YORKSHIRE & HUMBER CLIMATE COMMISSION

YORKSHIRE AND HUMBER

CLIMATE ACTION PLAN

UPDATE 2024

About this report

This Climate Action Plan is published by the Yorkshire & Humber Climate Commission.

The Commission is an independent advisory group that was set up to support ambitious climate action across Yorkshire and the Humber, made up of climate leaders from across the public, private and third sectors in the region.

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With thanks to contributors:
Thank you to all of our Commissioners and all of the individuals and organisations we've worked with since 2021. Your insight and support has been invaluable in developing this action plan.

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Statement of support from the Yorkshire Leaders Board

The impacts of climate change are already being felt here and now in Yorkshire and the Humber and across the globe. We have experienced a number of extreme weather events in recent years, from extensive flooding during the winters of 2019/2020, 2021 and 2023, through to heatwaves, drought and wildfires in 2022 and 2023. Climate change is affecting our communities, our farmers and our natural world.

We know we need to go further and faster in responding to the challenges ahead. We also know that we will only achieve the change required at the pace and scale that is needed by working together across political, social and economic boundaries, involving organisations from different sectors and finding ways to effectively collaborate. Helping us to do exactly that is the aim of the Yorkshire & Humber Climate Commission – the largest commission of its type in the UK.

This updated Climate Action Plan, produced by the Commission, provides a strategic framework for action. It reminds us that in tackling climate change we need to focus our efforts on four key goals: rapidly reducing our emissions to hit the regional target of 2038; adapting our places to the climate impacts that are already affecting our region and will worsen in the years to come; protecting and restoring nature, building on our region's incredible natural assets; and doing all of this in a way that is fair and involves our communities.

There are huge opportunities for our region in this transition. We can address the climate crisis in ways that create new jobs and economic opportunities and improve the health and wellbeing of our communities. We can become climate ready and create places in which everyone can thrive across our great region.

Councillor Carl Les OBE
Leader, North Yorkshire Council

Councillor Susan Hinchcliffe
Leader, Bradford Council

Yorkshire Leaders Board

The Yorkshire Leaders Board is made up of the leaders of Yorkshire and the Humber local authorities and mayors of combined authorities.

Find out more at **www.yhcouncils.org.uk**

Foreword from the Chair

In November 2021, just nine months after forming, the Yorkshire & Humber Climate Commission published the first Climate Action Plan for the region.

Three years on and we have learnt a tremendous amount. We have heard from more than 90 speakers in our focussed panel sessions and Commission meetings, providing more than 1,000 hours of expert input. We have been as transparent as possible, sharing the recordings of these technical briefings online, and providing the opportunity for the public to contribute and shape debate via the Commonplace platform. At the time of publication, the sessions have been watched by 3,550 people and we've received more than 1,400 contributions.

Therefore, it is only right that we update the plan, and so provide the region with the best possible strategic framework for climate action.

There are some significant differences: the plan now sets out seven integrated whole place and whole society outcomes. These provide a clear sense of common direction and purpose for leaders and decision-makers at all levels and scales across the region.

Close to my heart, and to the Commission, is our role supporting a fair and just transition for all. For the first time, this critically important area of work is given equal footing to our other areas of work.

I would like to thank all members of the Commission for the work that they have done to date, and the experts who have helped inform our evidence base and so inform this plan. Most importantly, I would like to say a big thank you to everyone who is working to create a net zero future where we are ready for and so resilient to climate impacts, with fewer inequalities where nature and people thrive. There is nothing more important.

This is a living plan – all the actions are set out clearly on our website, with supporting information, case studies and any updates that we think will be helpful.

I am incredibly proud of this plan and the Commission's work. It has been an honour to see and hear about all the activity that is under way across the region. We know we need to do more, and quickly. This plan will help you to do just that.

Liz Barber
Chair, Yorkshire & Humber Climate Commission

INTRODUCTION

Climate change isn't some distant reality. Adverse impacts are now widespread, risks are escalating, and some future changes are now unavoidable and irreversible[1].

Here in Yorkshire and the Humber, climate change is impacting our homes and communities, our infrastructure, agriculture, water supplies and our natural environment, and it will continue to do so with increasing frequency and intensity in the years to come – with profound impacts for our society and economy.

We can't ignore it. We have to decide what we are going to do as a region to protect our future.

What are our options?

International cooperation is leading to more ambitious commitments, and while progress is not yet happening quickly enough, the vast majority of countries around the world have committed to accelerate climate action.

Within the UK, first and foremost we need action from national government. We need a policy framework and financing that enables places to address the challenge. Government must take action to reduce the huge subsidies and tax relief for fossil fuel production and consumption, and our political leaders must confront the vested interests that inhibit action.

We also need to recognise that a top-down, one-size-fits-all approach won't solve the challenges unique to different parts of the UK, particularly in such a large and varied region as Yorkshire and the Humber. It would be easy to presume that we're too small to make a difference, but with a population of 5.5 million people, our region has more inhabitants than countries like Ireland or Norway, and similar numbers to Scotland or Finland – we are internationally relevant, and we must act accordingly.

Our response to climate change needs to be something that's done for us and by us, rather than to us. We need a response that builds on our long and proud history of innovation, taking into account our strengths and vulnerabilities. Within the region the role of local government is hugely important, but councils and combined authorities have limited capacities and scarce resources. We all have a role to play and there is much to be gained from regional cooperation and pooling resources.

More than anything, we need leaders – in politics, business, civil society and beyond – to embrace change, to be open to new thinking, and to take the necessary actions."

How will climate action benefit us?

There's no escaping the fact that addressing climate change at the scale and pace needed is a massive challenge. It's a challenge we don't have the option of ignoring – the climate is changing and will impact all of us, particularly the young and yet to be born. But in responding to the climate emergency we also have the opportunity to tackle fuel poverty, improve public health, create and protect jobs, slash energy bills, and address many other issues. We can improve our houses and communities, businesses and economy, transport and infrastructure, and nurture our countryside and green spaces.

What do we need to do?

We need to accept that this is an emergency and act with pace, ambition and determination. The region's local authority leaders have agreed to set regional targets of reaching net zero emissions by 2038[4] and protecting 30% of land and sea for nature by 2030[5].

To have a chance of meeting the net zero target, we need to cut our emissions rapidly by moving away from fossil fuels. That involves continuing the rapid expansion of renewable energy, investing in smart energy grids, and upgrading our homes, buildings, businesses and transport systems to reduce their energy demand. We also need to switch to a resource efficient, circular economy and rethink consumption in key areas such as food, fashion and flying.

Crucially, we need to recognise that the climate crisis goes hand-in-hand with the nature crisis, and we can only address one by also addressing the other. We must put nature first in decision-making and promote climate actions that will aid nature's recovery. That means making more space for nature, as well as restoring peat bogs, planting trees where appropriate and enabling more people to realise the wellbeing benefits of using natural green spaces.

We also need to invest in our readiness and resilience in the face of growing climate impacts. These include extreme weather events such as floods and severe heatwaves, but also threats to our food supply from failed harvests or new diseases such as tick-borne illnesses. This will involve adapting our homes and communities, our water, energy, transport and communications infrastructure, and our farming and food systems, and restoring nature. All of these aspects of resilience are essential to our future health and wellbeing.

Finally, we need to recognise the links between climate change and inequality. We are not all equally responsible for climate change; the consequences of choices made by lower and higher income groups differ considerably. And we're not equally exposed to the impacts of climate change or the policies designed to address it – often it is those on the lowest incomes who are hit hardest or are least able to adapt. Rather than exacerbate or create inequalities, climate action should contribute to a just transition that actively involves people in decision-making, that provides new opportunities for marginalised communities, and that provides targeted support to make sure no one and nowhere is left behind. Businesses, workers and policy makers need to work together to achieve this in a meaningful way.

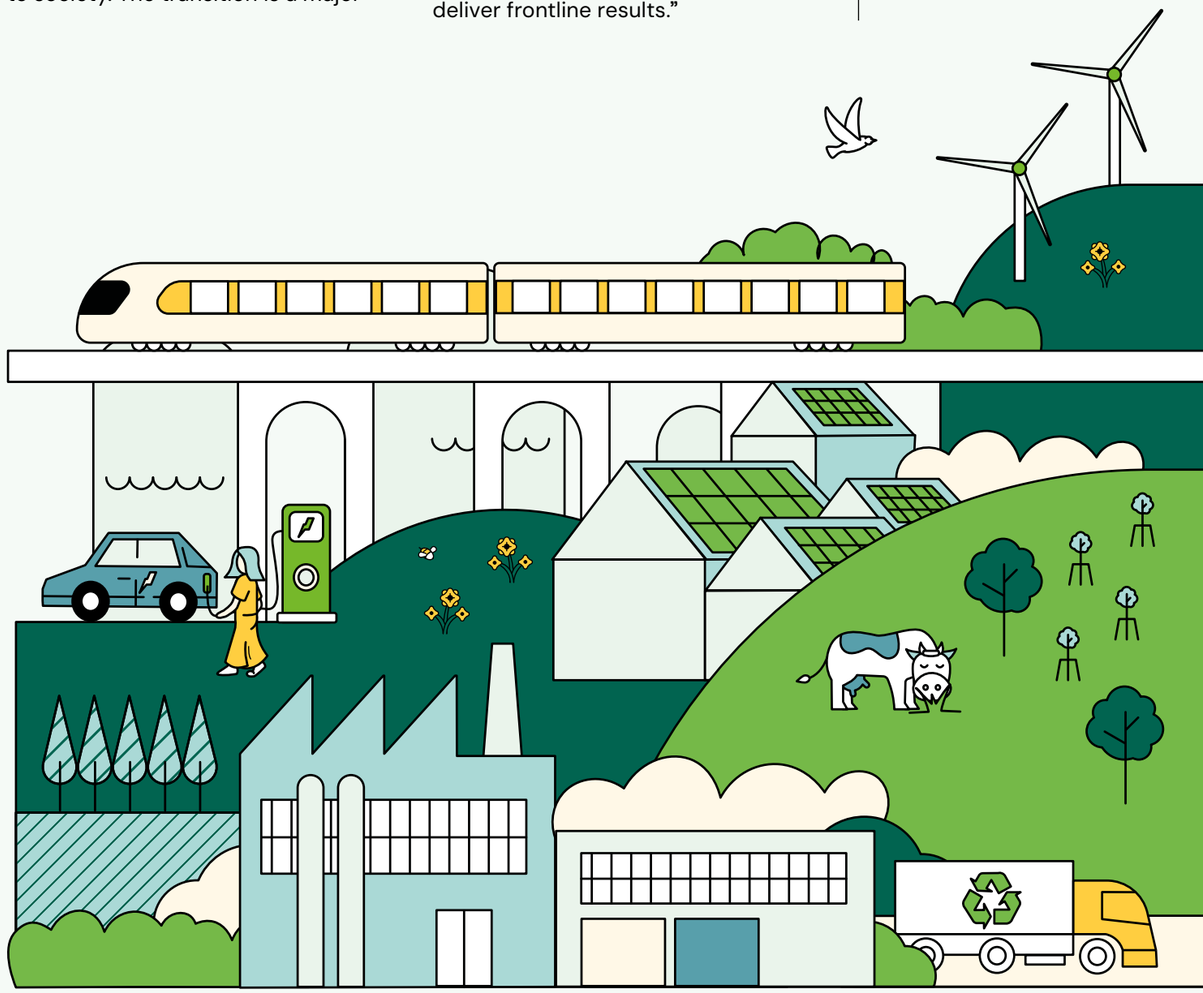
This is a huge agenda that spans decades. More than anything, we need leaders – in politics, business, civil society and beyond – to embrace change, to be open to new thinking, and to take the necessary actions.

Can we afford this?

Findings from our Carbon Reduction Assessment[6] for Yorkshire and the Humber suggest that we need to invest just under 3% of regional GDP every year to address this massive challenge. Without this level of investment, the impacts on our overall income incurred by the damage caused by climate change could be at least five times greater[7].

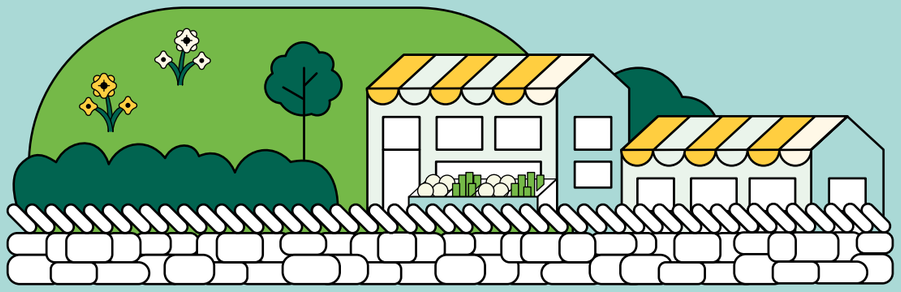
Plus the benefits of acting now are huge. Our analysis suggests that we could save £4.5 billion a year from our regional energy bill, while creating 242,000 years of new employment (12,000 jobs each lasting 20 years) – and each £1 of investment could generate £2.30 of wider benefits to society. The transition is a major economic opportunity for businesses, and the region needs to capitalise on our strengths and existing low-carbon business hotspots[8], to ensure we benefit from the £37-57 billion of annual UK GDP that could be generated according to the CBI[9].

These investments make sound economic sense, but providing the necessary finance remains the biggest obstacle. We will need to challenge those that hold the purse strings to change their systems and practices to reflect the new era we now live in. As UN Climate Change Executive Secretary Simon Stiell stated in 2023[10], "Let's be honest – good intentions won't halve emissions this decade or save lives right now. Only serious progress on finance can deliver frontline results."



Our region faces a unique set of climate-related challenges. We're particularly exposed to flooding, our heavy industry will be a major challenge to decarbonise, and our housing stock has the worst energy efficiency ratings in England and Wales[11]. We have enormous natural assets – such as our upland peat stores and lowland wetlands – that are threatened by climate change but have a huge potential to be part of the solution.

Those unique challenges can only be tackled through region-wide collaboration. This Climate Action Plan sets out key opportunities for working together across Yorkshire and the Humber to deliver real progress – to help us get ready for the now inevitable impacts of climate change, while rapidly cutting our emissions.



A PLAN FOR YORKSHIRE AND THE HUMBER

Who developed this plan?

This Climate Action Plan was developed by the Yorkshire & Humber Climate Commission – an independent advisory group that was set up to support ambitious climate action across Yorkshire and the Humber. The Commission is made up of climate leaders from across the public, private and third sectors in the region.

How was it created?

Our first Climate Action Plan, published in 2021, was developed by the Commission's working groups and refined following 11 sessions with stakeholders and members of the public – including two evening events, meetings with local authority officers and members, plus parliamentarians, and an online survey. In total, more than 500 people took part.

During 2022 and 2023, the Commission held a series of focused events examining key issues for the region in greater depth. Ninety-six experts presented evidence and good practice, and took part in deliberative discussions with Commissioners and Commission members. These events were written up into short reports that have been made available online for public comment, attracting more than 1,300 contributions at the time of publication.

Key findings from those reports, new carbon pathways modelling for our region, and other academic studies have been synthesised to create this updated Climate Action Plan for the region.

Who is the report for?

This action plan is for all of us in Yorkshire and the Humber, including:

- businesses of all shapes and sizes
- civil society organisations, including community groups, trade unions, campaign groups and faith organisations
- local authorities, from parish councils to our mayor-led combined authorities.

The plan is a framework for action at the regional level. We have prioritised actions that can help unlock progress by working together at a Yorkshire and Humber scale. The version of this plan on our website will be a living document, evolving to reflect new data, evidence and opportunities.

How is it set out?

This report sets out the Commission's goals for the region and the cross-cutting principles for good and impactful climate action. It presents and describes our four pillars of climate action: climate adaptation, rapid emissions reduction, nature restoration and a just transition.

Grouped under seven themes, our proposed actions relate to a set of outcomes that need to be achieved. We champion integrated actions that work across our four pillars, to avoid siloed thinking.

We close by setting out how the Commission intends to continue to support, enable and accelerate climate action across the region, and what you as individuals and communities can do to progress action on climate and nature, including how you can get involved in the Commission's work.

> **"We have prioritised actions that can help unlock progress by working together at a Yorkshire and Humber scale."**

How will we know we're succeeding?

Tracking and monitoring progress at a regional and whole-system level is critically important. Throughout 2023 the Commission facilitated a series of expert-informed discussions to develop a rigorous understanding of the key issues, barriers and opportunities across many aspects of climate action. Whilst this hasn't generated a defined set of indicators, it does give us a baseline level of understanding that we can refer to and use to qualitatively assess progress.

Other sources that we will draw upon include:

- a technical assessment of Yorkshire and the Humber's carbon reduction pathways[12], commissioned in mid-2023 by the Commission to identify how to achieve net zero by 2038
- Our Carbon Story[13], published in August 2024, which describes where we are and what needs to be done, drawing on both the carbon reduction pathways assessment and analysis of the region's consumption emissions
- the Association of Directors of Public Health Yorkshire and the Humber's climate and health narrative[14], published in October 2023, which clearly sets out the case for urgent action
- the UK Health Security Agency's third Health Effects of Climate Change in the UK report[15], published in December 2023
- the Yorkshire Wildlife Trust's first state of nature report for the region[16], published in June 2024.

Together with the clear outcomes, actions and measures of success in this Climate Action Plan, these documents provide a strong foundation we can all use to improve our understanding and identify key metrics to measure the region's progress on emissions reduction, adaptation, nature's recovery and a just transition.

Tracking emissions: Our Carbon Story

Our Carbon Story, produced by the Yorkshire & Humber Climate Commission, draws on evidence and analysis of emissions in Yorkshire and the Humber by leading academics in our region and is supported by sectoral briefings.

A Carbon Reduction Assessment for Yorkshire and the Humber is used to tell us how we are doing, sector by sector and where we stand the most to gain by aligning and focusing our efforts. The research models a suite of hundreds of potential interventions, both for their carbon effectiveness and their cost-effectiveness, and examines how combinations of these measures can contribute to meeting decarbonisation targets.

The report also considers the emissions that come from our consumption – and important but often overlooked aspect of the carbon reduction challenge. We are part of a global economy, with demand in the UK responsible for importing just under 50% of emissions.

Our Carbon Story can be downloaded from **www.yorksandhumberclimate.org.uk**

WHAT COULD THE FUTURE LOOK LIKE?

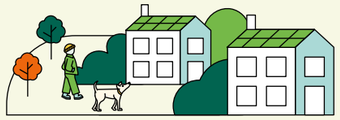
However we take climate action, our future will be one of profound change. We need to harness that change to create a region that is resilient and works for everyone. This is what we believe the region could become if we accelerate our action for climate and nature.

Commissioners from the Yorkshire & Humber Climate Commission – 40 individuals working on climate issues from across the private, public and third sectors – worked together to create this picture of the future to inspire positive climate action.

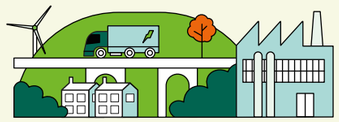
Yorkshire and the Humber has successfully tackled inequality through climate action, such that we no longer talk about 'left behind' communities. People are listened to and are integral to decisions about their homes and places, which has led to health equality, food security and financial stability for all, as well as climate readiness. Our economy and financial systems are focused on serving our collective wellbeing.

Nature is recovering and thriving across our region, in clean waterways, protected wild spaces, within and around farmland, and right on our doorsteps with trees and colourful plant life in our towns and cities. Wild areas are joined up through a green grid of habitat corridors that are also used for active travel and recreation. Our nature-first approach has brought us measurable economic and health benefits.

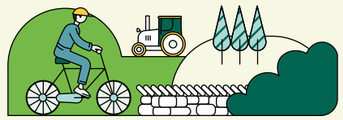
When extreme weather events and other climate impacts strike, we respond quickly and are resilient. Communities support the vulnerable, and everyone knows their local emergency hub, and how to give and receive support. Our region is well known for pioneering large-scale, nature-based solutions that help protect people and wildlife from floods, heatwaves and coastal erosion.



We live in comfortable, safe and affordable homes, that require minimal energy and minimise water waste. Our greener, more natural neighbourhoods are well planned, allowing easy access to the basics we need to live, work and have fun via walking, cycling and a reliable and affordable public transport network.

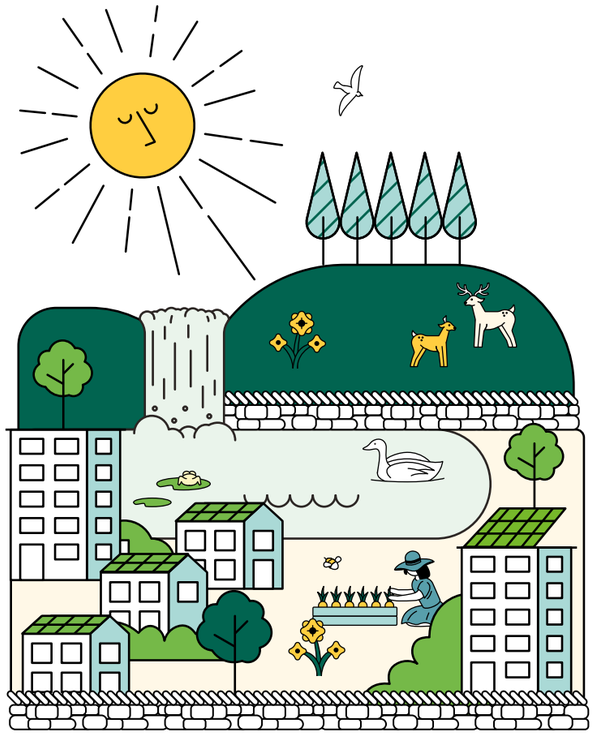


Our proud industrial heritage is powering our future. The Humber is leading the UK's economic transformation and is now the UK's main hub for secure and clean energy and sustainable industrial processes. In our coalfields, disused coal mines are increasingly heating homes again, utilising geothermal energy for district heating schemes.



Despite challenging times, we have high levels of wellbeing throughout our region. Better homes and more walking and cycling have had a measurable impact on our physical and mental health, and people are eating nutritious, affordable food, produced by our local farmers in ways that support nature and nurture our valuable soils.

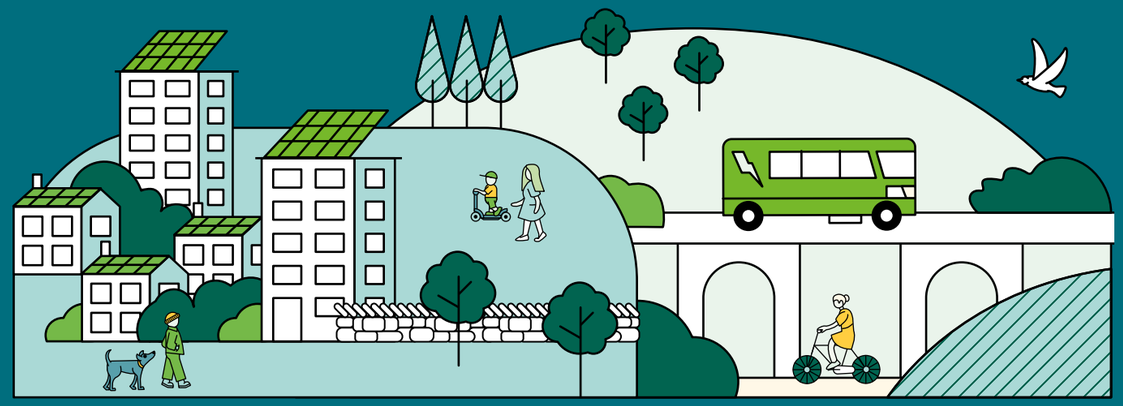
The region's businesses have transformed their operations, minimising resource use and waste production. Jobs have changed, and many of us have the skills to restore the natural environment, provide care and support wellbeing, and install and manage the low carbon technologies in our homes and workplaces. This is supported by our education system that cooperatively provides climate and ecological education to all ages to enable everyone to learn and contribute.



Our future is not yet written – we can co-design and create the future we want to see.

You can give your feedback on this picture of the future and other parts of our plan at:
www.yorksandhumberclimate.org.uk/plan

PRINCIPLES OF THE CLIMATE ACTION PLAN



Act like it's an emergency

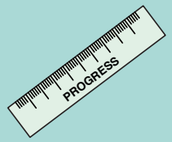
Climate change will impact on us all – and we're perilously close to the point at which we will trigger dangerous levels of warming. Action on climate and nature must be right at the heart of all decision-making. The population of Yorkshire and the Humber is larger than some countries, so what we do and don't do really matters.

Put nature first

We are part of, and depend upon the natural world, so restoring nature must be a top priority. Doing that will enable us to thrive and be more resilient to future climate impacts.

Care for future generations

Our decisions now will profoundly affect the quality of life of those yet to be born. We must include their voices when we make decisions.



Be guided by evidence

In our region we have world-class universities and a strong track record in innovation across sectors. We must draw on that research and evidence from our region and the wider world in developing climate action.

Make it fair

Fairness and justice must be at the heart of climate action. The transition needed to cut emissions and the effects of climate change will impact some communities more than others – especially when it comes to jobs and health. Actions must unlock new opportunities and help all of our neighbourhoods thrive.

Think differently

We must positively challenge 'business as usual' models, siloed thinking and entrenched values and norms, to understand the bigger picture and develop the actions that will unlock progress.

Work together

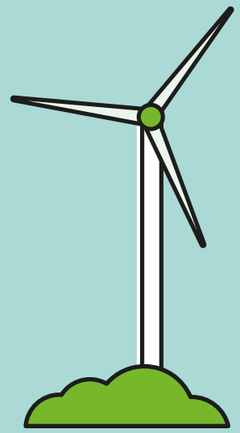
Individuals, communities and organisations listening to each other and collaborating on climate actions across sectors, within networks and at different scales is essential to change.

Be brave

Our response to the crisis will involve difficult choices that may often challenge the status quo and make people uncomfortable. We must be brave enough to have these debates, co-create sustainable solutions and enable leaders to have the confidence to act.

Do our bit

We all have a role to play, and actions by every individual, household, community group, organisation and business really do matter. When we work together, our impact increases.



Cutting emissions is essential but it's not the whole story. To tackle the climate and nature emergencies, we must develop actions that help us deliver on four strategic aims:

FOUR PILLARS OF CLIMATE ACTION

Rapid emissions reduction

We must cut our greenhouse gas emissions rapidly, through expansion of renewable energy, investing in smart energy grids, upgrading our homes and businesses to reduce their energy demand, changing the way we travel and restoring our peat bogs so they act as a carbon sponge rather than a carbon source.

Climate adaptation and resilience

We must adapt our homes and communities, our water, energy, transport and communications infrastructure, our farming and food systems, and our nature and biodiversity, to increase our resilience to present and future climate impacts.

Nature restoration

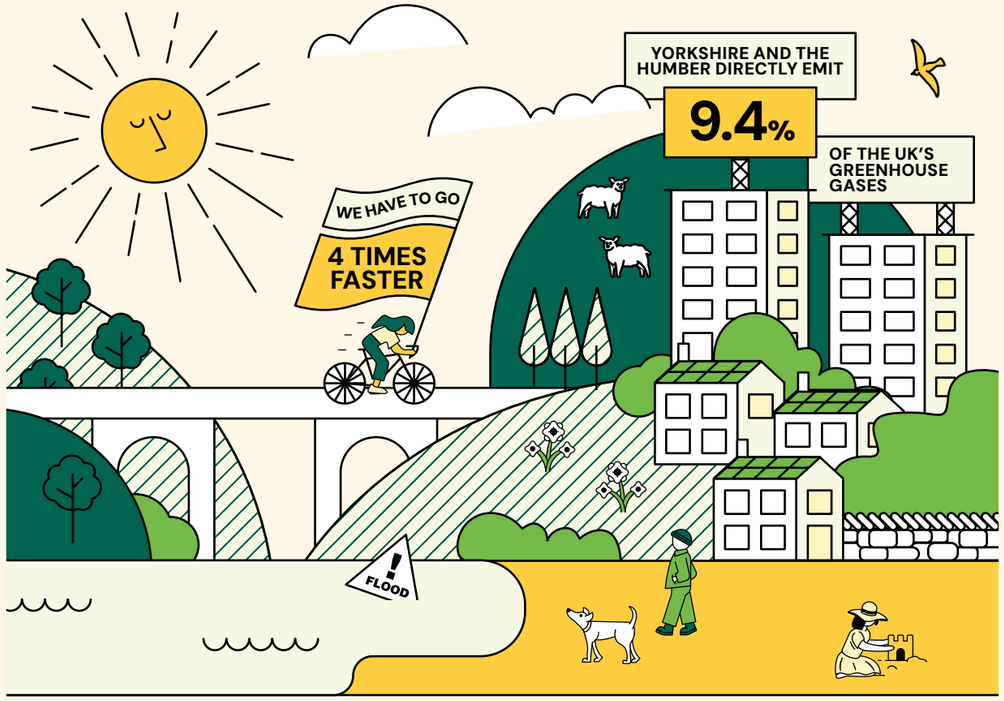
We must restore nature, by expanding protected areas and creating habitat corridors that enable species to thrive in rural and urban areas, and we must promote nature-based solutions that help tackle the climate crisis while also giving nature a boost.

A just transition

We must ensure that all actions we take to become climate ready and cut emissions are fair and just. Those with greater wealth and larger environmental impacts must shoulder more of the burden of change than those already struggling to get by. We need to design a transition that creates good jobs, improves health and wellbeing, and provides opportunities for all of our communities – without leaving people behind.

It's essential that we focus on rapidly reducing greenhouse gas emissions across our region. We already know the actions that will make the biggest difference – and that they will benefit our communities, health and economy. The challenge is how we make those actions happen at the pace and scale that's needed.

RAPID EMISSIONS REDUCTION



The challenge

In Yorkshire and the Humber, we directly emit 9.4% of the UK's greenhouse gases[17], which means our region produces more emissions than countries like Croatia, Slovenia, or Cyprus. We've set an ambitious target to reach net zero by 2038, and we know that we can get there – but only if we seriously pick up the pace.

To hit this target, we'll need to invest £7.3 billion each year for the next 15 years. Even conservative estimates clearly show that this investment could save our regional economy £250 billion by 2050[18].

As a region of 5.5 million people, with a strong financial sector, world-leading universities, key anchor institutions and a thriving arts and culture sector, Yorkshire and the Humber has a strong foundation to make these crucial changes happen quickly and effectively.

Why do we need to reduce our emissions?

Gases that trap heat in the atmosphere are collectively known as greenhouse gases. The main greenhouse gas[19] is carbon dioxide (CO^2), which is emitted when we burn fossil fuels such as oil, coal or natural gas, or materials such as wood or waste.

The science is clear – if we emit more greenhouse gases (eg through burning fossil fuels) than we absorb (eg through forest growth) then our atmosphere will trap more heat. This warming will then lead to changes in our weather and seasonal patterns, more frequent and intense extreme weather events, sea level rise and loss of low-lying areas, and disruptions to our ecosystems and our food and water systems. The knock-on impacts to society and the economy are profound – to the extent that climate change has been described as the biggest threat modern humans have ever faced[20].

We measure global warming by looking at average global surface level temperatures across a decade. Right now, the world is at least 1.1oC warmer than pre-industrial levels[21]. The year 2023 was the warmest on record by a large margin, at between 1.34°C and 1.54°C above pre-industrial levels[22].

There is still time to solve this. If we drastically reduce our greenhouse gas emissions, we can keep warming at levels where society can thrive. By doing so, we can also create a healthier and more vibrant region.

What needs to happen?

Put simply, we can reduce our emissions by burning less fossil fuel. Since fossil fuels are deeply ingrained in our society, living without them means transformation across a range of sectors. Currently, 33% of all emissions from our region come from industry, with transport accounting for 29%, homes 19%, land use 9%, public and commercial buildings 6%, and the waste sector 4%.

In many cases, the changes we need to make will improve our lives for the better. For example, transport emissions come mainly from petrol and diesel cars. Over the years, our transport and economic planning have prioritised private car use, making them the most reliable way to get around. To reduce emissions quickly, we can't simply switch to electric cars; we need to make big improvements to our public transport, build more cycle lanes, and redesign our neighbourhoods so that walking, cycling and public transport become the easiest and preferred choice. The health, wellbeing and productivity benefits resulting from such a shift will be transformative for the region.

Industry in Yorkshire and the Humber will also need to transform. The Humber Industrial Cluster, responsible for 33% of regional emissions, produces materials that are exported globally. The cluster has an ambitious plan to become 'carbon negative' by 2040, ie absorbing more carbon than it emits, which is key to the region's net zero goals. However, there are concerns about the harmful impacts and effectiveness of the carbon capture and storage (CCS) technology this plan relies on. Decision-makers across the region need to better understand these impacts and how to mitigate them.

Arguably the most important investment for the region is retrofitting our buildings with low-carbon measures, offering huge benefits to health and wellbeing. Insulating and decarbonising our homes hasn't been a priority, in part because of the reliance on cheap North Sea gas. But with rising respiratory issues from damp homes, high levels of fuel poverty, and ambitious climate targets, the region needs to take on this momentous task – which will bring with it good jobs in the construction sector.

Alongside the benefits to human health, our efforts to achieve net zero by 2038 can also provide a significant boost to nature's recovery – by improving farming practices, changing some land use away from animal agriculture to broadleaf woodlands, and protecting and restoring our region's wetlands and peatlands. We recognise that this is a complex area, and that the trade-offs and actions required need to be better understood.

As a region, tackling the decarbonisation challenge head on will generate large financial savings and wider social, environmental and economic benefits. We need to utilise public and private finance to make sensible, cost-effective investments that would cut our collective energy bill and our dependence on volatile energy markets whilst reducing our emissions[23]. In so doing, we can also put ourselves at the forefront of the new industrial revolution that has been triggered by the race to net zero.

> **"In many cases, the changes we need to make will improve our lives for the better."**

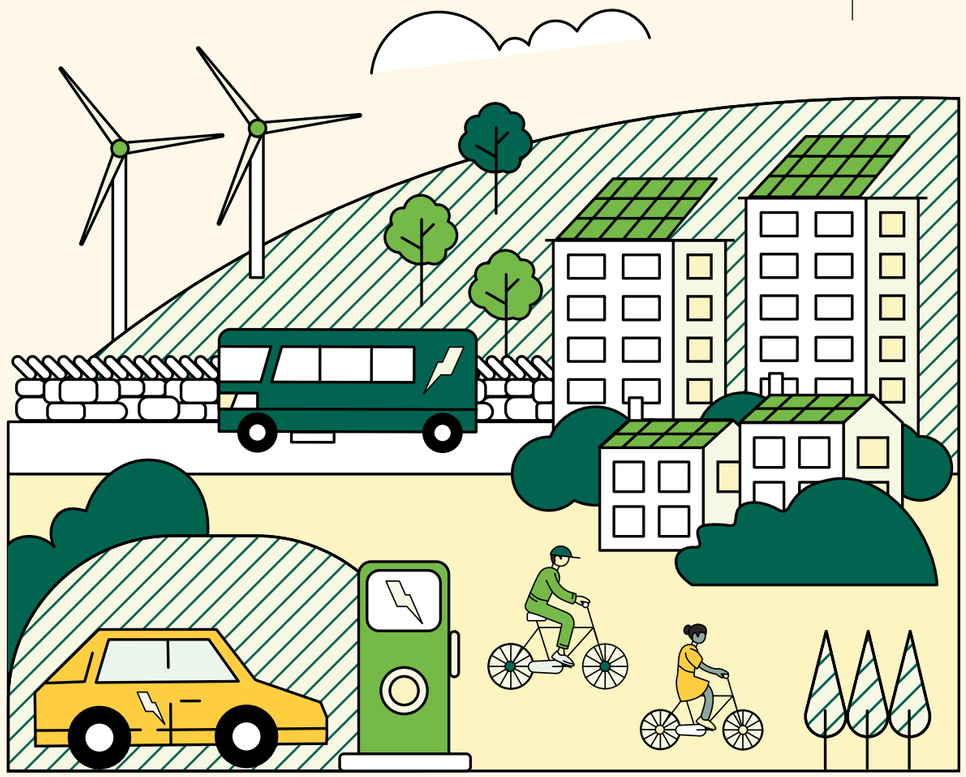
Progress in the region

Our direct emissions have already fallen by 44% since the year 2000[24], primarily due to the rapid decarbonisation of electricity. There are now many good examples of decarbonisation happening around the region.

Yorkshire and the Humber is diverse. We have market towns, urban centres, rural communities, and coastal towns and industries – so solutions need to be sensitive to the needs of different places. For example, a mass transit system might work best for the dense populations of West Yorkshire, whereas on-demand buses bookable online might work best for more rural East Yorkshire. The region also has a high proportion of harder-to-treat housing stock, such as pre-1919 terraced housing that need additional focus.

Rapid emissions reduction and net zero has already gathered momentum, with local authorities and partnerships across the region developing plans and engaging their communities. Many local authorities are developing local area energy plans, which develop an evidence base to identify the projects that will make the most difference, such as whole street retrofit or grid upgrades. Transformation is afoot, as key organisations come to understand their role in net zero – for example, Leeds City Council's Local Plan Update25 clearly demonstrates the contribution that planning can make.

By working together across the region, we can share successful examples, spreading them further and faster. And by also integrating nature, climate adaptation and fairness in our plans and projects, we can make sure everyone benefits from the momentum towards net zero – for a fairer and more resilient region.



We are already experiencing the impacts of climate change – to our health, to property, to infrastructure, to agriculture and to nature. We need to do all we can to become adaptive so we are ready and resilient as our weather becomes less predictable and extreme events become more frequent and severe in our changing climate.

CLIMATE ADAPTATION & RESILIENCE

The challenge

Yorkshire and the Humber's weather and climate is changing. The year 2022 was the warmest on record in the UK, with temperatures topping 40°C in the July heatwave, bringing unprecedented heat-related deaths, infrastructure disruption and wildfire incidents to our region. The year 2023 was the second warmest on record[25] and globally, 2014-2023 was the warmest ten-year period on record[26]. In 2015 world leaders agreed that to limit the most dangerous impacts of climate change, actions must prevent global warming beyond 1.5 degrees above pre-industrial levels. But in January 2024, the average global temperature for the preceding 12 months breached the 1.5 degree threshold[27] and global carbon emissions continue to rise – therefore it is essential we rapidly adapt to a two-degree level of change, and start planning and preparing for what four degrees could mean.

As a result of these changes to our climate, we are already experiencing wetter, hotter and stormier weather than the 20th century. It is predicted that as the weather and climate continue to change the UK will experience:

- more frequent and intense storms and other extreme weather events throughout the year
- longer, hotter, drier summers with more frequent heatwaves and droughts
- milder, wetter winters with less snow and ice but more intense rainfall and flooding
- rising sea levels and increased coastal erosion[28].

Climate change impacts, risks and opportunities

The impacts from changing weather and climate patterns in Yorkshire and the Humber are wide ranging. As well as risks, where the occurrence of the impact is likely to cause negative or harmful outcomes, there are opportunities, such as potentially longer growing seasons due to warmer and drier weather. On balance there are far more risks than opportunities – and even the opportunities will require us to adapt.

Every five years, the UK's Climate Change Committee publishes an updated summary of the climate change risks and opportunities facing the UK. In 2021[29], of the 61 risks and opportunities identified, the eight most urgent were threats to:

- the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards
- soil health from increased flooding and drought
- natural carbon stores and sequestration from multiple hazards leading to increased emissions
- crops, livestock and commercial trees from multiple hazards
- supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks
- people and the economy from climate-related failure of the power system
- human health, wellbeing and productivity from increased exposure to heat in homes and other buildings
- the UK from climate change impacts overseas.

We know that climate change will cause our weather to change, to be become more severe and more unpredictable. In response, we must become more adaptive, with a range of developed options in place to respond and be resilient to what comes. This is a big societal shift and fundamentally challenges how we view our lifestyles and livelihoods. It requires everyone to become comfortable with and plan for uncertainty. Becoming 'climate ready' is achievable – it is critical that we all understand this. Many of the solutions are known and proven, whether physical infrastructure, or management and organisational approaches.

What needs to happen?

We all need to understand the risks that we face and work together to reduce the likelihood and severity of harm caused by climate change. We need to invest time considering what the future might hold for where we live, where and how we work, and what we do. Then, at an individual, household, community, business and organisational level, we can constructively develop approaches that help us become more resilient.

We need to ensure that all physical infrastructure investments 30 plan for and can accommodate increasingly extreme weather events, so that we increase resilience whilst reducing our retrofit burden. We need to expand and improve our collective adaptive capacities to become more resilient, so that we, and our communities and businesses, can survive long-term challenges and extreme weather events.

There are two approaches to adaptation planning that each have merit and need to be used appropriately [31]. The first is a 'predict and plan' approach, where people work to understand what the future will look like and develop appropriate adaptation strategies to implement in both the short and medium term. There is also the more flexible 'adaptation pathways' approach, that is useful when considering how to adapt across sectors and systems with complex interdependencies. This method enables people to develop plans that allow decision-makers to build adaptation capacity, prioritise, plan investment and maintain flexibility, while responding to change.

Adaptation measures aim to reduce both the likelihood and severity of harm caused by climate change. Examples of physical adaptation actions include flood risk reduction schemes; softening the urban landscape by creating green sustainable urban drainage systems; planting trees and vegetation in our cities to help keep them cooler when it's hot; adapting our buildings, both residential and commercial; reducing water usage; and working with nature to reduce flood risk and improve biodiversity and soil health. Examples of organisational adaptation actions include incorporating climate impacts into the strategic risk management processes; embedding risk mitigation actions across supply chains, services, and functions; and building capacity through training programmes.

Are we making progress with adaptation?

In 2008 the UK government adopted the Climate Change Act 32. The act requires the government to produce five-yearly climate change risk assessments, which feed into national adaptation programmes (NAPs) for each part of the UK. In England, the latest NAP (NAP3) was published in 2023 33.

The Climate Change Committee has assessed that NAP3 falls far short of what is needed, lacking the pace and ambition to address growing climate risks and failing to set out a compelling vision for a 'well adapted UK' [34]. The committee concluded that the UK is not adequately prepared for climate change [35], with limited evidence of action at the scale required to fully prepare for climate risks facing cities, communities, infrastructure, economy and ecosystems. It calls for a new vision, greater ambition and a clear focus on delivery across government and the public sector, establishing the enabling conditions needed for others to deliver adaptation.

This includes UK residents, who have a crucial role to play in protecting themselves and their homes from extreme weather. The need to become adaptive must become a priority for the whole of society, and working together we need to ensure this becomes a top priority for government and key institutions.

Progress in Yorkshire and the Humber

The Yorkshire & Humber Climate Commission has brought together all 15 local authorities within the region to accelerate adaptive action. This collaboration and opportunity to share learning has enabled local authorities to start to embed climate adaptation in their decision-making and develop and monitor their local adaptation plans and strategies.

The region has also made great progress in preparing for and managing flood risk through partnership working. The Leeds Flood Alleviation Scheme, Hull's Living with Water partnership, South Yorkshire's Connected by Water alliance and the Calderdale Flood Partnership are all excellent examples of adaptive action being implemented in our region to cope with increasing and varied flood risks. When three named storms hit the region in February 2022, whilst unfortunately 500 homes were flooded, a further 50,000 were spared as a result of the ongoing work by the Environment Agency and local authorities to manage flood risk collaboratively. Adaptation works.

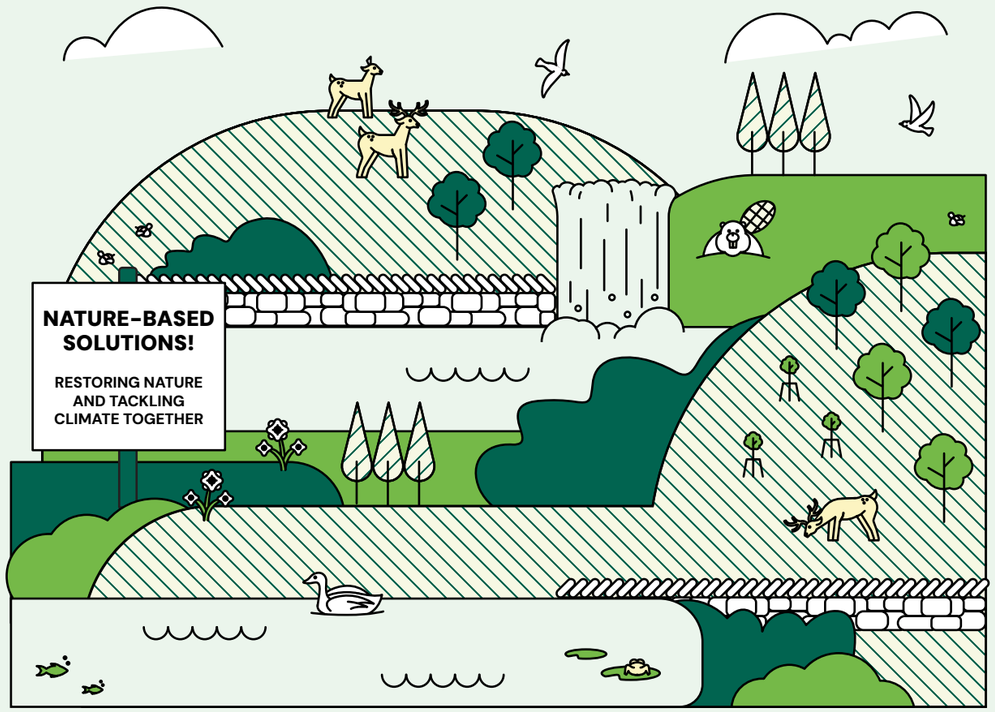
The region now needs to urgently build on these successes and to do more to be ready for repeated periods of intense hot weather, as experienced in 2022, and increases in infectious diseases for both people [36] and livestock [37].

As stressed by the most recent climate change risk assessment [38], we already know a huge amount of what we need to do and how. Adapting now will be much more cost effective than delaying and will limit the harm caused.

"Adapting now will be much more cost effective than delaying and will limit the harm caused."

The climate crisis is one result of the impact of human activity on the natural world. Nature is in decline – and restoring it is an essential part of climate action. We need a radical change of approach that recognises the true value of our natural world, acknowledges our dependence on the ecosystems around us and puts nature first in our decision making.

NATURE RESTORATION



The challenge

Our natural world is at a crisis point. Biodiversity – a term used to describe the variety of different species on Earth – is declining. On average we have witnessed a 69% decrease in monitored wildlife populations across the globe between 1970 and 2018[39]. One million plants and animals are currently threatened with extinction, and it is now widely understood that our actions as humans are causing this catastrophic damage to our natural world. The five key drivers for the decline in biodiversity are:

- how we use our land and sea
- the exploitation of natural resources
- climate change
- pollution
- invasive species.

This decline is not only devastating for wildlife, it's also a big problem for humanity. We rely on a thriving natural world for food, building materials, fuel, water, and even the air we breathe. The World Economic Forum estimates that over half of global GDP ($44 trillion) is under threat from loss of nature[40] – making it a very real business, political and human issue.

Our national picture

The UK is in the bottom 10% globally for biodiversity[41], making us one of the most nature-depleted countries in the world. The stark findings of the 2023 State of Nature report[42] reveal that in Great Britain, 16% of species are threatened with extinction. In Yorkshire and the Humber, nearly one in five species have declined by more than 25% in the last 20-30 years[43], and we are seeing an increase in invasive, non-native species in terrestrial, freshwater and marine environments.

A regional opportunity

Yorkshire and the Humber's natural habitats are varied and often rare. Our region is home to over half of the country's limestone pavements and upland calcareous grassland, the most northerly chalk streams in the world and the largest breeding seabird colony on the British mainland[44]. We have an incredible diversity of plants and animals, some of which are unique to the region and of international importance. The region contains three national parks, two national landscapes, more than 360 Sites of Special Scientific Interest and more than 160 miles of coastline. Many of these are major tourist attractions, contributing to the economy and providing opportunities for people to connect with nature. The region is home to over a quarter of England's blanket bog, which is a wet habitat type that forms peat – healthy peat is an essential carbon store and a major asset in our progress towards net zero. And our green urban spaces also play a huge role in improving physical and mental wellbeing.

What needs to happen

Despite decades of statutory protections for habitats, species, air and water quality, our natural environment has continued to suffer from our methods of development, food and resource production and leisure activities. Nature must be regarded not as a constraint or obstacle to human activity but as the fundamental foundation for everything we do. By putting nature first, and recognising the interconnectivity between climate change and biodiversity, we can make powerful changes in our systems that address both whilst improving our own wellbeing.

Our seabeds, soils, grasslands, moorlands and woodlands, and especially our peat bogs, contain vast amounts of carbon. But just 20% of Yorkshire's peatlands are undamaged[45]. By restoring them to a healthy state and protecting them from degradation or destruction, these natural assets can absorb excess carbon dioxide from our atmosphere, helping to slow climate change and rebalance our natural planetary systems. Nature-based solutions can also protect us from the impacts of climate change we are already experiencing, for example by slowing the flow of water to reduce the risk of surface flooding, and providing shade and cooler areas during heatwaves.

30 by 30

The UK government has made a commitment to protect 30% of land and sea for wildlife by the year 2030 ('30 by 30'). This is an interim target adopted from the UN's global ambition to protect 50% by 2050. Reported figures show that only 3% of land and 8% of seas are currently protected in designated and properly managed reserves in the UK[46]. The extent of natural assets in Yorkshire and the Humber means there is ample opportunity for our region to contribute to the recovery of nature, by improving the condition and quality of habitat in and around these spaces.

To do that we must follow the four principles from the Making Space for Nature report: more, bigger, better, and joined up[47]. While increasing the size and quality of protected natural areas is important, connecting these spaces through nature corridors and habitat 'stepping stones' is equally crucial. This allows species to move and migrate, helping them find shelter, food and water, and seek out parts of the region and country where they can survive despite our changing climate. Accounting for just 15% of the county, Yorkshire's terrestrial wildlife sites and protected areas are currently too few, too small and too scattered to form a healthy and resilient ecological network[48].

Farming and nature

Over 70% of our region's land is agricultural, used mainly for grazing livestock and cereal crops[49], and so is therefore a key asset in the opportunity to support nature's recovery. We must support our farmers to create a sustainable, climate-resilient and nature-friendly agricultural industry. By moving away from intensive techniques that often rely on chemicals, towards self-sustaining, nature-positive approaches that support farmers and communities, we can balance our own food security with high quality habitats that can sustain a wide variety of other species. Many of our region's farmers are experts in working with the land's natural processes, and many are exploring new methods that generate a sustainable income, grow nutritious food and benefit nature. These leaders can show the way for transformation in how we grow and distribute our food, to create a more natural, balanced and secure food system for the long term.

Planning

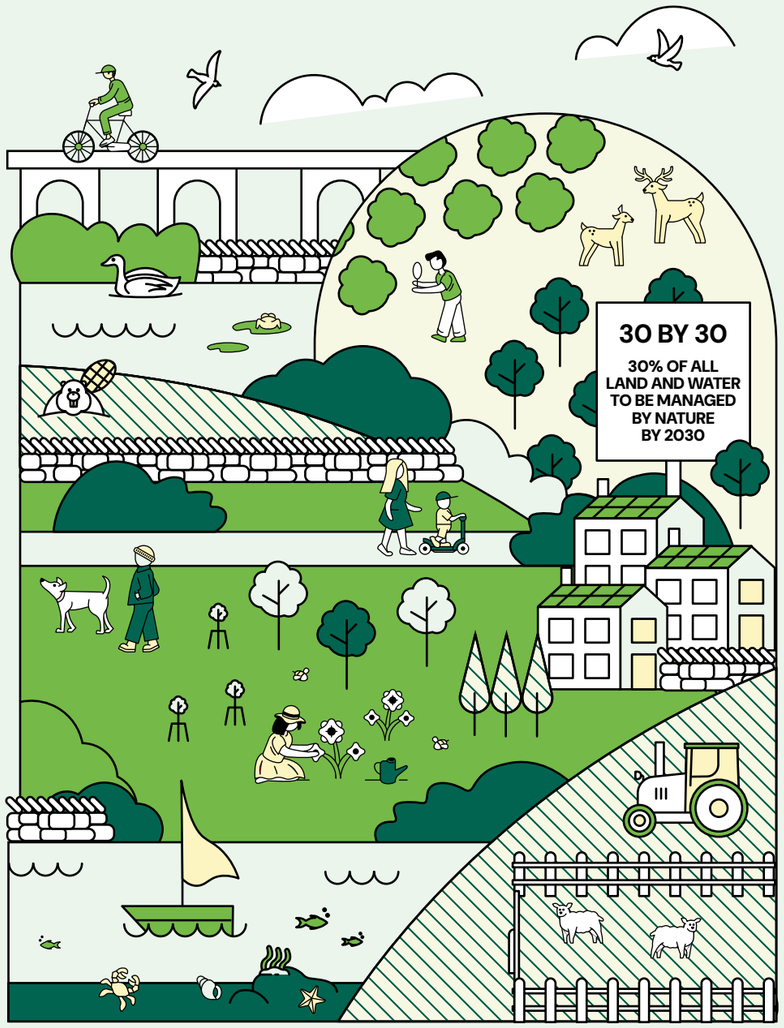
A further 8% of our land is developed for housing, industry and transport infrastructure[50]. Traditionally, land-use planning has focused on human needs, disregarding the health of natural ecosystems. The recently introduced biodiversity net gain (BNG) approach[51] is starting to address this by creating a statutory requirement for planners to increase biodiversity as part of their developments. We need many more initiatives like this that ensure we design for nature alongside human needs.

We often overlook our urban environments when talking about nature's recovery, but they are a crucial part of the picture. Biodiverse urban spaces provide huge benefits to human health, wellbeing and resilience against climate extremes. By prioritising nature-first design through frameworks like Building with Nature[52] and BREEAM[53], we can integrate habitats into urban development and infrastructure.

Progress in Yorkshire and the Humber

The Yorkshire Peat Partnership (YPP)[54] is a good example of positive human action strategically restoring nature at scale in our region. Yorkshire contains roughly 90,000 hectares of blanket bog which, when healthy, supports unique biodiversity, reduces wildfire risk, improves water quality and is perhaps most well known for being an important carbon store. Much of this land was degraded, but over the past 14 years the YPP has been working to systematically restore these lands by nurturing a collaborative approach amongst decision-makers, funders and landowners.

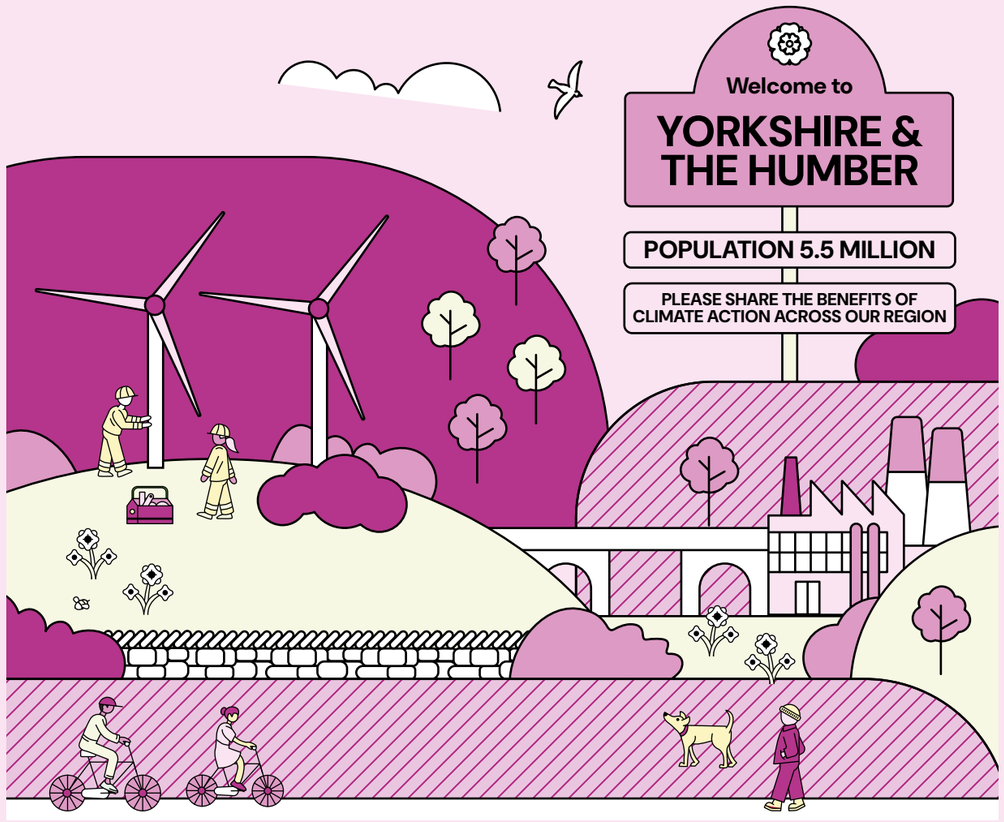
More than 47,343 hectares already have restoration work completed or under way, and more capabilities are being unlocked through an improved understanding of the importance of our peatlands and increased funding. With more investment and support for initiatives like this, there is yet hope that our unique natural habitats and ecosystems can once again thrive.



"With more investment and support for initiatives like this, there is yet hope that our unique natural habitats and ecosystems can once again thrive."

Climate action will only be successful and acceptable if it helps to tackle the inequalities already experienced by communities in our region. We must prepare for a future where people can be healthy and thriving despite a hotter, less stable climate, and can fully participate in the decisions that affect them.

A JUST TRANSITION



The challenge

We face three big challenges: rapidly reducing our emissions, adapting our communities to the impacts of climate change, and restoring and protecting nature. Each will bring fundamental change to how we live, travel, work, eat and have fun – and present new opportunities.

How that change happens is important. If done badly, there is a risk that existing inequalities in society will be worsened, and new ones created. If done well, there are opportunities to meet the needs of people who have been underserved in the past and create a region where everyone can thrive.

Cuts to carbon-intensive industries without a plan to support workers will lead to job losses and damaged communities. Programmes to upgrade buildings may not be accessible by those on low incomes, or in rented accommodation. And more dramatic changes to our landscapes – for nature recovery, shifts in agriculture, renewable energy and water management – could all cause tensions in communities if it is felt that they are happening without consent.

In our region, we know what happens when transitions are poorly managed. Most of the decarbonisation achieved to date has happened by removing coal from our energy supply. In the UK this took place, for different reasons, without sufficient support for affected communities, leaving long-lasting economic and social scars on many places. A just transition seeks to ensure that the benefits of climate and nature action are shared widely and that those who stand to lose out are supported through the changes.

Inequality in our region

Yorkshire and the Humber is a large and diverse region of 5.5 million people, including urban, rural and coastal communities each with their own challenges. Inequality, both within the region and with other parts of the UK, continues to cause harm.

Yorkshire and the Humber's life expectancy, which is the third lowest in England, falls below the England average and this disparity continues to widen[55]. Within our region the gap in life expectancy at birth between the most affluent and most deprived areas is 10 years in males and eight years in females[56]. In 2021, 16.5% of people in Yorkshire and the Humber were living in fuel poverty[57] (note that this data predates the recent cost of living crisis) and research demonstrates that low income and more ethnically diverse places are disproportionately affected by air pollution[58].

Therefore not everyone will be able to participate equally in the climate transition – anyone struggling to put food on the table will lack capacity to improve their homes, let alone purchase an electric vehicle.

What needs to happen

In tackling climate change, our actions must help to build a better, healthier, more equitable society. We must demonstrate that climate action is fair and not a burden for those already struggling. We need to realise the co-benefits of certain initiatives, such as:

- insulation and other improvements to houses, which cut emissions, make homes warmer and less damp, and reduce running costs
- well-designed walkable neighbourhoods that improve access to services, air quality and health
- industrial and skills strategies that help people access the new jobs created by the transition, and benefit from better working conditions.

Participation and engagement

To build trust and ensure fair outcomes, we should be enabling people to participate fully in the decisions that affect them. Our local authorities, combined authorities, public bodies and large institutions must engage with unions and wider civil society organisations, and directly with employees, service users and citizens, seeking to reach a wide and representative audience. This is particularly important for groups that are often overlooked or those most impacted by change.

Fair distribution of benefits and costs

Climate action promises to bring many benefits to our region – such as better health and new economic opportunities – but not without costs, including the need to upgrade homes or change the way we travel. Decision-makers must ensure that these costs and benefits are distributed fairly, working with affected communities to ensure that the impact felt by different households (in terms of income levels and demographics) are considered, taking a place-based, person-centred approach[59]. Removing economic barriers to participation in the transition, and supporting those hardest hit by the measures, will be crucial to success.

Industry and jobs

Yorkshire and the Humber's industrial clusters are huge employers: around 360,000 jobs (15% of all jobs in the region) are in sectors that have high or very high emissions. As we look to decarbonise, many workers could therefore find their skillsets are no longer in demand[60], and that they need to upskill or retrain to stay employable. Workers in our region are significantly more concerned about climate change than other parts of the UK and feel less equipped to deal with the transition[61].

Well-managed decarbonisation could build on the economic strengths of our region and deliver a thriving economy with secure jobs and good living standards. In the transition to renewable energy, 100,000 jobs could become available in the north of England[62]. We will also need workers with the skills to help adapt our places to the changing climate, and to create and manage habitats needed for restoring nature. We need local economic and industrial plans that are co-designed with workers and communities, and a system that helps people equip themselves with the skills needed to meet the challenges ahead.

"Well-managed decarbonisation could build on the economic strengths of our region and deliver a thriving economy with secure jobs and good living standards."

Progress in the region

Many of our local and combined authorities recognise the need for fairness and a just transition in their climate action plans. Unfortunately, research shows that these considerations are still often missing from decision-making, and many of our policy makers still have a limited understanding of how a just transition should be implemented[63].

Nevertheless, there have been some encouraging signs of progress. The South Yorkshire Citizens' Assembly on climate brought together 100 people, selected to be representative of the whole community, to give their views on how South Yorkshire should respond to the changing climate. The cap on public transport single fares of £2 introduced in South and West Yorkshire (and later adopted nationwide) is an example of a policy that has boosted sustainable transport in a way that particularly helps those on low incomes. Many of the programmes that have been established to insulate homes in our region are targeted at those most in need of support.

We now need to build on these policies, to strengthen our understanding of how to achieve fairness in our approach to the climate crisis, developing the tools and plans to support a just transition to a low-carbon society.

ACTIONS FOR OUR REGION

A.

MAKING GOOD DECISIONS EASIER

Every single decision will count if we are to make sustained progress towards a climate-ready region. We must continue to challenge the outmoded view that there is an inevitable trade-off between economic, social and environmental goals: this Climate Action Plan characterises a good decision as one that supports all three. Whilst a well-made decision doesn't guarantee a sustainable outcome, there are barriers to good decision-making, commonly concerning the evidence base, the way different goals are measured, the timescales over which results are shown, and a lack of joined-up duties and responsibilities. Removing these barriers is therefore a crucial priority for the region.

The Yorkshire Leaders Board – a partnership of political leaders from all 15 local authorities in Yorkshire and the Humber, plus the region's mayors – has endorsed a suite of eight shared planning policy principles[64], which present a recipe for the types of planning policies that would characterise climate-responsive plans and strategies. Our local and combined authorities are seeking to implement some of these principles, while others require national policy change to allow them to happen.

Analysis carried out by the Yorkshire & Humber Climate Commission investigated how the region is progressing towards its 2038 net zero target, and what interventions are needed to get there. In order to succeed, we need to decarbonise four times faster – a big challenge, but one that is technically and financially viable. We need to overcome major obstacles, including public buy-in and political confidence, to put sufficient actions in place quickly enough. This requires bold leadership and cooperative working with local communities, so that climate action is delivered with them, not to them.

If we properly integrate climate change into decision-making, some of the finance we need can be raised as we continually invest in replacing or improving our buildings and businesses, our transport, energy and water infrastructure, and our food systems and green spaces, as well as supporting civic society. The challenge is that we need to accelerate this process; improving the conditions and mechanisms for investment is crucial to provide funding for the projects and programmes that will help us to address the climate and ecological emergencies. Action at national government and financial-system level will be essential to unlock the scale of investment required.

We know we're succeeding when...

- Decision-makers have confidence in using social, environmental and economic metrics together when measuring and articulating the success of initiatives.
- National policy and regulation support local and regional decision-makers to innovate, invest and pursue joined-up outcomes that benefit climate, people and nature.

The actions that can help get us there

A1.

Press national government to set clear, mission-driven policies that integrate climate action, nature's recovery and economic development, and to devolve powers to enable local and regional-scale policy innovation.

A2.

Adopt an agreed and integrated way to measure the social, economic and environmental progress in the region, to better inform policy and decision-making across sectors, linking to the outcomes in this plan and building on the Yorkshire Vitality Index[65] proposed by Yorkshire & Humber Councils and Yorkshire Universities.

A3.

Ensure local economic strategies are fully integrated with climate strategies, so that economic development helps address rather than exacerbate the climate crisis, and doesn't hamper adaptation or nature's recovery.

A4.

Develop methodologies for including aviation and shipping emissions within modelling for carbon reduction pathways, to inform decisions on economic strategies and supply chains.

A5.

Create research initiatives (including research engagement) that enable greater access to high quality data and evidence on climate and nature within the region to enable informed policy decision-making and evaluation.

A6.

Develop accessible spatial tools that enable the user to visualise and overlay different datasets, such as demographic change, vulnerability to climate impacts, carbon storage and the health of soils, to identify opportunities and priorities for investment.

A7.

Show workable solutions of what can be achieved for our region and its citizens when suitable finance is available, highlighting investment-ready proposals and connecting investors with environmentally and socially positive projects and portfolios.

A8.

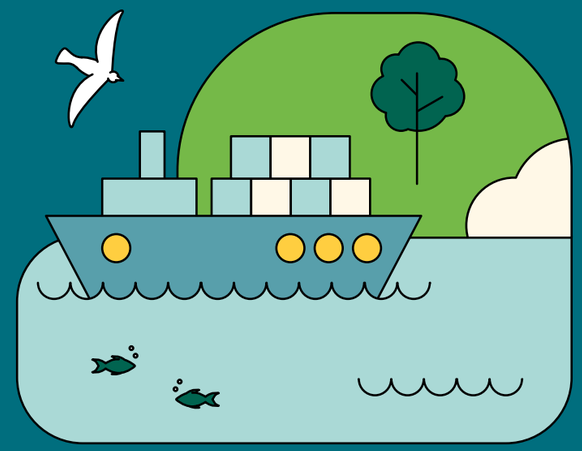
Develop climate and nature financing, blending public and private investment, that accelerates projects delivering climate-ready, nature-positive, equitable and low-carbon products and services.

A9.

Promote policies and projects that enable people to make good decisions easier in their everyday lives, reducing unsustainable consumption of goods, services and resources while providing a good standard of living; for example, helping people to make more positive purchasing choices by improving transparency of supply chains or providing easy-to-understand insight into environmental impacts of goods and services.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition



Case study:

Embedding climate action in a local authority

Doncaster Council declared a climate and biodiversity emergency in September 2019. In response, the council has since made key strategic and structural changes to enable better decision-making and real impact through action. A new sustainability unit was formed in September 2021 to drive greater ambition and coordination of services and projects delivering environment and sustainability outcomes. This unit is tasked with implementing the council's Environment and Sustainability Strategy 2020-2030[66].

Climate change is now key to the council's strategic and operational risk register, and the impact on climate is recorded on all key decisions. Climate action is included in all service plans, and climate targets were embedded in all council strategies and policies. And carbon literacy training is now compulsory for staff.

Climate Change has become a top priority for the mayor of Doncaster, Doncaster Council's chief executive, and the Team Doncaster executive, reflected by the £5 million environment and sustainability fund to help initiate and extend key carbon reduction projects, and the delivery of more than £45 million of related capital projects.

Case study:

Enabling investment in natural capital

Nature North[67] is an innovative collaboration of nature conservation groups, protected landscapes, government agencies and funders, working to develop new approaches to private and blended finance for nature recovery in the North of England. Together with local government, businesses, educators and sectors with a material interest in nature recovery, Nature North is developing investable propositions and building a strategic nature investment strategy for the region.

Nature North's approach builds on the success of two existing pan-northern nature recovery programmes: the Northern Forest[68] and the Great North Bog[69]. Nature North's five new investable propositions for northern nature recovery are evidence-based, developed by cross-sector partnerships and include strong involvement of the nature delivery sector, ensuring the propositions are credible, equitable and relevant. Nature North is also working on spatial evidence tools for nature recovery and mechanisms for funding, building pipelines of projects and developing a collaborative community of organisations and businesses across the North.

Photography:
Paul Hobson

B.

ACTIVATING THE POWER OF BUSINESSES & ORGANISATIONS

Businesses are at the heart of our economy, providing jobs, services and products, and keeping money flowing. The way we run our businesses and organisations is also fundamental to addressing the climate crisis and to nature's recovery. Our economy will only thrive within healthy ecosystems and resilient neighbourhoods – supported by purposeful, responsible organisations that deliver positive outcomes for the environment and for people.

In Yorkshire and the Humber, the net zero economy – which includes renewables, carbon capture, green finance and relevant manufacturing businesses – amounts to £5.1 billion (4% of the region's economy) and 57,000 jobs[70]. This sector saw growth of 9% in 2023, compared with just 0.1% growth for the UK economy as a whole. In our region, there are some key hotspots of net zero economic activity, including Leeds, North Lincolnshire, Rotherham, Scarborough and Selby. But an estimated 15% of jobs in our region are still in industries with high carbon emissions[71]. Those businesses and their workforces need to be supported to adapt, develop new environmentally positive skills and thrive as our economy becomes increasingly focused on ecological balance.

Leadership is crucial. We need leaders in organisations of all sizes and across all sectors to take responsibility for social and environmental impacts along the whole of their value chain, working with their employees to identify how to have beneficial impact rather than detrimental, and commit to delivering ambitious action for climate and nature. We also need to encourage the development of mission-led businesses[72], and the wider adoption of the concept of regenerative leadership within our region.

We can achieve so much more when we all act together and learn from each other. Our larger institutions in government, the public and private sectors must lead the way. In doing so, they can pave the way for others to match their commitment, harnessing the power of our regional organisations into a force for positive change.

We know we're succeeding when...

- Supply chains across our established and emerging sectors are increasingly sustainable, transparent and resilient, and promote equity.
- Existing jobs are focused on delivering environmentally positive and socially beneficial impact, goods and services; new jobs are emerging that enhance our environmentally balanced economy; and skills grounded in the health of people and our natural environment are improving and widespread throughout all sectors.
- We can identify businesses and service providers that are national leaders in resource efficiency, circular economy, enhancing biodiversity, environmentally sound waste management and co-designing solutions with employees and stakeholders.

The actions that can help get us there

B1.

Promote awareness and understanding of the low-carbon, nature-friendly and socially beneficial economy in the region, focusing on the key growth sectors and clusters.

B2.

Increase the availability of specialist support mechanisms and collaborative approaches for businesses within the region, to enable them to deliver actions on, and so realise the benefits of:

- resource efficiency and waste reduction
- circularity within business models
- adaptive capacity
- supply and value chain sustainability
- climate and ecological literacy
- employee engagement
- activities that facilitate nature's recovery.

B3.

Redirect investment away from high-carbon and environmentally damaging practices, and instead invest in companies committed to restoring our natural environment – for example through pension and investor portfolios.

B4.

Increase climate and biodiversity literacy through fully inclusive organisational training and development programmes, designed and delivered by evidence-led organisations like the Carbon Literacy Project and the Field Studies Council.

B5.

Identify existing skills shortages and new skills needs that will help to grow the low-carbon, climate-ready, nature-positive economy, and develop sectoral and place-based interventions working with schools, higher and further education institutions, to fulfil these needs across our region.

B6.

Lead and manage organisations through a climate, nature and social equity lens, identifying assets, barriers and opportunities for positive change. Engage with employees to evolve people's roles and the strategic direction of the organisation towards a social and environmental purpose.

B7.

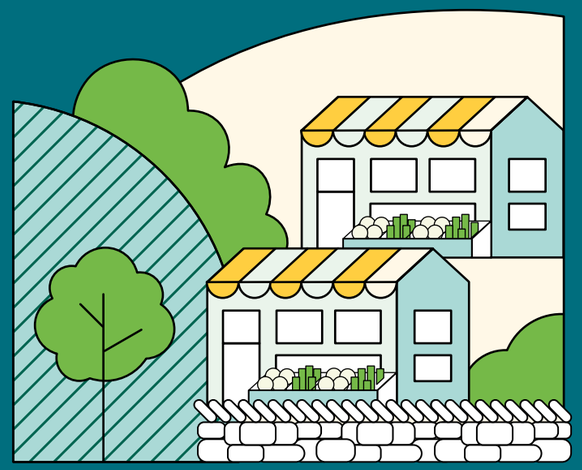
Create mechanisms to hold leaders accountable for organisational impact across the full value chain, encouraging public commitments on decarbonisation, protection of nature, improving adaptability and resilience, and contributing to a just economic transition.

B8.

Encourage local authorities to adopt low-carbon advertising policies and urge sporting and cultural organisations to adopt policies on sponsorship that exclude companies promoting high-carbon lifestyles, products and services.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition



Case study:

Wholefoods supplier takes climate action

Suma Wholefoods, a signatory of the Yorkshire & Humber Climate Action Pledge[73], launched their sustainability strategy in 2023[74]. The Calderdale-based co-operative has more than 300 workers and distributes vegetarian and sustainable products to businesses and communities across the UK and internationally. They have already taken significant steps to reduce their environmental impact, including:

- volunteering and partnering with local tree planting organisations to help prevent flooding in the local area
- purchasing trucks fuelled by biogas from food waste, which reduces emissions by 84% compared with the diesel equivalent
- using 100% renewable energy for their own operations
- reducing packaging waste and plastic use wherever possible.

The new sustainability strategy addresses several key areas including carbon emissions, supporting local suppliers and organic agriculture, and promoting Fairtrade and B Corp practices. Targets include becoming a net zero business by 2035, and ensuring all stocked products have at least one form of ethical verification by 2030.

— ACTIVATING THE POWER OF BUSINESSES AND ORGANISATIONS

Case study:

Sheffield's trailblazing advertising policy

Sheffield City Council is leading the way in discouraging the promotion of products that fuel the climate emergency, by adopting a new Advertising and Sponsorship Policy that excludes many polluting products and brands.

Adverts for airlines, airports, fossil fuel-powered cars (including hybrids) and fossil fuel companies, will not be permitted on advertising billboards sited on council land, once existing contracts expire. The policy also covers the council's social media, websites, publications and sponsorship arrangements."

This groundbreaking step aims to help people make better decisions in a shift towards low-carbon lifestyles, by reducing the amount of visible marketing for products that have a high-carbon impact. It also covers the promotion of gambling, alcohol, vaping and unhealthy food, and aims to protect against the disproportionate impact of unhealthy advertising on lower income communities and young people.

Photography:
Annie Feetham/
Adfree Cities

C.

ENABLING FAIR & INCLUSIVE CLIMATE ACTION

We need systemic change to make our region low carbon and climate ready – but that will only happen if people across Yorkshire and the Humber are convinced of the need for action and are supported through the transition.

Creating a fairer, more inclusive region as we take climate action is essential, as is ensuring that the benefits and costs are fairly distributed across society[76]. People need to have the opportunity to make informed decisions about their local areas and to be integral to the decision-making process, underlining the importance of embedding climate education into our schools and civic centres.

Ultimately, climate action will require all of us to make changes in how we live our lives, and that will only happen if people understand the benefits and perceive that new policies are fair[77]. That means people having the agency to help shape the process in their areas. Involving communities in complex decision-making is necessary to ensure policies and plans are a good fit for their place, and to help ensure local leaders have the confidence to stick with sometimes controversial decisions.

We also need a step change in climate and nature literacy. Our schools, colleges and universities must ensure that the next generation understands the potential solutions and decisions we all need to take to lower our emissions, adapt our places and change our relationship with nature. In our neighbourhoods, we need to celebrate and scale up existing local community climate action, to inspire and enable practical initiatives that build connections and win hearts and minds.

Finally, we must ensure that the 'just transition' is embedded in our plans and policies, and not an afterthought. New frameworks, tools and ways of understanding data must be developed and applied to help ensure policymakers consider the implications of proposals for all people, not just those able to engage[78].

We know we're succeeding when...

- People across the region are informed and have a voice in the process of setting priorities, delivering action and evaluating outcomes.
- Our neighbourhoods are thriving, benefiting from a fair and just transition to better health, jobs, skills and environments, low-carbon industry and a stronger economy.
- Everyone has good quality green spaces and natural environments they can easily enjoy as part of their day-to-day lives, and use of green spaces is increasing.

The actions that can help get us there

C1.

Involve people from across society in a process of fair climate decision-making and allow them to co-create solutions through inclusive approaches to participation, such as citizens' assemblies, workers' assemblies and juries, and other forms of deliberative democracy.

C2.

Enable communities to develop plans and act on climate and nature at the appropriate scale, encouraging them to take the lead on making where they live and work nature friendly, low carbon and resilient to the impacts of climate change.

C3.

Identify where investments would have the greatest positive impact for people and the environment, and prioritise these areas in economic development plans.

C4.

Facilitate public accountability of climate action by local government, combined authorities, and significant employers and institutions, by creating and implementing transparent monitoring frameworks.

C5.

Advance education and engagement by integrating climate and nature into the curriculum in schools, colleges and universities, so that every school leaver and college or university graduate in the region has a solid understanding of the causes, consequences and solutions to the climate and ecological emergencies.

C6.

Enable grassroots action on climate and nature, including through providing opportunities, tools and frameworks for people to develop climate literacy, engage in conversations and debates, take part in practical activity, access peer-to-peer support and build networks within and across communities, inspiring positive change and strengthening social cohesion and resilience.

C7.

Capitalise on our region's strength in arts and culture to develop engaging and accessible ways to inform, inspire and activate audiences on climate and nature.

C8.

Seek opportunities to build community resilience and ownership through climate and nature action, for example through developing community energy projects, community-led nature restoration projects and other initiatives that give local people a stake in solutions.

C9.

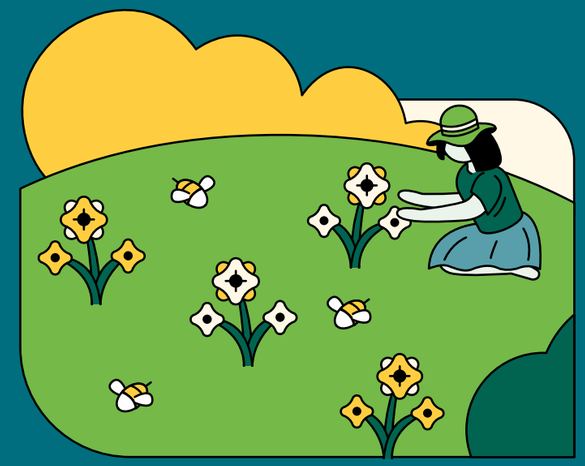
Develop and use just transition frameworks and tools for local and regional policy development that are person-centred and place-based, ensuring policy is underpinned by a deep understanding of the barriers, capabilities and opportunities of those who are already (or highly likely to be) adversely affected by the transition to net zero and climate adaptation.

C10.

Encourage the development of just transition plans that complement the decarbonisation plans developed by high-carbon industries, at both sector and site level, with a focus on involving and supporting workers and communities, and learning lessons from Scotland and elsewhere.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition



Case study:

A citywide climate conversation

The ark initiative enabled people across Sheffield to come together to have open conversations about the climate and nature crises[79]. This artist-led project co-hosted meals, workshops and events with community organisations including Sheffield and District African Caribbean Community Association (SADACCA), City of Sanctuary Sheffield, Foodhall, Blend Kitchen and Heeley City Farm. Participants from diverse backgrounds were encouraged to imagine how we can cope and even thrive as we face multiple challenges that will hit some communities harder than others.

These events, which were attended by more than 300 people as part of Sheffield Theatres' Together in the City project in early 2022, allowed for conversation to grow and relationships to form. People were invited to share their places, their hopes and fears, and their strategies for creating a better world. Using the mythical story of the ark surviving the flood as a way of thinking about the crises we face, people answered questions such as: 'What does the flood mean for you?', 'How should we build our ark?', and 'What should we leave behind?'

Physical arks, made from found materials, were also created collaboratively by RESOLVE Collective at SADACCA. These striking sculptures travelled across the city to the Crucible Theatre where the project culminated in an on-stage conversation featuring the voices of people from across Sheffield, before widening the conversation out to the audience of more than 400 people, while many more listened to a live radio broadcast online.

Planning is under way for the ark project to be repeated in Bradford in 2024/25.

Photography:
Becky Payne

Case study:

Giving the community a stake in energy

Energise Barnsley[80] is demonstrating how taking a community approach to our future energy needs can bring real benefits to residents.

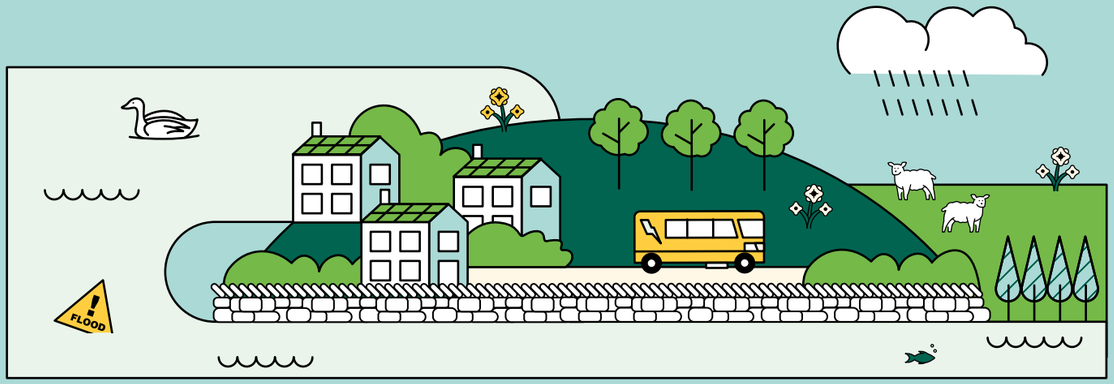
The initiative – one of the largest community energy projects in the UK – is a social enterprise that works closely in partnership with Barnsley Council. The project has installed solar panels on more than 300 council-owned homes, enabling residents to save money from bills and cut emissions by generating renewable energy, with some of the income channelled into a community pot. Projects supported to date from the community pot include battery installations, LED provision to sports facilities, energy advice clinics, charity food banks and healthy eating schemes.

Now the aim is to expand the solar arrays to 1,000 council properties across the borough in a £3 million programme, to be partly funded through the issue of a community bond, enabling local people to invest and have a stake in the success of the project.

The Energise Barnsley model is centred on the principle of community self-generation, self-storage, and self-consumption, and aims to build the resilience of communities to price shocks such as fuel bill rises.

D.

PROTECTING PEOPLE & NATURE IN A CHANGING CLIMATE



We are already feeling the impacts of our changing climate. This is most apparent when extreme weather events create crisis situations such as storms, flooding, drought, tidal surges or wildfires. By their nature, emergencies are disruptive and are potentially damaging and dangerous to us and our wildlife. It is how we prepare, respond and how quickly we recover that makes the difference.

Yorkshire and the Humber is at the forefront of emergency preparedness and response having been impacted by numerous incidents over the past 20 years. Flooding from river, coastal and surface water sources, long-duration dry weather, and of course the pandemic are just some of the instances where day-to-day living has been disrupted, sometimes significantly in recent years. We need to assess and learn from our experiences, and strive for continuous improvement in our emergency response.

Being resilient means being well prepared. Considered emergency planning and response is essential to help places maintain their function, identity and structure following the disturbance of an emergency. This will ensure that when incidents occur, those impacted know what to do to help themselves and others get back to normal life as quickly as possible.

When done holistically, it will also mean that other species are able to escape dangerous situations and survive until the crisis abates. It will also ensure there is planning in place for long-term support and regeneration after the immediate emergency has passed.

We can improve our resilience to the impacts of climate change through nature-based solutions that protect, sustainably manage and restore ecosystems. Examples include natural flood management approaches, sustainable urban drainage systems, restoration of saltmarshes and agroforestry techniques. As well as providing protection from climate impacts and helping to reverse biodiversity decline, the fact that these approaches can have a range of other benefits – such as improving air quality, enhancing access to green space and capturing carbon – often makes them popular with the public and politicians. Crucially, they are also much more cost-effective and less carbon-intensive than engineered approaches that depend on grey infrastructure and the widespread use of concrete and steel. We propose that a priority be given to the protection and enhancement of nature and to the use of nature-based approaches as we respond to the climate crisis.

We know we're succeeding when...

- Neighbourhoods have the ability to respond quickly and cost-effectively when impacts occur, and recover well with minimal health implications and little disruption to people's daily lives.
- The diversity of cultures, history of innovation and resilient spirit in our region is proving to be an asset in providing strong, welcoming and supportive communities that protect each other, including those displaced from their homes, in times of crisis.
- Organisations have plans in place to actively adapt to climate impacts, with resilient systems enabling essential services to continue in the face of severe climate impacts.
- Our natural and ecological systems are thriving and connected across the region and beyond, enabling a diverse mix of species to survive and adapt as our climate changes, and protecting people in our rural and urban areas by providing shade, shelter, flood protection, food and water security.

The actions that can help get us there

D1.

Recognise that interdependencies mean that if one part of our infrastructure isn't resilient to climate impacts, none of it is – and improve coordination across sectors, industries and regulatory bodies, drawing on evidence from outside our region and beyond the UK to learn from approaches where resilience to extreme weather events has been successful in protecting the most vulnerable people and wildlife.

D2.

Follow an 'adapt to a 2°C increase, prepare for a 4°C increase' principle across the region, aligning planned scenarios across all infrastructure with agreement from regulators and combined and local authorities, and creating plans with enough longevity that each provider, regardless of their investment cycle, can contribute to the same aims.

D3.

Prioritise nature-first solutions, developing and investing in green and blue infrastructure (ie nature-based) solutions over grey (eg concrete and steel) infrastructure.

D4.

Create longer-term risk assessments as standard, covering 5-10 year and 20-30 year timeframes, recognising the prolonged and compound effects of climate impacts and exploring how these can be minimised or avoided.

D5.

Deliver climate adaptation programmes for strategic decision-makers in the public, private and not-for-profit sectors that facilitate peer-to-peer learning and best practice sharing, fostering collaborative approaches and focusing on areas of highest vulnerability within the region.

D6.

Ensure trusted community gateway organisations and individuals have access to up-to-date research, so that they can disseminate accurate information about our changing climate and nature to help people understand and prepare.

D7.

Support and strengthen existing networks and structures of community champions and organisations who respond during crises, so they are informed and ready to mobilise quickly when needed.

D8.

Invest in communication infrastructure that is accessible to all and tailored to different audiences, that can clearly inform, guide and support people to respond to climate impacts.

D9.

Link local strategies to the national resilience framework through a regional resilience framework, providing confidence and clarity across the region and its four local resilience forums, and connecting local resilience strategies to each other to encourage cross-boundary, partnership working with a place-based focus.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition

Case study:

Adapting to flood risk at scale in Leeds

Following a number of flooding events in Leeds, including the widespread impacts of Storm Eva in 2015, the Leeds Flood Alleviation Scheme was created to reduce flood risk to homes, businesses and communities in Leeds city centre and along the River Aire.

The scheme includes a combination of natural flood management and traditional engineering. More than 400,000 trees have been planted in the river catchment area, and almost 300 hectares of land have been managed to improve the quality and absorption capabilities of the soil, to help draw more excess water into the ground[81]. Phase 1 of the scheme is designed to protect 3,000 homes and 500 businesses, focusing on the removal of barriers that had previously been built in the river, and introduction of weirs that can be lowered when water levels are high. Phase 2 is designed to protect a further 1,000 homes and nearly 500 businesses, and includes the construction of flood walls and a flood storage area, complimented with woodland creation and the introduction of leaky dams that help to slow the flow of water along the river.

This scale of work was made possible via a strong partnership between Leeds City Council and the Environment Agency, with support from many other partners and advisors. The scheme has also led to the creation of the Aire Resilience Company[82], which is a community interest company that creates a mechanism for bringing more finance into natural flood management. The aim is to increase the effectiveness of flood alleviation measures in Leeds whilst improving conditions for nature to recover and thrive in the area.

Photography: Hopgrove Productions Ltd

Case study:

Growing green and resilient urban places

The Green Estate Community Interest Company in Sheffield is a social, environmental and economic demonstrator for urban resilience. In the 1990s the city's Manor area was labelled as the worst estate in Britain prompting collaboration, investment and action to regenerate the area.

Derelict buildings, once considered a liability, have been transformed into £9m worth of heritage facilities hosting hospitality, visitor experiences and community impact activities. Wasteland with burnt out cars, notorious for antisocial behaviour has become Green Flag Award winning parkland, urban meadows, an ecosystem of enterprise and a green recycling unit. The social enterprise now has 70 staff, 40+ volunteers, 40,000+ visitors, looks after 42 hectares of land, generates £3 million turnover and supports a range of on-site community enterprises.

The Green Estate has now become an international place-based demonstrator for growing green and resilient urban spaces where people and nature can thrive. They provide the soil, plants, wildflower seed mixes and landscaping expertise for nature-based sustainable drainage systems (SuDS) including the acclaimed 'Grey to Green' in Sheffield. SuDS are designed to manage surface water runoff in urban areas, helping to tackle flash flooding and water pollution, reducing the need for expensive and energy-intensive drainage infrastructure, while also creating liveable and attractive urban environments and habitats for wildlife.

E.

REDESIGNING PLACES FOR LONG-TERM WELLBEING

Our neighbourhoods must evolve to meet the challenges of climate change. We need to upgrade our buildings, streets and public spaces, change our infrastructure to enable us to travel differently, and create more attractive, nature-friendly places that benefit our wellbeing.

Our homes and public and commercial buildings account for 37% of total greenhouse gas emissions in the region[85]. Currently our buildings are amongst the least efficient in Europe, and with only marginal increases to the housing stock from new development by 2038, upgrades to older properties will be essential if we are to meet our climate targets.

It will take more than simply switching energy from gas or oil to electricity to make an existing building climate ready. To address fuel poverty, improve residents' health and comfort, and create climate-resilient places, buildings must require less energy, through a combination of insulation programmes and upgrades to building services. Climate considerations also need to be prioritised when protecting and restoring heritage buildings, and several projects to support this are already happening in the region.

New developments must address their own energy performance, and should play a key role in shaping places to make them safe, attractive and vibrant. How people use and move around public spaces in extreme weather, and how nature and water are integrated into places in more adaptive ways, are just some of the climate considerations that should be core requirements for placemaking tools, such as design codes, masterplanning and green/blue infrastructure plans. Therefore we need a stronger and more proactive planning system to ensure that new developments, regeneration programmes and alterations to existing buildings all embrace the highest standards of sustainability.

Transport within the region currently accounts for 29% of our direct emissions[86]. Switching to electric vehicles will only address part of the issue: shifting more journeys from private car to walking, cycling and public transport will be hugely beneficial to people's health, social inclusion and productivity. All of these measures require significant investment and leadership, because to enable more sustainable travel choices, our built environments, public spaces and transport infrastructure need to work together. Solutions will also vary between different neighbourhoods and between urban and rural areas.

We know we're succeeding when...

- The region's buildings and transport sector produce net zero emissions, and embodied carbon in the built environment is reduced.
- Nature is increasingly integrated into the built environment, benefitting wildlife and people.
- Our places are designed in such a way that they improve protection from temperature extremes and create long-term resilience to climate impacts.
- The region's transport infrastructure enables people to live well without the need for a car by making walking, cycling and public transport the preferred options for most journeys.
- Long-term health conditions associated with physical inactivity and poor-quality housing are reduced.
- Our planning system has the powers and policies needed to ensure that new developments, regeneration programmes and alterations to existing buildings are all working together to make more liveable and climate-ready places.

The actions that can help get us there

E1.

Building on the regional shared planning policy principles on climate, foster collaboration among planning authorities in the region to establish complementary policies and pooled resources for climate-responsive development, raising the standards of development to minimise energy demand, provide resilience against future climate impacts, and incorporate space for nature.

E2.

Harness the higher standards of development to stimulate training, skills and supply chains in the construction industry that can deliver sustainable buildings at scale.

E3.

Implement placemaking policies (such as design codes) which prioritise nature recovery and active travel choices, to protect people from climate impacts, provide open spaces that are accessible, healthy and biodiverse, and create walkable neighbourhoods that encourage non-car travel for local journeys.

E4.

To reduce emissions and adapt to a changing climate, upgrade existing buildings through ambitious retrofit programmes that:

- include a 'deep retrofit' programme targeted at pre-1930s semi-detached housing and pre-1919 terraced housing
- encourage greater action on retrofit in the private rented sector, through lobbying government on new standards, resources for enforcement and rights for tenants, and the development of new financial instruments for landlords
- support social housing providers to deliver retrofit at scale, which will in turn support relevant skills and supply chains
- for commercial and public buildings, support innovative green leases, financial mechanisms and energy management standards to secure climate-ready upgrades
- make housing retrofit an attractive and realistic prospect for owner-occupiers, through initiatives such as whole house retrofit models, 'one stop shops' for retrofit, or new financial mechanisms
- create new policies, standards and pilot projects to enable heritage buildings to be sensitively upgraded to improve resilience and reduce emissions.

E5.

Harness the wealth of evidence for the public health, inclusion and productivity benefits of a major shift towards public and active transport, to enable leaders to make bold investment and policy decisions, including:

- prioritise the development and expansion of mass transit schemes in our urban areas and focus development opportunities and investment appropriately to optimise their success
- deliver real improvements to the interconnectivity, reliability and affordability of rail and bus services for both urban and rural areas, taking advantage of mechanisms such as bus franchising where locally appropriate, and lobbying government for greater investment to address regional disparities in transport funding
- develop the high-quality infrastructure needed to reach the target where 50% of trips in our towns and cities are walked, wheeled or cycled by 2030, with every transport authority in our region scoring at least three in Active Travel England's active travel capability ratings.

E6.

Integrate nature-first approaches into infrastructure and placemaking projects, by protecting and introducing wild areas, tree planting and healthy, inclusive green and blue spaces – demonstrating how these approaches contribute to biodiversity, to adaptive and climate-resilient places, and to people's connection to the ecological systems we rely on.

E7.

Introduce policies to incorporate urban food growing and natural play spaces into the public realm and ensure that rural areas also benefit from restorative and nature-first placemaking.

E8.

Enable the transition to electric vehicles, especially for rural homes and businesses, through infrastructure and community-led initiatives.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition

Case study:

Making the retrofit journey simple for York residents

The Retrofit One-Stop-Shop York (ROSSY) project is creating a simple way for York residents to learn about and embark upon retrofit for their homes [87]. Via a digital platform, participants will be able to access bespoke advice and recommendations, whether online or in person.

With its emphasis on education and inspiration, the project will bring retrofit to life through before-and-after photography, timelapse video footage and before-and-after data visualisations.

Residents will also be able to commission in-person home energy assessments and receive ongoing support from a personal adviser. They will be referred to relevant grants and financing options to help them find the most affordable way of achieving their goals.

Crucially, ROSSY will have a network of approved suppliers who have received training and meet standards, giving residents greater confidence and trust in the companies carrying out the work.

— REDESIGNING PLACES FOR LONG-TERM WELLBEING

Case study:

Imagining a future where car ownership isn’t necessary

INFUZE [91] (Inspiring Futures for Zero Carbon Mobility) is a groundbreaking new study that will ask communities across Leeds to help design bespoke, low-carbon travel solutions – including new technologies and shared transportation such as car clubs, responsive taxi-style bus services, and shared bicycle and scooter schemes.

INFUZE is seeking to demonstrate that we can design transport systems that enable people to travel freely without owning a car. The project will begin by listening, asking participants to imagine different ways of travel and, with the help of technical experts, to design better transport systems. Together with local delivery partners, the project will then build and test pilot systems for residents to try, evaluate and improve.

The five-year, £7.8 million plan is being led by the University of Leeds, in collaboration with research partners the Royal College of Art and Lancaster University, and is funded by the Engineering and Physical Science Research Council. It will eventually involve up to 400 households across the city and could lead to the creation of a national centre of excellence in alternatives to car ownership.

F.

MANAGING OUR LAND & WATER SO IT BENEFITS US ALL

Land use plays a significant role in our plans to meet net zero, support nature's recovery and adapt to our changing climate. As our population grows, the pressures on our land and water systems intensify. Land provides essentials such as food, housing, transport systems, businesses and leisure activities – and in our efforts to reduce emissions, we require more land for renewable energy and tree planting. We also need to make more space for other species, as we endeavour to reverse the declining health of our wildlife and the ecosystems that support us. But the amount of land in Yorkshire and the Humber is limited, and as climate change causes higher levels of coastal erosion, flooding and drought, and impacts crop production, there is a pressing need to change the way we manage our land and water.

Our region contains three national parks, two national landscapes and two World Heritage Sites. We have an incredible diversity of topography, habitats and species – some of which are unique to the region and of international importance, such as the region's peatland environments which play an essential role in storing carbon, and constitute a quarter of the national stock. Of the 5.5 million people living in our region, all are affected by land use decisions, but very few own or control the land; therefore it's essential that we bring a diverse range of perspectives into decision-making processes, including those that will speak on behalf of nature.

The policy landscape is already changing in this area, in response to the climate and biodiversity emergencies, and changes to trade and regulatory environments as a result of Britain leaving the European Union. Yorkshire and the Humber must seize on the opportunity to harness this momentum, to become a leader in sustainable, productive and nature-positive land management.

We know we're succeeding when...

- Land use and water management across the region is restorative, enhancing biodiversity, delivering protection from climate impacts, and strengthening natural carbon stores.
- The decisions made about our land and water improve social equity in our urban environments and contribute to thriving rural communities.
- Nature's health and resilience is improving through increased habitat connectivity, better protection of wild spaces and ongoing habitat creation and restoration efforts.
- The water in our rivers, lakes and seas is increasingly clean and unpolluted, supporting a more diverse range of life.
- Greenhouse gas emissions from agriculture and food production are falling in line with the region's net zero target, and biodiversity on food-producing land across the region is increasing.

The actions that can help get us there

F1.

Develop a regional land use and water management approach that helps prioritise restoration of quality habitat and carbon stores, whilst supporting the transition to renewable energy, providing sustainable housing and improving efficiencies in regional food production.

F2.

Implement Local Nature Recovery Strategies across the region.

F3.

Improve understanding of how and where carbon is stored and sequestered in soils and vegetation across our region and identify where this could be increased through shifts in land use, without causing detrimental trade-offs such as loss of food production.

F4.

Protect and restore the natural and ecological systems that support us and our wildlife, such as moorlands, peat bogs, grasslands, soils, forests, and coastal and flood zones, allowing them the best chance of evolving with our changing climate, by working across political boundaries through collaborative partnerships, including those already established such as Northern Forest, White Rose Forest, Nature North, Yorkshire Peat Partnership and Yorkshire Marine Nature Partnership; and through promoting regenerative management approaches that increase biodiversity, enhance green spaces and protect wild areas.

F5.

Include and value the marine environment in decision-making around biodiversity, climate and development - for example assessing the impact on marine life when investigating technologies that disrupt the seabed, such as carbon capture and storage or offshore wind.

F6.

Prioritise catchment-scale, nature-first approaches to water management that restore the natural health of our diverse rural environments whilst protecting our urban areas from floods and droughts.

F7.

Reduce dependency on synthetic fertilisers and pesticides in farming, working instead with natural processes to restore soils, rebalance nutrient cycles and secure our ability to grow nutritious food for future generations – facilitated through peer-to-peer support and knowledge exchange.

F8.

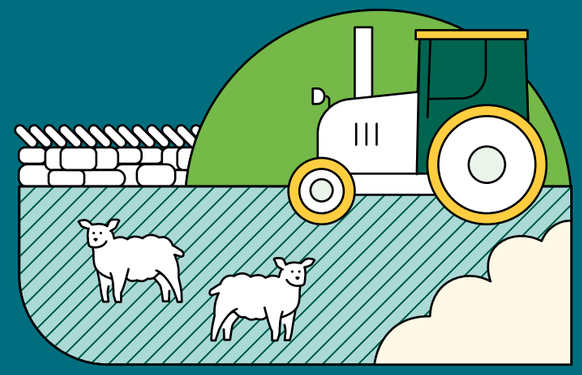
Tackle the climate impact of food distribution and consumption in our region by developing initiatives that address waste, improve access to nutrition education to help inform food choices, and increase adoption of plant-based, lower-carbon diets, drawing on principles such as those outlined in the Milan Urban Food Policy Pact[92].

F9.

Develop a regional standard of stewardship for landowners that promotes nature-positive and socially beneficial land and water management, and call for stronger national policy with higher penalties for decisions that are detrimental to nature or local communities.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition



Case study:

Restoring peat bogs in our region and beyond

Yorkshire and the Humber's peatlands are crucial for nature, water management and carbon storage – Yorkshire Peat Partnership[93] estimates that North Yorkshire's peatlands alone store more than 27 million tonnes of carbon. Over the years, agricultural practices that drain bogs and convert land to sheep grazing have had a devastating effect on these environments, and continued degradation means not only more habitat loss, but also in our peatlands continuing to be net emitters of CO_2 instead of absorbers.

In response, Yorkshire Peat Partnership is restoring peatlands in North Yorkshire, bringing together a wide range of organisations. The partnership is making progress, bringing peat bogs into restorative management, slowing water runoff, and revegetating with cottongrass and sphagnum moss.

This regional activity contributes to a broader ambition across northern England through the Great North Bog partnership[94], which includes projects in Lancashire, Cumbria, the North Pennines, Northumberland, the Peak District and the South Pennines. Together these groups have brought more than 2,000 square kilometres of peat bogs into restoration management in the past 20 years, but this is still less than one fifth of the total peat area in the north, so much more investment and accelerated action is needed.

Photography:
Jenny Sharman

Case study:

Yorkshire's new forest habitat

The White Rose Forest[95] is the community forest for North and West Yorkshire and the largest of England's community forests. With support from a small, specialist team, the initiative works in partnership with local and regional government, landowners, businesses and communities to plant trees across North and West Yorkshire for the benefit of people and the environment. The White Rose Forest is also a founding member of the Northern Forest partnership, which aims to create a well-wooded landscape stretching from Liverpool to the Yorkshire coast.

There are two key White Rose Forest planting programmes. The Landscapes for Water programme, which focuses on more rural and upland areas, aims to plant trees in four major river catchments to reduce the risk of flooding for communities further downstream. The Greenstreets® programme is helping to create a greener and healthier environment in our towns and cities.

The White Rose Forest's vision is that, by 2050, our cities and countryside will be connected by a vast and varied forest habitat network that stretches from the river valleys and transport corridors of West Yorkshire to the national parks and uplands of North Yorkshire.

G.

TRANSFORMING OUR ENERGY SYSTEM

Much of Yorkshire and the Humber's progress on emissions reduction since 2000 has been driven by changes in our energy system, ie removing coal as a fuel source. We have led the way in renewable energy production, particularly offshore wind, and contribute a large supply of energy to the UK's power grid. Whilst this has significantly helped to lower emissions, there is still much more to do to transform the energy system into one that is zero carbon, affordable, fair, reliable and secure in the face of climate impacts and global instability.

Electricity will be central to meeting our future energy demands. Electricity use is set to increase as we move away from fossil fuel technologies, such as gas boilers and conventional private vehicles. Our electricity generation is increasingly renewable, and investment should focus primarily on provable, scalable technologies such as offshore and onshore wind and solar, which will need to be complemented by grid flexibility such as battery storage and other measures that can manage demand. If any high-carbon-emitting power plants remain, they will need to incorporate carbon capture and storage (CCS) – a technology which is not yet proven at scale.

The energy system will become increasingly complex and requires planning and coordination at the local, regional and national scales. A more distributed and smart energy system offers opportunities for greater diversity in ownership of energy assets, including by communities. Our region has lagged behind many others in the development of community energy, which can give citizens a real stake in the energy transition and enable returns on energy generation to directly benefit local neighbourhoods.

Neither our region nor the UK will meet its decarbonisation targets without also reducing energy demand, especially in buildings and transport, and improving efficiency is essential to reducing energy bills for homes and businesses. Reducing energy demand also increases energy security and means the amount of carbon removal required – through technologies such as CCS and nature-based solutions such as tree planting – is also reduced, cutting risks, costs and the amount of land needed.

Finally, there are technologies such as hydrogen and bioenergy with carbon capture and storage (BECCS) that may play a part in our future energy system, but need to be the subject of an informed public debate weighing up the costs and benefits to society and to nature.

We know we're succeeding when...

- The grid can meet the demand of an electricity-dependent economy, powered by renewable energy and balanced with other demand-management measures and battery storage.
- The energy supply is more secure and affordable, and includes a mixture of large and small-scale generation and community ownership.
- The energy system is engaging with and benefiting communities, with a measurable expansion in community energy schemes in our region; local energy systems are smart and meet local needs, and provide local jobs and skills; and at least 20% of homes are connected to district heat, making the most of waste heat where possible.
- The energy system is equipped for the changing climate and is resilient to increased droughts, floods and wildfires.
- The relationship between nature's restoration and energy generation is better understood, with space made for both.

The actions that can help get us there

G1.

Achieve regionwide coverage of integrated local and national energy systems plans to create smart and flexible energy networks that ensure supply matches demand – and encourage collaboration between areas, to share best practice and to develop insights into investment needs and potential policy and regulatory reform.

G2.

Ensure that the skills required for our future energy sector are delivered through relevant skills strategies and training programmes, focusing efforts in places with the greatest employment needs and that are most vulnerable in the low-carbon transition.

G3.

Greatly accelerate the decarbonisation of energy supply, ensuring that the highest sustainability and nature-friendly standards are met, recognising that:

- the focus should be on rapid deployment of renewables, such as onshore and offshore wind and solar
- green hydrogen can play an important role where the scope for electrification of high temperature industrial processes, heating and transport is limited
- large-scale bioenergy can only play a role if it meets sustainability tests related to sourcing of biomass, impact on natural systems and affected communities
- carbon capture and storage (CCS) could contribute to the decarbonisation of some key industrial clusters that have limited other options.

G4.

Upgrade our distribution networks to enable rapid electrification of heating and transport.

G5.

Make the case to national government that reducing energy demand should be a core policy objective in the planning system, covering both new and converted buildings.

G6.

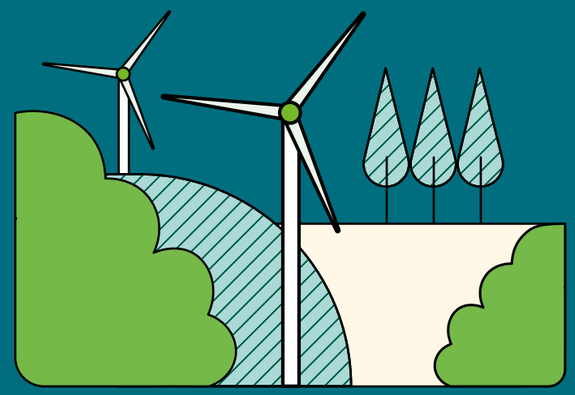
Expand community energy in our region and unlock its potential to contribute to meeting energy needs and providing community benefit.

G7.

Continue to build a strong evidence base that explores controversial and less-developed technologies (eg green hydrogen, carbon capture and storage (CCS) and bioenergy with carbon capture and storage (BECCS)), including their potential role in reaching net zero and the wider environmental impacts.

Key

- Emissions Reduction
- Climate Adaptation
- Nature's Recovery
- Just Transition



Case study:

Calderdale's digital twin

Local area energy plans[96] (LAEPs) are a key tool for local authorities to plan for net zero and tackle fuel poverty. They provide the data and framework for selecting the energy projects that will make the biggest difference.

Calderdale Council is the first local authority in England to take local area energy planning to the next level with a groundbreaking virtual model, or 'digital twin'[97]. This innovative approach equips decision-makers in the borough with an interactive map that brings the data to life, facilitating informed decision-making.

The digital twin can help clarify the scale and scope of the retrofit challenge, by identifying the exact numbers of homes that require measures such as insulation and solar panels. Options for financing and incentivising these types of projects are then explored.

Using the digital twin to assist planning and visualisation, Calderdale's LAEP is a fully costed plan for the borough which has important applications beyond the retrofit projects themselves – such as giving training providers the confidence to invest in developing relevant skills, and producing robust data for forecasting the borough's future to enable the most effective grid upgrades.

Case study:

Grimsby's industrial revolution

Grimsby currently holds the title of the UK's largest offshore wind and maintenance supply base, providing nearly 3% of the UK's electricity needs[98]. While the town suffered following the decline of the fishing industry, leading to high levels of deprivation, the renewable energy industry has begun to transform the local economy.

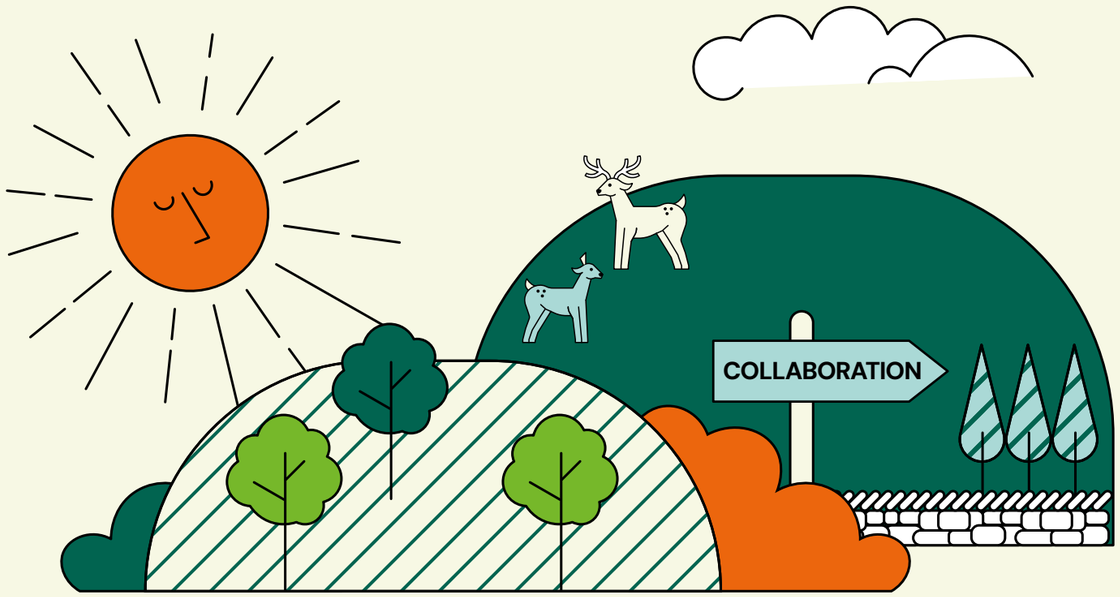
The industry already employs more than 12,000 people and is worth £1.2 billion per annum to Greater Lincolnshire[99]. Planned private investment of £60 billion over the next 15 years has the potential to bring good jobs to local people if energy companies continue to invest directly into community skills development.

Beyond its commercial energy sector, Grimsby has a well-established community energy cooperative, focused on energy projects that benefit local communities[100].

The town sees being at the forefront of the renewable energy revolution as part of a new narrative, with Grimsby Town Football Club and myenergi launching the 'Green Town' campaign last year that celebrates this future[101]. Grimsby provides a strong example to the region of the potential for both commercial and grassroots climate action to transform local economies and narratives, and bring jobs to where they are needed most.

YORKSHIRE & HUMBER CLIMATE COMMISSION

The Yorkshire & Humber Climate Commission ("the Commission") is an independent advisory body that brings together a wide range of people from the public, private and third sectors to support, facilitate and enable the delivery of ambitious climate action across Yorkshire and the Humber. It is the largest climate commission within the UK and the only one operating at a regional scale.



The Commission has four interrelated aims:

- to encourage a just and inclusive transition that helps reduce inequalities and that leaves no-one and nowhere behind
- to foster climate resilience and adaptation to climate risks and impacts
- to promote action that protects and restores nature and biodiversity
- to support rapid progress towards net zero carbon emissions.

The Commission is committed to working towards its goals by creating a positive and enabling culture, where:

- existing capacity is mobilised through effective engagement
- constructive debate is supported
- our collective evidence base is strengthened
- best practise is promoted and adopted
- capacities are built
- progress is regularly reviewed and analysed.

The Commission is also working to create a more stable policy environment that builds confidence and attracts investment in action on climate and nature within the region. That includes enabling the region to speak with a clear, informed voice to government about the policy changes that will help us to go further and faster.

The Commission is independent. It is not a lobbying group or a platform for campaigning or marketing. The Commission does not seek to duplicate existing efforts, or deliver climate action directly.

Membership

Commissioners are appointed as individuals and are recognised sector leaders, bringing a wealth of personal experience, expertise and extensive networks from across the region and nationally. We also have youth Commissioners, from the Regional Youth Climate Assembly. Commissioners are not corporate representatives.

The Commission is led by a Chair working closely with the Director, and supported by vice-chairs who each represent the sub-regions of Yorkshire and the Humber.

During our first three years, many people expressed an interest in becoming part of the Commission. To enable this, we have created two new roles: associates and affiliates. Associates, also working in an individual capacity, provide input on topics and help lead workstreams. Affiliates are individuals or organisations that are part of the Commission's wider network and want to engage with and support our work.

The Commission is underpinned by a small, multiskilled staff team (approximately 8FTE), hosted by the University of Leeds. Led by the Climate Commissions' Director, the Commissions Team supports both the Leeds Climate Commission and the Yorkshire & Humber Climate Commission. Its remit includes running the Commission's core groups; coordinating and enabling the flagship projects; advising and shaping policy with partners; and advocating for positive change across our ever-growing networks. The team is also responsible for delivering communications on behalf of the Commission, and coordinating presence at events and online.

How we are funded

The Yorkshire Leaders Board – a partnership of political leaders from all 15 local authorities in Yorkshire and the Humber, plus the region's mayors – has confirmed that it welcomes the support and drive the Commission provides and has committed funding up to 2030. The University of Leeds has committed to support the Commissions Team until 2030, including a significant portion of core funding until 2029 as part of its ambitious Climate Plan commitments [102]. The Commission is also supported by untied donor contributions from Northern Power Grid, Yorkshire Water and the Yorkshire Building Society, and received funding from the Environment Agency and Northern Gas Networks during phase one. Further donor contributions are actively being sought.

The Commissions Team receives additional funding as part of its work supporting the Yorkshire Policy Innovation Partnership, an ESRC-funded collaboration. Contributions in-kind have also been made by a wide range of partners including the Trade Union Congress, Yorkshire Wildlife Trust and Yorkshire Universities.

The Commission is developing a medium-term funding strategy to become financially self-sustaining.

How we work

The full Commission, which meets quarterly, makes key decisions and sets the strategic direction. Four thematic groups support the work of the Commission: Public Affairs, Regional Picture & Evidence, Communities & Engagement, and the Regional Policy Forum. Core projects are led by Commissioners and/or associates, supported by the Commissions Team.

Progress

The Commission considers progress at each quarterly meeting. Action tracking information is available on the website.

Case study:

Unlocking climate adaptation in Local Authorities

Local Authorities are on the frontline when it comes to climate impacts. Extreme weather events affect everyday services, and the costs of dealing with them can impact on budgets. Discussions at the Commission's Regional Policy Forum in 2022 revealed that many local authorities were unsure about the best way to develop and structure their climate adaptation plans. This raises the risk of maladaptation, but this can be mitigated through learning from others and by drawing on experiences and expertise from across the region.

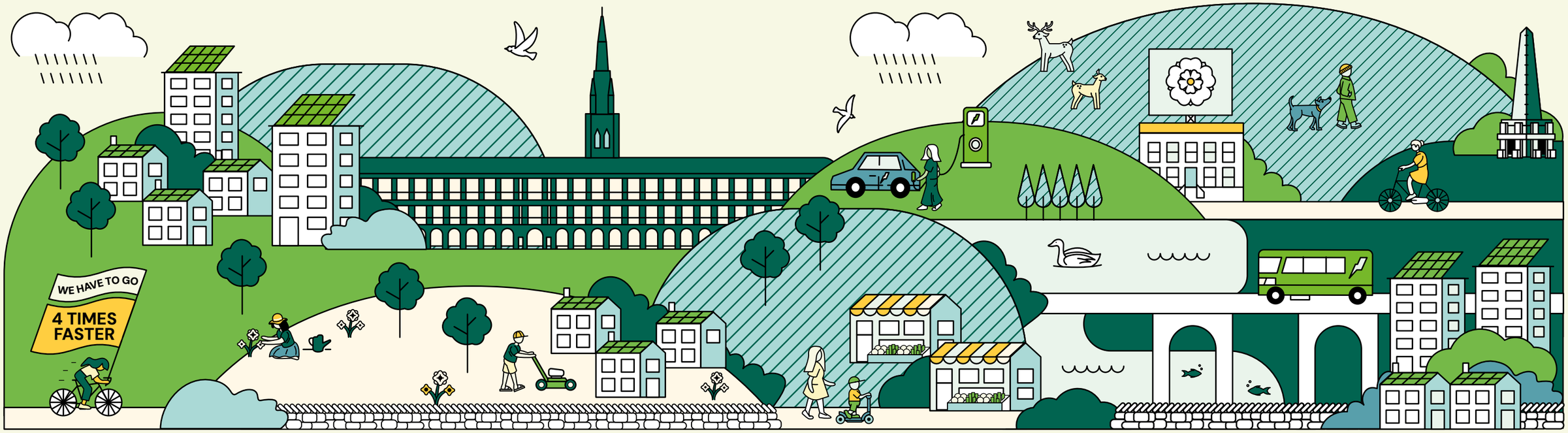
This peer-to-peer regional learning is at the heart of the Commission's Climate Adaptation Programme for Local Authorities (CAPLA). CAPLA, endorsed by the Yorkshire Leaders Board in 2022, is a programme of thematic sessions where local authorities can learn from each other. These sessions help participants to pace their work. By breaking the adaptation journeys into manageable steps, local authorities have built their adaptation efforts between sessions and made real progress towards becoming more climate resilient. CAPLA is also a supportive space for local authorities to discuss freely their climate adaptation challenges and ways to effectively overcome them.

In its first year, CAPLA has demonstrated that building connected capacity, expertise and leadership across local authority boundaries could accelerate climate resilience at both local and but also at regional levels. This programme is groundbreaking in England and offers a model that can be easily duplicated by other regions.

Photography:
Muriel Bonjean Stanton

PLAYING YOUR PART

Our action plan is focused on the big actions that will make a difference at a regional scale. But individual and community action is also vital to drive the culture change needed for progress on climate and nature[103]. We can all play our part in a number of different ways:



Be a climate citizen

The most important thing you can do for action on climate and nature is to use your voice. Tell your local councillors and MP what you want to see happen locally and nationally, and of course, use your vote. Take part in local consultations, arguing the case for climate-friendly neighbourhoods and get involved in campaigning. And if you have investments – including your pension – switch to sustainably managed funds.

Influence others

We need a movement for climate and nature that shifts our culture. You can help achieve this by talking to others in your social circles or in the workplace, or by getting involved in community activities such as local climate action or conservation groups. As an employee, you can encourage your workplace to develop sustainability plans, take practical action and make public commitments such as signing the region's Climate Action Pledge[104], or work within your union to amplify your voice for collective action.

Climate-proof your home and garden

Making your house low carbon, well insulated and adapted to climate impacts is out of reach for many. But if you can afford it, or you can access a scheme locally that offers support, you should embrace the change and upgrade your home. You'll be helping to establish a market for retrofit and encouraging more tradespeople and companies to get involved. If you have a garden, there's so much you can do to make it nature friendly: give up the sterile lawn for a more natural, wildflower-filled look, and plant more native plants.

Change your shopping habits

Rebel against our throwaway culture: purchase items that are more durable and avoid unsustainable practices like fast fashion. Where you can, buy second hand, and if something's broken, try to get it fixed rather than rushing to buy new. Look out for local initiatives like repair cafes to get items mended, or tool libraries / 'libraries of things' to borrow rather than buy.

Eat differently

One of the most impactful things we can all do is eat less meat and dairy, switching to a higher proportion of plant-based foods – the Climate Change Committee recommends we all eat 20% less meat and dairy by 2030[105]. Try to eat what's in season, and check how much food you're wasting.

Use your feet - and the bus!

One of the best ways to improve our health while lowering our carbon emissions and traffic congestion is to choose active travel, ie walking and cycling. To reverse the decline of our bus networks, as well as action from politicians, we need to see an increase in demand, so use public transport where you can. And take more holidays closer to home – there's a lot to explore on your doorstep.

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    - nitrous oxides, which come from agriculture, industry, the burning of fossil fuels and wastewater treatment
    - fluorinated gases, which are powerful GHGs that are manufactured by industry and used in applications such as refrigeration and cleaning electrical components.
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