plan to reduce the carbon impact of food production, distribution and food waste	Sustainable Food Partnership	S
C16	1, 2, 5	Deliver the pledges from the Leicestershire Waste and Resources Strategy to support and encourage waste prevention activity and to allocate a communications budget sufficient to help promote good recycling behaviour and maximise resource recovery	Leicestershire Waste Partnership	
C17	1, 2, 5	Deliver the Air Quality Partnership Action Plan to support carbon reduction	Air Quality Partnership National Highways	S

ID	Objective	Action	Who may be involved	Timescales
C18	6, 7	Enable local Parish and Town councils to act on carbon reduction through information and training	Leicestershire and Rutland Association of Local Councils	S
C19	6, 7	Develop tools and guidance to support communities to reduce carbon	Universities Councils	M
INFLUENCE – actions where Leicestershire County Council will seek to influence and inspire others and where national government could help				
C20	1, 2, 5	Production of national campaigns and toolkits for to support consistent messages and promote personal action	National government Charities Campaign organisations	S
C21	5	Improved product labelling to help consumers identify green / climate friendly options	National government	S
C22	7	Harness the purchasing power of individuals, business and communities to stimulate and grow green supply chains	All	S

Nature and Land Use

Leicestershire is predominantly a rural county, dominated by farmland (65% of land area), valuable grasslands (8%), woodland (5%) and gardens (5%), with just 6% of the land area classed as 'built'. It is estimated that ecosystems across the County sequester 65 $ktCO_2$ per year , equivalent to 0.8% of the scoped 2019 baseline and 14% of the projected 2045 territorial emissions projected in the 2045 Roadmap Tailwinds Pathway. The Council itself manages 321,000 which, and are estimated to sequester 2,400 tCO_2e per year

The 2045 Roadmap identifies that even the most ambitious pathways to net zero will leave some annual residual emissions, particularly in transport, industry and buildings. As a result, it is important to look ahead at the opportunities for natural remove these emissions from the atmosphere, alongside a wealth of benefits, including nature, biodiversity and health.

Aim

Develop a growing and resilient network of land and water that is richer in plants and wildlife, optimises carbon storage and supports climate resilience.

Objectives:

1. Develop and maintain high quality data to inform decisions and action for nature and carbon storage
2. Promote land management practices that benefit nature and increase carbon storage
3. Protect and enhance existing spaces for nature that may also remove and store carbon as an additional benefit
4. Create new, well-connected spaces for nature that provide the greatest opportunity for nature recovery and other public goods

Opportunities and Co-Benefits

- Ecosystem preservation and enhancement in biodiversity
- Contributions to climate change adaptation (e.g. flood resistance)
- Reduced air and noise pollution
- Improved soil quality
- Reduced water demand
- Improved green spaces

[12] High-level strategic assessment of the natural capital assets of Leicester and Leicestershire (Holt et al, 2021).

[13] UK local authority and regional carbon dioxide emissions: 2005 to 2019

Action Plan Key:

Time scale: Short 0-2 years (S), Medium 2-5 years (M), Long >5 years (L)

ID	Objective	Action	Who may be involved	Timescales
LEAD – actions where Leicestershire County Council has control or major influence				
N1	2, 3, 4	Continue to work towards Net Zero operations by 2030 by implementing the LCC Carbon Reduction Programme: - Maximise opportunities to increase carbon sequestration to compensate and neutralise LCC carbon emissions during the transition to net zero	Tenants	S
N2	All	Implement the Action for Nature Delivery Plan and seek to identify carbon storage benefits where appropriate, particularly on the council's own estate	Tenants	S
N3	1, 2	Explore opportunities for the council to be a biodiversity and carbon offset provider		S / M
N4	1, 2	Explore opportunities to gain a better understanding of the carbon and nature benefits of local food procurement and improved land management and how to measure and monitor improvements, particularly on the council's own farms	Suppliers Tenants SFSS	S / M
N5	2, 3, 4	Develop and implement biodiversity net gain policy and approach for Leicestershire	District councils Wildlife Trust	S
N6	2, 3, 4	Develop a single council policy to reflect the multiple objectives for land use and the need to ensure 'additionality' is gained for nature, particularly where several benefits are to be claimed e.g. biodiversity net gain, climate resilience, carbon storage		S / M

ID	Objective	Action	Who may be involved	Timescales
N7	3	Restore wet woodlands on council sites and promote case studies		S
N8	2	Deliver natural flood risk management schemes which support nature and offer carbon storage benefits where appropriate	Environment Agency	S
N9	4	Deliver the County Council's tree strategy and commitment to plant 700,000 trees by 2030	District councils Woodland Trust National Forest	S / M /L
N10	2, 3, 4	Develop a Nature Recovery Strategy for Leicestershire in line with government guidance when available	District councils Woodland Trust National Forest	S
N11	1	Complete further research to develop a comprehensive baseline evidence base of the state of nature and carbon storage for Leicestershire	District councils Woodland Trust National Forest	S / M
N12	1	Bid for funding to develop the evidence base for ecosystem services including carbon sequestration	Wildlife Trust Districts National Forest	S
N13	1, 4	Complete the Value of Trees project	ADEPT	S
ASK – actions where Leicestershire County Council wants to work in partnership with others and actions led by key stakeholders				
N14	2	Promote natural flood risk management to landowners, highlighting the wider benefits for the local area	Trent River Trust Environment Agency	M

ID	Objective	Action	Who may be involved	Timescales
N15	1	Continue work to quantify the carbon storage benefits of planted versus naturally regenerated woodland	Forestry Research Council	S
N16	1, 2, 3	Provide information and support to landowners and tenants wishing to maximise the benefit of land assets for public goods such as biodiversity, carbon reduction and climate resilience	NFU Natural England Wildlife Trust	S / M
N17	1	Build on the work of the Leicester and Leicestershire Natural Capital Strategy Assessment to develop opportunity mapping and create a natural capital investment plan to support net zero carbon	LLEP District Councils Wildlife Trust	S / M
N18	3	Investigate natural negative emissions processes e.g. biochar		M / L
N19	2, 3, 4	Consider nature and land use in local plans and requirements for developers e.g. Street trees and water considerations	District Councils	M / L
INFLUENCE – actions where Leicestershire County Council will seek to influence and inspire others and where national government could help				
N20		Publish national guidance on Nature Recovery Strategies		S
N21		Invest in additional research to improve understanding of carbon impact of different land management		S

What you can do to help

Simple actions for a climate friendly future

1. Choose active and public transport if you can
2. Save energy and switch to clean energy
3. Use water carefully
4. Think before you buy new
5. Reduce, Reuse, Repair and Recycle
6. Eat more plant-based foods and avoid wasting food
7. Choose a green bank
8. Garden for nature
9. Talk climate
10. Come together in your community – join with others to improve the environment and develop solutions in your neighbourhood

Implementation, monitoring and reporting progress

The Net Zero Strategy sets out a long-term vision, approach and objectives to set the county on a pathway to net zero by 2045 and will be regularly reviewed (every 5 years) to ensure it reflects the latest strategic changes including national policy, legislation and technology.

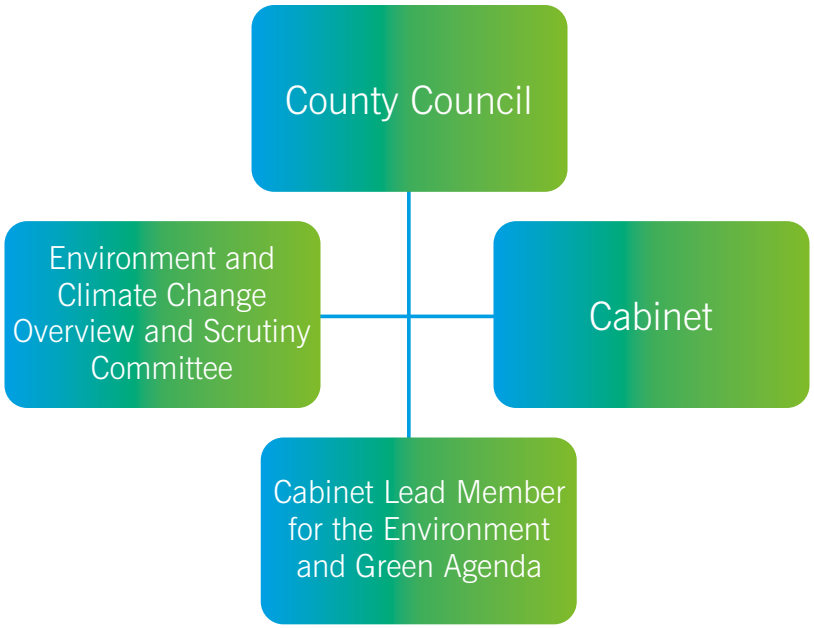
The action plan outlines shorter-term delivery plans (<5years) which will be reviewed annually to ensure that updates can be included as interventions develop and in order to keep pace with new opportunities.

Council governance

The approval and governance overseeing the Net Zero Strategy and Action Plan is carried out in line with the County Council's constitution.

Implementation of the Strategy and Action plans will be regularly monitored by a senior officer board. This group will bring together representatives from each of the Council's departments and be supported by colleagues across the council.

Further responsibility for delivering the objectives of the Strategy through the development of business cases for new projects and programmes and/or maintaining detailed business plans within the carbon reduction themes will be devolved where appropriate to individual Programme Delivery Boards and Departmental Management Teams.



Performance management

An end-of year progress report against the Net Zero 2045 Action Plan will be provided to the Council's Corporate Management Team, Environment and Climate Change Overview and Scrutiny Committee and Cabinet Lead Member. This will allow a cycle of Plan - Deliver - Review - Revise to ensure the plans are delivering the change required and are up to date.

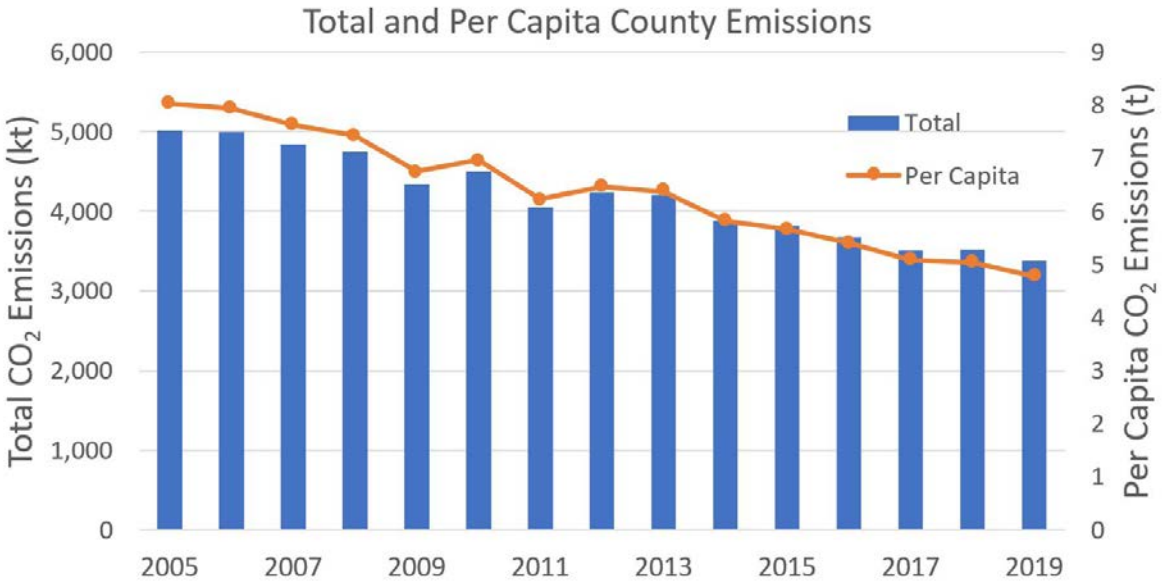
The UK Government department BEIS (Department for Business, Energy & Industrial Strategy) produces a local authority territorial carbon emissions data release annually each summer. This data is produced 2 years in arrears, for example, 2020 carbon data will be published in 2022. Each year, Leicestershire's emissions will be assessed against the trajectory set by the 2035 interim target and 2045 target to assess whether carbon reduction is 'on track'. The scope of the Leicestershire County Council target also includes municipal waste disposal which will be calculated using waste tonnage information supplied to the Department for Environment, Food and Rural Affairs and carbon conversion factors for the relevant waste disposal methods.

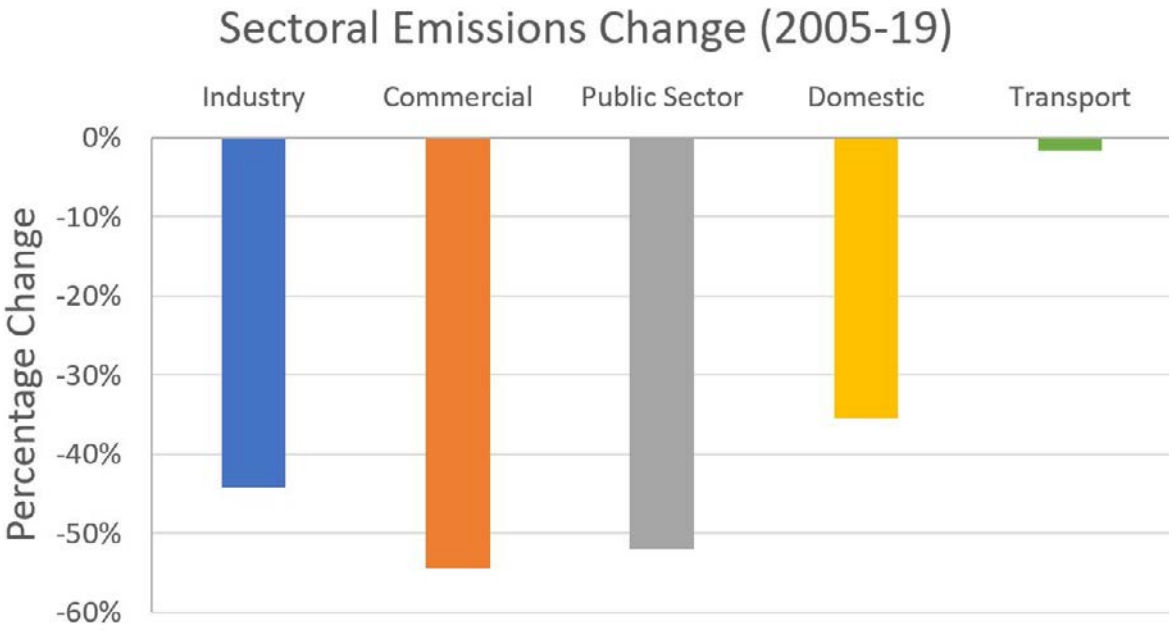
Leicestershire County Council will also investigate reporting annually through the Carbon Disclosure Project's (CDP) climate and environmental reporting platform for area wide emissions. This internationally recognised questionnaire will help identify major risks, opportunities and sources of emissions that need to be accounted for. Annual submissions to CDP will allow tracking of Leicestershire's progress, including identifying actions with the greatest impact, and support benchmarking of Leicestershire's performance against other counties.

The Council will also have its own internal Carbon Reduction Plan to address its operational emissions and plan to achieve net zero carbon by 2030. The Plan includes all greenhouse gases, in addition to carbon and predominantly addresses the council's direct emissions from energy and fuel use. However, there are some other indirect emissions included currently and there is an ambition to do more to tackle emissions arising as a result of the council's activities outside of its own control such as through the procurement of goods and services and from leased assets and investments.

The Council produces an annual greenhouse gas performance report which is publicly available on its website. Information on greenhouse gases and territorial carbon are also included in the Council's Strategic Plan 2022 - 26 key performance indicator set and as such, are detailed in the Council's Annual Performance Report presented to the County Council and also published on its website.

Appendix 1 Leicestershire carbon emission





Local Authority	Industry Total	Commercial Total	Public Sector Total	Domestic Total	Transport Total	Grand Total
Blaby	54.6	33.4	9.1	146.8	122.9	366.8
Charnwood	134.8	68.2	33.1	248.1	261.1	745.2
Harborough	62.8	39.5	9.8	147.4	165.9	425.5
Hinckley and Bosworth	106.2	33.5	6.6	167.8	170.5	484.6
Melton	75.9	21.7	5.9	79.3	110.2	293.0
North West Leicestershire	339.4	62.2	9.4	165.8	309.4	886.1
Oadby and Wigston	29.1	16.0	6.6	82.5	39.4	173.5
Leicestershire Total	**802.7**	**274.5**	**80.5**	**1,037.7**	**1,179.4**	**3,374.7**

Local Authority	Per Capita Emissions (t)	Emissions per km^2 (kt)
Blaby	3.6	2.8
Charnwood	4.0	2.7
Harborough	4.5	0.7
Hinckley and Bosworth	4.3	1.6
Melton	5.7	0.6
North West Leicestershire	8.6	3.2
Oadby and Wigston	3.0	7.4
Leicestershire Total	**4.8**	**1.6**

Appendix 2 Summary of the Leicestershire Net Zero 2045 Roadmap research

Baseline carbon emissions (2019)

The Net Zero 2045 Roadmap explores Leicestershire's baseline emissions for both the County's territorial and consumption emissions.

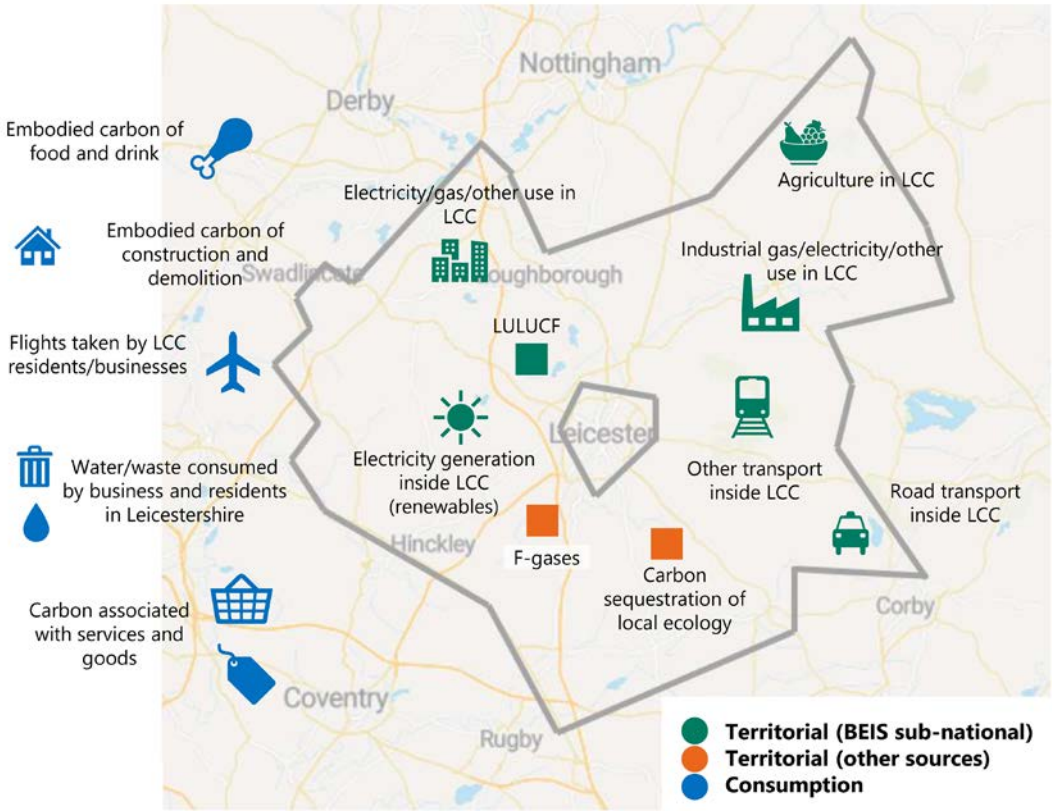
Territorial emissions

Territorial emissions are greenhouse gas emissions from energy consumption and activities inside a geographical area. The 2045 Roadmap took this data and added other greenhouse gas emissions and the impact of county sequestration (land use, land use change and forestry) to determine the full scope of Leicestershire's territorial emissions.

Consumption emissions

Consumption emissions are the greenhouse gas emissions that occur outside of the County, associated with creating and handling goods and services consumed within Leicestershire. Understanding consumption emissions is challenging, the study estimated the County's emissions by scaling high level national data to Leicestershire, supplemented with regional datasets. Consumption emission include food and drink, waste, water, electronics, clothing and other emissions related to goods, services and investments.

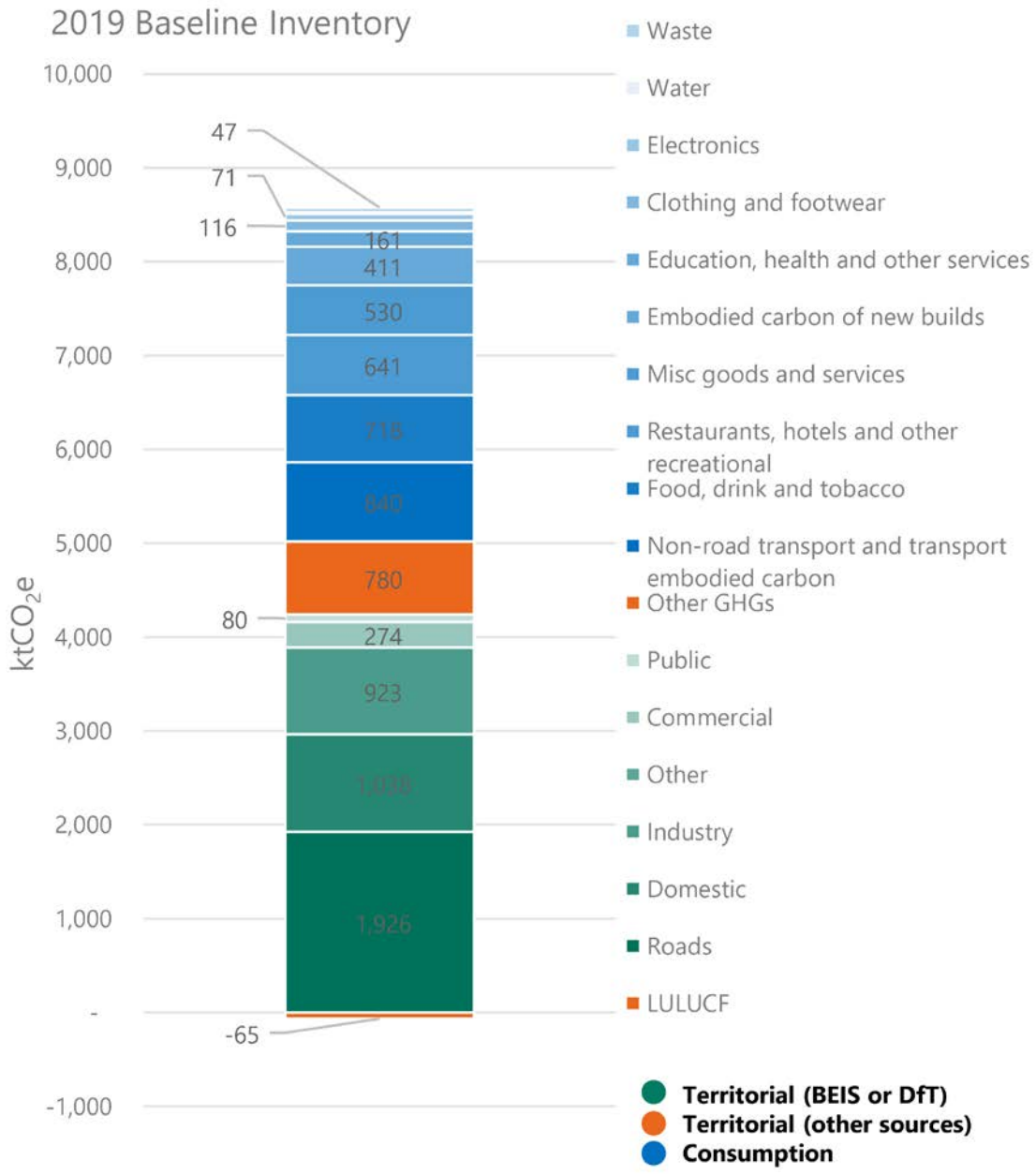
The Council will have limited influence over the reduction of consumption emissions, however, for some processes like waste disposal, the Council will have a higher degree of influence. For most consumption emissions the Council will only be able to support and encourage residents and businesses, to change their behaviour.



2019 Baseline emissions

In 2019, consumption and territorial emissions categories from activities in Leicestershire amounted to 8.5 $MtCO_2e$. Of this, 50% relates to the territorial emissions reported for Leicestershire by BEIS every year (4,241 $ktCO_2$ in 2019). These include operational energy use in Leicestershire's buildings and by vehicles on Leicestershire's roads. Significant greenhouse gases other than carbon dioxide that arise from territorial emissions-creating activities, contribute a further 9% (780 $ktCO_2e$ in 2019) to Leicestershire's emissions, whilst LULUCF removes 65 $ktCO_2e$, 1% of the total.

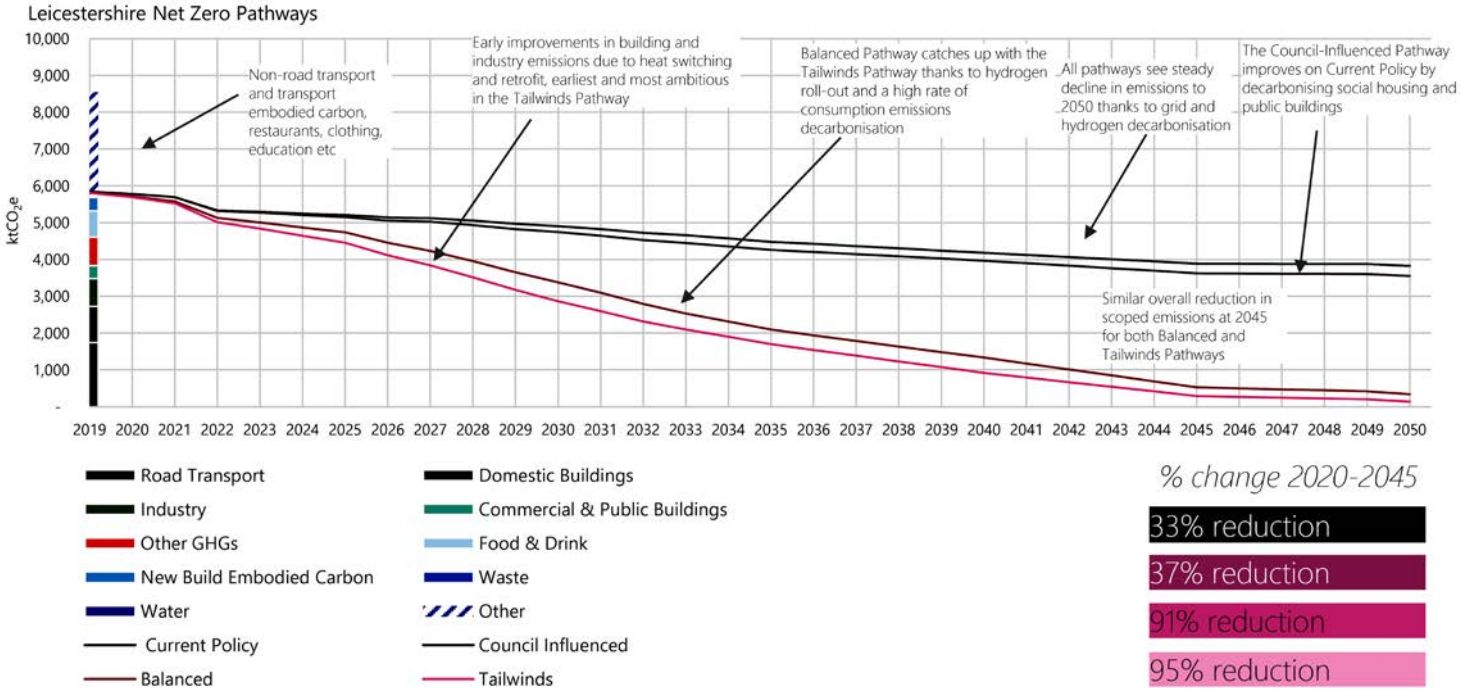
Consumption emissions account for 41% of the total baseline (3,535 $ktCO_2e$ in 2019). Notable emissions in this category include embodied emissions of food, non-road transport and restaurants, hotels and other recreational activities.



Pathways to Net Zero

The 2045 Roadmap modelled bespoke net zero pathways for Leicestershire, based on a subset of the 2019 baseline.

	Description	Why modelled
Current Policy	Models the impacts of current national and regional policies and targets on Leicestershire's decarbonisation.	To understand Leicestershire's future emissions pathway under existing targets and commitments.
Council-Influenced	Focuses on decarbonising social housing, public buildings, and public transport, with changes in the private sector as per 'current policy'.	To understand Leicestershire's future emissions pathway solely through council actions. The pathway is based on current policy, plus more ambitious action by LCC.
Balanced [CCC]	A whole-system approach to decarbonisation, with a relatively balanced mix of contributions from behaviour change, electrification, sequestration and fuel switching.	To understand what Leicestershire could achieve following the CCC's headline dataset for carbon budgeting and UK government advice. This pathway combines actions from LCC and all others.
Tailwinds [CCC modified]	The fastest route to net zero, with a high level of behavioural and demand change, and use of existing technologies like electric heating. However, it is highly optimistic, going beyond current evidence in places.	To understand what Leicestershire could achieve through a 'highly optimistic' level of behaviour change and innovation. This pathway combines actions from LCC and all others.



The Current Policy pathway highlights that emissions in Leicestershire are only expected to reduce by 33% under current policies and trajectories (2020-2045), the majority of which is due to national grid decarbonisation projections. The Council-Influenced pathway indicates that ambitious action to retrofit and remove fossil fuels from social housing and public buildings - such as schools and hospitals - will help reduce emissions by a further 4% only (2020-2045).The Balanced and Tailwinds pathways show demand reduction interventions, fuel switching and renewables installation can reduce emissions in Leicestershire by 91-95% between 2020-2045. The Tailwinds Pathway achieves the highest, fastest rates of emissions reductions through a more ambitious approach to reducing vehicle mileage and building energy demand. It also enables the highest future fuel cost savings and benefits to the health, finances and environmental conditions of Leicestershire communities.

Comparison to the Paris Agreement

The Paris Agreement commits the global community to take action to 'hold the increase in global average temperature to well below 2°C above pre industrial levels and pursue efforts to limit the temperature increase to 1.5°C'.

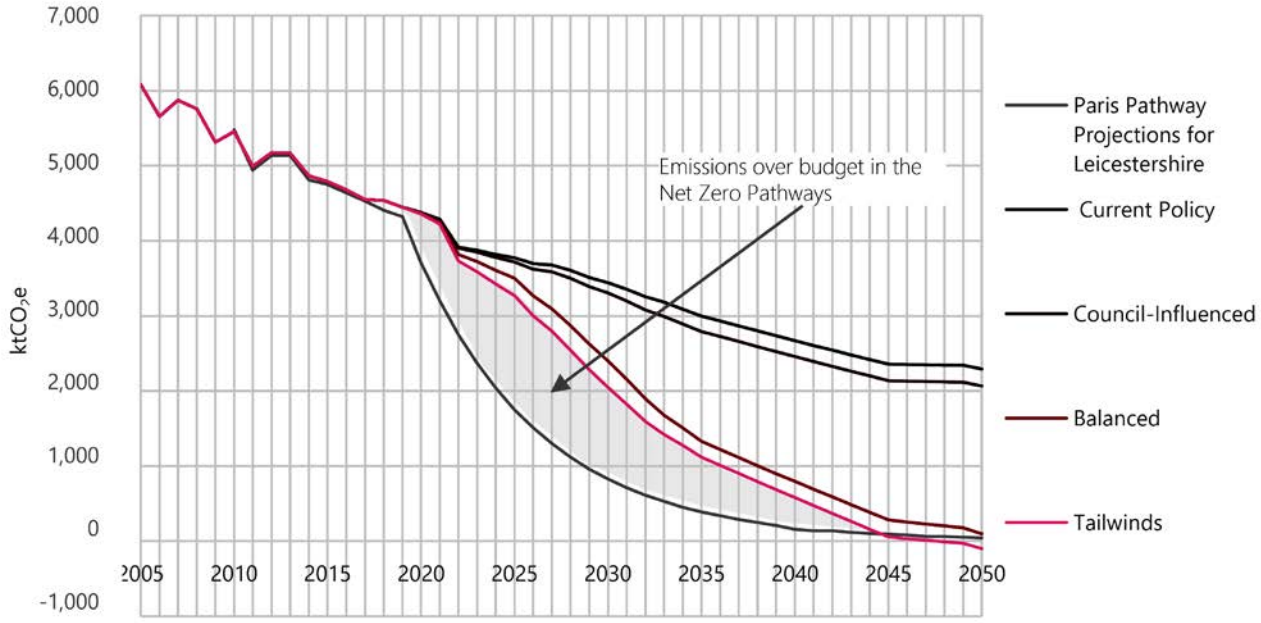
The Tyndall Centre, has undertaken modelling for all UK local authorities based on the Paris Agreement global budget.

This looks at a reduced set of territorial emissions categories, compared to the County's 2019 baseline, meaning it does not include the full scope of emissions considered in the Leicestershire Net Zero Pathways, but is a useful comparison for assessing ambition.

For Leicestershire to make its 'fair' contribution towards the Paris Agreement, the Tyndall Centre recommends:

- A maximum cumulative carbon dioxide emissions budget of 26.7 $MtCO_2$ for the period of 2020 to 2100. At 2017 CO_2 emission levels, Leicestershire would use this entire budget within 6 years from 2020.
- An immediate programme of CO_2 mitigation to deliver cuts in emissions averaging a minimum of -13.9% per year (630 $ktCO_2$) to deliver a Paris aligned carbon budget. This scale of emissions is approximately equivalent to all the food and drink emissions in Leicestershire in 2019 (718 $ktCO_2$). These annual reductions in emissions require national and local action.
- Very low levels of residual CO_2 emissions by mid-century, with just 5% of the budget remaining in 2040 according to Tyndall Centre modelling.

Paris Agreement Complaint Territorial Pathway



	% emissions reduction 2020 - 2045	Total carbon emitted $MtCO_2$ 2020-2045
Paris-aligned	98%	22.4
Current Policy	**36%**	**79.9**
Council-Influenced	**42%**	**76.2**
Balanced	**92%**	**49.2**
Tailwinds	**99%**	**43.4**

The 2045 Roadmap indicates that both the balanced and Tailwinds Pathways approach the Paris Agreement target reduction by 2045, achieving 92% and 99% reductions in territorial emissions respectively. However, it is important to consider the carbon emitted before that date, between 2020-2045.

The modelling for Leicestershire indicates that all of the pathways emit substantially more territorial CO_2 than the Tyndall Centre Paris Agreement compliant budget allows. The Current Policy and Council Influenced Pathways emit 357% and 341% more carbon than the budget; and the Balanced and Tailwinds Pathways 220% and 194% respectively.

Appendix 3 Related County Council strategies and plans

Related County Council strategies and plans

1. Local Transport Plan
2. Tree Strategy and Charter
3. Sustainable Food Plan
4. Action for Nature Plan
5. Biodiversity Net Gain policy
6. Corporate Asset Investment Fund Strategy
7. Council Carbon Reduction Plan
8. Property Energy Strategy

Partnership Strategies

9. Strategic Growth Plan
10. Air Quality Partnership Plan
11. Leicestershire Resources and Waste Strategy
12. Flood Risk Management Plan

Leicestershire County Council

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