cl!mate
County Durham

cl!mate change

Strategy and Emergency Response Plan

2022 - 24

Durham
County Council

"This is not just a Durham County Council ambition, this is an ambition that is shared by all our partners, and we want everyone to help to ensure we deliver".

Foreword

Cllr Mark Wilkes

Where do we want to be as a County looking ahead towards 2030 and beyond? Climate Change is very real, as has been made abundantly clear by the increase in severe weather events in the last decade and especially in the last few years. This has brought into sharp focus the question of '**Is County Durham going to be a place where residents, businesses, communities and the public sector have come together to change things for the better; to influence each other so we can all achieve a carbon neutral lifestyle?**'

To secure this positive and effective change in the climate agenda is ultimately my goal, and this Strategy and Climate Emergency Response Plan is the next step in making that vision a reality.

County Durham was at the forefront of the industrial revolution, with steel making and coal mining being some of the first industries to start the process of industrialisation. Whilst we are proud of our industrial past and heritage, we also let the CO_2 genie out of the lamp and have hundreds of years of CO_2 emissions and industrial legacy to deal with. It's time to recognise that we need to lead the way in going from a 'Black to Green' economic model.

We need to be at the forefront of the clean, green, industrial revolution. This strategy will pave the way for doing this by investing in people, technologies, research, and development, leading the way in projects such as Local Area Energy Planning, minewater heat, ensuring that businesses we work with have net zero plans with meaningful engagement and information sharing between partners to enable us to achieve this goal.

This is not just a Durham County Council ambition, this is an ambition that is shared by all our partners, and we want everyone to help to ensure we deliver.

Cllr Mark Wilkes

Portfolio Holder for Neighbourhoods and Climate Change

Turning cl!mate Talk into cl!mate Action

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The Climate Change Strategy

Introduction

Why is this Important?

In the three years since the Council declared a climate emergency, there has been a very worrying increase in extreme wildfires, floods, droughts, and storms, which have devastated many areas and habitats across the world, as climate change starts to threaten aspects of human existence. Scientists agree that that society only has a few years left in which to act and so there is an urgency to this work that underpins everything we do.

Work must take place collaboratively across all sectors of our community employing all necessary technologies to achieve a carbon neutral future as swiftly as possible. Accomplishing this requires a clear vision, underpinned by strong principles, taking a structured approach to the net zero journey with evidence-based targets and a detailed route map. Finally, the Council and all our partners and communities must work alongside each other if we are to meet the challenges that are posed by climate change.

Drivers

On 20th February 2019, the Council declared a Climate Emergency in recognition that unless immediate action is taken, global warming will continue on its current trajectory toward 3°C with disastrous consequences. Following public consultation, the Council in February 2020 adopted the following statement:

Immediately adopt a new Durham County Council target of 80% [carbon reduction] by 2030[1] making significant progress towards making Durham County Council and County Durham carbon neutral taking into account both production and consumption emissions.

Investigate what further actions are necessary to make County Durham carbon neutral by 2050 and pledge to achieve this.

Government released their **Net Zero Strategy** in 2021 which outlines the steps that will be taken to achieve net zero emissions by 2050. It covers issues such as how homes will be heated, support for electric vehicles, nature restoration plans and plans to decarbonise industry. Further information on policy drivers can be found in the previous **CERP**.

In light of this Durham County Council has revised improved on these targets in 2022. The new aim for Durham County Council's operations, in addition to 80% real carbon reduction, is to also reach net zero by 2030. For County Durham the target for becoming carbon neutral has been brought forward to 2045.

In addition, in 2019, the County Durham Partnership signed up to a joint Vision for County Durham 2035, which was formally adopted by the council on the 23rd of October 2019. It recognises that whilst climate change is the most important global issue facing society today, much can and needs to be done locally to respond to this dire threat. The vision will be delivered through an integrated framework of partnership and organisational plans and strategies across the County Durham Partnership. The vision will be updated to reflect the urgency of the climate emergency.

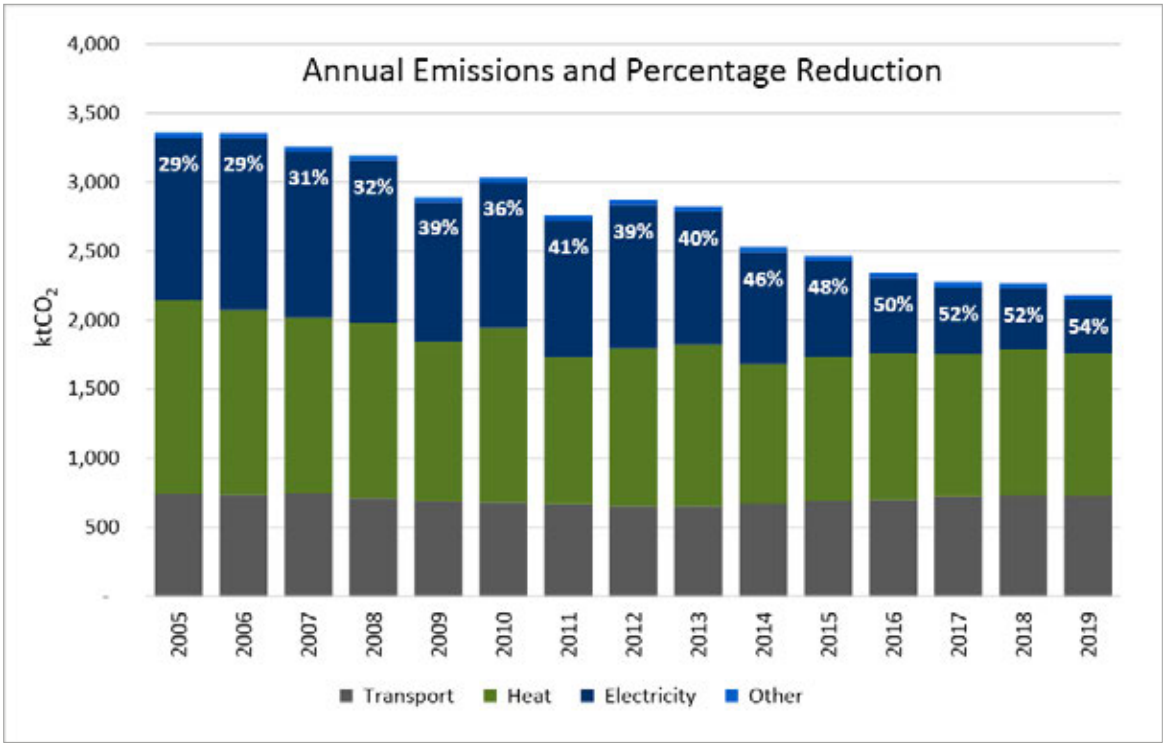
This Strategy and CERP reviews the progress made in County Durham since 2020 and highlights current emissions against our stated targets. It sets out the actions we, as a partnership of organisations, communities, and business, need to take now, presented under ten thematic areas and four overarching principles.

[1]From 2008/09 levels
[2]**https://countydurhampartnership.co.uk/county-durham-partnership/county-durham-vision-2035/**

County Carbon Emissions Budget

It matters how quickly we can reduce our carbon emissions. The latest carbon footprint figures for County Durham are for the year 2019, as it takes a long time to calculate them each year. The baseline year for emissions is 1990, which is the same baseline that the UK government uses for national targets.

The chart below shows how the carbon footprint has declined since 2005 and gives the reduction in each year as a percentage from the 1990 baseline.



This shows that in 2019, 47% of the county's carbon footprint came from heat, 33% from transport, and 18% from electricity. The total footprint was 2,181,724 tonnes.

Carbon emissions reduction so far has predominantly been from using less grid electricity, and less carbon intensive grid electricity as the UK moves away from coal. The carbon emissions from heat (burning gas, oil, or other fuels in our homes and other buildings) have not reduced by as much, and emissions from transport (cars, busses, lorries, and other vehicles on our roads) have not changed very much at all over the last 14 years.

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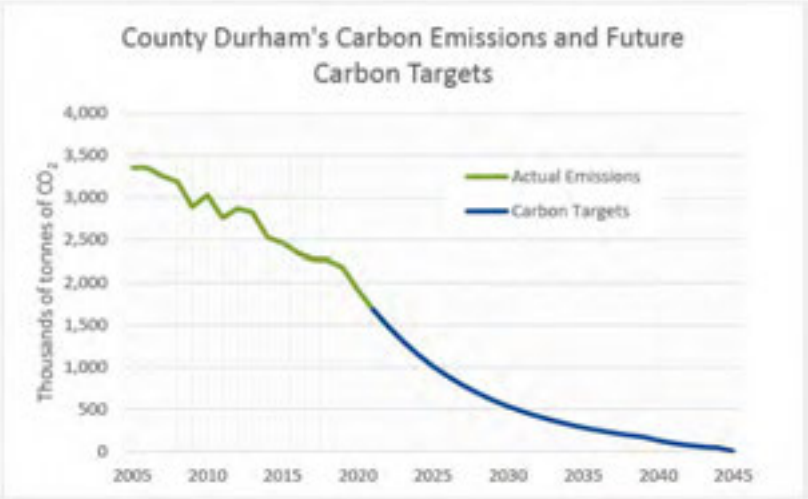
Using scientific analysis described in Appendix B, the county has a budget of 20MtCO_2 which can be used up by 2045, as illustrated opposite.



For this CERP 2022-2024 to stick to that carbon budget, County Durham's carbon emissions must fall to a maximum of 1,632,000 tonnes by the end of 2023. That's 65% less than in 1990, which was the baseline year.

Target: 65% reduced or offset by the end of 2023

The following specific targets are based on a reduction from 2019 levels (our most recent data) to where we need to be in 2023 (the end of the period covered by this plan). These targets are or the County as a whole and are described in more detail in Appendix B:

- 35,000 fewer fossil fuel cars on our roads, or 25% reduction in car use.
- 55,000 fewer domestic gas boilers, or equivalent reduction in heat demand.
- 20% reduction in gas use in non-domestic buildings.
- 20% reduction in emissions from grid electricity.
- 10% increase in renewable electricity generation across the county.
- 5% offset through sequestration works such as tree planting.

The Council has its own set of targets for carbon reduction in line with this carbon budget. The Council's new target is for Net Zero by 2030, with 80% to be met by actual emissions reduction.

Target: 68% reduction by the end of 2023/24

The following specific targets are based on reduction from 2020/21 levels (our most recent data) to where we need to be in 2023/24 (the end of the period covered by this plan). They are described in more detail in Appendix A:

- 12% reduction in gas use in council buildings.
- 20% reduction in business travel emissions.
- 10% of fleet emissions reduced.
- 6,000,000kWh of renewable electricity generated by DCC annually.

The council's net zero target can include offsetting or actual reduction to account for the emissions remaining after we've met our actual reduction goals.

Offsetting will be met through sequestration works such as tree planting and through generation of excess renewable electricity that we supply to the national grid.

Vision and Principles

Our **2045 Vision** for this strategy is to ensure that:

We are working together towards a just transition to a Carbon Neutral County Durham as soon as possible.

- All the energy that is used in the County will be generated from renewable sources, including the way we heat our comfortable, energy efficient buildings.
- All of County Durham's transport will be ultra-low carbon and everyone will have access to safe and reliable public transport, while cycling and walking by choice whenever possible.
- Our natural environment will be thriving, and it will easily offset minimal remaining carbon emissions.
- Our strong local economy will support sustainable and highly skilled jobs.
- Rural communities will be connected, supported and sustainable.
- There will be almost zero waste in a circular economy.
- Our residents and businesses will be safe from the worst impacts of extreme weather events that currently threaten us.

The vision is built on 4 key principles that underpin the approach we are taking:

A Fair and Just Transition

Our climate is changing. That is beyond any doubt, and the impacts are now being felt around the world including here in County Durham. Fossil fuels must no longer be used wherever possible, and the transition must be as quick as possible.

Whilst we can do this, we do not want to disadvantage those most vulnerable in our society. A fair and just transition is about ensuring investment in new clean, green jobs, about making sure that people have access to safe, clean and green methods of transport and that people can live in warm comfortable homes without fossil fuel heating and without fuel poverty. Better internet access and speeds will keep us all connected regardless of our individual circumstances or physical ability.

There is also the social cost of carbon to consider, and which areas of society will be worst hit by the effects of the climate emergency, as many carbon emissions come with added effects which most often harm the most vulnerable people. No-one should be left behind as society changes to mitigate climate change, and no-one should be left to bear the brunt of our changing climate in poor housing or without protection.

The climate crisis will first affect those people who are most vulnerable. It is essential that we do not allow the climate emergency to disproportionately affect the health and wellbeing of any groups of people in Durham. Together we must use this opportunity to encourage improved health for all.

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Achieving a Green Recovery

Building our communities back after the global disruption of the coronavirus pandemic is a once in a lifetime opportunity to embed low carbon principles across our society. It is also about ensuring the economy is boosted through the development of new 'green jobs' in a range of industries.

We will ensure that sustainability and climate change are key considerations in all decisions relating to investment, production, development, transport, the economy, society, and the environment to facilitate a truly Green recovery.

Carbon reduction must also be central to the 'Levelling Up' agenda and other funding bids across the County that are central to the regeneration agenda.

Being Community and People Centred

If County Durham is to successfully tackle climate change, everyone will have to have an opportunity to have their say and be heard, no matter their circumstances, age, ability, race, beliefs, sex, or gender. Collaborating with communities, individuals, and partners to ensure that there is a consensus for this plan, will enable DCC to build the best carbon neutral county for our residents and communities.

Continued communication with individuals, communities, and partners is essential to the delivery of this Plan and for it to be transparent to enable scrutiny. We will work with Government to help deliver Local Area Energy Plans, ensuring that all communities have a viable and cost effective way to transition to net zero heat.

A new website has been developed, **ClimateCountyDurham.org.uk**, which was launched in County Durham on the opening day of COP 26 in Glasgow. It is designed to be a place where any member of the community can find ways to do their bit or have their say on what we're doing as we work together towards a carbon neutral future.

Addressing the Ecological Emergency

County Durham's natural environment has a vital role to play in tackling climate change. Where they are healthy, our ecosystems can take up and store a significant amount of carbon in soils, sediments, and vegetation. However, the destruction and degradation of our natural habitats results in the direct loss of carbon within them, threatens the survival of our unique wildlife, and makes it harder for people to adapt to the impacts of climate change.

On hearing evidence from the Environment and Sustainable Communities Scrutiny Committee, of habitat and species decline within the County, on 6th April 2022 Cabinet declared an Ecological Emergency. By protecting and restoring County Durham's natural and semi-natural habitats and managing them for nature, we can aid nature recovery and store more carbon. This will also deliver co-benefits for climate change adaptation, improved soil health, water management, and for our own health and wellbeing.

Nature based solutions will therefore be implemented which address both the climate emergency and ecological emergency in an integrated way, whilst upholding key principles identified by Natural England[3].

[3]R Gregg, J. L. Elias, I Alonso, I.E. Crosher and P Muto and M.D. Morecroft (2021) Carbon storage and sequestration by habitat: a review of the evidence (second edition) Natural England Research Report (NERR094. Natural England, York)

County Durham Climate Change Agreement

On 1st November 2021, to coincide with the opening of COP 26 in Glasgow, local leaders in Durham held our own Conference of Partners and launched a new County Durham Climate Change Agreement, which all organisations in the County are invited to sign up to. The wording of the Agreement reads:

'We agree to work together as a partnership of organisations across County Durham to tackle climate change.'

Over the lifetime of the Plan DCC will be working with signatories to support them in addressing the carbon emissions that they are directly or indirectly responsible for.

Cllr Mark Wilkes, DCC, and Paul Forster-Jones, Non-Executive Director of County Durham and Darlington NHS Trust Sponsor of the Green Plan, hold the signed Climate Change Agreement at Durham COP.

The Council will offer support to organisations, communities, or individuals who need help to reduce their carbon emissions. All partners will work collectively to find collaborative solutions and make the most of the opportunities available in Durham. Only by working together will we be able to build a Carbon Neutral County Durham.

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"Each theme summary includes a description of where we are now, where we are aiming to be by 2030, and what we hope a Carbon Neutral County Durham will look like in 2045".

Themes

The following pages are summaries of each chapter in the Climate Emergency Response Plan for County Durham, describing what each chapter is about with headline information on the actions that need to be taken and progress since 2020.

Some of the themes have changed since the first CERP to reflect the wider understanding and greater challenge that we face as a County. The challenges are vast; therefore, we need business, communities, individuals, and private and public sector partners to join together with the council to meet this challenge head on. This CERP focuses on what we are all doing, which is reflected in the significant increase in actions from partners and communities.

Each summary includes a description of where we are now, where we are aiming to be by 2030, and what we hope a Carbon Neutral County Durham will look like in 2050. These are based on the overarching targets as laid out below and are concluded with a summary of the carbon budget for County Durham.

Where we are now in 2022

Durham County Council emissions down by 58% from 2008/09.

Countywide carbon emissions down by 54% from 1990.

Laying foundations Actions for 2030

Council emissions to be reduced by 80% from 2008/09 levels and net zero overall.

County Durham emissions to be reduced or offset by 80% from 1990 levels.

County Durham's Aims for 2045

Carbon Neutral County

All carbon emissions from the council and the whole of County Durham to be stopped or offset by 2045.

The chapter themes are:

- Heat Decarbonisation
- New Development
- Transport and Connectivity
- Electricity
- Business and Skills
- Procurement and Waste
- Food and Land
- Natural Environment
- Adaptation
- Engagement, Education and Behavioural Change

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"Reducing the need for fossil fuelled heat".

Heat Decarbonisation

Burning natural gas and other fuels to heat buildings in County Durham accounted for almost half (47%) of the total carbon footprint of the county in 2019. Carbon emissions associated with heating our buildings tend to come from the direct burning of fossil fuels in boilers. To decarbonise this will mean either reducing the need for heat, replacing the boiler with an alternative technology, replacing the fuel in the boiler, or removing the boiler altogether and getting the heat from a shared heat source through a heat network.

Where we are now in 2022

Despite many campaigns across the last 20 years there remain many buildings, especially in the non-domestic sector that are poorly insulated, and most are heated with fossil fuels such as gas or oil.

Laying foundations for 2030

Insulation schemes are widespread and easily accessible for all. The use of heat pumps is steadily increasing following a government supported drive and subsidy scheme. Low Carbon Heat Networks provide heat to communities in County Durham.

County Durham's Aims for 2045

All gas and fossil fuel heating in homes, public buildings, and businesses has been removed and replaced with affordable low carbon alternatives.

Key Challenges

Heat decarbonisation is the most significant challenge that we face in terms of decarbonisation is a significant challenge especially considering the infrastructure changes that will be needed to facilitate such changes. Skilling up heating engineers so that they are familiar and competent with heat pump technology is a challenge for government and the Further Education sector. Electricity remains 4 times as expensive as gas. An electricity tariff for heat pump users needs to be introduced to avoid the issues around fuel poverty. Government funding needs to be sustainable and long term, based on quality rather than quantity.

Key Highlights

The Low Carbon depot is a project to significantly reduce emissions linked to a strategic depot in the North West of the county. Alongside electric vehicle charging, a large solar farm and battery storage, the project is refurbishing office buildings at the site to improve thermal properties of the buildings to reduce demand for heat and replace natural gas heating with low carbon heating systems (in the form of heat pumps) all to be fed from the solar farm.

The County Durham fuel poverty partnership has enabled residents in County Durham to have the 4th highest uptake of energy efficiency grants nationally, working with landlords to improve quality and energy efficiency of buildings and supporting low carbon retrofit for off gas homes.

A building being retrofitted with insulation as part of the low carbon depot project.

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Heat Decarbonisation
Emergency Response Plan

Introduction

Burning natural gas and other fuels to heat buildings in County Durham accounted for almost half (47%) of the total carbon footprint of the county in 2019.

Carbon emissions associated with heating our buildings tend to come from the direct burning of fossil fuels in boilers. To decarbonise this will mean either replacing the boiler with an alternative technology, replacing the fuel in the boiler, or removing the boiler all together and getting the heat from a shared heat source through a heat network.

To remain on course to meet targets set in the climate emergency, over the next 2 years, this would require the equivalent of 55,000 fewer domestic gas boilers, a 20% reduction in natural gas use for both the public sector and the county's businesses and industry.

This chapter explores how existing buildings in County Durham can be provided with low carbon heat, through carbon efficient technologies and heat networks. This includes heating the rooms within buildings as well as heat for swimming pools, kitchens, manufacture and other requirements.

Interactions with other themes

New Development

New development is adding to our carbon budget every year, especially because most are still being heated by fossil fuels. National policy is required to update building regulations, to ensure new buildings are built to high standards of efficiency and do not connect to the gas network.

Electricity

To facilitate low carbon heat, upgrades to regional infrastructure will be required, this includes strengthening electricity distribution networks to deal with increased electrical demand and resilience as additional and new technologies are installed. If Hydrogen is to be used in any way linked to heating, this may include changes to natural gas infrastructure, although the Council does not expect this to be the case within the duration of this action plan.

Business and Skills

There is a requirement on and opportunity for business to respond to the climate emergency, this could include investment in buildings, infrastructure, training and skills development. There is also opportunity for cost reduction in business overheads. A low carbon energy system will require a range of skills that may be additional to existing professional practices, for example, heat pump installation requires a skilled workforce to design, install and commission the heat pump system.

Education, Engagement and Awareness Raising

It is critical that heat is communicated as the biggest challenge in terms of decarbonisation. Ensuring that trusted and accurate information is communicated especially around technologies is imperative.

Fair and Just Transition

The health and wellbeing of County Durham's residents can be maintained and improved by ensuring our homes are warm and well insulated. Fuel poverty remains a major challenge in County Durham.

Durham County Council – Leading by Example

The council is actively working on a range of projects to reduce the use of natural gas in the county.

Morrison Busty

The Low Carbon Depot project is a wide-ranging project to significantly reduce emissions linked to a strategic depot in the north west of the County. Alongside electric vehicle charging, a large solar farm and battery storage, the project is refurbishing office buildings at the site to improve thermal properties of the buildings to reduce demand for heat and replace natural gas heating with low carbon heating systems (in the form of heat pumps). Electricity to power heat pumps will be supplied via private wire by the solar farm, supplemented by grid electricity on the shortest days.

Public Sector Decarbonisation Scheme

The Council has been successful in receiving funding for 4 projects to decarbonise sites across the County, receiving over £1.3million to install heat pumps coupled with solar panels and high efficiency ventilation with heat recovery. It is estimated that the 4 projects will prevent approximately 150 tonnes of CO_2e emissions per annum and facilitate a path to net zero for the sites. Each project will be completed by March 2022 and we hope to develop more over the next two years.

Housing Solutions

To assist domestic properties in decarbonising heat the Council runs several projects to help residents with this transition including the County Durham energy and fuel poverty partnership that has enabled residents in County Durham to have the 4th highest uptake of Energy Company Obligation (ECO) domestic energy efficiency grants nationally, working with landlords to improve quality and energy efficiency of buildings and supporting low carbon retrofit for off gas homes.

The Council is developing a new Council House programme of 500 units, ensuring the buildings are designed with high levels of insulation and heated by air source heat pumps, powered, in part, by solar PV. This will ensure that heat demand is low, but any heat required is provided by low carbon heat sources.

The Council is delivering phase 1 and 2 of the governments Local Authority Delivery (LAD) Green Homes Grant scheme installing insulation and renewable heating measures to over 1000 homes across County Durham.

The Council is the lead member of Durham's Decarbonisation of Social Housing Consortia made up of all the counties registered providers including, Believe, Karbon, Livin, North Star and Bernicia Homes.

Actions and Partnerships

The strategy for decarbonising all buildings in County Durham should include reducing the demand for heat by improving insulation and building fabric, moving away from natural gas as a heat source and replacing it with heating powered by electricity, usually in the form of heat pumps. However, as the County moves away from fossil fuel heating towards heating via heat pumps, or heat networks there is a risk that the cost to heat homes will increase. In 2020 15.4% of County Durham's households were already experiencing fuel poverty. Any policy to decarbonise heat should look to mitigate the risk of increased energy bills and fuel poverty.

Partners and Council are continuing the support for heritage assets, within changing environments. Partners such as the Church of England have developed a routemap to decarbonise buildings by 2030. Partners with heritage assets can learn from each other as we progress practical projects.

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We will work with Government to deliver Heat Zoning and Local Area Energy Plans, helping to find the most cost and environmentally effective way to transition to net zero heat for all communities.

Insulation

The retrofit of homes with wall, loft, and floor insulation, and other improvements to the fabric of the building, not only creates better quality homes but reduces heating costs and reduces carbon emissions. There are health advantages to improved energy efficiency too: cold homes can exacerbate existing poor health conditions. The Government aims to upgrade all fuel poor homes to Energy Performance Certificate (EPC) band C by 2030 and has an aspiration for as many homes as possible to be EPC band C by 2035 (where practical, cost-effective and affordable).

Insulation schemes are therefore essential in moving us towards the 2045 target. The current national Energy Company Obligation (ECO) programme is highly successful and has increased the take up of domestic energy efficiency measures to reduce energy bills and carbon emissions. Current schemes need to go further and include external wall insulation and this is under review for forthcoming ECO funded programmes.

From a 2013 Element Energy Report and subsequent Opportunities Assessment for NE regional local authorities completed in 2018 the following table estimates the remaining technical measures for the retrofit of homes with energy efficiency measures in County Durham:

Measure	County Durham (number of Homes)	Heating Fuel Savings (GWh)	Annual Carbon Savings ($ktCO_2$)	Lifetime Carbon Savings ($MtCO_2$)	Annual Fuel Bill Savings (£m)[4]	Lifetime investment (£m)
Solid Wall Insulation	58,000	353	72	2.8	22	501
Cavity Wall Insulation	43,000	152	30	1.2	8.8	116
Loft Insulation	86,000	52	10.4	0.5	3.1	25
Floor Insulation	163,000	158	32	1.3	9.4	175
Window Glazing	156,000	213	44	1.3	13.3	547
TOTAL		**928**	**188.4**	**7.1**	**56.6**	**1,364**

There remains a significant amount of installations to complete but also significant amount of carbon savings possible, which requires a significant amount of investment.

Social housing providers play an integral part of the solution to improve the thermal efficiency of their housing stock. Many are investing in energy efficiency measures and developing strategies around the installation of new heat pumps in existing residential properties and the development of new, efficient, low carbon homes that are suitable for a climate emergency.

Alongside reduction in domestic natural gas use through insulation, the council is also investigating and investing in new technologies to help decarbonise heat, including:

[4]Based on 2018 fuel prices

Heat Pumps

Heat pumps are the most workable technology to significantly decarbonise heat for the short and medium term (next 5-10 years) whether installed at a building level or supplying heat to a heat network. Before 2050 it is likely that a low carbon Britain will be reliant on 'green' hydrogen to meet energy demands. It is unlikely, however, that hydrogen will be used for heat in buildings in the next 10-20 years, because to produce hydrogen in the quantities needed you would still need to burn fossil fuels. Hydrogen therefore does not form part of this response plan for 2022-24.

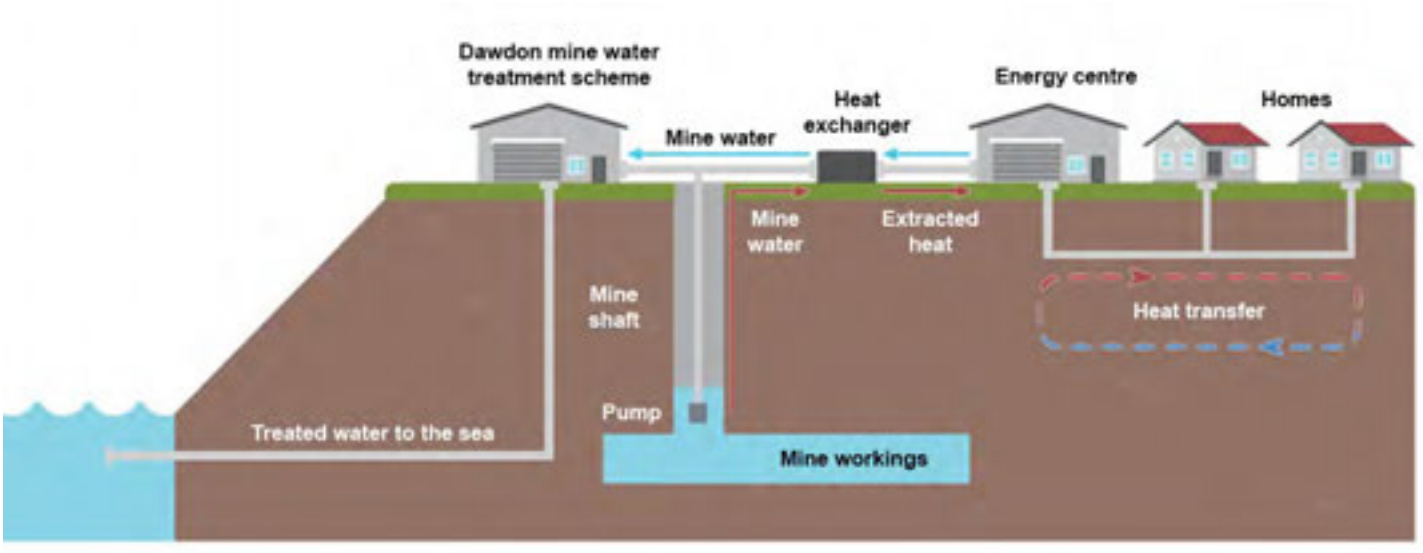
There is also the opportunity to supply heat to buildings via district heat networks, where heat is generated in a central location and piped to buildings as needed. This could allow for utilisation of a waste heat source or natural heat sources. There is potential to supply low carbon heat at a lower cost and lower disruption than installing heat pumps at individual buildings.

Mine Energy

According to the Coal Authority, one quarter of the UK's homes and businesses are sited on former coalfields. DCC have been working alongside the Coal Authority, TOLENT and the Department of Business Energy and Industrial Strategy (BEIS) to help develop the first large scale minewater district heating scheme in the country. 1500 homes and commercial buildings will be heated through minewater which is currently being pumped up at the Coal Authority's Dawdon minewater treatment scheme. Water comes to the surface at about 20°C and will go through a heat exchanger where water will be heated and will be used to heat homes and businesses in the scheme (please see the diagram below).

The project has received significant government support and will be used as a pilot to see if this can be replicated in other areas.

The North East Local Enterprise Partnership (NELEP) have funded a Mine Energy White Paper which looks at the potential for mine energy development, the benefits and risks and concludes with some recommendations around the need for public subsidy, to reduce the competitive advantage of gas systems. **Mine-Energy-White-Paper_FINAL.pdf (northeastlep.co.uk)**



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Hydrogen

Northern Gas Networks has recently launched the second trail of Hydeploy in Winlaton Gateshead. This trial will see up to 20% hydrogen injected into the existing gas network supplying 668 homes, a church and local businesses. This will provide information about the viability of hydrogen for heat nationwide.

Heat Recovery

Local bottler and distributer of wines, Lanchester Wines, are investigating innovative ways to decarbonise heat. The new site will be the first bottling plant to use wine to heat their building as sparkling wine needs to be heated and chilled, and thus the aim is to recover heat from the wine which will be used to heat their buildings. This has never been attempted before and will be the first business to pioneer this approach.

Interactions with other themes

- Current government statements include an ambition to end the sale of gas boilers by 2035. If the UK is to meet net zero targets, this date cannot be put back.
- Funding streams for both the public, private and residential sectors, specifically around heat are welcomed, but they must be made sustainable and fair, without short application windows and unrealistic delivery timescales and be based upon carbon saving potential.
- Funding to improve the thermal properties of all buildings should be made available.
- Energy bills currently have levies applied that in the past have been used to help support introduction of renewable energy and reduce emissions across the sector. Currently levies are disproportionately applied to electricity rates when compared to natural gas rates. As County Durham looks to move away from natural gas use for heat, we are reliant on changes to these levies that would not penalise residents, businesses, and the public sector for moving to low carbon heating powered by electricity. In the heat and buildings strategy there is an indication of **a call for evidence** on energy prices to even out levies between gas and electricity prices to ensure moving to low carbon heating does not come with a cost penalty.

View action plan on page 100

"New buildings should be aiming to be carbon neutral and climate resilient".

New Development

2

The built environment accounts for over half of the UK's CO_2 emissions, through both construction and use. It is essential that new development does not overly increase this burden as there is no room in our carbon budget for an increase in emissions from new development.

Where we are now in 2022

New construction is required to go beyond building regulations but with fossil fuel heating and car-centred design. In off gas areas, developers must install low carbon heating systems. There is no requirement to look at embedded emissions in construction.

Laying foundations Actions for 2030

New buildings are carbon neutral and climate resilient, with all partners working together to enable high quality sustainable development. Construction has moved to modern methods of construction and away from carbon intensive materials.

County Durham's Vision for 2045

New development in County Durham is designed and implemented with sustainability at the core. Buildings are constructed using materials with low embodied energy and once constructed they will be heated and powered with low carbon technologies.

Key Challenges

County Durham has recently adopted a new Development Plan[5] which establishes where development will be built up to 2035. It includes policies on sustainable design which states that new development needs to go beyond minimum standards by 10%. Setting targets beyond government and County Durham Plan policy for new development has very limited scope unless a review of the County Durham Plan is conducted, but even then it is likely that National Policy will have to be adhered to.

Key Highlights

- New Council buildings will utilise low carbon technologies or heating.
- Seaham Garden Village will be developed as a beacon of what can be achieved when private and public sector partners work together.
- Local plan policy prevents the use of fossil fuel heating for new developments in off-gas areas.
- The extension of the Council's prestige enterprise zone, NETPark phase 3 will not use gas to heat its buildings and the development of a solar farm to supply green electricity to the site is currently being considered.

A computer generated aerial photo of the planned Seaham Garden Village.

[5]www.durham.gov.uk/CDP

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New Development
Emergency Response Plan

Introduction

The built environment accounts for over half of the UK's CO_2 emissions, through both construction and use. It is essential that new development does not overly increase this burden as there is no room in our carbon budget for an increase in emissions from new development. It is recognised that there will inevitably be some increase with the amount of new development planned over the County Durham Plan period (2035), however whilst new housing will not be allowed to connect to the gas network by 2025, there is currently no target date for non-domestic development.

All buildings therefore need to be built to Net Zero Standards as soon as possible or be able to be modified to Net Zero, to avoid raising the Carbon Neutral target.

The construction process has a significant embodied carbon footprint and such careful thought around materials and construction processes should be given. The design of the built environment also drives behaviours, with well designed development helping to lead to sustainable communities through increased active travel opportunities, access to outdoor space, less isolation and increased social interaction amongst other impacts.

Interactions with other themes

Heat decarbonisation

New developments will often be used as key drivers of new technologies for low carbon heat. It is generally much easier and more cost effective to fund technologies on new builds rather than retrofit technologies onto older, more complicated buildings, many of which will have only been designed with gas boilers in mind.

Electricity

New developments will require additional electricity to run. The provision of green electricity for such developments, and the challenges this brings, is discussed in the Electricity chapter.

Natural Environment

New developments need land to be built on. This reduces the availability of land for other purposes such as tree planting, which is discussed in the Natural Environment chapter, however policy 26 of the County Durham Plan aims to ensure biodiversity net gain as part of development proposals.

Transport and Connectivity

New developments must include facilities for low carbon transport. This will be discussed in the Transport and Connectivity chapter.

Business and Skills

Low carbon construction requires skills which are not readily available in the North East, such as timber construction of large commercial buildings or maintenance of heat pumps. This training should be discussed in the Business and Skills chapter.

Adaptation

New developments must consider increased risks from the changing climate and new frequency of extreme weather events. This is discussed in the Adaptation chapter.

Green Recovery

New development should reflect the societal changes seen during the pandemic, altering the requirements of buildings and infrastructure for the future.

Durham County Council - Leading by Example

The council is committed to ensuring higher sustainable design standards for new development in the County. The County Durham Plan (the strategic planning document for County Durham) sets down a range of requirements to ensure this, including for example larger non-residential schemes must build to the Building Research Establishment's **BREEAM** 'Very Good' rating, a system that assess how well building are built and will perform in terms of energy and sustainability. It can help realise additional carbon savings from design aspects such as sustainable transport, soft landings, and embedded carbon/use of sustainable materials, which do not tend to be captured in more traditional design evaluation mechanisms. BREEAM also provides a complimentary route for broader Council priorities, relating to ecology and sustainable procurement for example, to be considered in the build.

National planning policy is clear that new development should help to reduce greenhouse gas emissions, including through its location, orientation and design. Local requirements for the sustainability of buildings should reflect the Government's national technical standards. This means that the Council has limited powers to insist that developers build to standards significantly over current minimum building regulations.

The council has, however, chosen to require higher standards and major new build residential development will be expected to achieve reductions in CO_2 emissions of 10% above national standards that are set down in building regulations. Nevertheless, the council appreciates that this will only have a relatively limited impact upon emissions from new development. To improve upon this position, the Council now insists that all new non-domestic buildings built by the council will have a Pathway to Net Zero. This will require buildings to be built with design priorities such as ensuring low heat loss, high efficiency building services, local renewable electricity, and crucially, be built without connections to fossil fuels for heating and hot water. Heating will instead be provided by heat pumps (air, ground, or water source) or as part of a low carbon district heat network.

The Council is also developing a new home building programme for construction in 2022/23. These new homes will be built to a standard in excess of current building regulations, matching the proposals in the Future Homes Standard that will come into force by 2025. Homes will be heated by heat pumps, have a small roof mounted solar PV installation and provision for electric vehicle charge points. Building homes in this way will ensure they are best practice at construction and will have a path to net zero before 2050.

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Actions & Partnerships

Government have indicated in the forthcoming Future Homes Standard[6] that, by 2025, new housing will not be allowed to connect to the gas network and as such developers will have to specify alternative forms of heat, however there is little indication of dates for non-residential development.

Over the County Durham Plan period (2016 - 2035) it is proposed that there will be 300 hectares of strategic and general employment land available and a net minimum of 24,852 new homes (many of which already have planning permission).

Using data from the Zero Carbon hub, consultants (in 2019) modelled the carbon and economic impacts of building these new homes to zero carbon standards. In County Durham it would result in an annual reduction of 67ktCO_2 by 2050 and save £5.1m in domestic fuel bills. The cost of additional investment, in terms of building new homes to a zero-carbon standard, would be £189m in additional spend. The savings and costs of implementing zero carbon standards in non-residential development are yet unknown.

DCC advocates the use of the Green Building Council's Net Zero Buildings Framework Definition[7]. It is essential that new buildings and major refurbishments should be targeting net zero carbon for construction and be designed to achieve net zero carbon for operational energy, utilising onsite renewable energy.

Case Study - Seaham Garden Village

A new development of 1,500 homes was granted permission in 2019. The landowners, TOLENT and the Coal Authority, worked together with the Council to develop an opportunity to utilise minewater heat already being brought to the surface from the adjacent Dawdon minewater treatment scheme. The concept, which is now in development, is for heat from abandoned mines directly underneath the development to supply heat to homes in the development, alongside commercial premises on the site. This project is the first of its kind in the UK. CO_2 savings are significant and homes will be paying no more for their heating than with fossil fuel heating systems.

A computer generated artist impression of the village centre.

Environmentally friendly building techniques:

Lanchester Wines, a business based at Greencroft Industrial Estate in Annfield Plain, Stanley, is currently expanding their business, incorporating the latest design of modular steel frame building which varies the sections of the steel frame, putting strength only where it is needed. This method of construction minimises the amount of steel required for buildings, ensuring a more efficient use of resources.

Flood defence by partner organisation(s):

The Environment Agency, a member of the Council's Climate Emergency Strategic Advisory Board, is investigating the use of low carbon concrete. This is particularly important when building flood defences to adapt to the increased flood risk associated with climate change as concrete is a source of a large proportion of the agency's emissions.

Ask of Government

- The Future Homes Standard must be implemented at the earliest opportunity.
- The Future Buildings Standard for non domestic properties must be brought forward and a target set for net zero as soon as possible.
- Government must demand better insulation levels.
- Government must emphasise a move away from a car centric society, which is facilitated by how new developments are currently designed and instead focus upon how new developments connect with existing communities and local public transport and cycling networks.

[6]https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings
[7]https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2019/04/05150855/Net-Zero-Carbon-Buildings-A-framework-definition-print-version.pdf

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"Facilitating and enabling green travel routes, public transport, electric vehicle charging and fast broadband connectivity".

Transport and Connectivity

3

Transport in County Durham accounted for one third (34%) of the total carbon footprint of the county in 2019 (excluding motorway traffic and trains on the East Coast Mainline).

Where we are now in 2022

EV charging points are being installed in many areas to help facilitate access for all and all new dwellings must have an EV charging point installed. Superfast broadband services are available to the vast majority of households. There has been investment in public transport but encouraging people to go back on buses remains a challenge.

Laying foundations for 2030

Much improved infrastructure for cycling and walking, whilst EV charging is ubiquitous and fair. Much improved and affordable transport.

County Durham's Vision for 2045

Excellent public transport. Cycling and walking is normal. All vehicles are ultra-low emission. Individual car ownership is less common

Key Challenges

Our road network, alongside the network of refilling stations has been developed over decades, we need to rethink this, but the challenge is significant. With 40% terraced housing in County Durham, it will be difficult to allow EV charging cabling on street or to decide which house to put it outside without causing neighbour parking issues. The grid needs to develop to allow the connections for charge points at a cost that is not prohibitive. There needs to be a culture change around shorter journeys, to enable safe cycling and walking for most journeys under 1 mile, alongside improvements in infrastructure. The county's rural geography (hilly, dispersed) is a challenge for active travel and the frequency and fare price of public transport can also be a significant barrier to uptake. Encouraging parents to consider active travel options for school journeys remains a particular challenge.

Key Highlights

- The SOSCI project has installed 153 EV charge points sockets, 10 of those sockets are rapid charge, the other 143 7-22 kWh fast charging, in towns, libraries, leisure centres and community centres.
- Bus Service Improvement Plans (BSIPs) have been submitted to the Department for Transport on behalf of the North East region, asking for significant funding to improve bus services.
- The Council's Cabinet has committed to fund £3.75milion as part of the Towns and Villages strategy to improve walking and cycling in CountyDurham.
- Local cycling and walking improvement plans (LCWIPs) have been developed to help identify how infrastructure can be improved to encourage active travel. This is alongside 'borrow a bike' schemes and investment in our public right of way network.

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Transport and Connectivity
Emergency Response Plan

Introduction

Transport in County Durham accounted for one third (34%) of the total carbon footprint of the county in 2019. This excludes motorway traffic and trains on the East Coast Mainline, so almost all the transport emissions are from cars, buses, lorries, and other road traffic.

This chapter explores how the county will reduce its carbon footprint from transport through supporting low carbon vehicles, active travel and a reduction in unnecessary vehicle use through increased local access to fast internet and public or shared transport.

It should be noted that transport is organised regionally through bodies such as North East Joint Transport committee, Transport North East, Nexus, local authorities and private public transport operators. DCC works with many of these groups to improve transport within County Durham.

Switching to electric vehicles is good, but is not enough of a solution to meet CO_2 reduction targets as there is the embedded carbon involved with manufacture of the EVs to consider, as well as the carbon impact of the construction and maintenance of the road network. Many communities for example are now pursuing shared ownership of vehicles as a way to reduce adverse impacts of vehicle ownership.

Interactions with other themes

Electricity

Sufficient green electricity must be generated to supply charging points for electric vehicles.

Green Recovery

Transport needs changed during the pandemic and should be taken as an opportunity to find new, green ways of communicating and traveling. Working from home has increased since 2020, requiring better connectivity and reducing the need for us all to all own individual vehicles.

Fair and Just Transition

ctive transport options must be safely available to everyone to improve our health and wellbeing while getting from A to B including, in particular safe and frequent public transport services It is important to ensure that electric car charging points are available in the community and public spaces so that households with no off-street parking are not left behind in the transition to electric vehicles. Access to EVs and low carbon public transport should be for everyone.

Durham County Council - Leading by Example

The Council is leading by example by tackling emissions linked to fleet vehicles and equipment, facilitating active travel, working with regional transport partners and facilitating electric vehicle charging.

Electric Vehicles

The Council has a fleet of over 1000 vehicles, facilitating a wide range of services to carry out daily activities. These vehicles are currently responsible for 39% of DCC's emissions linked to core activities. The Council is looking to reduce emissions linked to these vehicles by starting the transition to electric vehicles. This includes installation of 27 charge points across the council's estate, the purchase of an electric refuse collection vehicle, transition of pool car scheme to electric vehicles, and beginning of the process to transition the rest of the fleet.

The Morrison Busty Low Carbon Depot aims to provide a holistic solution to decarbonising fleet vehicles and depot operations based at the site. A 3 MW solar farm will power extensive electric vehicle charging, providing the infrastructure for very low carbon fleet vehicles at the site. Lessons learnt on this project will be applied to other depots around the county.

Hybrid working

Before the COVID-19 pandemic impacted the workplace the Council was exploring patterns of hybrid working and through the inspire office refurbishment programme installing high quality teleconferencing facilities to remove the need for travel to meetings. As DCC staff return to the office, lessons learned around hybrid working and communicating using software like Microsoft Teams have been essential in facilitating hybrid working and reducing the number of miles driven for normal operations.

In partnership with Durham University, the Local Government Association and University College London, the Council engaged with staff to explore the energy impacts of home working during the Covid pandemic. This showed that carbon emissions from commuting have the greatest impact and that learning is being incorporated into the Council's planning for new ways of working.

Cycling and Walking

Following the **Strategic Cycling and Walking Delivery plan** (2019-2029) the Council is developing 12 Local Cycling and Walking Infrastructure Plans (LCWIPs) at towns and villages around the county to provide an evidence based, strategic approach to identifying cycling and walking improvements required in the County to facilitate increased active travel for everyday journeys.

The Council is running a '**borrow a bike**' scheme to support workers and commuters in accessing active and sustainable travel. The scheme offers a complimentary bike loan scheme for 3 months and participants will be given a bike, helmet, lock, lights and training.

The Council have published a series of 'Town Cycling Maps' that outline the opportunities for cycling in local arears around the County.

Significant investment in the Public Rights of Way (PROW) has been made in recent years, helping to enable increased access to countryside and associated health benefits.

Public Transport

As part of the regional partnership, the Council has contributed to the North East Bus Service Improvement Plan that has been submitted to the Department for Transport, asking for significant funding to improve bus services in the region. In order to encourage people onto public transport in the long term, more affordable fares are required across the region.

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Actions & Partnerships

The actions around transport and connectivity aim to facilitate 35,000 fewer petrol and diesel cars on our roads, or an equivalent of 25% reduction in car mileage. Priorities include increasing active travel in the county but also facilitating electrification of private vehicles. If car users switched to busses or cycling and walking for just one quarter (25%) of journeys, this target can be reached. The 'Scaling On Street Charging Infrastructure' (SOSCI) project supports County Durham residents who can't buy an electric vehicle because they don't have off-street parking to be able to charge one, by providing charge points in such areas.

Public Transport

Buses provide the only form of public transport in most parts of County Durham, with 23.2 million passenger journeys starting at bus stops in County Durham in 2018/19. There is an extensive network of bus services throughout the county with approximately 175 services in the main network. Over 4,500 stops are served. Most settlements in County Durham have at least 2 buses per hour during Monday to Saturday daytimes, with much higher frequencies in the main towns and along many of the main interurban corridors.

In the more rural areas, services may run every hour or less often but all except the smallest settlements have regular services. However, the settlement pattern of towns in the County and 229 villages leads to some dispersed travel patterns that are not feasible by public transport. 71% of journeys to work in the County in 2011 were by single occupied private car. This needs to change.

Electric Vehicles

Weardale Electric Vehicle (WEVA) has installed 9 EVCPs in the village of Stanhope as a National demonstrator project. The Charge points have all been installed in a village 5 minutes' walk of each other with the support of an electric vehicle car club to see if this brings the uptake of EVs sooner.

Durham On street Charging (DOCs) project will follow this with the installation of 50 EVCPs to support the parish councils.

Regional Electric Vehicle unified plan (REV up) fundamentally a research project but will install 2 EVCPs looking at different models. The project brings in the potential of a STEP model of installing charge points where the local authority do the underground work before going to a supplier. The Council have taken a stakeholder lead in this project and had discussions with other local authorities and emergency services etc. The potential is to make a large scale bid for funding of EV charge points across the North East.

In partnership, the Council is installing electric vehicle charging infrastructure around the county to help facilitate the transition to electric vehicles. This includes over 200 publicly available charge points.

Car sharing

More use of car sharing and public transport will help us to require fewer vehicles. The Council is partnering with existing and new car clubs to encourage shared usage of vehicles, alongside ensuring car clubs' vehicles can be electric, with access to charging. The council's WEVA project has promoted a new car club in the rural community of Stanhope.

Cycling and Walking

The Council continues to partner with Sustrans in developing cycling infrastructure in the County, for example with projects like the Great North Cycleway that will include 35.5 km within County Durham.

Rail

The Council, working alongside The Auckland Project, are considering plans to develop a passenger rail service from Weardale to Darlington with a grant from the Department for Transport's Restoring Your Railway fund. If developed, it is estimated that 500,000 trips could be made on the line annually.

The Council has submitted a business case to the Department for Transport for a new station at Ferryhill to open up rail links to Teesside, improving transport connectivity for 10,000 people in Ferryhill and a further 50,000 residents within a three-mile catchment area.

Broadband

Project Gigabit is making superfast broadband services available to everyone in County Durham, which will help to reduce the need to travel through more opportunities to work from home.

Transport research

Durham Energy Institute, a member of the Council's Climate Emergency Strategic Advisory Board, is the hub for energy research and activity at Durham University. They are leading the national Network for Hydrogen Transportation (Network-H2) in partnership with the UK Government which has a leadership role in advancing the rapidly advancing hydrogen-enabled transport sector across the energy, marine, on-road, rail, and aviation sectors.

Electrifying fleet

NWL are investigating EVs to decarbonise their fleet although their vans tend to be customised so this will require working with key partners such as Nissan. NWL introduced their first electric vehicles in 2020, adding the second generation Nissan ENv200 to fleet. The new green vehicles are being used by meter readers, starting the journey towards a green vehicle fleet. Through the water company's partnership with leasing firm VLS, Nissan showcased the first generation model at Northumbrian Water's second Innovation Festival in 2018. The updated model's extra mileage capability makes it a viable option for meter readers and shows the benefits of improving technology.

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Ask of Government

- Government has indicated it has set aside £3bn to deliver its National Bus Strategy. A partnership of bus operators, the NEJTC, local authorities and Nexus has submitted a Bus Service Improvement Plan to this fund that, if delivered in full, would require a major share of this funding and is estimated at just over £800 million over a three-year period starting in April 2022. Without this funding, projects linked to improving bus services and achieving a modal shift away from miles driven are limited in County Durham.
- Ask government to prioritise public transport, active travel, car sharing, community car ownership, and community EV charging, as part of a fairer and more just transition.
- Prioritisation of the Leamside line to provide alternative train routes.
- Prioritise the phasing out of the sale of petrol and diesel cars from 2032.
- Reduce the upfront cost of Electric Vehicles (EV's) and more fiscal benefits for those choosing Electric.
- More emphasis on active travel and planning in decarbonisation plans.
- Greater investment in passenger transport to improve affordability.
- Demand Responsive Transport (DRT) to complement existing fixed routes bus services.
- Investment in electric passenger transport vehicles.
- Capacity enhancements to the East Coast Mainline (ECML) to facilitate more local rail services in County Durham.
- More national guidance relating to the aviation, maritime and vans and lorries.
- Promote Rail Freight Potential at Forrest Park, Newton Aycliffe.

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"Renewable energy generation must be increased to meet increasing electrical heat and transport demand".

Electricity

4

Using electricity from the national grid in County Durham accounted for about one fifth (18%) of the total carbon footprint of the county in 2019. Carbon emissions from electricity taken from the grid are reducing every year as each year a greater proportion of the electricity is generated by renewable sources such as wind farms and solar panels. At the same time, demand for electricity is increasing as people use more electricity for heating and transport.

Where we are now in 2022

Electricity from the grid emits 212g carbon dioxide per kWh. Solar panels are common on new buildings and some houses.

Laying foundations for 2030

Renewable generation increased to meet increasing electric heat and transport demand.

Grid is resilient to blackouts through battery storage.

County Durham's Vision for 2045

Renewable generation, energy efficiency, and resilient infrastructure is in place for a carbon neutral electricity grid.

Solar and wind generation is commonplace and local to where it is needed. Some is community owned.

Key Challenges

Whilst renewable electricity can be intermittent it requires a smart and flexible grid to distribute energy reliably. Battery storage will be required for this, which should include a variety of types of battery as well as traditional chemical storage. Renewable energy should be generated where it is needed, which requires organisations, individuals, and communities to be able to connect to the grid in the best locations for generation. It must be made easier to obtain planning permission for wind and other forms of renewable energy especially in or near to conservation areas. Hydro power is a reliable source of renewable electricity but there are very few places where it would be viable.

Key Highlights

- DCC's solar farm at Tanfield Lea, pictured, provides electricity directly into one of its offices, which will pay for itself in less than 10 years.
- Northern Powergrid is working to improve the resilience of the grid.
- The Auckland Project is planning a deep geothermal generator.
- Lanchester Wines has constructed wind turbines, directly supplying power to their site at Greencroft.
- Many private households have installed rooftop PV.
- A number of privately owned solar farms which feed into the local grid.

Tanfield Lea Solar Farm. A 250kW solar farm providing green electricity to a Durham County Council office building.

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Electricity
Emergency Response Plan

Introduction

Through energy efficiency measures, generation of renewable electricity, energy storage, and resilient infrastructure support, DCC will work with partners to ensure that County Durham's electricity consumption is sufficient, reliable, and entirely green.

Using electricity from the national grid in County Durham accounted for about one fifth (18%) of the total carbon footprint of the county in 2019. Carbon emissions from electricity taken from the grid are reducing every year as each year a greater proportion of the electricity is generated by renewable sources such as wind farms and solar panels. At the same time, demand for electricity is increasing as people use more electricity for heating and transport.

This chapter explores how the county will reduce its carbon footprint from electricity and provide clean electricity for decarbonisation through supporting renewable generation and energy efficiency.

Interactions with other themes

Part of the challenge of decarbonising electricity is ensuring that a steady supply is always available, everywhere that it is needed. This is an example of adapting to climate change, but it will be discussed in this chapter as it is specifically to do with electricity.

Energy from waste (EfW)

Grid supplied electricity is significantly less carbon intensive than electricity generated in EfW plants[8]. This may change as Carbon Capture Storage is implemented but is discussed in more detail in the Procurement and Waste chapter.

Heat

The decarbonisation of heat will require a stable and plentiful supply of electricity. It is expected that much of heat decarbonisation will be achieved through heat pumps, which will require green electricity.

Some of this must be met by the inclusion of renewable electricity generation as part of heat pump projects wherever possible. Projects that are about heat but include electricity generation will be in the Heat Decarbonisation chapter.

Transport

Electricity will play a significant role in the decarbonisation of transport across the county. The provision of charging points for electric vehicles will be covered in the Transport and Connectivity chapter.

Fair and Just Transition

Renewable electricity generation should not be just for residents with their own roofs or land. Community owned renewables would allow any resident to be part of the renewable electricity revolution, no matter how big or small their contribution.

Adaptation

Durham's electricity supplies must be robust enough to withstand the weather events that the people of Durham will experience as part of our changing climate. Storm Arwen in late 2021 is an example of the storms that we may expect more often.

[8] https://zerowasteeurope.eu/2020/03/understanding-the-carbon-impacts-of-waste-to-energy/

Nature Based

Renewable energy projects can often be paired with work to improve biodiversity. Opportunities for this are considered in this chapter.

Durham County Council - Leading by Example

Between April 2020 and March 2021, the Council generated more than one million kWh of renewable electricity. Two thirds of this was used by the council and the remainder was exported to the grid for other Durham residents to use.

The decarbonisation of the National Grid over the last decade has had a significant effect on the Council's carbon footprint. Most of our carbon reduction has been in electricity use by increasing efficiency, generating our own electricity, and using the lower carbon grid electricity. Around two thirds of the reduction in emissions from electricity use was due to the national effort to decarbonise the grid. One third of the reduction was due to improving energy efficiency and generating our own renewable electricity.

The Council's energy efficiency and renewable generation works alone have still delivered a greater reduction in emissions from electricity use than has been achieved for heat or transport. This is because electricity is expensive. For many years it has been possible to do projects to reduce our electricity use because that reduction in invoice costs would be sufficient to pay for the project in just a few years. This has not been the case for heat or transport, as gas, petrol, and diesel are comparatively cheap.

Projects such as the Tanfield Solar Farm, a 250kW array of solar panels which directly feed the Comeleon Office building, were financed through an '**invest to save**' model. The project will pay for itself in less than twelve years, a feat not achieved by any heat or transport project that hasn't received any grant funding.

Following the success of the Tanfield Solar Farm we are deploying solar PV systems across the Council sites. At the Morrison Busty Depot, we are installing a 3 MW solar farm, alongside a 2 MWh battery, that will provide very low carbon electricity to power the depot and electrified fleet vehicles based there. Ten council sites across the County will have new roof mounted PV installed. The County Durham Plan[9] policy 33 shows DCC's support for renewable and low carbon energy.

The council buys 100% low carbon electricity[10] for all its buildings and on-site electric vehicle charging. The carbon footprint of our purchased electricity is still the national grid average carbon footprint for reporting purposes, but through this action we can consider that we offset these emissions by supporting low carbon generation.

Even though the Council's purchased electricity is 100% low carbon, that doesn't mean that it can be used indiscriminately. When lots of electricity is taken from the grid, that reduces the amount of low carbon electricity that is available for other people to use. If everyone took too much low carbon electricity for themselves, national grid would need to switch a coal power plant back on to meet remaining demand! It is therefore essential that the Council continues to work on energy efficiency and renewable generation.

Examples of energy efficiency works carried out recently by the council include; installing low energy LED lighting in buildings, at bus shelters, and for street lighting, ensuring any electric equipment is high efficiency, switching everything off when it is not in use, and upgrading ventilation systems with high efficiency fans.

[9] https://www.durham.gov.uk/cdp

[10] https://www.nepo.org/news-and-events/nepo-electricity-framework-supports-uk-net-zero-ambitions

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Actions & Partnerships

Electricity is expensive. The Council's actions have largely been self-funded, as they would pay for themselves through reduced electricity invoices. Private firms, organisations, and individuals may follow the council's lead and act for themselves without needing financial support from local or national government.

Lanchester Wines, a local business, has constructed four wind turbines and a 41kW solar array produce more than 5.5GWh green electricity to supply its offices, bottling plant, and operational buildings[11]. Around 40% of this green electricity feeds into the national grid to reduce the carbon factor of the electricity for the local community too. The company's second biggest energy use after electricity is space heating. It has used flooded mine workings as a resource to heat 36,000m2 of warehouse and factory spaces with heat pumps which require electricity to run.

Energy Efficiency

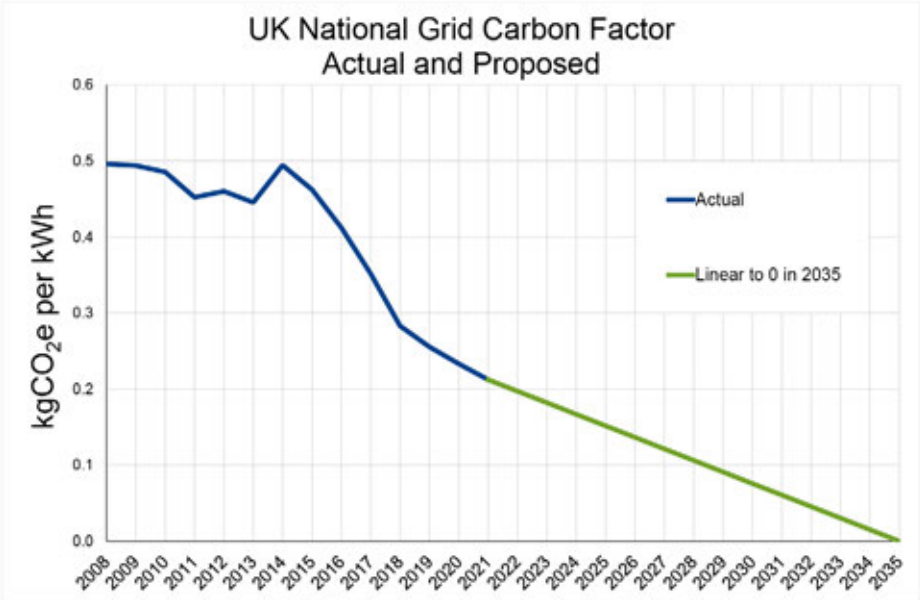
Even renewable electricity has a carbon footprint as there is carbon embedded in the generation equipment. It wouldn't be right to generate as much as possible without first considering how to reduce the amount that we need through energy efficiency. This could be as simple as switching off what isn't needed, replacing old lights with LED, and ensuring any new equipment is as energy efficient as possible. Use timers or BEMS to make sure nothing is left on overnight that shouldn't be.

Renewable Generation

The UK Government's Net Zero Strategy, published in October 2021[12], includes commitments for all the UK's electricity to come from low carbon sources by 2035, to increase funding for wind turbines, deliver 40GW of offshore wind by 2030, improve the planning system to support renewables, and improve the grid to accommodate renewable generation.

These commitments are ambitious and would provide good support for the challenge we face in providing sufficient low carbon electricity for the people of County Durham. If our national grid can supply sufficient green electricity to meet demand by 2035, then we stand a good chance of meeting our decarbonisation goals in all sectors.

The following graph shows that the commitment to reach zero grams of CO_2e per kWh of electricity in 2035 shouldn't be impossible. It is not a sudden drop that is required, but a steady continuation of the reduction we have seen in the last decade.



[11] www.lanchesterwines.co.uk/what-we-do/sustainability/

[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1028157/net-zero-strategy.pdf

There have been many successful privately funded solar farms in County Durham. With continued support from local planning and residents alike, this should continue on suitable land and where there is the possibility of connecting to the grid.

Disused landfill sites are good opportunities for solar farms, as the ground is not stable enough for larger construction, and often not nice enough for sequestration works. Where there isn't a wide area of land and there is height available, wind turbines should be considered. They provide electricity when the wind blows, including at night when solar panels are no longer generating.

The other commitments listed in the UK Net Zero Plan are required for the delivery of sufficient electricity, to mitigate the inconsistency of supply from renewable sources and support the transmission and distribution of electricity to everywhere it is needed.

Local government must enable individual and private action to generate renewable electricity, through mitigating blockages such as unfair planning restrictions and very high grid connection costs. DCC are also considering wind turbines where possible and within planning constraints. The County Durham Plan[13] policy 34 specifically covers wind turbines, which can be more difficult to approve.

If County Durham is going to achieve the carbon reduction targets set out in this CERP, we must increase the amount of renewable electricity that is generated here. The electricity coming from the national grid will reduce in carbon intensity as more wind and solar farms are constructed across the country, including in Durham.

We could contribute 25% of the effort required to meet Durham's target by generating an additional 25,000MWh of electricity in County Durham, which could be achieved by constructing either 30MW of solar or 10MW of wind turbines. Each of those would be expected to achieve around 25,000MWh electricity per year in Durham though it would be more practical to have a mixture of different generating technologies.

Members of the County Durham Partnership including Northumbrian Water Ltd, Durham University, Lanchester Wines, and the Coal Authority have solar PV installations on their premises. Northumbrian Water Ltd and the Council are both looking to expand their rooftop PV coverage in the next few years.

Energy Storage

Wind turbines produce electricity when the wind blows and solar panels produce electricity when the sun shines. Even when we include controllable generation such as nuclear as in Hartlepool or biomass as at Drax in Yorkshire, we will not be able to generate exactly the right amount of electricity at exactly the right time all the time. To solve this problem, we need energy storage.

As a local authority, the council can support innovation by hosting demonstrator projects and facilitating collaboration between appropriate partners. One area of innovation at the moment is in battery technology, as we can't rely on the chemicals required for usual batteries for the scale that will be required by the grid. Energy can be stored in other ways such as through gravitational potential, or compressed air.

As the climate crisis takes hold, resilience will become more difficult and more important than ever. Batteries will form a part of the resilience of the grid, both at large scale (frequency response) and within individual buildings (demand response). This plan supports the inclusion of batteries in projects and as standalone grid scale installations.

[13] https://www.durham.gov.uk/cdp

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The Grid Infrastructure

Northern Powergrid (NPG) is responsible for the electricity distribution network across the North East, Yorkshire, and northern Lincolnshire. 14 NPG projects have been selected to benefit from the national Green Recovery Scheme, totalling £53m of investment for the North East, Yorkshire, and Lincolnshire.

One of these projects is in Seaham, where NPG will invest £8.5m to build a new substation and deliver improvements to the overhead and underground network there. This will improve the resilience of the grid for the local communities.

Investment in grid resilience also allows large scale renewable generation to take place, as this requires capacity for electricity to move in both directions, both out of and into the network. It will also meet the needs of rapid electric vehicle charging, which requires a huge amount of power to be delivered very quickly.

In order to minimise impact of Northern PowerGrid's operations on green spaces, 68.7km of overhead lines have been removed from national parks and AONB. There is approximately 132km of overhead lines remaining to be removed in future.

The Office of Gas and Electricity Markets, OfGem, is in a position to help or hinder the transition to renewable electricity. OfGem oversees financial incentives such as the Feed in Tariff for electricity (now abolished) and the Renewable Heat Incentive for heat (only available for domestic properties until March 2022).

In February 2021, OfGem published an open letter[15] on the potential for a greener economic recovery from Covid-19, showing support for the Energy Network Association (ENA) Green Recovery Scheme[14]. The scheme recognises that the upkeep of local energy networks is vital if we are to achieve a low carbon society. Investment in local electricity grid infrastructure must be the first step in the green recovery, providing the foundation on which to build a low carbon future.

By generating renewable electricity close to where it is needed we reduce the amount lost to transmission and distribution, allowing more of it to be used and making the whole process more efficient. Local infrastructure must be upgraded to allow fluctuations in supply and to allow export to other areas.

Smart Energy Networks

Keele University, a member of the Council's Climate Emergency Strategic Advisory Board, have developed their innovative Smart Energy Network Demonstrator Initiative or SEND. It is a European first and involves a living laboratory where they investigate energy generation, distribution and forecasting for the University's campus. The aim of this living laboratory is to deliver better energy management systems to better use energy which could be rolled out across many different organisations.

Local and Community Electricity

The Local Electricity Bill[15] addresses the challenge of improving local electricity availability from another perspective. It aims to remove barriers that can currently prevent local communities making use of the electricity generation opportunities available to them, which few communities in County Durham have been able to do.

The Ruswarp hydro turbine[16] near Whitby is an example of a community owned electricity generator outside of Durham. It also forms part of the community as a tool for education for local school pupils. Their project was helped by the Environment Agency, North York Moors National Park and River Esk Action Committee.

A report[17] commissioned by North East Local Authorities and produced by the Centre for Sustainable Energy shows how community energy organisations could benefit the people of the region. The North East currently has the lowest concentration of community energy projects in the country. There are likely to be many opportunities within County Durham to begin to change that, and DCC would encourage community renewable generation projects.

Asks of Government

- That the commitments made in the Net Zero Strategy 2021 are upheld.
- That government recognises that demand for clean electricity will increase with decarbonisation of heat and transport, and that generation and storage are increased in preparation for that rise in demand.
- That electrical infrastructure is prioritised in future budgets.
- That government supports community renewables through the Local Electricity Bill, so that electricity can be generated close to where it is needed.
- That government recognises the extreme importance of a reliable and renewable electricity supply for every aspect of the transition to net zero.

[14]https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/ena_green_recovery_scheme_open_letter_feb_21.pdf
[15]https://www.energynetworks.org/newsroom/britains-energy-networks-to-invest-over-gbp-300m-in-green-recovery-for-seas-skies-and-streets
[16]https://powerforpeople.org.uk/blog/local-electricity-bill-briefing-for-mps
[17]https://whitbyeskenergy.org.uk/

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"Helping business develop plans to decarbonise and actively share learning across the sector".

Business and Skills

5

25% of County Durham emissions come from the commercial and industrial sectors and whilst there has been a significant reduction in energy consumption in this sector since 1990 there is still more work to be done as much of this decrease has been through closures of manufacturing industries. The services sector has remained roughly static, although usage was low compared to other sectors throughout the period.

Where we are now in 2022

Business Durham, as one partner on the Economic Partnership, working with the Business Energy Efficiency Project supporting energy efficiency work across businesses in the County. Some businesses are already leading the way.

Laying foundations for 2030

Business have developed plans to decarbonise and are actively sharing learning and putting measures in place to reduce energy consumption and increase locally generated power. A partnership approach is enabling a growth in local green technologies and skills.

County Durham's Vision for 2045

All businesses and industry will have implemented a decarbonisation plan and most will have achieved net zero emissions, with offsetting in place where emissions are unavoidable.

Key Challenges

Grid availability and upgrades being charged directly to businesses hampers many energy projects. Awareness of climate change and energy issues in business remains low on businesses priority list. There is a need to ensure that business see the green economy as an opportunity, and invest in green skills and training for staff. Covid recovery may distract some businesses from carbon reduction whereas, if planned properly, they should go hand in hand.

Key Highlights

The Low Carbon Economy Team has supported over 400 SMEs with energy efficiency advice and grants since 2016 and continues to do so.

Sustainability questions on procurement questionnaires are driving all businesses to address their carbon emissions, and the Council are supporting them with impartial advice on how to do this.

Customer awareness of climate change is also putting pressure on businesses to address the issue.

Many businesses in County Durham are leading the way in decarbonising and in developing green technologies.

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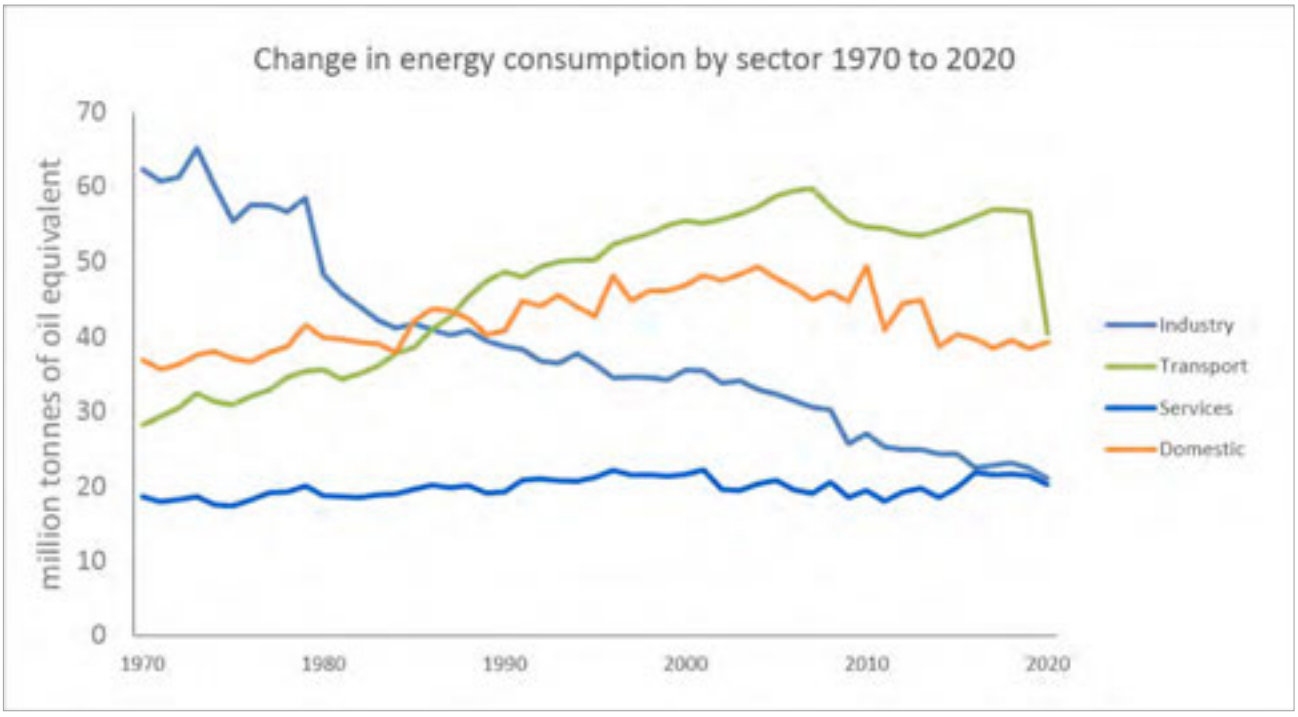
Business and Skills
Emergency Response Plan

Introduction

For some time, decarbonisation of the business sector has been driven by financial savings but more recently, the focus has gradually shifted to the benefits it will bring to the environment. This is, in a large part, due to the scoring of procurement practices with 30% of the scoring now being allocated to sustainability, but also a **wider understanding of the issues affecting the climate, and therefore the pressing need to reduce carbon emissions**.



UK energy consumption figures by sector are shown above (UK Gov, Energy Consumption in the UK[18]).

Energy consumption in the industrial sector has halved since 1970, assisted by initiatives from The Carbon Trust and others, designed to help businesses use energy more efficiently, but there is still more work to be done. The services sector has remained roughly static, although their usage was low compared to other sectors throughout the period. Reductions for the service sector are likely to come from building and transport efficiencies, which have recently benefitted from people working from home due to Covid restrictions. The use of online meetings has reduced business mileage to attend meetings, and reduced energy bills in offices and commercial locations.

This chapter focuses on decarbonising businesses and skills training in County Durham working in conjunction with the Low Carbon Economy Team (and more specifically, the Business Energy Efficiency Project BEEP), the newly formed Conference of Partners, Business Durham and DurhamWorks.

[18]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021836/Energy_Consumption_in_the_UK_2021.pdf

Interactions with other themes

Heat Decarbonisation

Business must adapt and prepare for the use of gas boilers for heating to end. This means developing a plan for decarbonising their buildings at the earliest opportunity. Business needs to invest in education and training for employees on heat network technologies, and courses are needed to deliver these skills.

Electricity

Business needs to develop energy security, which may mean producing much of the electricity that they need on-site, saving both costs and carbon.

Engagement, education and behavioural change

Many opportunities exist for businesses to embrace the green economy. Much of this will come from upskilling the workforce to enable simple changes and long-term decarbonisation plans.

Food and Land

Working with businesses in the food production sector to help them decarbonise. supporting our local food production businesses to become more sustainable, and helping train and upskill future generations.

Green Recovery

Local businesses must be supported to recover from the disruption of the pandemic and, where possible, to maximise the opportunities to build their systems and processes back better than before.

Community and People Centred

Communities benefit from having a thriving local economy, with local jobs and skills.

Nature-Based

Forthcoming Government schemes to support environmental land management and net zero could help to improve the resilience of County Durham's farms and rural business. Increasing nature-based solutions for climate change will also offer opportunities for upskilling, reskilling and new career paths. For example, plans to increase afforestation across England could support 2,000 jobs in 2030[19].

[19]HM Government (2021) Net Zero Strategy: Build Back Greener

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Durham County Council - Leading by Example

Small Business Support

Since 2016, the Council has run the Business Energy Efficiency Project (BEEP) which works with SMEs in County Durham to help them identify energy efficiencies they can implement and gives access to a grant pot to assist with any capital costs. The BEEP Team have worked with about 450 SMEs at time of writing. This is an ERDF funded project which will run until end March 2023, after which time the council is exploring ways to continue to provide business energy efficiency support in the future.

Whilst we cannot force businesses to address energy efficiencies, the BEEP project aims to provide all the advice and support possible to make this a simple process for them. A good example of this is the 'Try before you Buy' scheme being launched at the end of November 2021, which provides a free loan of an EV van to a business to trial in place of existing fossil fuel vehicles.

The EV van loan scheme works in conjunction with the Council's Fleet Services who handle the loaning of the vans to SMEs in County Durham. The loan is dependent upon the business accepting an offer of the fully funded BEEP energy efficiency audit to provide them with a detailed look at all their energy usage, not just transport. Details of the BEEP project are below.

Many businesses have formed strong relationships with the BEEP Project and have remained in contact, seeking further advice and updating the Project on their continuing energy efficiency activities. One such business is Beamish Park Golf Club which started by replacing their heating and lighting and have gone onto replace all their golf buggies with electric ones and started a solar PV rollout on the flat roof of the Club. They constantly seek better and more sustainable ways to do things, as well as looking to become the most sustainable Club in the County.

Under the Interreg funded LOCARBO project, the council has promoted its good practices for adapting BEEP procedures during the Covid-19 pandemic, which restricted social and business operations. This good practice has been shared with European partners, which has helped improve resilience of delivery of BEEP to businesses across the County.

Working with International Partners

In addition, the Low Carbon Economy Team have been part of Interreg Europe working parties, where good practice in the UK, and in other parts of the European Union can be observed and shared.

This includes the SME Power project which is further supporting SMEs during the next two years. It will adopt good practice from Finland to develop and promote a carbon foot printing tool to help smaller businesses relate energy costs and carbon to their productivity. A further project will improve the energy efficiency of our tourism and hospitality businesses utilising the good practice from Slovenia as a model. These projects have shared our BEEP model with other authorities across Europe, supporting them to improve their own engagement with SMEs.

Further Support and Skills

Business Durham is the business support service for the Council, helping to deliver more and better jobs, and a strong competitive economy. It manages a portfolio of business properties on business and industrial estates across the county and is engaging with the Low Carbon Economy Team to identify a model decarbonised estate, with could be duplicated across their property portfolio. This may benefit NetPark 3, mentioned in the Electricity Section above.

Business Durham is also working in partnership with BEEP and the Low Carbon Economy Team staff to promote the initiatives, support and funding that is available to businesses across the county. They are also working to attract inward investors in the clean energy and low carbon sectors and supporting existing companies who are innovators in these sectors.

The DurhamWorks project has an environmental focus, part of which is a commitment to minimise waste and energy consumption, and to promote the use of public and green transport. All DurhamWorks staff are based in the Council buildings which are subject to the council's strategy and targets for carbon reduction. There is a programme level Sustainable Development Policy and Plan and all delivery partners have their own sustainable development policies and plans too.

Actions & Partnerships

Skills and Training

Skilling the workforce is an area of significant opportunity for Further Education (FE) colleges and Universities. Many are adding in low carbon technology modules to more traditional courses, whilst some businesses are establishing training centres for low carbon technologies because of the significant potential growth.

Some businesses, such as Automotive Solutions in Peterlee, and Kinghorn Electric Vehicles in Durham, are already transitioning to provide maintenance and/or supply of EV vehicles.

Atom Bank is ensuring that their Durham city offices and operations are as carbon neutral as possible, with native tree planting alongside other wildlife improvements, greening their supply chain, 100% sustainable energy use, EV charging points and food waste collection. Alongside hybrid working Atom is pioneering a four day working week for all staff which will reduce congestion and pollution from car journeys and energy consumption. The company is also exploring innovative initiatives they can develop within the banking industry, in particular how best to support and encourage energy efficiency in the housing market through their rapidly growing secured lending business.

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The Federation of Small Businesses, a member of the Council's Climate Emergency Strategic Board, are engaging with both members and non- members to provide practical support and guidance through their national Sustainability Hub. This hub will provide examples of green projects undertaken by other businesses, educational resources covering topics such as the importance of going green, and a useful jargon buster.

County Durham Economic Partnership, (CDEP), have conducted nationwide research focussing on SMEs and their knowledge of green initiatives; findings included at only one third were aware of the net zero concept and 71% didn't know where to go for energy efficiency advice. However, 60% stated that environmental impact was their second largest priority to customers (after cost) and therefore there is a market premium for being 'green.'

CDEP are involved in Durham Works which is a £39 million European Regional Development Fund project which works with young people who aren't in education or employment. CDEP is also working with those in education through the Durham City Incubator which encourages students to stay in the North East and set up businesses with a green focus.

Ask of Government:

- Create replacement funding schemes for ERDF such as the recently announced Shared Prosperity Fund.
- Actions outlined on ESOS reports should be required to be carried out rather than just noted, or at least a % reduction achieved before the next ESOS inspection.
- Invest in the National Grid to make electrification easier and cheaper. Many projects in the County have been halted by the cost of upgrading the grid. In a County with a limited gas network, decarbonisation would be easier to promote if grid upgrades did not limit projects.
- Widen legislation relating to energy efficiency requirements for all new buildings (not just domestic) to ensure they are as low carbon as possible from initial build.

View action plan on page 105


"Making better use of resources and considering the life cycle impacts of purchasing decisions".

Procurement and Waste

6

Sustainable resource use is at the core of this theme. This means making better use of resources and considering the life cycle impacts of purchasing decisions. It also means minimising the production and consumption of non-renewable resources and ensuring that all waste materials are re-used or disposed of appropriately to emit minimal carbon.

Where we are now in 2022

Over 250,000 tonnes of waste generated in the county per year.

Carbon factored into procurement of some key contracts.

Laying foundations for 2030

Minimise consumption of non-renewable resources. Prioritise re-use and recycling of waste.

Carbon factored into major contracts. Contract managers working to deliver carbon savings.

County Durham's Vision for 2045

Build a circular economy and a carbon neutral supply chain centred around sustainable materials, re-use, and recycling.

Key Challenges

Making changes to the way things are produced to ensure the use of sustainable materials that can be reused or recycled as much as possible should be a key consideration. This requires following the waste hierarchy, reducing the amount of contamination in the waste being sent for recycling and especially minimising food waste, which accounts for 30% of County Durham waste. Advances in technology should be matched with opportunities to embed them in long term contracts and processes. Working effectively with partners and suppliers to maximise carbon savings and include environmental benefits in contracts.

Key Highlights

- Durham has moved significantly away from disposing of residual waste in landfill over recent years.
- We have recently bought our first all electric refuse vehicle, Emma
- There are facilities emerging in Durham and the wider region to process recycled materials and enable them to be reused in the manufacturing process.
- The County Council is leading the way in embedding social value and wider environmental concerns into major procurements.
- Re-f-use in Chester-le-Street is a community café working to end food waste in County Durham. Each month it salvages over 10 tonnes of good quality food and serves it in the café, to private events and restaurant nights.

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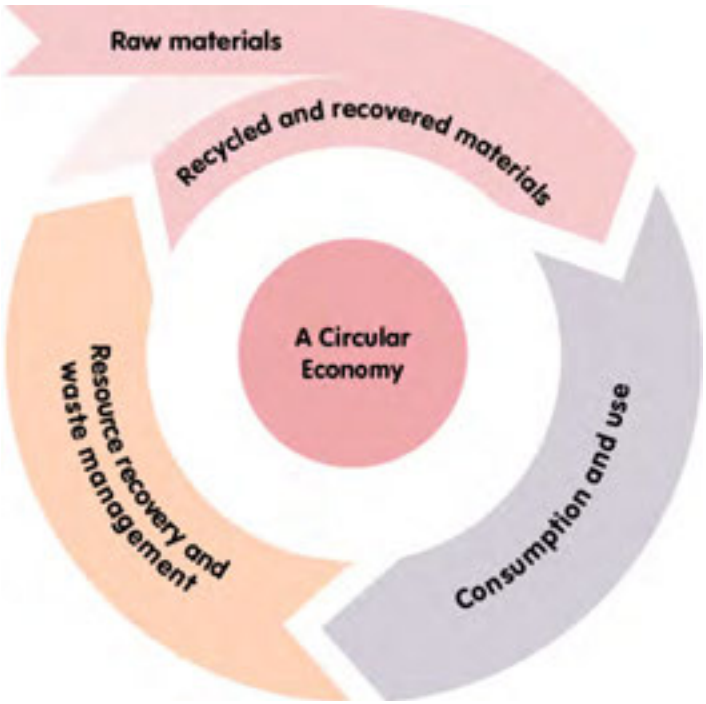
Procurement and Waste
Emergency Response Plan

Introduction

Sustainable resource use is at the core of this theme, including making better use of resources and considering the life cycle impacts of procurement decisions. The public sector across County Durham procures a significant volume of goods and services in delivering its remit. This has quite a significant carbon impact, but also provides the opportunity to make savings, to lead by example, and demonstrate low carbon service delivery.

The Council has a strong record of sustainable procurement and has been pioneering in many environmental and social campaigns and aspirations, winning the Cabinet Office's first ever award in 2016 or Social Value Leadership for an Organisation. We are always looking to improve on this and will continue to develop mechanisms and evolve the way we procure goods and services.



Circular economy model. Source: UK Government.

At the end of many purchasing decisions is the question of how we dispose of any unwanted waste, which applies to everyone, not just the council. Moving away from seeing this as waste and recognising it as a potential resource will be critical to lowering our carbon and environmental footprint. If something is waste, we must pay to dispose of it whereas treating it as a resource adds value and prevents further consumption of raw materials. This is sometimes called a circular economy model because resources are not lost.

It can be difficult to track the carbon emissions associated with procurements or waste, as many of the actions rely on other organisations in a supply or disposal chain. However, just because the emissions can be one or more steps away, doesn't make them less important. Where the carbon is generated doesn't matter, as it all contributes to climate change.

The recent **'Net Zero Strategy'** reaffirms the Government's aim to create a shift in how waste and resources are viewed and managed. It re-iterates that it will provide £295 million of capital funding which will allow local authorities in England to prepare to implement separate, free of charge food waste collections for all households from 2025.

The Environment Bill, which is currently progressing through Parliament, will effectively establish the Resource and Waste Strategy as a "once in a generation" change to the way waste is managed. The Strategy will result in a more consistent approach to recycling, to achieve aspirational recycling levels by 2035. As well as mandatory food waste collection, this includes some form of Deposit Return Scheme for plastic and glass bottles.

These new commitments should lead to streamlining collections across the UK to facilitate recycling and introduce industry wide schemes to encourage products are made of materials that can be recycled or reused.

At the moment, local authorities and business leaders are awaiting the final details of these proposals and schemes including how the transition costs and the “new burdens” related to recycling will be funded. They should make significant shifts in how products are made and how waste is collected, recycled and treated but until the specifics of the Government’s proposals are announced, industry and local governments are limited in the actions they can take.

Facility processing recyclable waste.

It is intended that the proposals will lower carbon emissions from across the whole process (extraction, manufacturing, use and disposal), however individual stages may see incremental increases. Changes to the types of waste collected and sorting of waste products may require more collection vehicle journeys or energy use at processing facilities for example.

Since the first CERP, the Council has formally adopted an Environment Management System for all of its service areas. This will monitor, report and improve our environmental performance across a series of indicators, and assist with bringing environmental issues associated with activities such as procurement and waste together. It will improve the ability to track some Scope Three emissions from our supply chain that could otherwise be omitted.

Interactions with other themes

Transport and connectivity

A significant proportion of emissions from procurement and waste management comes from transport, mainly HGVs. Whilst low emission transport technology is evolving, this sector will be difficult to address and is likely to be dependent on industry changes later in the decade.

Increased use of digital resources means fewer physical products are needed. For example moving Council Tax and Pension information on-line has saved tonnes of paper and thousands of deliveries.

Land and Sustainable Food Production

Shorter supply chains and better use of perishable resources would reduce both waste and purchasing.

Education

Increasing awareness, skills and knowledge of environmental issues and waste/climate change should lead to positive behavioural change.

Community and People Centred

It is clear from consultation work and engagement with the community that recycling is important to the people of Durham. It is also an important part of tackling the climate emergency and will be addressed in this chapter.

Education and awareness

Improving people’s awareness of correct recycling and waste avoidance is the most effective way to lower carbon emissions.

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Durham County Council - Leading by Example

Procurement

The Council is working to further integrate climate and environmental issues into our procurement processes.

In recent years there has been a continued drive to improve processes and standards with existing policies and buying standards available to view on the procurement[20] pages on the council's website. The action plan within the new Procurement Strategy contains a detailed section on Social Value and Climate Change with each action accompanied by a delivery date and review period. We have set buying standards for areas including equipment, textiles, food and timber-based products. In the past two years we have made changes to our procurement processes and led the way on actions to reduce unnecessary single use plastics from our operations.

We have maintained the purchase of 100% low carbon electricity for council buildings.

This year we are implementing a number of procedures to assess the impacts of significant contracts whilst ensuring that we embed environmental considerations across of our procurement activity.

Through the Priority Environmental Procurements (PEPs) initiative, we will review our procurement pipeline and identify procurement activities where we can even further enhance environmental or carbon objectives achievable via the procurement process. Each PEP will have a small project team to ensure that improved environmental performance is built into the procurement process and cycle.

The Themes, Outcomes and Measures (TOMs) have been adopted as award criteria for procurement processes above the £177,898 threshold (January 2022) values for the purposes of the Public Contract Regulations 2015. TOMS includes specific award criteria on the Environment: Decarbonising and Safeguarding our World. Such award criteria will consequently form part of the contract and subsequent contract management process going forward.

The Council has also increased the tender threshold in relation to its own Contract Procedure Rules from £50,000 to £177,898. The threshold is the point at which the bidding process becomes more intensive and increasing it will make it easier for local, smaller suppliers to bid for contracts.

A Procurement Policy Note (PPN) with regard to Carbon Reduction was recently issued by Cabinet Office as a mandatory requirement for all Government contracts over £5M. In short this means that any suppliers wishing to bid for a contract over £5M must have a Carbon Reduction Plan for their commitment to achieving Net Zero by 2050. Whilst it is not mandatory for Local Government to implement this, the Council have decided to add this PPN principles as part of good practice and it will now be included within our Invitation to Tender documents and will be a pass / fail selection question in our documents.

Furthermore, the council's Procurement team is also working to promote and influence, where possible, the environmental agenda locally, regionally and nationally. This is via the County Durham Pound Project (locally), North East Procurement Organisation (regionally) and the National Social Value Task and the Local Government Association (nationally).

Support for local business and local produce is essential for a sustainable community and county. Maximising the 'Durham Pound' (the amount of money spent and retained in the county) is likely to have a significant impact, by retaining profit within the county. It also helps to support the local high street, having real social positive impacts and reduces transport emissions.

[20] https://www.durham.gov.uk/article/2815/Procurement-policy-and-strategy

Durham County Council Pension Fund

The Durham County Council Pension Funds is in the process of pooling its assets through Boarder to Coast Pensions Partnership (BCPP) alongside 10 other local authority shareholders. BCPP has collaborated with the council and its local authority partners, to develop its approach to Responsible Investment. Like the DCC Pension Fund, BCPP believe that well-managed companies with strong governance are more likely to be successful long-term investments. As such, BCPP embed environmental, social and governance ('ESG') analysis into BCPP investment process across all asset classes.

Additionally, BCPP and Partner Funds have collaborated on a stand alone Climate Change Policy which outlines the approach BCPP will follow in fulfilling its commitment to managing the risks and opportunities associated with climate change across the assets managed on behalf of the Pension Fund. The Policy outlines BCPP's commitment to a net zero carbon emissions target by 2050 at the latest. Whilst both the Pension Fund and BCPP believe in Engagement rather than divestment, however, based on investment criteria and the scope for stranded assets BCPP will not invest in pure coal or tar sands companies. BCPP provides regular reporting to the Pension Fund Committee on the carbon intensity of the assets it manages.

In March 2022 the Pension Fund Committee committed £70m to support the launch of a Climate Opportunities Fund through BCPP. This Climate Opportunities Fund will target investments on behalf of the DCC Pension Fund that will have a material positive impact on climate change and support long-term net zero carbon emission goals. In terms of its own operations, the Pension Fund has developed an online portal for its c60,000 scheme members. By delivering the majority of its bulk mailings through the online portal, the Fund has saved an estimated 50 tonnes of carbon per year.

Waste

DCC have a target to recycle 60% of municipal waste by 2030 and to reduce landfill to a maximum of 10% municipal waste by 2035.

From the most recent composition analysis undertaken, 26% of residual waste (waste currently not recycled or composted from the kerbside) is food waste. Out of these ~37,700 tonnes, it is estimated that between 17-19,000 tonnes could be captured through dedicated food waste collections. It is likely that Government will legislate for dedicated food waste collections by 2025, however we are waiting for this announcement.

In the past two years we have completed the process of bringing the composting of garden waste back into council operational control. That is likely to create a small uplift in operational emissions, but give us greater control of the deliveries, processes, and outputs.

We have also restructured the scale of the gas turbines that generate power from landfill gas. Over time the volume of gas produced decreases and the plant size needs adjusting to ensure maximum efficiency.

Council staff and volunteers during a litter pick. Household Waste Recycling Centre.

Our waste collection services have procured an electric refuse collection vehicle, and we have begun the process of upgrading our depots with charging infrastructure to enable future fleet upgrades.

During the Covid lockdowns, the council experienced increased volumes of waste collected from households and also, disappointingly an increase in contamination levels of recycling collections. Both of these will have contributed to an increase in the carbon footprint of the waste service. Now restrictions have eased, officers have intensified promotional campaigns and engagement.

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We have begun a review looking at the carbon emissions from the waste processes under the Council control and influence. This will continue and results will be fed into procurements and operational decisions.

The new Household Waste Recycling Facility at Stainton Grove was just completed as we produced the first CERP. Despite Covid lockdowns, in the past year, the on-site shop has seen 16 tonnes of potential waste re-used rather than recycled/disposed. It also provides a Trade Waste facility so that SMEs and businesses can dispose of their waste locally, enhancing their ability to recycle and reduce transport emissions.

Actions & Partnerships

The Council is part of a consortium of 7 north east councils working towards developing a new Energy Recovery Facility plant on Teesside. The new facility will process residual waste that cannot be recycled to generate electricity and heat. The consortium is also bidding to be part of the emerging carbon capture and storage project based on Teesside, so that carbon emissions can be trapped which would enable the facility to be considered carbon neutral.

County Durham Single Use Plastic Task Group

A collection of local organisations and national agencies working together to reduce the unnecessary use of single use plastics.

North East Procurement Organisation

Delivering a coordinated and collaborative procurement between public sector organisations across the north east. Embedding low carbon and sustainability standards in their work enables savings beyond the County Durham boundary and grants us access to more subject specialists.

National Social Value Task Force

Durham County Council is part of in the steering group of this initiative, founded in 2016 to establish a good practice framework to integrate the Public Services (Social Value Act) 2012 into the UK public sector and business community.

Food Waste

‘Food Durham’ is a partnership of local organisations working to tackle food waste, food miles, encourage consumption of locally grown produce and food citizenship.

Circular Economy/Waste from mines

The Coal Authority is exploring the circular economy for waste removed from mines, for example ochre could be dried and used for pigments or soil improvement. Treatment of such waste products could be done using reed beds, and an increase in this type of land management could have a positive impact on biodiversity which is a key priority for the authority.

Low emission procurement

The County Durham & Darlington NHS Foundation Trust is looking closely at supplier level emissions. 80,000 suppliers supply England's NHS with vital products however small changes could lead to big carbon savings, for example NHS England switched to alternative anaesthetic agents which lead to a carbon saving of 350 t per annum. The Trust aims to investigate supplier level emissions and take this into account when purchasing goods and services.

Protection of natural environment

The Environment Agency has developed a business plan with a focus on environmental incidents. This means that the Agency is working closely with regulated industries in order to promote a circular economy, reduce waste crimes, illegal waste sites and high risk waste fires.

Flood water

Flood waters can remove organic matter and minerals from soils which exacerbate the negative impacts of climate change, therefore Northumbrian Water Ltd and Durham Energy Institute are working together to use a waste from water treatment for soil enrichment.

Asks of Government

- The Environment Act now written into UK legislation will enable further development of the waste sector and influence production processes. The Government needs to ensure that the resulting changes are adequately and appropriately funded.
- Announce plans for food waste collections as soon as possible, to enable local authorities to prepare for this significant change.

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"Helping to create better local markets to support thriving rural economies with sustainable land management practices".

Land and Sustainable Food Production

7

The food and drink we consume inevitably comes with a carbon impact, but this can vary hugely depending on how it is produced. Issues such as how it was grown, reared, manufactured, transported, packaged and stored, prepared and served, and how waste is minimised and managed, are all elements that need to be considered in the lifecycle analysis of food.

Where we are now in 2022

High quality food is grown, reared and produced in County Durham, but does not always end up on plates in restaurants and homes in the County.

Laying foundations for 2030

Farmland will deliver a range of public goods, including high quality food production, Food produced in County Durham will be championed. Changing land use practices will enhance soil health.

County Durham's Vision for 2045

Farmland will deliver a range of public goods, including high quality food production. Residents will have access to local healthy low carbon food.

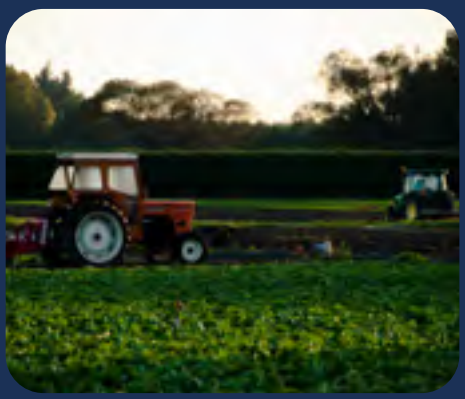
Key Challenges

Supporting and enabling low carbon food production and consumption, and sustainable land use through working with others to support local supply chains and promoting products with low food miles. Advocating low carbon farming practices and championing those farmers who are supporting a low carbon economy and promoting good soil health. Pollution and run-off from agricultural land remains an issue.

Food is a multifaceted topic that impacts on almost every area of life, and is of vital importance to every person, making food production and policy-making intrinsically complex and contested. As a region, the north east exports most of its agricultural production and most of the food consumed in the region is imported from outside. Agriculture is predominantly red meat production (beef and sheep), especially on higher land: Arable has been dominated by cereal production for the past 30 years, mainly winter wheat.

Key Highlights

- The County Durham Food Partnership (Food Durham) has achieved bronze Sustainable Food Places status. It is working towards Silver status by late 2023. It benefits from partners across a wide range of sectors.
- Support for food surplus redistribution through the Poverty Action Plan and engagement with charity partners.
- Establishment of Community Good Food Network to engage community food providers in food system issues.



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Land and Sustainable Food Production
Emergency Response Plan

Introduction

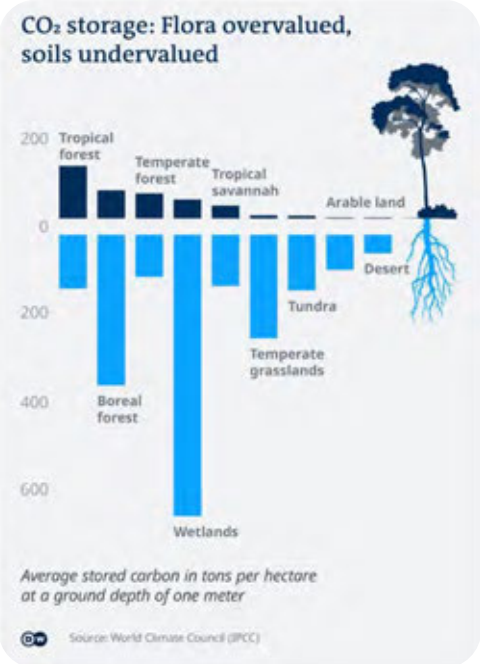
There are significant interdependencies between climate change, health, food and nature, these four topics are strongly connected together weith the land upon which food is produced.

The food and drink we consume inevitably comes with a carbon impact, but this can vary hugely depending on the nature of the food and drink. Examples of the factors include:

1. **How it was grown/ reared**
2. **How it was manufactured**
3. **How far and how it was transported**
4. **How it needs to be packaged and stored**
5. **How it is prepared and served**
6. **How any leftovers and processing waste are disposed of**
7. **How the land itself is managed to promote biodiversity and good soil health**

Moving towards a low carbon food system requires the availability of low carbon options, the information being made available to consumers, and consumers being aware of the impacts of their choices, willing to make the choices, and skilled enough to prepare them. It can also be promoted by making more carbon intensive choices less appealing. In addition to carbon there is a real opportunity for reduction in methane emissions and deforestation through advocating for agro-ecological approaches to farming, using a 'less and better' approach not only meat to consumption but also to arable systems too.

As a local authority and Partnership, our role can be one of influencing, enabling and showing leadership in these issues, but it will take change at all levels to succeed in this area, with the aim to increase the production of and access to sustainable food within the County.



There is considerable overlap between a low carbon, sustainable food system and a healthy diet and significant opportunity for working together on projects. wA diet high in vegetables and seasonal fruit and low in processed food is likely to be of benefit to both the climate and our health.

We also need to take into account the high dependence on antibiotics and artificial fertilisers that characterise certain types of primary food production that impact upon human health.

Soil has an essential role to play in net zero. Soil is a living organism and in healthy conditions it feeds and maintains itself and can store organic and inorganic carbon too. All terrestrial ecosystems rely on soil condition for their health but 25% of global soils are now degraded and damaged.

Degradation can be from **erosion** (gullies, soil washed away, arid soils blown away as dust, etc) or **chemical** degradation, where nutrient levels are too low for the soil to be productive or **biological** degradation where there are not enough micro-organisms in the soil.

Although there has been a lot of research on soils we don't have accurate data on the carbon storage properties of different soils and how to boost this. Different soils need different treatments which can often be achieved using local waste materials, but this is highly complex. The Parliament's Environmental Audit Committee[21] investigated the role of soil in carbon storage in 2016 and suggested that UK soils store 9.8 billion tonnes of carbon. Carbon storage in all soils can be multiple times that of the above ground vegetation (see graphic opposite).

Healthy soils are also the fundamental building blocks of the whole of the food chain, both for people and nature. The Environmental Audit Committee recommended that carbon levels in soils should be increased in all soils to ensure agricultural resilience and minimise the effects of climate change. There is widespread agreement on how soil organic matter and thus soils carbon can be increased. Partners across the county must work together to promote farming and land use practices which firstly maintain and then increase soil carbon and soil biodiversity.

Looking at the broader topic of health, we can still find cross cutting examples of mutual benefits. A promotion of walking and cycling for everyday journeys, alongside local food growing or foraging where appropriate, will for example improve people's health, and also lower the amount of carbon released from fossil fuel transport.

Supermarkets must also step up, in terms of their responsibilities with food waste. They must aim to reduce the amount of packaging especially on fruit and veg and focus more on locally sourced produce instead of out of season crops flown in from across the world.

Overall many of the principles of what we want to achieve are embodied in the Glasgow Food and Climate Declaration unveiled at COP26 which calls for an integrated and sustainable approach to food production that has less impact on the environment, produces less waste and driving change in the industry including resilient livelihoods for farm and food workers. Considering these synergies, consideration will be given as part of the CERP2 Plan to joining the growing number of local authorities worldwide that have become signatories.

Interactions with other themes

Adaptation

Land will be needed for adaptation and resilience measures, which may mean that land could be taken out of production. Changing weather patterns will impact upon food availability and this we may need to change diets to cope with limited or changes in supply.

Transport

Higher transport costs will lead to increases in food prices.

Natural Environment

There needs to be sensitive management of habitats to promote biodiversity and good soil health, with protected wildlife corridors through agricultural areas.

Business and Skills

Further support for our food production businesses to become more sustainable, and helping train and skills future generations.

[21] https://publications.parliament.uk/pa/cm201617/cmselect/cmenvaud/180/18006.html

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Fair and Just Transition

There is a need to make sure all people in society have access to healthy and local food when prices for some foodstuffs increase as a result of weather related impacts.

Nature Based

There needs to be an integrated approach with land being used sustainably, for growing food, for biodiversity benefit aiding nature recovery and storing more carbon.

Durham County Council – Leading by Example

The Council is a big promoter of local food producers, as can be seen by the support given to both Bishop Auckland and Seaham Food Festivals. The quality and diversity of the County's food and drink offer is truly outstanding.

Through partnerships with the AONB we are continuing to work with farmers encouraging more sustainable production techniques.

The Council has a Sustainable Healthy Food Policy and engagement in the national Veg Cities Campaign, (coordinated locally by Food Durham) which encouraged more vegetable based meal provision. In addition, the Sugar Smart campaign encouraged provision of tap water and reduction of the sugary products available. These initiatives have a positive impact on carbon emissions as well as other cross-cutting benefits, highlighted in the Sustainable Food Places **'Food for the Planet'** campaign.

Low carbon catering at Durham COP

For the Durham COP held on the 1 November 2021 the organisers worked closely with the venue (Beamish Hall Hotel) to provide low carbon lunch options for delegates. This led to a vegan offer that was very tasty, healthy in the main and which lowered the carbon footprint of the food. In addition, the food that was left was distributed to delegates to take home after the event.

Supporting local small food businesses

There's a range of support available for small businesses not only in terms of their operational emissions (see Business chapter) but also through the Council Sustainable Procurement Policy, along with specific initiatives such as the **Discover Durham CIC** and other small ventures that are championing locally produced food.

Actions & Partnerships

Food Durham

The Council is a key partner in Food Durham, The County Durham Food Partnership which brings together partners to develop action across the whole food system, focusing on the key themes of Food, Climate & Nature; Food Fairness & Citizenship; Food, Health and Wellbeing and Food Economy & Production.

The council has contributed to the development of Food Durham's county-wide Local Sustainable Food Strategy and Action Plan 2014-2020, which led to the achievement of a Bronze Sustainable Food Places Award for the county, and the revised (Draft) Sustainable Local Food Strategy 2021-2025. There are a number of actions the council will deliver to support Food Durham in its work towards a silver award.

Key actions delivered by DCC in partnership with Food Durham during 2020-21 have included:

Establishment of Healthy Start Working group to promote use of Healthy Start Vouchers to be spent on veg and fruit and production of promotional materials featuring veg market stalls.

Work towards signing the Glasgow Declaration on Food and Climate change.

Support for local sustainable food businesses e.g. Discovering Durham.

Feasibility work to establish opportunities for minewater heated horticulture at Horden.

Support for food surplus redistribution through the Poverty Action Plan and engagement with charity partners.

Continued support for home composting.

Involvement of Climate Champions in DCC garden competitions.

Exploration of opportunities for developing a growing strategy for the county.

Inclusion of fruit trees where appropriate in trees for children project.

Key actions delivered by other Food Durham Partners include:

Establishment of Community Good Food Network to engage community food providers in food system issues e,g, food waste, climate change.

Establishment of the North East Sustainable Food Alliance, working across the region with Food Newcastle and Middlesbrough Food Partnership to explore and embed clearer sustainability principles within North East Food Businesses.

Regular Food Durham newsletters highlighting climate-focused food projects.

The Council is a signatory to the **County Durham Food Charter**, which is a statement of how organisations and individuals will work together to develop and promote a more sustainable, health local food system by supporting; a local food economy, environmental sustainability, health and wellbeing, resilient communities, education, and food fairness.

Food Policy and Procurement

Food Durham will work in partnership with the Council and others to develop the programme further in the next 2 years and will also look to revise and use the DCC sustainable healthy food policy with reference to the procurement policy. Food Durham will also revisit the sustainable procurement policy to strengthen and consider rolling it out to the wider community e.g. through AAPs, Fun with Food initiatives and links to social value opportunities.

Food Waste Collection

There are a number of local waste companies that provide food waste collection services to businesses.' In addition, the Council Primary School Meals contract includes requirements on the supplier to measure, monitor and take steps to reduce the carbon impacts within their control and also ensure that food waste is diverted from landfill with preference given to anaerobic digestion or composting.

Food Waste Prevention

DCC engages in and promotes various food waste prevention campaigns such as Love Food Hate Waste/ Feeding the 1,000/ Food Waste Champions, providing advice to residents to help reduce the amount of food wasted, the impact on the environment and save money at the same time.

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DCC provides community roadshow events on food waste prevention to schools and community groups to educate and encourage young people and adults to reduce their food waste, make the most of the food they buy, use up leftovers and help protect the environment while also saving money.

Promotion of community fridge schemes across County Durham. Community Fridges installed at the following locations at Shildon Alive, Alt Group in Consett and the REfUSE Café, Chester-le-Street. We also support local businesses such as Refuse CIC through a 100% local discretionary business rate relief in line with our local policy due to the nature of the business and the community interest.

Grow your Own

DCC promotes Grow your Own initiatives, support a network of Master Composters and offer educational talks on home composting to schools and community groups. We also offer discounted home **composting units** to residents.

DCC engage with various Government and independently funded projects such as the Zero Waste Kitchen Challenge, Food Saver Champions and the Sainsbury's Waste Less Save More Project where we fed the 1,000, supported and promoted independent food distribution projects across County Durham and offered competitions.

Local Food

Visit County Durham, the destination management partnership for the county, has committed to a Taste Durham Strategy. This will champion and promote local food products, local culinary experiences, and local food culture through leadership, community engagement, sustainability, education and marketing.

Asks of Government

- Better promote the NHS's eatwell guide[22] which, would also result in a lower carbon diet for the average British person.
- Ensure the Environment Act delivers on better land use, soil health and opportunities for low carbon local food production.
- Improve mapping of best and most versatile agricultural land and soil quality. Specifically, make distinctions between Grade 3a and Grade 3b land.
- Stipulate that the public sector buys from high quality, high welfare British farmers for schools, hospitals and other public sector organisations through appropriate procurement regulation and strategies.
- Strengthen planning guidance to support low carbon and sustainable food production.
- We need Government to highlight the importance of soil heath for carbon storage and to develop accurate guidance for local authorities and their partners.

[22]https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/

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© Visit County Durham.

"Protecting, restoring, and enhancing County Durham's natural ecosystems".

Natural Environment

8

Climate change and biodiversity loss are inextricably linked. We will work together including through the Environment and Climate Change Partnership to protect, restore and enhance County Durham's natural ecosystems so that they contribute towards addressing the ecological emergency and climate emergency, in an integrated way.

Where we are now in 2022

Peatland restoration and woodland creation have been underway for some years, with new kelp and oyster habitat restoration work now on stream. Though a programme of restoration is in place, County Durham's peatland is the most damaged in the North Pennines, and, whilst improving, woodland cover within the county is below the national average at 8.58%[23].

Laying foundations for 2030

The state of the county's natural environment will be fully understood. All degraded areas of peatland will be either in recovery or restored. Our woodland cover will improve, whilst ensuring that the right trees are planted in the right place. Restoration of our marine ecosystems and blue carbon research will continue. Awareness of the value of nature-based solutions will be raised.

County Durham's Vision for 2045

County Durham's ecosystems will be thriving and resilient in the face of climate extremes. Opportunities to aid nature recovery and maximise carbon storage will have been realised.

Key Challenges

Climate change is a significant threat to nature and taking correct and timely steps to improve nature's resilience to storms, droughts, wildfire risk and new pests and diseases will be vital. However, without adequate knowledge of the current state of County Durham's natural environment and the carbon sequestration value of some habitats it will be difficult to do this and align nature recovery and climate priorities effectively. Public opposition may need to be overcome as changes in land use and management methods are made.

Key Highlights

- 16,000 hectares of blanket bog has been restored in County Durham, avoiding 192,000 tonnes of carbon from being emitted each year.
- Since 2020, 61 hectares of land has been planted with trees, helping to offset an estimated 22,113 tonnes of carbon by 2045.
- Certification of projects to the UK Peatland Code and Woodland Carbon Code, along with the sale of carbon credits are underway.
- Considerable opportunities to restore oyster habitats have been identified off the Durham coast.
- 40 hectares of Council owned land has been placed under positive management for wildlife.

© North Pennines AONB Partnership

[23]Source: Carbon Dioxide Emissions and Woodland Coverage Where You Live

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Natural Environment
Emergency Response Plan

Introduction

Climate change and biodiversity loss are inextricably linked, and it is recognised that both issues need to be addressed in an integrated way. Urgent actions are needed as Britain is now one of the most nature depleted countries in Europe[24]. Cabinet on 6th April 2022 have declared an ecological emergency in response to this issue.

Upper Teesdale in the North Pennines AONB is the only place in Britain where you'll find the blue (or spring) gentian © Martin Rogers Photography.

Climate change threatens the survival of County Durham's unique habitats and will alter the distribution and types of species we see. For example, high altitude plants, such as Teesdale's unique arctic and alpine flora, have adapted to low temperatures and are likely to decline in response to rising temperatures.

As temperatures increase, we also see changes in our insect and bird populations as their food supply and migration pattern changes. Warmer winters also reduce the hibernation periods for mammals which impacts on their survival and breeding rates. Furthermore, climate change is likely to increase invasive species, introduce new pests and diseases to our natural environment and increase the risk of damage to our habitats from storms, drought, and wildfires.

Whilst significantly threatened by climate change, nature within County Durham is a vital part of the solution to it. Our county is fortunate to host a diverse range of ecosystems, from peatlands to the coast, which when healthy, can store significant amounts of carbon in soils, sediments, and vegetation. In addition, our natural environment can help us to adapt to the impacts of climate change by protecting communities from flooding and helping to cool environments.

By protecting, restoring, and sensitively managing County Durham's natural and semi-natural habitats we will store more carbon, help the county to adapt to the impacts of climate change, aid nature recovery and deliver wider co-benefits for the natural environment and our own health and wellbeing.

Interactions with other themes

Business and Skills

Nature-based solutions to climate change will help to support and diversify rural, conservation and land-based businesses, create jobs and develop skills. For example, opportunities exist to increase local supplies of trees and plants to meet woodland planting and peatland restoration ambitions. Businesses will be able to offset their carbon emissions through the purchasing of carbon credits, linked to woodland creation and peatland restoration schemes in County Durham.

[24]Source: https://www.nhm.ac.uk/discover/news/2020/september/uk-has-led-the-world-in-destroying-the-natural-environment.html

Food and Land

The Government's Environmental Land Management (ELM) scheme is due to be fully rolled out by the end of 2024 and will reward environmental management.

ELM should increase nature recovery and woodland creation efforts across farms and estates within County Durham. Careful management of the scheme will be needed to ensure compatibility with local food production aims.

Adaptation

The recovery and creation of new habitats can provide a range of important benefits to this theme. For example, the creation of new woodland, in the right place, can provide shade, shelter and natural flood management.

Engagement and Education

Activities such as community tree planting projects, provide a 'hands on', opportunity to engage with schools and communities on climate change and the solutions to it.

Active engagement and education are also needed where different practices and approaches to land management are being implemented in order to gain public support.

Nature Based

Delivering nature-based solutions to climate change appropriately across County Durham will aid nature recovery.

Fair and Just Transition

Providing green spaces close to homes allows all residents to experience nature, improving health and wellbeing, and enabling inclusivity between communities who share such spaces.

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Durham County Council - Leading by Example

The Council is leading by example by:

- Actively pursuing tree planting opportunities on its own land and with others.
- Developing a woodland creation carbon market which will help to support local, tree planting projects across County Durham.
- Adopting a less intensive approach to the management of its land and ensuring its woodlands are managed in a way which enhances their ability to capture carbon.
- Increasing the rate of peatland restoration through support for the North Pennines AONB Partnership.
- Supporting the Durham Heritage Coast Partnership with blue carbon projects.
- Developing a Local Nature Recovery Strategy with non-departmental public bodies and partners from the charitable and private sectors.
- Developing an Ecological Emergency Action Plan
- Policy 41 of the County Durham Plan seeks to ensure that Proposals for new development minimise impacts on biodiversity by retaining and enhancing existing biodiversity and providing biodiversity net gains, including establishing coherent ecological networks

The council, with its partners manages several woodland creation projects. Since the approval of the Climate Emergency Response Plan, over 61 hectares of land has been planted with trees. 26 hectares of which, was Council owned land. In addition, 1,938 large standard roadside trees have been planted through the Urban Tree Challenge Fund. The woodland and roadside trees planted will help to offset an estimated 897 tonnes of carbon by 2050.

The council is also working with Forest Carbon to generate carbon credits from woodland creation on Council-owned land. An initial 5-year agreement will provide a range of services including registration and validation with the Woodland Carbon Code, verification and sale of carbon credits. Income from the sale of carbon credits can then be reinvested to help manage the council's expanding woodland portfolio. Please see Forest Carbon[25] for further information.

The council is responsible for the management of 1800 hectares of its own woodland estate which has Forestry Commission approved management plans. A five-year programme of active management will commence in January 2022 to improve their condition. Management, such as removing invasive plant species, improves woodlands, making them healthier and more resilient to climate change whilst enhancing carbon storage.

In addition to woodlands, the council also manages 3,000 hectares of diverse council owned land, comprised of parks, school grounds, amenity open space, roadside verges, cemeteries, closed churchyards etc. To date, 17 suitable sites have been subject to a less intensive approach to management, helping to reduce carbon emissions and benefit wildlife. Traditionally, such sites required cutting 14 times a year and this has been reduced to one cut and collect.

Over the last few years, 40 hectares of council owned land has either been placed under positive management for wildlife or sown with wildflower seeds as part of a nature-based approach to management. This benefits biodiversity and reduces carbon associated with mowing, whilst also providing an attractive, visual impact for residents and visitors to the county. The performance of the current sites and seed mixes will be monitored and further sites will be brought into nature-based management as the project expands.

[25] https://www.forestcarbon.co.uk/

Wildflowers at Bishop Auckland Town Park

Use of fungicides and pesticides across the council's estate have also been greatly reduced. Usage is very minimal and reserved for the management of fine sport turf facilities such as bowling greens only. Whilst subject to trial, the council is also using recycled soil conditioner (produced by the council's green waste scheme) and buying in peat free composts for its central plant nursery.

The council provided additional support to the North Pennines Area of Outstanding Natural Beauty (AONB) Partnership over the CERP1 period (2020/22), which helped to increase the rate of peatland restoration over and above programmed activity, enabling the restoration of a further 52 hectares of peatland over 4 sites in County Durham.

The Council have also been actively supporting the Durham Heritage Coast Partnership and Seascapes Partnership with two separate blue carbon projects[26] involving the restoration of kelp and oysters.

Furthermore, the council is likely to be the Responsible Authority for the production of County Durham's Local Nature Recovery Strategy (LNRS), supported by a wide range of local and national conservation organisations. LNRS are a new, England-wide system of spatial strategies that will establish biodiversity priorities and map opportunities for nature recovery across the landscape, in both urban and rural areas. They will also provide wider environmental benefits including tackling climate change. The Council is also seeking to develop an Ecological Emergency Action Plan by Autumn 2022.

Overall, the council is responsible for approximately 2.7% of County Durham's land of which only a fraction will be available to deliver nature-based solutions to tackle climate change[27]. If we need to capture 5% of County Durham's emissions each year to 2045 to become a carbon neutral county by 2024, and support adaptation to climate change, it will be vital to work with other partners, landowners and the wider community to deliver nature-based solutions.

[26]Blue carbon refers to carbon that is stored in marine ecosystems. These ecosystems sequester and store around 2% of UK emissions per year and also provide other benefits such as biodiversity, flood protection and support for valuable fish and shellfish populations. UK Parliament Post - Blue Carbon (Sep 2021).

[27]The Council own 5,921 hectares of land which is 2.65% of County Durham's total land area of 223,260 hectares.

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Actions & Partnerships

In order to ensure that nature-based solutions address climate change and biodiversity loss in an integrated it will be necessary to work together to:

- **Protect and restore our peatland.** Healthy peatlands store and sequester huge amounts of carbon -they are our largest natural carbon store – but damaged peatlands are carbon emitters on a grand scale. We need to restore all our remaining degraded peatlands and ensure their positive management.
- **Create new native, broadleaved woodlands**, increasing County Durham's woodland cover, whilst ensuring that trees are grown in the right place.
- **Protect and restore our coastal and marine habitats** in order to optimise the storge of carbon, improve water quality and minimise the impacts of climate change to our coastal communities.
- **Protect our existing semi-natural habitats**, recognising that due to intensive management, these are rare, contain native species not found elsewhere and many of these habitats also store appreciable amounts of carbon.
- **Target nature-based solutions** to places where they can have the most benefit. Recognising that different approaches will work better in different parts of the county, and it is important to maximise synergies if we are to meet our targets on climate change, whilst restoring biodiversity and meeting the needs of our communities.
- **Contribute towards research** and filling gaps in knowledge on the role that habitats play in climate change mitigation; and
- **Plan** mitigation and adaptation to climate change together.

There are several key challenges we will need to overcome if we are to successfully deliver the above, namely:

- There is no current, clear picture on the state of County Durham's natural environment to align nature recovery and climate change mitigation and adaptation priorities. The production of a LNRS will help in part but will take time to complete.
- Offsetting 5% of County Durham's emissions each year to 2025 through nature-based solutions will be a huge challenge and is highly dependent on the availability and suitability of land along with the co-operation of landowners.
- Lack of evidence on the carbon sequestration values of some habitats makes it difficult to prioritise actions.
- Less intensive approach to the management of land may meet public opposition e.g., reduced mowing of amenity grassland.
- The following information provides further detail on some of the wider partnership work that is taking place across the county to address climate change through nature-based solutions.

Peatland Restoration

The North Pennines Area of Outstanding Natural Beauty (AONB) Partnership team works with landowners and others to bring about nature recovery and engage people with nature and heritage. The AONB Partnership's peat team has been working to conserve and restore the 90,000 hectares of peatland in the North Pennines area[28].

County Durham's 32,000 hectares of peatland is the most damaged within the entirety of the North Pennines AONB, due to several contributing factors, including natural topography and climate.

[28]North Pennines Peatland Programme

Bare peat restoration showing coir rolls and stone dams: © North Pennines AONB Partnership

However, the peat team has successfully led the restoration of 16,000 hectares of County Durham's blanket bog, predominantly through grip blocking, reinstating natural drainage patterns and the restoration of bare/eroding peat. In addition to benefits to biodiversity etc, the restoration of County Durham's peatlands has avoided 192,000 tonnes of carbon being emitted into the atmosphere each year. This is the equivalent to removing approximately 2,800 cars from the UK's roads each year, or the annual emissions from around 400,000 UK homes. Restored peatlands begin to sequester carbon around 5 years after restoration.

It is estimated that around 4,000 hectares remains to be restored in County Durham of which, the majority is bare, eroding peat, requiring revegetation works to be undertaken. Over the CERP2 period, the potential restoration of 1,162ha could avoid 23,240 tonnes of carbon from being emitted from County Durham's peatlands each year.

In addition, the AONB Partnership is actively working to develop new Peatland Code restoration sites across County Durham, Cumbria and Northumberland and is also one of the founding partners of the Great North Bog coalition. The Great North Bog is an ambitious, landscape-scale peatland restoration initiative which aims to restore all of the remaining degraded peatland in the North of England over the next 20 years, through collaboration on funding, training, restoration and engagement to make a step change to current rates of restoration[29]. The project is receiving international attention.

Woodland Creation

The Durham Woodland Creation programme was established by the Council in August 2020. The programme aims to plant 10,000 trees in each of the 14 Area Action Partnerships (AAP's), whilst ensuring that one tree for every school child in the county is planted. The Trees for Children element is being delivered in partnership with County Durham's Outdoor And Sustainability Education Specialists (OASES) who will work with at least 70 schools. To date, a portfolio of sites, over 33 hectares has been approved for planting in winter, 2021/22.

The Durham Woodland Revival project aims to plant more than 80ha of new woodland, an area the size of the Historic Durham City centre, whilst providing skills to help community groups manage local woodlands[30]. 26.9 hectares of land has been planted to date along with 920 metres of hedgerows.

The Urban Tree Challenge Fund (UTCF) has supported the planting and maintenance of 1,139 large trees and 11,229 whips across County Durham's towns and villages to date. A further application has been submitted to the fund to plant 799 large trees over winter 2021/22 and 2022/23.

Tree Week grants which are awarded to small community and landowner tree planting projects enabled the planting of 2,191 trees across County Durham during 2021.

[29] Great North Bog project
[30] http://www.woodlandrevivalproject.info/

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New tree planting opportunities include:

- The North Pennines A68 Corridor project - joint scheme between the Council, the North Pennines AONB Partnership, the Woodland Trust and the Forestry Commission. The area to the west of the A68 is identified as having the potential for large scale woodland creation.
- North East Community Forest - The Council has joined other North East local authorities[31] to plant tens of thousands of trees each year across the region, by 2050, creating England's latest community forest. The Council are hoping to plant a further 180 hectares of new woodland over 4 years as part of this programme.
- Through its Tees Swale programme, the North Pennines AONB Partnership is aiming to expand woodland and scrub cover in Teesdale, with a target of 200,000 trees by 2025. The AONB team is also seeking resources to facilitate its ambition to double woodland cover in the area over the current decade.

Hedgerows also contribute to carbon sequestration and storage in addition to supporting important aspects of biodiversity and providing shelter for livestock. Over winter 2020/21, 0.7km of new hedge was planted and 1.8km managed through traditional hedge laying techniques by the Durham Hedgerow Partnership[32].

Blue Carbon

The Durham Heritage Coast Partnership and Tyne to Tees, Shores and Seas Partnership (Seascapes) have been working to sequester carbon through marine habitat restoration involving two habitat types:

- Oyster and other bivalves and associated habitat – working with the Wild Oyster Project.
- Kelp – working with Newcastle University.

Oysters provide key ecosystem services including improving water quality by increasing water clarity, removing excessive nutrients and storing carbon in their shells. The Wild Oysters project has created three rehabilitation hubs in the UK to secure the recovery of native oysters and the services they provide, including Sunderland and Blyth. Seaham was shortlisted but had insufficient depth below the installed pontoons.

Habitat restoration is the next step, introducing shells and gravels (cultch) onto the seabed, which will act as a home for juvenile oysters when they settle. Work to identify suitable sites is ongoing with a long list being produced. Crown Estate have identified considerable opportunity available off the Durham Coast as well as more widely in North East coastal waters.

Kelp are marine algae (seaweeds) that form underwater forests around the coast. Studies of kelp productivity suggest a potential carbon burial by UK kelp forests of 147tCO_2e/km²/year. Given the importance of light for the maintenance of healthy kelp populations, the long history of coal mining and depositing of spoil waste on the coast has meant that kelp forests have reduced or disappeared in affected areas. The environmental conditions are now suitable for kelp populations to return.

The Partnerships are working with Newcastle University to test a range of restoration methods focusing on:

- translocation of adult kelp from adjacent healthy populations; and
- culturing of kelp in the laboratory for transplanting onto restoration sites.

Once the most successful restoration techniques are determined, onsite testing will take place at suitable locations along the Durham Heritage Coast, with a view to creating healthy populations.

[31]Newcastle, South Tyneside, North Tyneside, Gateshead, and Sunderland
[32]https://www.durham.gov.uk/haw

Kelp restoration trial in action Credit: Harry Catherall, Newcastle University

Funding has also been made available to assess sea grass and saltmarsh habitat restoration opportunities on inshore waters between the Rivers Tyne and Tees. It is anticipated that a complete blue carbon assessment of the sediments and habitats within our local coastal area will be established in 2022. This will build upon the recent research report which assessed the carbon capture and storage potential within the English North Sea. This report found that carbon stocks in the top 10cm of English North Sea, seabed sediment amount to nearly 20% of that held in UK forests and woodlands[33].

Local Nature Recovery Strategy

An Ecological Emergency Board has been set up within the County Durham Partnership with the sole purpose of producing a Local Nature Recovery Strategy (LNRS). The Board is currently taking the lessons learnt from the Northumberland and Cumbrian Pilots and collating the data required to support the production of County Durham's LNRS.

Asks of Government

- Increase funding via the Nature for Climate Fund or other mechanism, to enable conservation organisations and landowners to increase the pace and scale of delivery of nature-based solutions to tackling climate change.
- In the event that statutory tree targets are introduced, provide additional localised support/guidance to the Council to ensure that the right trees are planted in the right place in the county and progress can be monitored effectively.
- Provide greater clarity on how Land Use, Land Use Change and Forestry (LULUCF) emissions are calculated.
- Undertake further work to close the evidence gaps on the contribution of habitats to net zero.
- Provide tools which help decision makers understand the dependencies and trade-offs within County Durham's land-use system, along with the knock-on effects of proposals.

[33]Burrows, M.T., Moore, P., Sugden, H., Fitzsimmons, C., Smeaton, C., Austin, W., Parker, R., Kröger, S., Powell, C., Gregory, L., Procter, W., Brook, T. (2021) Assessment of Carbon Capture and Storage in Natural Systems within the English North Sea (Including within Marine Protected Areas) A North Sea Wildlife Trusts, Blue Marine Foundation, WWF and RSPB commissioned report.

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"Ensuring that the impacts of climate change are well understood, and support will be continuing with communities to develop resilience against climate extremes".

Adaptation

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It is accepted that the impacts of extreme weather, is becoming more regular through climate change, impacting directly and indirectly on people in the UK and across the globe. In the past two years the world has seen a significant increase in dramatic and devastating weather events; floods, forest fires, heat waves, droughts, and more recently Storm Arwen. Heat records have been broken many times over in every continent, and many lives have already been lost. Adapting or being more resilient in a changing climate is vital if society, the environment, and the economy is to continue to thrive.

Where we are now in 2022

Partners work together to identify and address climate risks especially around flooding, by working with communities and developing flood defence projects.

Laying foundations for 2030

The impacts of climate change will be well understood and support will be continuing with communities to develop resilience against climate extremes.

County Durham's Vision for 2045

All gas and fossil fuel heating in Durham County will be a resilient place to live with a knowledgeable population, aware of the risks associated with climate extremes. All sectors will be taking appropriate action to mitigate risk especially around health, infrastructure and nature.

Key Challenges

Climate Change will bring new threats to County Durham and increase the effects of existing hazards. It is not just about flooding. Climate extremes will include droughts and subsequent wildfires becoming more commonplace, more frequent storms and significant damage to property and habitats. How we prepare for such events will be critical to ensure we can be as resilient as possible. Working together with partners is central to the challenges faced.

Key Highlights

The de-culverting of the Cong Burn in Chester-le-Street to prepare for a 1 in 100 year flood event in partnership with the Environment Agency with funding from ERDF, is just one example of where we are working to reduce risk.

There is a 6 year programme of works for drainage and flood alleviation schemes, with a cost of over £29m.

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Adaptation
Emergency Response Plan

Introduction

Adapting or being more resilient in a changing climate is vital if society, the environment, and the economy are going to continue to thrive.

It is accepted that extreme weather, which are becoming more regular through climate change, impacts directly and indirectly on people in the UK and across the globe. In the past two years the world has seen a significant increase in dramatic and devastating weather events; floods, forest fires, heat waves, storms, droughts, and other extremes. Heat records have been broken many times over in every continent, and many lives have already been lost.

In July 2021 Germany and surrounding countries suffered devastating flash floods which killed dozens of people and destroyed villages. It prompted the German Environment Minister to say, “Climate Change has arrived in Germany”. Twice in the same month, parts of London were struck with unusually high flash floods as extreme rainfall overwhelmed the drainage system and inundated roads and underground rail stations.

Later in July 2021, the Met Office issued its first ever extreme heat warning[34] for the UK. During that same heatwave, while Leicestershire was suffering in 30°C heat, parts of the county were struck with golf ball sized hailstones and flash flooding[35].

A major incident was also declared following Storm Arwen in November 2021 which caused damage to the electricity network on a scale not seen for 15 years, leaving many homes in County Durham without power for days.

These events are not standalone and are expected to get worse and more frequent in the coming years. County Durham may not have suffered the loss of life seen elsewhere, however this should not lead to complacency. County Durham must now adapt to a new future of extreme weather.

[34] https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2021/extreme-heat-warning-issued-for-western-areas
[35] https://www.bbc.co.uk/news/uk-england-leicestershire-57909700

This chapter explores how the county is planning to adapt to a changing climate in County Durham and the infrastructure that will be required to support it. It includes information on how we will protect our county from the threat of weather events such as floods and heatwaves, and improve the resilience of our food, water, and electricity supplies. As a reminder, these are some of the risks associated with more extremes of weather:

- Higher risk of transport disruption.
- Higher risk of summer excess deaths.
- Increase in insurance costs.
- Increased incidence of flooding.
- Increase in air conditioning costs for overheating homes and offices.
- Higher risk of skin cancer from UV radiation.
- Loss of native land and animal species.
- Sea level rise.
- Increase in ticks, mosquitos, exotic species and pathogens.
- Increased risk of grassland and forest fires.
- Higher cost of road maintenance.
- Soil subsidence.
- Challenges to agriculture and food production.
- Worsening air quality.
- Increased anxiety.
- Increased pressure on the NHS.
- Impact upon archaeological and heritage assets from manged retreat.

A changing climate has profound implications for human health, including those issues listed above. No continent, country or community is immune from the health impacts of climate change. A 2020 Marmot Report highlighted that climate change is already damaging the health of populations in the UK. It can widen existing inequalities and lead to more unpredictable shocks like the Covid-19 pandemic[36].

According to the World Health Organisation, climate change is expected to cause 250,000 additional deaths per year[37]. The highest risk are the globe's poorest populations, who have contributed the least to the problem of greenhouse gas emissions. In County Durham, the elderly, children and young people, those with underlying health conditions and those who are less able to modify their homes are likely to be amongst the most vulnerable to climate change.

[36]The Lancet Countdown on Health and Climate Change:2020 Report
[37]https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

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Interactions with other themes

Natural environment

Climate change will have a significant impact upon the natural environment and how we adapt can also impact both positively and negatively. The introduction of saltmarshes along the coast, new reefs, tree planting and peatland restoration will all have significant positive impacts on the natural environment and will help us to be more resilient to extreme rainfall events.

Food and land

Extremes of weather have hugely significant impacts upon our agricultural sector. Where land is needed for attenuation, this can also impact on the agricultural sector.

Climate extremes will impact on both urban and rural areas. It is likely however that rural areas will have to be at the forefront of projects that help to tackle weather extremes. The release of land for flood mitigation for example will impact upon farmers in order to reduce impact for those living in urban areas.

New Development

Changes in the climate in County Durham will affect decisions made around new developments. Specifications for drainage, insulation, and settlement locations must consider the increased risks of floods, extreme temperatures and other climate hazards as described in this chapter.

Fair and Just Transition

Adaptation to the effects of climate change will be easier for the more well-off in society. We will support everyone to ensure that no-one is left unsheltered from the climate crisis, or unable to access the resources they need to live long and healthy lives in County Durham.

Nature Based

A lot of adaptation work can be achieved alongside works to improve biodiversity and restore our natural environment, such as tree planting to mitigate floods.

Durham County Council – Leading by example

DCC is installing 3MW of Solar and 2MW of battery storage at the Council depot in Annfield Plain to assist with energy resilience.

Hybrid working is allowing staff to work from home, thus avoiding commuting at times of extreme weather and reducing carbon emissions from vehicles.

The County Durham Strategic Flood Risk Assessment, Water Cycle Study, Local Flood Risk Management Strategy and Surface Water Management Plan have been produced to inform decision making for development and manage flooding as a result of heavy rainfall. The Drainage and Coastal Protection Team have developed a Sustainable Drainage System Adoption Guide and worked in partnership with other regional bodies to develop the updated Shoreline Management Plan, which identifies the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner.

The Emergency Planning team issue heatwave warnings on the Council's website with steps that can be taken to ensure that personal heath and wellbeing and that of others, can be protected during such events.

Joint Health and Well Being Strategy

The Health and Wellbeing Board's current Joint Health and Wellbeing Strategy 2021-2025 is the overarching health and wellbeing place-based plan for County Durham. It recognises that climate change is a fundamental threat to health and wellbeing and has the potential to widen inequalities further. Actions to combat climate change, which benefit all, can improve health and aid recovery from the pandemic, in addition to preserving the planet.

It is recognised by the World Health Organisation that climate change affects many of the social and environmental determinants of health. The impact of clean air, reducing emissions of greenhouse gases through better transport, food and energy use can result in improved physical and mental health amongst the population. The UK Government in the 25 Year Environment Plan (2018) listed 'connecting people to the environment to improve health and wellbeing' as one of six key actions required for success. To achieve this, the partnership is working closely with the Environment and Climate Change Partnership to:

- Improve people's health and wellbeing including using green spaces and through mental health services.
- Encourage children to be close to nature, in and out of school.
- 'Green' our towns and cities by creating a green infrastructure.
- Increase levels of active travel.
- Improve access to nature and green spaces.
- Tackle fuel poverty and cold home related health problems.
- Encourage healthier diets.
- Reduce pollution.

Impact of the County Durham Plan

The County Durham Plan can make a major contribution to mitigating and adapting to climate change by shaping new and existing developments in ways that reduce carbon emissions and positively build community resilience to problems such as extreme heat or flood risk. It can do this by ensuring that new development is located to reduce the need to travel and support the fullest possible use of sustainable transport. It should be designed in a way that limits carbon dioxide emissions, uses decentralised and renewable or low carbon energy and minimises vulnerability to future climate impacts. Objective 16 of the County Durham Plan highlights the importance of adaptation to Climate Change.

The plan seeks to ensure that all new development can adapt to the impacts of climate change and extreme weather conditions by promoting appropriate sustainable urban drainage systems (SuDS) in new developments, promoting sustainable land management and conservation including protecting habitats such as woodland and peatland, ensuring that new development is located away from areas of flood risk, with an integrated approach to water management across all areas and encouraging appropriate building and infrastructure design and through the restoration of minerals and waste sites.

Our water management policies ensure that all development proposals consider the effect of the proposed development on flood risk, both on-site and off-site, commensurate with the scale and impact of the development and taking into account the predicted impacts of climate change for the lifetime of the proposal.

Our environmental policies require that appropriate Green Infrastructure (GI) is integrated into the wider network, so that it maintains and improves biodiversity and landscape character, increases opportunities for healthy living and contributes to healthy ecosystems and climate change objectives.

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Our design policies seek to ensure that new developments incorporate design solutions for buildings and spaces that optimise solar gain (without increasing the risk of overheating) and adapt to climate change impacts. This may include, for example, green/brown roofs and walls, green infrastructure planting and solar shading. The retention of established planting and trees in particular can visually enhance a development, as can ensuring an appropriate relationship with the wider landscape, both visually and in terms of activity and through the creation of habitat for wildlife.

Actions & Partnerships

Community Resilience

The Council's Civil Contingencies Unit (CCU) works closely with communities across County Durham to help them become more prepared for emergencies such as those exacerbated by climate change e.g., flooding, high winds, heavy snow. Communities are encouraged to create a community emergency plan which can help to warn neighbours about what is happening, identify any important resources communities have nearby and how to use them and help identify any vulnerable people who may need assistance. Having these plans in place can really help reduce the effects of an emergency on a community as it allows them to be proactive themselves before the emergency services arrive to help.

A fantastic example of this is Lanchester. The village community has an emergency plan which has been put into action several times over recent years. It outlines where vital flood equipment such as aqua sacs and wheelbarrows are stored, as well as highlighting places of safety in the village and if any vulnerable residents need help evacuating. It is a massive aid to the people of Lanchester and reduces the impacts from flooding in the village by making sure homes and businesses are prepared for when the worst happens.

Other community resilience work includes the Community Safety Award. This is an award scheme offered to uniformed youth organisations across the county that aims to educate young people in how they can help themselves, family members and their communities to prepare, respond to and recover from emergencies. The scheme has engaged with over 200 young people so far and it is hoped to roll it out further in the coming months. We have also done a lot of engagement work with Y5/6 children in primary schools across County Durham to educate them at a young age to be aware of emergencies and how they can help themselves and their families if they are caught up in one.

The CCU work closely alongside partner organisations and attend and play an active role at the Local Resilience Forum (LRF) Community Resilience Group which is a working group that aims to promote and carry out community resilience objectives across County Durham and Darlington. We also work very closely with the Environment Agency's Community Engagement Officer and ensure that communities specifically at risk of flooding within the county are engaged with and encouraged to create an emergency plan or sign up to become a flood warden.

Flood Defence Works

The Council and partners have been working together to implement flood defence works in a range of areas. These include both surface water alleviation and river flooding schemes. £2.5m has been spent from flood defence grants on both studies and practical alleviation works. Some are detailed below.

Drainage Improvements at Ludworth

During periods of heavy rainfall, the road linking Shadforth to the neighbouring village of Ludworth is frequently submerged in floodwater, making it difficult for residents and their visitors to enter and leave. To address this, we have carried out significant drainage improvements and introduced a new flood defence scheme. The work has included opening up a 60-meter culverted watercourse beneath the highway verge and creating a large basin capable of containing more than 500,000 litres of floodwater during extreme rainfall. This required moving 900 tonnes of earth. The area was then landscaped, and new planting introduced to create an attractive focal point for people entering the village from the east. Wetland habitats have also been created to enhance the local ecology.

De-Culverting of the Cong Burn (Chester-le-Street).

In June 2012, more than 100 homes and businesses at the northern end of the town were affected by flooding and Chester Burn was the main cause. The Council completed the flood prevention work with Northumbrian Water and the Environment Agency at the eastern and western sections of the Burn, but needed to do further work to reduce flood risks in the longer term.

We have worked with the Environment Agency to model what effects potential work will have to prevent flooding. The results show that the work we are doing will reduce the risk of flooding from a 'one in 100' year storm.

Actions included:

- The opening up of a 90m stretch of the Burn to create an open channel running from the road at South Burns down to the Red Carpet area.
- Landscaping the opened area to include new footpaths and seating, providing a haven for wildlife and storage for flood water during severe storms.
- Extending the flood wall to the west of the viaduct.
- Relocating the sewer at Cone Terrace to increase channel's capacity.
- The scheme cost £6.2 million and is funded by the Council, the Environment Agency, and the European Regional Development Fund.

Pine and Poplar Streets Environmental Improvements

Rain Gardens were installed in front of Pine Street as part of the project with three beds placed along the terrace. They contain a mix of water loving, hardy shrubs and perennials. The gaps between the curbs allow water to infiltrate and slowly leak into the drainage system. Raised block paving and pavements are designed to allow the water to filter into the rain gardens. The success of Pine Street with regard to Sustainable Urban Drainage Systems (SuDS) led to a partnership project to continue the work moving onto Poplar Street. Trees with attenuation basins were inserted into the streetscape and have monitoring devices installed to measure the amount of water in the cavity.

Catchment Partnerships

The Catchment Partnerships review the resilience of our river catchments (Tyne, Wear and Tees) as a whole and work with a number of stakeholders, across administrative boundaries, to develop joint projects where specific issues occur. This includes the Environment Agency, Northumbrian Water, Local Lead Flood Authorities (DCC), landowners, Wildlife Trusts, developers and universities.

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Heritage Assets

The Council will carry out climate risk assessments for heritage sites in DCC ownership, and set up appropriate mitigation/management plans and will work with partnerships, including the World Heritage site in Durham City to produce a Climate Change Action plan which takes account of the sensitivities of the site, whilst also reducing its contribution to emissions.

Asks of Government

- At home adaptation and resilience must be built into our towns and cities, with more green spaces to provide cooling during the summer months and flood preparedness. This will require funding, infrastructure improvements and expertise. The Environment Agency must be supported to provide this level of investment and expertise.
- More broadly, climate change will cause large groups of people all over the world to be displaced as their current homes are made uninhabitable. The UK must continue to provide aid to these countries to assist with resilience measures but we must also welcome refugees fleeing devastated areas as the human race adapts to live on a changed planet.

Killhope Lead Mining Museum.

View action plan on page 113

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Renewable
Share Knowledge
Nature
Sustainability
Solutions
Impact
Environment
CO_2
Energy
Future
Innovation

Engagement, Education and Behavioural Change

10

Working together with our communities, partners, and staff to raise awareness, build skills and knowledge to tackle climate change will help us become the UK's greenest, environmentally ethical, sustainable, carbon neutral county.

Where we are now in 2022

There is a long standing and effective schools education programme.

Partnerships and community collaboration are being strengthened. Communication channels and platforms are being developed enhancing the visibility of all CERP activities.

Laying foundations for 2030

Everyone will have a good understanding of what climate change means, the impacts that it will have and what they can do about it. Messaging will be clear and transparent building on foundations and learnings set within the CERP.

County Durham's Vision for 2045

Everyone will have an excellent understanding of what climate change means, the impacts that it will have and what they can do about it. Partnerships will be strong across sectors working together address local and national issues and campaigns.

Key Challenges

There is still a lack of understanding about the implications of climate change, stemming in some part from a spread of misinformation and climate denial. There is a need to ensure different audiences are targeted, as people have different or even opposite perspectives. It must be remembered that people learn from experience and remember selectively. We need to use local stories, visuals, and videos which mirror experiences, balancing messaging with scientific information. Climate change can be a divisive subject due to several influences from community, culture, instilled behaviours, and misinformation.

Key Highlights

Branding has been developed creating a visible, easily recognisable message, raising awareness and bringing focus to our climate work.

A community website has been developed bringing focus to our communities' efforts around the County to reduce emissions and impact on the environment.

Climate change discussions and actions are taking place across County Durham, and there is continuity in amplifying the message and combined efforts being taken to reduce emissions. This has been supported through narrative story telling making visual and tangible representation of actions and discussions.

The ECO_2 Smart Schools programme has engaged successfully with schools across the County for more than 10 years.

St Cuthbert's Primary School ECO Council and Richard Hurst Sustainability Education Development Advisor.

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Engagement, Education and Behavioural Change Emergency Response Plan

Introduction

A pivotal task in reaching the council and countywide carbon neutral goals is communicating, engaging, and providing the knowledge, skills and appropriate support to staff, stakeholders, partners, and the wider public that will influence behavioural change, action and environmentally ethical practices.

There is a critical need to explain, in clear and brief terms what climate change is, what it means and what we can do about it, translating what this means to everyone locally, and creating emotionally intelligent communications.

This can be achieved and supported by creating a focused, meaningful, and measured communications and engagement approach, making sure that the global and local impacts of climate change along with the benefits of adaptation are understood, accepted, and adopted with actions.

Key outcomes and deliveries from CERP 1

One of the Council's highest priorities now is to find the best ways to engage and work together with our community and partners to meet the county wide net zero targets. It was recognised that the many people need to see more information around climate change impacts and what we can do reduce our carbon footprints.

A set of engagement tools have been developed as part of the initial activity. We were proud to launch the new community focused website specifically created to address a lack of information for residents, businesses, children and young people, and community groups. It looks at what these groups can do, has a pledge to sign and will have various case studies from the community.

The council corporate website and the partnership website are being refreshed so that information is easily digested and engages the reader. We are also creating links with the council data-driven website, Durham Insight, the SME focused BEEP website, the County Durham Parentship website and council intranet. This is all work in progress and will continue to be developed during the CERP 2 period, ensuring that key information targets audiences across the county and broader.

Branding has also been developed to bring focus and awareness, supporting our aim to create a visible, easily recognisable message, that will be used on all climate, sustainability, and environment related projects (please see final page). This includes, for example, the branding of the new DCC electric refuse collection vehicle (eRCV), electric vehicles and pool cars and we will continue to develop this work throughout CERP 2.

To help raise awareness of the work currently being done we have had regular PR and communications throughout corporate and other channels to bring further focus on the task ahead and the work currently being done. Several videos have been completed that have marked work done throughout CERP 1 which have proven to be a crucial way of engaging wider audience and telling our story. An example is the recent video which you can watch **here**.

The future picture

It is crucial that we keep on building and growing relationships and communications now that the foundations have been set up. The following tasks have therefore been identified:

- Climate Change Communications and Engagement Strategy to support aligned messaging and cohesive approach.
- Corporate climate change training to be rolled out to all staff and continue for all new starters.
- Climate change communications and engagement campaign which will target internal and external audiences.
- Community engagement - presence and support in key events.
- Community and staff workshops quarterly or twice a year.
- Continue to build on PR and social media activity.
- Use more video as these are new times and engage allow to summarise our stories in an engaging and powerful way.
- Continue to work and build relationships within the community and partners.
- Essential to monitor and evaluate all engagement and communication activity to help feed in future activities and strengthen our strategic communications and engagement approach.
- Continue to develop engagement tools and techniques.

Individual actions are essential to tackling climate change, but they aren't enough on their own. We must work to engage everyone in this challenge, including County Durham residents and schools, as well as business leaders and government leaders outside of County Durham.

Interactions with other themes

Education, awareness raising, and engagement are crucial to ensuring all themes and projects reach their full potential and helping influence all audiences and sectors in doing their bit.

Increasing understanding across all sectors and audiences is pivotal to drive the innovation and new ways of working we need to tackle the climate challenge in both mitigation and adaptation.

Community and people centred

Our engagement plans will ensure that our work is people centred, that our residents can have their say and that the adaptation and mitigation works are completed with the needs of the communities of County Durham as a priority.

A fair and just transition

Communication and engagement need to bring focus towards what people can do in all types of settings and supply information and knowledge to support them through transition and adaptation.

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Durham County Council - Leading by Example

Schools

The Council began developing a comprehensive schools engagement programme over a decade ago to support schools with energy education and efficiency. This programme has adapted over that time to meet the needs of schools and adapted to the climate emergency priorities. Now called **ECO_2 Smart Schools** it provides comprehensive energy support for schools and multi academy trusts. This programme, which has focussed on behaviour change and appropriate building controls, has led to significant savings in energy usage across the school estate. The in-school support has been provided for many years by the charitable organisation OASES working closely with Education Durham to ensure the support is appropriate and continues to adapt to changing needs. From April 2022 a new in-school support contract will begin working closely with Education Durham to ensure the support is appropriate and continues to adapt to changing needs.

In the Autumn of 2021, we coordinated our first **International Schools Conference** working with 130 schools from 13 countries. Durham schools partnered with schools from all around the world, sharing their learning and experiences of the impacts of climate change. This was a true partnership event with Durham University (Durham Energy Institute), OASES and Durham's International Office. All partners are keen to build on the success of the event. A summary film can be **viewed here**.

In the original Climate Action Plan a trial a school/ home education and awareness programme was agreed. This became known as **ECO_2 Smart Homes**. The pilot will be coming to an end in March 2022. The first phase of schools included: Byerley Park, South Stanley Infants, Annfield Plain Infants, Greenland Primary and Tanfield School. Additional schools are being recruited at time of writing. The programme involves pupils undertaking home energy surveys, with house holders being passed onto Housing Energy Advisers for further support and advice.

Climate Champions

The climate champions staff network was launched in 2019 in response to the Council's Climate Emergency declaration. The network was created in recognition that staff can play a significant role in embedding a climate emergency culture within the Council and can help increase levels of awareness and climate action amongst the partners they work with and residents and businesses they serve.

- Over 100 members of staff currently participate in the network, representing all Council directorates. Champions are encouraged to:
- Lead by example in caring for and protecting the environment.
- Take action on the climate emergency within their area of work, share ideas and challenge others.
- Get involved in relevant campaigns, events, and consultations.
- Share environmental information more widely with colleagues, residents etc.
- Help trial environmental tools, mechanisms and training that are developed.

Climate Change in House E-Learning

Mandatory staff training on climate change has been developed. The course covers: what climate change is, it's global and local impacts, what is being done to tackle it and how staff can help at work and in their daily lives. The training forms part of the council's commitment to tackling the climate emergency, as it is recognised that our staff are an invaluable part of the solution. This will help develop critical thinking along with embedding knowledge to help everyone do their bit in their everyday role.

Campaign, event materials and provisions

We need to ensure that meaningful campaigns and events are supported with materials that are carbon, recyclable and kind to the environment.

Actions & Partnerships

International Partnerships

Durham has been a partner in a number of energy/ climate related EU funded programmes through the Interreg Europe programme all based on sharing and learning from one another.

SME Power - a project seeking to improve the energy efficiency of SMEs (small and medium-sized enterprises) which will run until 2023.

LoCARBO - a project seeking to improve the energy efficiency of SMEs in County Durham by exchanging best practice and experience, adopting good practice in partnership working and governance in particular. This Action Plan is the policy instrument for the final year of the LoCARBO programme until Autumn 2022.

REBUS - a project to improve energy efficiency of publicly owned buildings by exchanging best practice and experience. It has been extended until Autumn 2022.

The **UN Sustainable Development Goals** are the most comprehensive framework to allow dialogue and learning around how we live justly and responsibly on this planet. They can be adapted to suit reporting for measuring a wide variety of projects and programmes.

National Partnerships

The Council has signed up to the **Let's Go Zero 2030** campaign which is supporting schools to reduce their carbon footprint across all aspects of school life including procurement, transport, school food etc. The aim of the campaign is for the education sector to be a pathfinder showing how net zero is possible in the public sector.

Transform Our World is a great hub for sustainability education for schools. Lots of free resources are downloadable for schools.

APSE Energy supports local authorities in the fields of energy and climate change. The Council won the award for the 'Best Climate Initiative' in 2020 and we regularly attend and speak at their events sharing learning with other local authorities and organisations across the country.

Countryside Climate Network - rural communities are at the forefront of climate change impacts. DCC is a member of this network (part of UK100) to share learning and experiences in rural communities.

Regional Partnerships

North East England Climate Change Coalition - Durham is a member of this cross-sector initiative bringing the region together to tackle the climate emergency, reverse ecological collapse and deliver an urgent and just transition.

VCSE Climate Action Alliance - **Going Green Together** - this new website and alliance is supporting voluntary sector organisations to make their organisations more sustainable - through sharing case studies, ideas and collaboration.

North East Local Enterprise Partnership (NELEP) and BEIS Regional Energy Hub (REH) – NELEP and the REH works with local authorities, business and communities across the region developing shared learning, feeding back to national government and providing specialist technical assistance.

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Actions & Partnerships

Local Partnerships

Area Action Partnerships (AAPs) - We are working together with AAPs to help Area Action Partnerships (AAPs) - We are working together with AAPs to help embed our communications and engagement approach within County Durham communities. There are a total of 14 AAPs, most of which have already adopted and developed their own communications and engagement approaches around Climate Change and Environment. We need to develop this and work together to enhance this useful resource.

SMEs - We are actively engaging with SMEs through the Business Energy Efficiency Project (BEEP).

Climate Action County Durham – is an alliance of voluntary, public and private sector organisations brought together by OASES to share ideas and stimulate countywide climate action activity

Community Groups - We are actively engaging with several community groups, churches and parish groups supporting raising awareness on what everyone can do to tackle climate change. There are several groups which are already active and doing their bit as listed below:

- **Woodcraft folk** is an organisation focusing on youth education for social change, co-operation, international friendships, children's rights, nature and environment, and peace. It has inclusive groups operating in Stanley, Framwellgate Moor and Durham. Through their work they encourage understanding, enjoyment, and protection of our environment locally and globally, promoting responsible use of the planet's finite sources.
- **Re-f-use** is an anti-food waste project (community interest company) based at a community café in Chester-le-Street. Re-f-use salvages food that would have otherwise been wasted from around the county (wholesalers, supermarkets, restaurants etc), using it at the community café, at private events (weddings, parties, commercial catering etc) and through food boxes (waste-not boxes). Refuse also tries to campaign against food waste, offers consultancy services on reducing food waste and advocates for climate action.
- **Ecofest**, a set of events are run out of St John's Church in Neville's Cross, designed to work towards a more sustainable community.
- **Greening Ustinov and Sheraton Park**, a community group in Neville's Cross trying to encourage sustainability in the Sheraton Park community, both in person and via **Facebook**
- Climate Action Durham, a not-for-profit organisation formed by local people whose aim is to work towards reducing carbon emissions and encouraging biodiversity.
- Green Durham, a website profiling climate action in the area, is the new home of Transition Durham, Durham Local Food and The North East Permaculture network. The three groups have come together to provide a single site to help the public find local food providers, community groups and projects from around Durham and throughout the North East.
- **St Nics' Church Climate justice / eco group**, a group in the St Nic's congregation working on local environmental action. They have worked on getting the Diocese of Durham to **divest in fossil fuels**
- **Durham Community Action**, an organisation focussed on enabling communities, promoting action, supporting volunteering and getting voices heard in County Durham. It works with a diverse range of individuals and groups to promote action that can be taken to improve health and wellbeing, work more effectively and save money.

Durham Community Action is also trialling a **training programme** for their trustees which will include sustainability and environmental protection and supporting volunteer led organisations to implement community led climate response actions.

Northumbrian Water Ltd aims to harness the enthusiasm of young people for environmental protection through their **ripple effect program**. This program includes a series of educational games and activities focusing on reducing water consumption in the region.

County Durham & Darlington Foundation NHS Trust are engaging with their employees in order to embed environmentally sustainable practises and understanding of sustainability through staff training modules.

Asks of Government

We welcome the new draft **Department for Education Sustainability and Climate Strategy** - this is a start, but we would ask the Government to be bolder in their vision to ensure a coordinated approach to climate education and a broader Education for Sustainable Development focus that will equip the young people of today with the knowledge, skills, values and resilience necessary to make net zero a reality.

Support the Education (Environment and Sustainable Citizenship) bill from Lord Knight to amend the Education Act.

Approve the proposed Natural History GCSE to provide a recognised programme of study and qualification for secondary students.

View action plan on page 114

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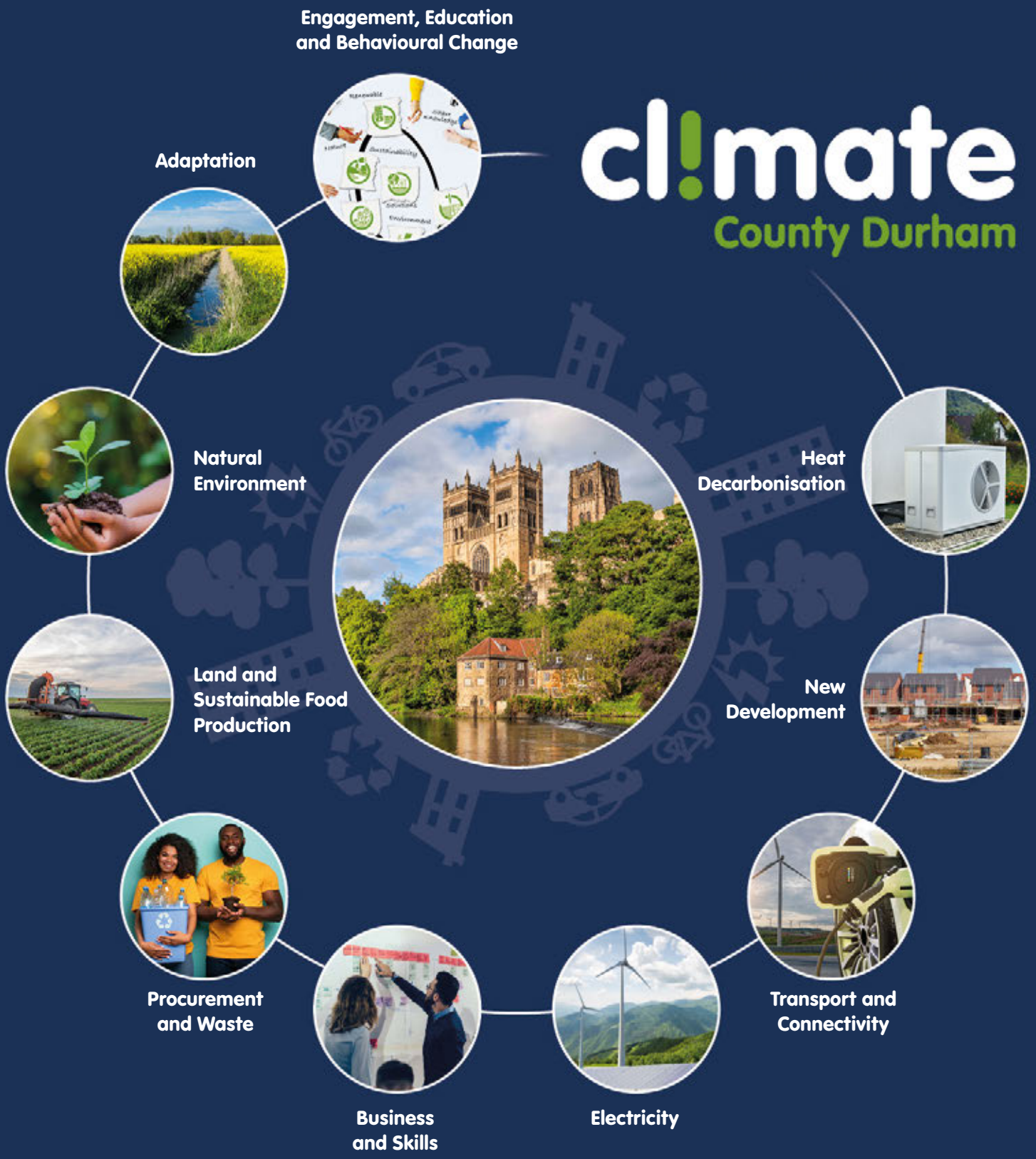
Engagement, Education and Behavioural Change
Adaptation
Natural Environment
Land and Sustainable Food Production
Procurement and Waste
Business and Skills
Electricity
Transport and Connectivity
New Development
Heat Decarbonisation
cl!mate
County Durham

Emergency Response Plan (CERP)

Introduction

- The **CERP** sets a shared vision for County Durham to 2045, with priorities and associated actions over the next two years (2022-24), to tackle both the Council's and County Durham's contribution to climate change.
- The **CERP** actions will be updated every two years.
- The **CERP** has been developed by the Council with support from Strategi Partners, but is owned by residents, communities, and businesses within County Durham.
- It builds on the previous **CERP** which ran from 2020-22.
- It covers measures to reduce emissions and plans to adapt to climate extremes.
- It includes actions and measures that the Council are undertaking but also what partners, communities and business are doing.
- It needs your help to achieve the goals set out below.

The following chapters describe the actions that the Council and other partners are planning or carrying out to help the county become carbon neutral by 2045. Each chapter includes a section on how Durham County Council is leading the way by carrying out similar actions on our own estate and with our own funds.

The Actions and Partnerships section describes the actions and collaborations that will take place within the period of this CERP (2022 - 2024). The full table of costed actions can be found in the Actions Section at the end of this document.

carbon neutral by 2045

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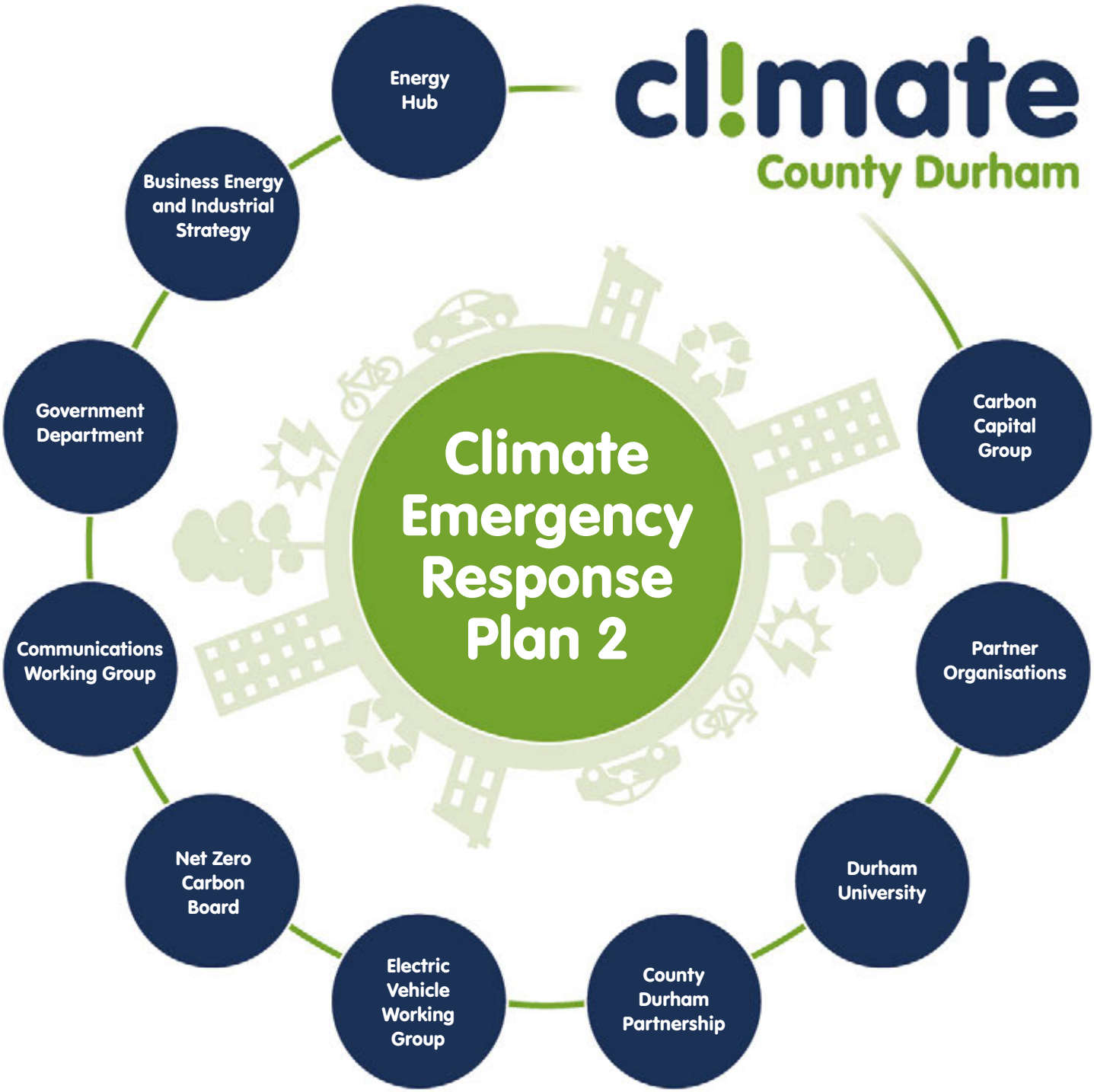
Energy Hub
Business Energy and Industrial Strategy
Government Department
Communications Working Group
Net Zero Carbon Board
Electric Vehicle Working Group
County Durham Partnership
Durham University
Partner Organisations
Carbon Capital Group
Climate Emergency Response Plan 2

Governance

Good governance will be essential to the success of the Climate Emergency Response Plan 2, so we are putting in place and building upon a series of engagement structures.

In the Council, a new Net Zero Carbon Board has been established that oversees all the Council's work as it relates to climate change. With high level strategic engagement across all departments this Board ensures that progress is measured, monitored, and scrutinised. Reporting into this Board are a series of specialist corporate groupings including the Carbon Capital Group, the Electric Vehicle Working Group and a communications working group, with management representatives from all areas of the Council.

In order to tackle the net zero challenge across County Durham we need to work closely with our partner organisations, each of which has their own specific role to play in the journey. We have therefore established a Climate Emergency Strategic Board, chaired by Durham University. This Board scrutinises Plan delivery and reports up to the County Durham Partnership.

We also work closely with our colleagues in the Government Department of Business, Energy and Industrial Strategy (BEIS) and with the North East, Yorkshire and Humber Energy Hub that BEIS has established to support work on achieving net zero. We liaise with other councils in the region and with the North East Local Enterprise Partnership (NELEP) and the North East Cowmbined Authority (NECA).

We have an Environment Overview and Scrutiny Committee that maintains oversight of delivery of the Plan and acts as a critical friend to the process. A local Councillor also sits on the cabinet as the Cabinet Portfolio Holder for Neighbourhoods and Climate Change to ensure that the climate emergency is high up in the political framework.

Good governance will be essential to the success of the Climate Emergency Response Plan.

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Action Plan

Each of the chapters has its own specific actions which are listed in the tables below. The first table is a summary of the total cost and carbon reduction achieved.

Costs

The costs associated with climate change related actions across the CERP 2 period and across partners are estimated to be over £121m. There is significant uncertainty in this figure as many of the projects below are in design stage and some may not get developed. Carbon emissions reduction associated with actions are yet to be calculated but will be added into the CERP when known.

Heat Decarbonisation Actions - Domestic

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Advice through the Managing Money Better Service	Support to vulnerable residents around a range of financial issues but also around energy and energy efficiency.	DCC	£60,000	Indirect	Ongoing
Domestic Energy Efficiency Projects	2 bids have secured for £10m of retrofit investment for 1000 homes.	DCC	£2.765m	To be assessed	2024
Private Landlord Advice	Work with landlords to improve building quality / energy efficiency / higher standards and improve enforcement actions.	DCC	£100,000	To be assessed	Ongoing
Home energy efficiency loan scheme	Supporting householders with loans to pay for energy efficiency measures.	DCC	£100,000	To be assessed	Ongoing
ECO Funding?	Support to low income and vulnerable private sector households providing grants for energy efficiency measures.	DCC	£1.25m	To be assessed	Ongoing
Smart Meter Installations to 250 properties	Installation of 250 smart meter in Karbon Homes properties.	Karbon Homes	N/A	N/A	Octopus Energy
Cavity Wall Insulation Programme	CWI programme in properties across portfolio.	Karbon Homes	£650,000	Unknown	Dyson Energy Services
EPC C Investment	Deliver energy efficiency improvements to ensure all stock achieves EPC C by 2030 (7590 Homes).	Karbon Homes	£12m	Average 156.22kg per property	TBC

Heat Decarbonisation Actions - Strategic

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Durham City District Heating	Business Case Development for district heating scheme for Durham City including Freemans Reach, Passport Office.	DCC	£150,000	Unknown	2022 (feasibility)
Minewater	Undertake research to identify opportunities for mine-water and other sustainable heat (and cooling) schemes across County Durham – includes heat storage.	DCC, Durham Energy Institute; NELEP; the Coal Authority	TBC	Unknown	2024
Decarbonisation of existing buildings	Continue to develop building decarbonisation plans across corporate DCC estate and implement schemes to eradicate the use of gas boilers.	DCC	£5m	1,000 tonnes per annum	By 2024
Development of Local Area Energy Plans	Work with Gov to develop LAEPs.	DCC	£0	0	By 2024

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Warm Homes Fund	Supporting low carbon heating in off gas homes.	DCC	£2m	TBC
Social Housing Decarbonisation Scheme	Decarbonisation Pilot – 1600 social homes with ASHP, Battery and PV with EWI.	DCC; Believe, Livin, Karbon, Bernicia, North Star	£4.6m	TBC
Domestic Energy efficiency Projects (LAD3)	Domestic energy Efficiency Projects.	DCC	TBC	TBC
SHDF Wave 2 – Project under development	TBC	Karbon	TBC	TBC
SHDF wave 1 funding bid for 908 properties – county wide	Domestic Energy Efficiency Projects.	DCC, EQUANS	~£3,900,000	569.3 tonnes CO_2e
Heat Network Zones	Work with regional and national partners to develop Heat Network Zones, in line with new Gov consultation.	BEIS, NELEP, DCC	TBC	TBC
Decarbonisation of existing buildings	Continue to develop building decarbonisation plans across corporate DCC estate and implement schemes to eradicate the use of gas boilers.	DCC	1,000 tonnes per annum	TBC

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New Development Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Seaham Garden Village	1500 homes in Seaham to be heated by minewater.	Coal Authority; DCC; TOLENT; Karbon	£14m	TBC	2028
DCC – Fossil Fuel Free development	New internal DCC policy will prevent the connection to the gas network for new DCC development .	DCC	TBC	TBC	Ongoing
NetPark phase 3	Phase 3 of netpark will have lower carbon design and will not be connected to the gas network. A balance will be met between reducing embodied carbon and emissions from occupancy.	DCC & BD	£8m uplift to reduce carbon impact of construction	TBC	September 2023
Off gas homes	All new homes in off gas areas must be heated by low carbon technologies.	DCC	Nil	TBC	Ongoing
District Heating Options – Sniperley	Develop options for District heating at Sniperley.	DCC / CA	£100,000	TBC	2023

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Construction Emissions	Work with the green building council to develop policy on construction emissions, supporting the reduction of embodied emissions through e.g. timber framed buildings.	DCC	TBC	TBC

Transport and Connectivity Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
SOSCI	Install 153 EVCP sockets in the rural areas of County Durham.	Cybermoor	Innovate UK funded £263,638	TBC	31st January 2022
WEVA	9 EVCPs and 17 sockets installed in Stanhope area.	DCC	£138,484.28 (£75,000 funded by OZEV)	TBC	31st December 2021
WEVA REV UP	Research project which will install 2 EVCPs and research the STEP model. Stakeholder role for DCC to investigate best ways and practises for installing charge points to make bids.	DCC, Cybermoor	£100,000	TBC	March 2022
DOCS	50 EVCP (100 sockets) to be installed.	DCC	£500,000 (375,000 funded by OZEV) construction	TBC	31st March 2022
Derwent Valley	6 EVCP (12 sockets).	DCC	£30,000 AAP funding. ORCs application to be made.	TBC	2023
Durham City P&R extension	A new P&R site on the western approach of Durham City and an extension to Sniperley P&R. Planned adoption of Electric Bus fleet TBC.	DCC	£4.5 - £5.0m	TBC	Dec 2022
E Van – Try before you Buy	4 vans on free 2/3wk trial to SMEs 4 Electric Vans to be purchased and will be made available for rental to SME's across County Durham.	DCC	£100k DCC Climate Fund	1.5t CO_2 per 10,000 milles	Sept 2023

Transport and Connectivity Actions Con't

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Rapid EV Charging	Facilitate the provision of ultra- rapid EV charging and EV filling stations where appropriate. Encourage and incentivise commercial organisations to switch to EVs – especially taxis, fleet and delivery firms. Develop destination charge point infrastructure.	DCC	External funding TBC TBC	TBC TBC TBC	Ongoing
Local Cycling and Walking Delivery Plans	Completion of Local Cycling and Walking Infrastructure Plans for 12 main towns (LCWIPs).	DCC	£280,000	TBC	2024
Park that Bike	Further development of scheme to provide bike parking infrastructure.	DCC	£65,000	TBC	2024
LCWIPs	Construction of priority routes identified in LCWIPs and associated infrastructure.	DCC	£500,000	TBC	2024
Great North Cycleway	Complete construction of Great North Cycleway (NCN 725).	DCC	£500,000	TBC	2024
Cycling Super Routes	Construct Cycling Super Routes linking key settlements within 5 miles of Durham City.	DCC	£500,000	TBC	2024
E – Cargo Bikes	Support the use of e-bikes and e-cargo bikes especially for last mile deliveries.	DCC		TBC	Ongoing
Durham City Bus Station	Completion of Durham City's bus station as the County's main bus interchange.	DCC	£10.4m	TBC	2024
Bus Priority measures	Identify and introduce bus priority measures in areas of need.	DCC	£394.000	TBC	Ongoing
Bus Network	Continue the commitment to underwrite a comprehensive bus network for the County.	DCC	£2.5m	TBC	Ongoing
P&R provision	New P&R provision at Stonebridge.	DCC	£4.5m	TBC	2024
Park and Ride EV Buses	Bring in electric buses for the Durham City park and ride routes (cost per bus).	DCC	TBC	TBC	2024
Countywide ULEV buses	Support a transition to ultra-low emission buses across the County.	DCC, Go North East, Arriva	TBC	TBC	Ongoing
Car Clubs	Explore and promote opportunities for an increase in car clubs.	DCC, Co-Wheels	TBC	TBC	Ongoing
Borrow a Bike Scheme	Pilot scheme a success in Shildon. The scheme enables residents who do not have access to a bike the opportunity to try cycling as a means of travel. Roll out to four more towns: Murton; Stanley; Pity Me; Newton Aycliffe.	DCC	TBC	TBC	Ongoing
Project Gigabit Voucher Scheme	PGBVS) enables gigabit-capable connectivity to be deployed to rural communities using voucher funding.	DCC	£1.5m	TBC	Ongoing
Project Gigabit - Hubs	Project Gigabit - Hubs: Providing gigabit-capable broadband to public sector buildings, making it more commercially viable for providers to install gigabit capable services to the surrounding community.	DCC	£600,000	TBC	Ongoing
Project Gigabit - Procurement	Project Gigabit - Procurement: Aims to maximise gigabit-capable coverage in the harder to reach 20% of the UK.	DCC	TBC	TBC	Ongoing

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Auckland E Bus Project	Electric busses to shuttle visitors from car parks to town centre.	The Auckland Project	TBC	TBC
Weardale Railway Hydrogen	Exploration of hydrogen to power trains.	The Auckland Project	TBC	TBC

Electricity Actions

Project	Description	Lead Partner	Cost	CO_2 saving (2021 carbon factors)	Completion date
Collaborate with heating projects	Take opportunities to add electricity generation to heat pump installations.	Project dependent	Project by Project basis	TBC	Ongoing
Collaborate with transport projects	Take opportunities to add electricity generation, such as solar car ports, to support EV projects.	Project dependent	Project by Project basis	TBC	Ongoing
NETPark Phase 3	Development options includes potential solar farm to support all electric buildings.	Business Durham	Part of phase 3	TBC	2024 (estimated)
Tanfield Lea Solar Farm	Expansion of the solar farm, with battery storage, to meet the full demand of the offices including provision of low carbon heat.	DCC	TBC	TBC – dependant on heat requirements.	2024 (estimated)
Jade Renewables	The development of a combined wind turbine and solar farm to provide renewable power at Jade Business Park, Murton.	DCC	£2.1m	277 tonnes CO_2	2023 (estimated)
Renewable Energy opportunities	DCC is actively looking at options to utilise land for renewables across the County.	DCC	TBC	TBC	Ongoing
Solar Car Ports	Develop an investment case to energise and biodiversify large public car parks with solar PV carports and Green Infrastructure.	DCC DCC with Climate Emergency Strategic Board partners	£45k EUCF funded	Study will estimate rolled out savings	Sept 2022
LEDs in DCC buildings	Continued roll out of LED's across DCC buildings.	DCC	TBC	TBC	Ongoing
Grid resilience (example)	New substation and delivery of improvements to the overhead and underground network in Seaham.	NPG	£8.5m	N/A (supporting works only)	
LED street lighting	Replace up to 19,500 remaining old streetlights with LED, saving around 5GWh, between 2020 and 2023, leaving a further 3,352 to upgrade before 2030.	DCC	TBC due to scale and duration.	1,100 tonnes CO_2e	2023
Solar PV on DCC buildings	Further installation on DCC buildings to reduce electricity consumption.	DCC	£750k	150 tonnes CO_2	March 2022
BEMS in DCC buildings	Improve building energy management systems across DCC estate to ensure proper electricity efficiency.	DCC	TBC	TBC	Ongoing

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Local Plan Update	Any new Local Plan update should prioritise climate change mitigation policy including provision for local renewable electricity.	DCC	Staff Costs	N/A
Bishop Auckland Geothermal electricity generation	A scheme to drill down at least 5,000 metres and bring up super-heated steam to the surface to generate electricity – an 'ultra-deep geothermal system'. The total size would be 5MW, which would generate constantly, providing around 40,000MWh electricity per year.	Auckland Castle	£50m 10% funded from BEIS	8,850 tonnes CO_2e. (2021 carbon factor)
Depot Decarbonisation	Develop options for depot decarbonisation following lessons learnt from Annfield Plain project.	DCC	TBC	TBC

Business and Skills Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Energy efficiency in Business Durham let properties	Review all BD let buildings for energy performance, display performance certificates, and work with BEEP to liaise with tenants to introduce energy efficiency measures.	Business Durham/ Business Energy Efficiency Project	Uncertain	TBC	December 2022
Model energy efficient business/ Industrial park	Commission a study to establish a model energy efficient Business Durham business/ industrial park.	Business Durham	Uncertain	-TBC	March 2023
Formulate 'green economy' proposal	Develop 'green economy' inward investment proposal.	Business Durham	Uncertain	TBC	December 2022
Energy efficiency presentations	Offer on-site energy efficiency management presentations to all estates.	Business Durham to arrange/ BEEP to deliver	Nil	TBC	December 2022
Generate BEEP referrals	Introduce BEEP with the aid of the 'Try before you buy' EV vans being offered on loan to SMEs (50 referrals per annum).	Business Durham to arrange/ BEEP to deliver	Nil	TBC	Ongoing
Assist new Durham businesses with energy efficiency	Introduce businesses moving into Co Durham to BEEP for assistance with identifying energy efficiencies for new premises etc (5 referrals per annum).	Business Durham to arrange/ BEEP to deliver	Nil	TBC	Ongoing
SME Power	Learn from international good practice and enhance the support offer to SMEs in Durham: • Incorporate carbon foot printing into advice. • Develop a specific tourism/ hospitality project.	SME Power project partners, LCE Team	Existing resources	TBC	July 2022
Compliance from Business Partners by DurhamWorks	Durham Works is asking their supply chain to comply with sustainable activities such as recycling etc.	Durham Works and their Business Partners	Nil	TBC	Ongoing

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Business and Skills Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Transport Guides from DurhamWorks	Guides on public transport and routes to Durham Works premises and delivery services have been produced. Walking and cycling to work is actively encouraged across the programme.	Durham Works	Nil	TBC	December 2021
Green Economy Exhibition	To hold a Green Economy Exhibition in conjunction with the Low Carbon Economy Team during 2022.	Business Durham/ LCE Team	Uncertain	TBC	December 2022
LoCARBO	Develop and share good practices with international partners and use partners positive experiences to guide and influence partnership development locally.	LoCARBO project partners, LCE team.	Existing resources	TBC	October 2022

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
MEES17 Energy Efficiency Standards (at BD Estates)	Exceed MEES17 (MINIMUM ENERGY EFFICIENCY STANDARDS) regulations by ensuring all BD property is EPC D/E or above (expected next stage of this standard) by end of 2022.	Business Durham/BEEP to offer audits to tenants	Much of the work needed will be the responsibility of the tenant	TBC
Pilot Decarbonisation plan for BD Estate	Identify a Business Durham owned estate to pilot decarbonisation plan (and subject to a successful pilot, duplicating the process across all Business Durham owned estates by 2025).	Business Durham/ Low Carbon Economy Team to advise	Uncertain	TBC

Procurement and Waste Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Priority Environmental Procurements	Identify 'priority environmental procurements' (PEP's) within the Council's Procurement Pipeline.	DCC Procurement and Low Carbon Economy Team	Staff time	TBC	Annual updates
Themes Outcomes and Measures	Embed sustainability into major procurement exercises through the Themes, Outcomes and Measures (TOMS) methodology.	DCC Procurement	Staff time	TBC, depending on contracts in the system. There are several options encouraging the reduction of carbon emissions in the methodology	Ongoing
Influence procurement at a local, regional, and national level	Using partnerships and projects such as the County Durham Pound Project (local), North East Procurement Organisation (regional) and the National Social Value Task and the Local Government Association (national).	DCC Procurement	Staff time	N/A	Ongoing

Procurement and Waste Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Small Order review and delivery assessment	Identify opportunities to reduce small orders and consequent reduction in CO_2.	Procurement, LCE, and Payment Income and Support Team	Staff time	N/A	Initial contract in 21/22. Further products in 22/23
Tender Thresholds	Increasing the tender threshold from £50,000 to £189,330. The threshold is the point at which the bidding process becomes more intensive and increasing it will make it easier for local, smaller suppliers to bid for contracts.	Procurement	Staff time	N/A	Ongoing
Waste Carbon analysis	Conduct detailed assessment of carbon emissions associated with Waste Services.	LCE, Strategic Waste, Refuse and Recycling	Staff time	Potentially significant. Waste will be responsible for approximately 5% of DCC's current emissions	2022
Green and Food Waste collections	Respond to Government's final decision to implement these services.	Strategic Waste	Unknown at present	Could increase DCC emissions, but lower overall global emissions	TBC
Promote and encourage home composting with Carbon management guidance	Current scheme operating for residents.	Strategic Waste	Within existing budgets/ funding	Savings from avoiding carbon emissions from transport and processing of waste	Ongoing
Garden Waste collections	Continue garden waste collections. Waste is now processed by DCC and additional savings from reuse of compost being explored.	Strategic Waste	Within existing budgets/ funding. Income from service	Increase in emissions counted by DCC from processing. Savings from overall scheme and potential to reuse compost	Compost facility now operational
Waste awareness campaigns	Provide information to residents, schools, businesses and community groups to encourage better waste management practices.	Strategic Waste	Within existing budgets.	Savings from better waste management decisions, and avoidance of processing and use of raw materials	Ongoing. Current focus on electrical waste and reducing contamination in recycling
Single Use Plastics	Continue to promote sign ups to the Single Use Plastics Pledge across Durham in order to encourage the reduction of, and seek alternatives to, the use of single use plastics.	Strategic Waste, procurement	Programme delivery is staff time. Individual actions to be funded from Service budgets	Savings from better use of resources and reduced disposal costs	Ongoing

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Procurement and Waste Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Implement and deliver Environmental Management System	Work to measure, monitor and reduce the Council's environmental impacts.	LCE	Staff time, service budgets	Will enable greater awareness of, and opportunity to reduce Scope 3 emissions	Ongoing, annual audits
Waste and Recycling in Council Buildings	More, better recycling and composting in council properties. Including office furniture re-homing & re-use scheme.	LCE, Facilities teams	Minimal. Costs from transport likely to balance with savings from avoiding disposal costs	Scope 3, not tracked at present	Ongoing

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Tees Valley Waste to energy Plant with CCS	The development of this Energy Recovery Facility to process residual waste will generate electricity, export heat and use Carbon Capture Storage (CCS) to minimise carbon emissions.	Strategic Waste	TBC	TBC
Food Waste Collections	DCC will progress to begin food waste collections (and processing) in line with Government requirements and funding.	Strategic Waste	Depends on government requirements	Depends on scope and treatment options

Land and Sustainable Food Production

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Silver Sustainable Food Places	Holistic approach to a range of key food issues across the County.	Food Durham	~£40k per annum (partly externally funded)	N/A	Summer 2023
Food Engagement	Contributing to funding the food coordinator role.	Food Durham/ DCC	N/A	N/A	Ongoing
Sustainable Food Production	Developing ideas and programmes around land-use/food growing to support more sustainable local food production.	Food Durham/ DCC	N/A	N/A	Ongoing
Master Composters	Revitalise the master composters scheme and link with community growing projects.	Food Durham/ DCC	N/A	N/A	2024
School Food Waste	Explore the impact of school food waste, those that have collections and those that don't. through auditing and connect with the Lets Go Zero 2030 through existing school programmes.	Food Durham/ DCC	N/A	N/A	2024

Land and Sustainable Food Production Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Glasgow Food and Climate Declaration	Consider DCC becoming a formal signatory to this declaration.	DCC/Food Durham	N/A	N/A	2023
Soil Health	Work with Durham University and other partners to explore soil health and carbon storage.	DCC, Durham University	N/A	N/A	2024
	Eco2 Smart Schools project to work with Durham University on terrarium planning to raise awareness.	Eco2 Smart Schools, Durham University	N/A	N/A	2024

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Domestic Food Waste Collection Launch	Food waste collections likely to commence in 2025.	DCC	TBC	TBC

Natural Environment Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Nature Based Approach to Managing the Council's Estate	Continue to identify suitable sites for a less intensive, nature-based approach to management across the Council's estate. Implement change in management regime across a minimum of 8 sites and increase wildflower meadow creation.	Clean and Green & Ecology	Costs met from existing budgets	Not currently verifiable. This will need to be calculated	Ongoing
Nature Based Solutions Awareness Raising Campaign	Raise awareness of the benefits of Nature-Based Management Solutions internally and with the public.	Clean and Green, Ecology, Low Carbon Economy Team & Comms	Costs met from existing budgets	N/A	Ongoing
Elimination of Peat use within the Council	Elimination of peat-based tree/ shrub compost through use of recycled soil conditioner, contributing towards reducing emissions from the destruction of peatlands.	Clean and Green Strategic Waste	Not applicable	The UK's peatlands, Greenhouse Gas emissions are estimated at 23.1 MT CO_2e y-1. 11.1 million of which is from England.	Ongoing
	Change customer sales to Peat Free Compost.	Clean and Green	Not applicable	As above	Ongoing
	Elimination of peat based compost for bedding: Trial established PFC brands	Clean and Green	Not applicable	As above	Ongoing
	Elimination of peat based compost for bedding: Trial 0-4mm Recycled soil conditioner.	Clean and Green Strategic Waste	Not applicable	As above	2023
	Elimination of peat based compost for bedding: Review Trials and implement change to PFC.	Clean and Green	To be evaluated as part of trials	As above	2023 and then ongoing

Natural Environment Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Elimination of Peat use within the Council	Peat free publicity and promotion to raise awareness and encourage residents to go peat free.	Clean and Green Low Carbon Economy Team	Costs met from existing budgets	As above	2023
Peatland Restoration	Continue programmed peatland restoration work, estimated at 1,162 hectares 2022/23 – 662ha (planned) 2023/24 – 500ha.	North Pennines AONB Partnership (Paul Leadbitter)	Estimated at £770,000	20 tonnes carbon per hectare of avoided losses from restoring bare peat. Therefore, potential to avoid losses of 23,240 tonnes carbon per year (1,162 x 20)	2024
	Work with the Environment Agency to develop new methods of integrating existing Lidar data for the AONB to identify further areas in need of restoration	North Pennines AONB (Paul Leadbitter)	Staff time	Enabling action	2022
Woodland Creation: Durham Woodland Creation Programme	Identify and plant a further 50 hectares of land over 2022/24. (10,000 trees per AAP including Trees for children 69,000) Total programme estimated at 70 hectares of planting.	DCC, Communities, AAP's, Schools, Landowners, OASES,NECF, Trees for Cities	Approx £600k, including external funding and maintenance for 15 years, along with Trees 4 Children programme	Total Programme: Best case scenario, estimated at 22,475 tCO_2e by 2045	Ongoing
Woodland Creation: Durham Woodland Revival Project	Continue to support the project and plant a further 48ha over 2022/24.	DCC, DWR, Woodland Trust	£60k, large tree planting schemes being delivered by Woodland Trust	Total Programme: Best case scenario, estimated at 29,000 tCO_2e by 2045	2024
Woodland Creation: Urban Tree Challenge Fund	Deliver UTCF round 3 2022/24 and plant a further 799 large specimen trees across County Durham's towns and villages.	DCC, Forestry Commission, Karbon Homes & Believe	£440k	Estimation of planting to date: 2,120.65 tCO_2e by 2045	Winter 2023
Woodland Creation: Tree Week Grants	Maximise uptake of tree week grants aiming for applications and that deliver the most benefits.	DCC, communities, landowners	£3k per annum	Estimation of planting to date: 351.62 tCO_2e by 2045	Ongoing
Woodland Creation: North East Community Forest (250ha over 4 years)	Aim to plant 62.5ha each year to 2025 in County Durham as part of the NE Community Forest. (Year 1 schemes recorded under Durham Woodland Creation) Aim to plant 62.5ha each year to 2025 in County Durham as part of the NE Community Forest. (Year 1 schemes recorded under Durham Woodland Creation).	DCC, Newcastle City Council, South Tyneside, Sunderland, North Tyneside, Gateshead landowners	£300k	Total Programme: Best case scenario, estimated at 765,250 tCO_2e by 2045	2050

Natural Environment Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Woodland Creation: North Pennines A68 Corridor Project	Work with private landowners to advise on woodland creation schemes and management.	DCC, North Pennines AONB, Woodland Trust, Forestry Commission	post funded in 2020/21	TBC	TBC
Woodland Creation: Carbon Market	Continue to develop registered and validated tree planting projects to the Woodland Carbon code to offer local people and businesses the opportunity to offset their carbon through local tree planting / carbon credits. Aim for 2 projects per year. Finance to be re-invested in managing the Council's expanding woodland estate. Awareness raising of the scheme will be required.	DCC, Forest Carbon	Will generate income	TBC	2025
Hedgerow Creation and Management	Continue to support hedgerow planting and management in County Durham in line with advice from Natural England to ensure a longer term accumulation of carbon. Review and amend any exiting guidance as necessary (e.g. increase height from 2 to 3 metres and widths between 3 to 4 metres).	DCC, Durham Hedgerow Partnership, Landowners	£30k	Natural England provides a carbon stock figure of 68.2 t C ha-1 for a 2-3 metre hedge comprised of Hawthorn, Blackthorn and Hazel.	Ongoing
Manging our woodlands (DCC estate) to improve condition and increase carbon efficiency and other benefits for nature and people	Implement Woodland Improvement Grant. January 2022- 2027.	DCC, Forestry Commission	£960k over 5 years	Not verifiable	2027
Blue Carbon	Wild Oysters Project: Work to identify suitable sites off the Durham Coast and in North East coastal waters for habitat restoration i.e. introducing shells and gravels onto the seabed.	Niall Benson/ Karen Daglish (Durham Heritage Coast/ Seascapes)	North East region £400,000 DCC nil	Not currently verifiable. The primary store of carbon in oysters is the shell material	Ongoing
	Continue research into the most effective kelp restoration techniques (translocating/seeding) followed by testing at suitable pilot sites along the Durham Coast.	Niall Benson/ Karen Daglish (Durham Heritage Coast/ Seascapes)	£40,000 DCC £20,000	Not currently verifiable. Potential carbon burial by UK kelp forests of 147t CO_2e/km^2/year	2023

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Natural Environment Actions Con't...

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Blue Carbon	Explore opportunities to restore sea grass and saltmarsh habitats.	Niall Benson/ Karen Daglish (Durham Heritage Coast/ Seascapes)	£10,000 DCC £5,000	Most UK estimates for Saltmarsh fall between 440 - 550t CO_2e/km^2/ year. Seagrass - rates of between 42 - 136t CO_2e/km^2/year	2023
Local Nature Recovery Strategy	Production of a LNRS.	Ecological Emergency Board (includes the Council and is a sub-group of the County Durham Environment Partnership)	TBC	TBC	TBC

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Increase the rate of peatland restoration	Provide funding to enable further restoration beyond planned work.	North Pennines AONB Partnership	Dependent on scale	Dependent on scale
Land mapping exercise	To determine carbon/ecological priorities for the use of land e.g. tree planting vs food vs renewable energy etc.	DCC/ Partnership	Uncertain	Enabling action
Peat Free County Durham	All businesses, organisations and residents within County Durham encouraged to go Peat Free.	Partnership	N/A	Will contribute towards reducing emissions from the destruction of peatlands. The UK's peatlands, Greenhouse Gas emissions are estimated at 23.1 MT CO_2e y-1. 11.1 million of which is from England.
Carbon sequestration value of soils	Identify carbon sequestration value of soils and how this impacts upon Durham County.	Durham University	N/A	Enabling action to help address gaps in knowledge.

Adaptation Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
Community Emergency Plans	Durham County Council engages with communities at risk to create community emergency plans for a number of specific areas within County Durham. Including:	DCC	TBC	N/A	TBC
South Stanley SUDS	The Community Sustainable Drainage (SuDS) Innovation Accelerator is a multi-partner project, led by Durham County Council, exploring how SuDS can be used as a mechanism to create more resilient, greener urban spaces which are shaped by their residents; we call this the *SuDS+* approach.	DCC (EA, Communities)	£6m	N/A	2027
Flood Defence Works	A programme of 31 flood alleviation schemes exists in areas across the County. All have funding allocated and will progress from 2021/22 through to 2027/28.	DCC, EA, NWL, Communities	£29m	N/A	2028
Heritage site assessment	Carry out a climate risk assessment for heritage sites in DCC ownership, and set up appropriate mitigation/ management plans.	DCC		N/A	
Binchester Roman Fort Risk Assessment	Carry out a Climate Risk assessment for Binchester Roman Fort and any other visitor attractions run/ managed by DCC to look at how to mitigate their impacts. As visitor focussed attractions, there is scope also to use them to promote the Climate Change message, by drawing comparisons between then and now (for historic type sites e.g. Binchester Fort).	DCC		N/A	

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Flood Defence Works	A programme of 31 flood alleviation schemes exists in areas across the County. All have funding allocated and will progress from 2021/22 through to 2027/28.	DCC, EA, NWL, Communities	£29m	N/A

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Education and Engagement Actions

Project	Description	Lead Partner	Cost	CO_2 saving	Completion date
ECO_2 Smart Homes	Review of pilot programme.	OASES	£20,000	TBC	Pilot ends March 2022
Let's Go Zero 2030	Launch programme with Durham schools.	DCC	N/A	TBC	Ongoing
AAPs collaboration	We need to work more with AAPs to raise awareness and embed messages in the community.	AAPs	N/A	N/A	N/A
Communication and Marketing Campaign	Make the work visual with strong messaging for internal and external audiences including public and stakeholders over one year.	Corporate Comms	£15,000	N/A	Phase 1 Jan 2022-Dec 2022
Two core video productions	Video is one of the best ways of engaging, empowering and inspiring people and showcasing what is happening. Over one year.	Corporate comms and video contractors	£9000	N/A	March 2022-Dec 2022
Marketing Collateral	Leaflets, banners, digital material all recyclable and sustainable over one year.	Corporate Comms, Design and Print	£4000	N/A	Jan 2022 – March 2023
Corporate Website	Information to be restructured and made visual and content appealing to public and wider audience.	Corporate Comms	N/A	N/A	2022-2023
Intranet	Restructure and information building in progress.	Corporate Comms	N/A	N/A	2022
County Durham Partnership website	Align information and messages ensuring right information is displayed as per partners audience.	Corporate Comms, Transformation and Partnerships team	N/A	N/A	2022
Community Events and case studies	Support the community groups and residents raise awareness on their efforts utilising the Climate County Durham Website.	TBC	N/A	N/A	2022 -2023
Climate Change DCC staff training	Support and ensure delivery of the training and all staff complete along with ongoing delivery for new starters.	Corporate comms, HR, L&D	N/A	N/A	Jan 2022 – July 2022
Image and photo bank	Collate and have the ability to record photographic evidence to support PR and BAU sharing purposes.	Corporate Comms and contractors	£6000 2 yrs. x£60 p/p	N/A	N/A
Metrics, Analytics and review	We need to measure and review engagement through all channels including PR to help inform future approaches, this need to include face to face and digital feedback.	Corporate Comms	N/A	N/A	N/A
Public consultation	We need to ensure that we do complete a public consultation in future ensuring that members of the public and engaged, informed and part of the journey to carbon neutral.	COG group, Corporate Comms	N/A	N/A	N/A

Actions for beyond CERP or Projects dependent upon funding

Project	Description	Lead Partner	Cost (if known)	CO_2 saving (if known)
Community workshops and events	We need to support community events and participate more.	TBC	N/A	N/A
Website development	Now the community website has foundations we need to build on these as this is a crucial communication tool.	Corporate Comms and ICT	TBC	N/A
Internal Workshops	Supporting staff build their knowledge and skills.	TBC	N/A	N/A
Climate Change Training	Adapt current internal training for members and external audiences pending licences and costs.	HR, L&D	N/A	N/A
Projects, Community, and staff engagement videos	Video is a powerful and effective way in engaging and telling a story with little words but having large impact. We could develop a series of videos to tie in with CERP themes or raising awareness on significant partnership/ community and staff work.	Corporate Comms, Project leads, Community groups, Video contractor	Approximately £500 to £1,000 per video production (2 days' work -production and editing)	N/A
Discussion forums	Research the best way to open communication within the communities and our local authority. Channels and mitigation.	TBC	TBC	N/A
Brand ongoing development	Ensuring that the brand is continuously developed ensuring all projects needs are met and used across several platforms, fleet etc.	TBC	TBC	N/A
International Schools Conference	Establish annual international engagement of Durham schools on climate education.	DCC	£10,000	N/A
ECO_2 Smart Homes	Review of pilot programme.	TBC – School Contract provider	c£20,000/ per annum,	TBC

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Policy Plan

Policies and practices are required to achieve a culture change for a carbon neutral County Durham. These policies and practices are collected in the following table.

DCC Policies and Practices

Priority Area	Description	Lead Body
DCC's Carbon Management Plan	Internal plan for DCC's carbon reduction across its operations.	DCC
DCC's Climate Champions	Internal Climate Change awareness programme.	DCC
Sustainable Procurement Policy	Embedding sustainability into DCC's procurement practices.	DCC
Low Carbon Project Investments	Use an 'invest to save' criterion to provide funding for internal DCC carbon saving projects.	DCC
Low Carbon Decisions	Climate Change is included as an implication category in all council reports.	DCC
Low Carbon Employees	All DCC staff are required in their job descriptions to consider the carbon impact of their work.	DCC
Low Carbon Leadership	Durham has a corporate director with a climate change brief: Director of Neighbourhoods and Climate Change.	DCC
Fossil Fuel Divestment	Keep under review DCC Pension Fund's engagement approach regarding fossil fuels giving consideration to the appropriateness of exclusions and alternative investments.	DCC and the LGPS
County Durham Plan	Development plan for County Durham. Where and how much development is to be located alongside planning policy.	DCC
Minerals and Waste Local Plan	Policies for waste and minerals extraction in County Durham.	DCC

Appendices

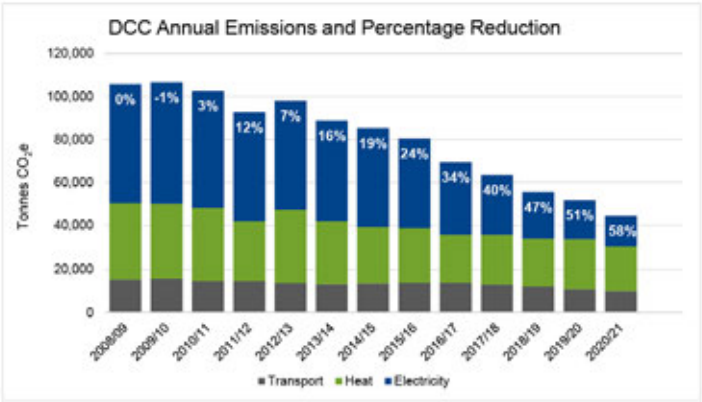
A. Council Emissions

Durham County Council calculates its own carbon emissions at the end of every financial year. The Council's carbon footprint is only a small proportion of the carbon emissions from the County as a whole. The Council operates in all areas in the County and all residents are affected by the work that we do. It is our duty to lead the way in carbon reduction as well as providing the support and infrastructure required for everyone to live lower carbon lives. This section looks the latest figures.

Current Emissions

The most recent data are for the financial year from April 2020 to March 2021. In that time, the council's footprint was 44 thousand tonnes of carbon dioxide equivalent. We use carbon dioxide equivalent (CO_2e) because it includes emissions from other gasses like methane as well as just CO_2.

Our baseline year was 2008/09, the year that DCC became a Unitary Authority. Since then, our emissions have reduced by 58%. The graph below shows this progression year-on-year. The figures for each year are separated into Electricity, Heat, and Transport, in line with our priorities from CERP 2020-2022.



In the baseline year of 2008/09, most of the council's carbon emissions were from electricity use, shown in blue in the graph above. More recently, the biggest portion of the footprint is from heat, shown in green. We have done a lot of work to reduce the amount of electricity that we take from the grid over the years and, at the same time, that electricity has become less carbon intensive as the UK moves away from coal and toward more renewable electricity generation.

In 2020-2021 the total footprint was made up of 46% heat, 32% electricity, and 22% transport.

Scope

The carbon footprint includes emissions from the following sources:

- Gas and electricity used in our own buildings, and buildings we are leasing for our own use. This includes most of our schools and academies if they opt-in to our utility purchasing.
- Oil, biomass, LPG, and any other fuels used in our own buildings and buildings we are leasing for our own use.
- Fuel used by our fleet vehicles.
- Business travel in cars, trains, aeroplanes, busses, and other modes of transport.
- Emissions from our waste contractors including their fleet vehicles and a share of the plant and utilities at processing facilities including recycling centres and the energy from waste plant on Teesside.

The carbon footprint excludes emissions from the following sources:

- Gas, electricity, and other fuels used in buildings that are entirely operated by third parties, even if we own the premises. This includes a small number of schools which have opted to arrange their own utility purchasing.
- Fugitive gasses – though we do report these separately.
- Business travel where the member of staff hasn't claimed the mileage.
- Since the data come from many different sources, carbon emissions can be broken down into smaller segments so that they align more closely with the different levels of control we have over their footprints:
- Core Operational Footprint. **Our own buildings and vehicles.**
- Wider Council Footprint. **Buildings and vehicles owned or operated by others including schools and academies, and private vehicles used for business travel.**
- Other Associated Emissions. **Supply chain and contract emissions as well as embodied carbon.**

The third group, Other Associated Emissions, are addressed by DCC but not included in our footprint reporting. It is not possible to fully add up all of DCC's emissions in this area and a line must be drawn clearly around the emissions that we do declare. DCC has policies that address supply chain and contract emissions and will tackle embodied carbon on a case-by-case basis. Other emissions, such as from staff commuting, will be addressed through engagement and awareness campaigns as well as a reduction in the requirement for staff to attend the office if they are able to work from home.

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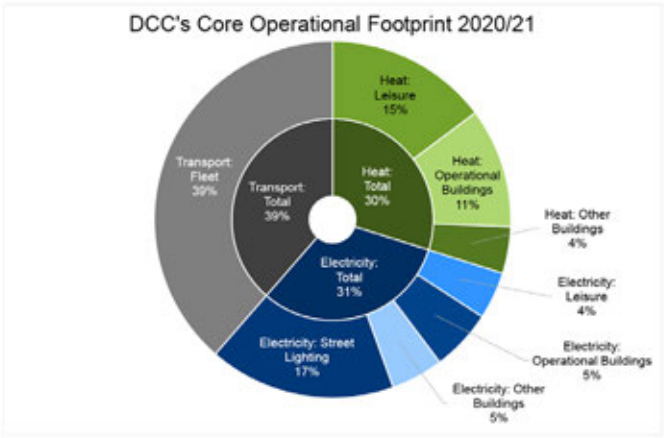
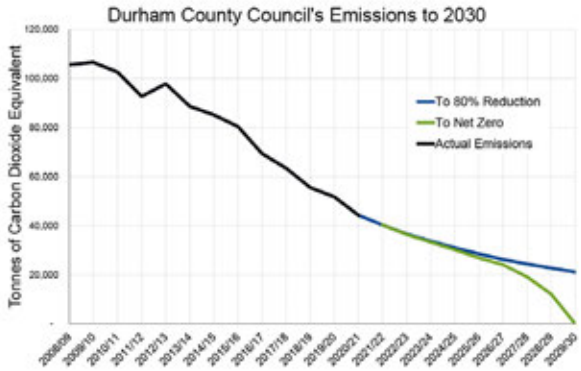
This chart shows a breakdown of our Core Operational Footprint (below).

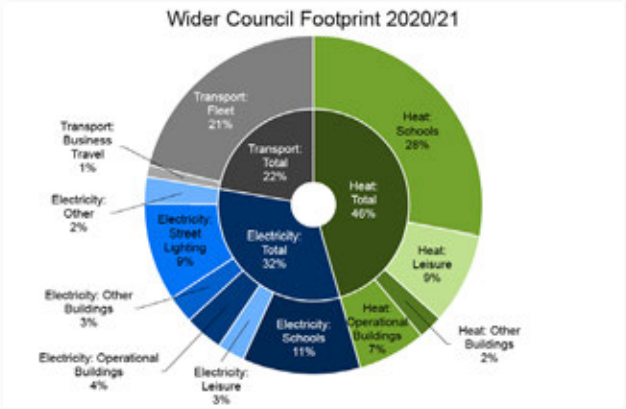
Transport is the biggest portion of the council's core footprint, making up 39% of emissions. This is just our fleet, and doesn't include business travel or commuting, as neither the choices that staff make on how to commute nor the transport available for business travel are entirely within our control.

The biggest electricity user is our streetlights. This is due to the vastness of the county and the number of streetlights that are required within it. Almost all of them are now LED, which has reduced the amount of electricity they require considerably.

Our leisure centres require a lot of heat. Swimming pools in particular have very high heat demand, but they are ideal candidates for heat from low carbon sources as their demand for heat is near constant.







The Core Footprint accounted for 55% of the Wider Council Footprint in 2020/21 (above).

This chart shows a breakdown of the Wider Council Footprint, which includes business travel and schools, and some tenanted business sites.

It does not yet include staff commuting.

Schools add a significant amount to DCC's wider footprint. 28% of the wider footprint is for heating schools, and 11% is for schools' electricity use.

Council Carbon Budget

According to the IPCC report of July 2021, it matters how quickly we reduce our carbon emissions. It's not good enough to simply aim for 80% reduction by 2030, we must also aim to reduce our emissions every year between then and now. We should aim to limit the total amount of carbon emissions we cause in the next eight years. This total limit is called a carbon budget (left).

A budget of 230,000 tonnes of carbon dioxide equivalent between the start of 2022/23 and end of 2029/30 is more than enough to meet our 80% reduction target in 2030 without leaving all the reduction to the last minute. This budget will require us to decarbonise more quickly, in line with the IPCC's advice.

This target could be met by just focussing on the Core Footprint but, since we will have to tackle the Wider Footprint in the long term it is better to take a broader approach now. This will ensure that our schools, business tenants, and staff are not left behind.

The target to be net zero by 2030 must be considered alongside the 80% reduction target. It could be achieved through the purchase of carbon credits, or through our own sequestration and renewable generation activities. Some of these offsetting activities will take time to establish, so the path to net zero will be steeper as we approach 2030. In the near future we will concentrate our efforts on real lasting carbon reduction while planning for a net zero 2030.

Science Based Target

Using the budget set out in the section above, we can determine what target we should be aiming for to avoid catastrophic climate change. The table below shows where we are now and the milestones we hope to reach between now and March 2030. Any footprint remaining in 2030 must be offset to reach Net Zero.

Year	Total Footprint Tonnes CO_2e per year	% Reduced From 2008/09
2020/21	44,319	58%
2022/23	36,701	65%
2024/25	31,401	70%
2029/30	21,610	80%

The following table shows our whole carbon footprint separated by the type of fuel or other emissions source. Targets for each fuel type are given for the two years of this CERP and for our target year, 2029/30.

Emissions Source	Actual Data Tonnes CO_2e per year		Targets Tonnes CO_2e per year	
	2008/09	**2020/21**	**2022/23**	**2029/30**
Solid Fuel (Biomass)	91	9	12	21
Liquid Fuels (Oil)	511	645	506	106
Gaseous Fuels (Natural Gas)	34,371	19,519	16,826	9,308
Vehicle Fleet	11,596	9,409	7,636	85
Business Travel	3,804	499	760	635
Grid Electricity (incl. distribution)	55,395	14,238	10,961	11,000
Total	**105,768**	**44,319**	**36,701**	**21,154**

Some target figures, such as gaseous fuels, are based on what we believe is possible and others, such as business travel, are based on what will be necessary. This is because we have full control over how much work can be done on reducing the use of gaseous fuels for heating buildings, but reduction in fossil fuels from business travel requires a much greater change in how we work and how we deliver our services to the public.

Business travel in 2020/21 was much lower than in previous years due to the Covid-19 pandemic. This event has shown how much of our work can be delivered remotely if necessary. We do expect business travel to increase again during the next few years but expect that emissions from such travel will never return to what they have been in the past.

Some of the emissions remaining in 2029/30 will come from grid electricity. These emissions should be counted in our footprint according to the carbon factor of the national grid as reported by UK Government. However, the council currently purchases 100% renewable electricity, so this amount could be offset through that action. That leaves us with an estimated 10,577 tonnes of carbon dioxide equivalent to offset if we are to be carbon neutral in that year, as well as reaching our 80% reduction goal.

Achieving the Targets

The overall target is to reduce the Council's carbon emissions by 80% from 2008/09 levels by 2030 as well as achieving Net Zero by that same year. This section describes what actions will be required to reach the target set in this CERP while sticking to the carbon budget.

There will be some flexibility in this. We may not need to do all of one action if we can do more of another. If everyone suddenly stopped driving fossil fuel cars, then we wouldn't need to replace so many gas boilers in these next two years.

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The following interim targets are based on reduction from 2020/21 levels (our most recent data) to where we need to be in 2023/24 (the end of the period covered by this plan). to avoid catastrophic climate change. The table below shows where we are now and the milestones we hope to reach between now and March 2030.

12% reduction in gas use 2,354,305kg of emissions reduction can be achieved by replacing gas boilers at 43 of our buildings by 2024. It is estimated that this will cost in the region of £27million. It will not save us any revenue through reduced heating bills if gas remains cheap relative to electricity.

20% reduction in business travel emissions compared with 2019/20 This can be achieved by retaining use of remote working and video conferencing wherever possible. In addition, staff must be encouraged to use public transport, walk, or cycle, even if it means the journey takes longer.

10% of fleet emissions reduced This can be achieved by replacing fossil fuel vehicles with electric alternatives and reducing the need for staff to travel. We are introducing remote access to our building energy management systems which will mean engineers will have to travel to sites less often to diagnose problems which could have been spotted remotely.

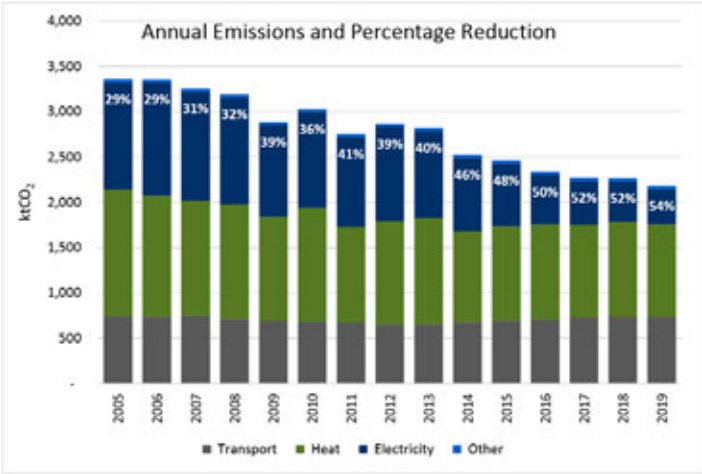
6,000,000kWh of electricity generated locally through renewable technologies each year. In 2020/21 DCC generated just over one million kilowatt hours of electricity through solar panels and our Archimedes Screw turbine. Further renewable generation is required to supply our buildings and to help reduce the carbon factor of the national grid for our neighbours. This target would double DCC's renewable electricity generation.

B. County Emissions

Carbon emissions for County Durham are calculated by central government at the end of every calendar year. This footprint covers everything that happens withing the county boundary, with only a few specific exclusions. It takes a long time to gather all the necessary information each year, so the final totals are usually published in June, one and a half years after the end of the reporting period. This section looks the latest figures.

Current Emissions

The latest carbon footprint figures for County Durham are for the year 2019. The baseline year for emissions is 1990, which is the same baseline that the UK government uses for national targets. The chart opposite shows how the carbon footprint has declined since 2005 and gives the reduction in each year as a percentage from the 1990 baseline.



In 2019, 47% of the county's carbon footprint came from heat, 33% from transport, and 18% from electricity.

Scope

The carbon footprint of the whole of County Durham is much larger than that of the council and takes into account everything that happens within the county. The only exclusions are traffic passing through on the A1 motorway, trains on the East Coast Mainline railway, and large industrial sites.

Carbon Neutral

Carbon Neutral means that we accept that we won't be able to stop emitting greenhouse gasses completely, but those that we do emit will be countered by actions to remove harmful gasses from the atmosphere, such as planting trees.

The best way to cut our carbon emissions is to actually cut our emissions! However, there are some activities that we need to do that make this impossible. Some aspects of farming, waste disposal, transport, and manufacturing will always have some carbon emissions. These must be countered, or offset, through tree planting, peatland restoration, kelp farming, and other sequestration activities.

Our carbon emissions are currently reported as just the amount that we emit, and do not take into account any sequestration. Government provides some figures in the form of a LULUCF (land use, land use change, and forestry) estimate, currently providing 48ktCO_2 of carbon removal. This doesn't take into account other sequestration actions such as peatlands or anything in the sea. Unless government changes their LULUCF method, we will need to make our own estimates for how much sequestration our county is achieving and subtract this from our carbon footprint. This is how we will show that we are Carbon Neutral.

To make this calculation easier, it is possible to assign carbon credits to offsetting schemes. When we grow a forest, we provide evidence of the type of trees and scale of the forest to prove how many tonnes of carbon that forest would remove. Each tonne counts as one carbon credit.

Carbon credits from tree planting are for carbon offsetting in the future. Young trees can't offset their lifetime of sequestration immediately. Therefore, tree planting isn't useful for a short term or annual target.

If the Council plants trees for carbon offsetting but sells the carbon credits to someone outside of the county, that sequestration can no-longer be used to offset Durham's carbon emissions. If we did use the carbon credits after selling them, that would be double counting.

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County Durham Carbon Budget and Targets

To stop the Climate Emergency, we need to stop putting carbon dioxide and other greenhouse gasses into the atmosphere. We cannot immediately stop having a carbon footprint since our society currently relies too heavily on fossil fuels. However, we can consider how quickly we need to reduce our carbon footprint. One way to look at this is to consider a total amount of carbon that we can allow ourselves to emit between now and 2045. That is, if you add up all of the carbon targets for every year until we are carbon neutral, the total would be our carbon budget.

It's important to consider how big the carbon budget can safely be, and what the consequences of sticking to it, or not, would be. So, there are two things to consider; how quickly do we need to reduce our carbon emissions to avoid catastrophic climate change and, how much time do we need to give ourselves to adjust to a low carbon society in which no-one is left behind?

If we consider only the first question, how quickly do we need to act, then we get the scientific carbon budget provided here by the Tyndall Centre for Climate Change Research. If we consider only the second question, then we take a much slower approach. In this Climate Emergency Response Plan, we hope to get as close to the scientific budget as possible but recognise that we do not have the resources to do so. Hence, our carbon budget for this CERP is somewhere in between.

UK's sixth carbon budget, published in late 2020[38], enshrined targets for carbon reduction into law. These are targets for reduction of national carbon emissions and are given as percentage reduction from the baseline year of 1990. UK carbon emissions in 1990 are estimated as 887Mt CO_2e.

- National Targets: (baseline 1990) 68% by 2030 and 78% by 2035.

DCC's first countywide carbon budget was produced for our first Climate Emergency Response Plan, CERP 1, published in February 2020. It uses the same baseline as the National targets, so they can be compared directly. County Durham's carbon emissions in 1990 are estimated as 5Mt CO_2e.

- County Targets: (baseline 1990) 75% by 2030 and 90% by 2040. (CERP 1).

Tyndall Centre Scientific for Climate Change Research has produced a scientific carbon budget for County Durham[39]. This budget considers only the maximum amount of carbon emissions we can allow ourselves to be responsible for between now and 2100, while avoiding catastrophic climate change.

- Total carbon budget for 2018 to 2100 is 21.5MtCO_2. 2018 and 2019 used 4.4MtCO_2, leaving 17.1MtCO_2 for the 81 years to 2100.

There is a significant gap between the three carbon budgets described for County Durham. In this second Climate Emergency Response Plan, CERP 2, we have an opportunity to try to close the gap between our own targets and the science-based budget set by the Tyndall Centre.

We know that it matters how quickly we decarbonise, but we also know that we need to provide services, homes, and connectivity for our residents and businesses. We cannot simply switch people's boilers off or take away their cars. Nor can we close carbon intensive businesses and take away people's livelihoods.

DCC's second carbon budget is calculated using our knowledge of the ideal carbon budget, set by the Tyndall Centre, and the likely resources we have available to ensure that this is a Just Transition.

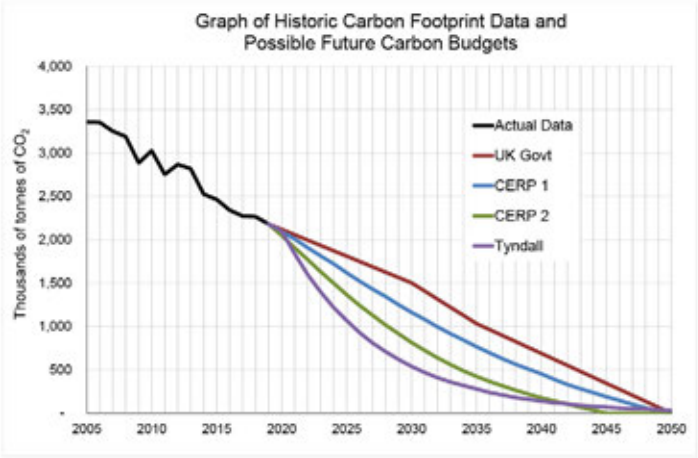
- County Targets: (baseline 1990) 803% by 2030 and 96% by 2040. (CERP 2)

This new budget for CERP 2 uses a total of 24MtCO_2, which is 3MtCO_2 over the Tyndall Centre budget, but considerably better than the national target. The table below compares the four budgets:

[38]https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035

[39]https://carbonbudget.manchester.ac.uk/reports/E06000047/

Carbon Budgets for County Durham ($MtCO_2$)				
Time Period	**UK Government[40]**	**DCC CERP 1**	**Tyndall Centre**	**DCC CERP 2**
2018 - 2022	10.6	10.4	10.4	10.2
2023 - 2027	9.1	8.1	5.4	6.9
2028 - 2032	7.4	5.8	2.8	4.1
2033 - 2037	5.2	3.9	1.4	2.2
2038 - 2042	3.4	2.2	0.7	0.9
2043 - 2047	1.7	1.0	0.4	0.1
2048 - 2100	0.2	0.9	0.4	0.0
Total 2018-2100	**37.7**	**31.5**	**21.5**	**24.3**



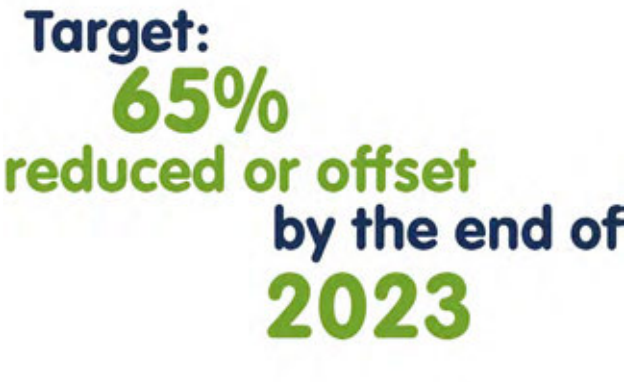
County Durham's carbon footprint in 2019 was 2,180,720 tonnes. If we repeat those emissions every year from 2020, we would have emitted 54,518,000 tonnes of carbon dioxide by the beginning of 2045. As shown in the table above, we are only permitted to release 24,300,000 tonnes. We therefore need to prevent the emission of at least 30,4218,000 tonnes over the twenty-five years to 2045. What we can't prevent, we must offset.

The table below shows where we are now and the milestones we hope to reach between now and March 2045.

Year	Total Net Footprint Tonnes CO_2e per year	% Reduced From 1990
2019	2,180,720	54%
2023	1,632,080	65%
2030	815,240	83%
2040	178,200	96%
2045	0	100%

Achieving the Targets

The overall target is to make County Durham carbon neutral. In order that we do achieve this, keeping to the budget set out above, we must aim for a series of interim targets. This section describes what actions will be required in order to reach the target set in this CERP. There will be some flexibility in this. We may not need to do all of one action if we can do more of another. If everyone suddenly stopped driving fossil fuel cars, then we wouldn't need to replace so many gas boilers in these next two years.



[40]Assumes linear reduction between targets for 2030, 2035, and 2050.

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The following interim targets are based on reduction from 2019 levels (our most recent data) to where we need to be in 2023 (the end of the period covered by this plan).

35,000 fewer petrol and diesel cars on our roads, or an equivalent of 25% reduction in car mileage. In 2019 there were almost three hundred thousand vehicles registered in County Durham, of which only 800 were electric. 170,000 (55%) of those vehicles were cars, but they accounted for nearly two thirds (60%) of vehicle fuel consumption. If car users switched to busses or cycling and walking for just one quarter (25%) of journeys, this target can be reached.

55,000 fewer domestic gas boilers, or an equivalent drop in heating use in our homes. There were 250 thousand dwellings in County Durham in 2019. Heating all these homes caused 670 thousand tonnes of carbon dioxide. We can reduce this by turning the heating down, adding better insulation, or swapping our gas boilers for low carbon heaters such as air source heat pumps. If we start with adding more insulation, the carbon emissions from heat will reduce while our homes are made ready to accept low carbon heating in future.

20% reduction in public sector gas use, through boiler replacements and improved efficiency. A lot of gas can be saved in large buildings through better control systems, improved insulation, and better plant equipment with heat recovery. Even with all of that, many boilers will need to be removed and replaced with low carbon options. The Council is planning a programme of boiler replacements and urges other organisations to do the same.

20% reduction in business and industrial gas use. As in the public sector, we need businesses and industrial organisations to curb their gas use in line with our carbon reduction targets. Better controls, insulation, and more efficient plant should all be introduced to achieve this. In addition, there may be opportunities to use more carbon efficient processes in some industries.

20% reduction in emissions from grid electricity. By the year 2023 we estimate that the carbon factor of the national grid will have dropped below 200g of CO_2e per kWh to around 185g of CO_2e per kWh. This will be achieved through increased use of wind and solar electricity across the country and in countries from which we import electricity. That alone could result in a 13% reduction in emissions from electricity use. However, with the switch from fossil fuels to the use of electricity in heating and transport, we can expect our demand on the electricity grid to increase in that time, undoing some of the good that the change in carbon factor had achieved.

It is essential that we continue to increase the amount of renewable generation we have in County Durham, and on Council land and buildings, while also continuing to improve the energy efficiency of our electrical appliances across all sectors, including at home.

10% increase in renewable electricity generation. In 2020, more than 500GWh of renewable electricity was generated in County Durham. By 2023 this must be increased by at least 10% to 550GWh.

5% offset through sequestration works such as tree planting and peatland restoration. It will be exceptionally difficult to achieve all the targets in all these sections in these two years. We cannot force residents to give up their gas boilers or fossil fuel cars, nor is it guaranteed that big businesses, industries, and other big emitters will meet their obligations. We must therefore anticipate that a significant proportion of the county's carbon emissions will need to be offset. If 5% of the total footprint can be offset consistently by 2024, that would be a good start.

5% of the footprint is 109,036 tonnes each year. It is not possible to achieve this through tree planting alone. It must be achieved through a combination of tree planting, peatland restoration, and other methods which may not all be readily quantifiable. A best estimate will be produced to assess progress on this target.

C. Glossary

This glossary contains tables of acronyms, notations, and terms used in this Climate Emergency Response Plan or in the usual Climate Emergency lexicon.

Acronyms

Acronym	Stands For	Description
AAP	Area Action Partnership	Partnerships that consist of members of the public, representatives for the Council, town and parish councils, police, fire, health, housing, business, university, and voluntary organisations.
AONB	Area of Outstanding Natural Beauty	A beautiful area of countryside with protection against development.
BASEE	Boosting Access for SMEs to Energy Efficiency	A Government fund of up to £6m for SMEs.
BD	Business Durham	The business support service for the Council.
BEIS	Department for Business, Energy, and Industrial Strategy	Government department most closely related to Climate Change.
BEEP	Business Energy Efficiency Project	Supports SMEs in County Durham to improve energy efficiency and awareness.
BEMS	Building Energy Management Systems	Machinery and software used to control buildings including heating, lighting, ventilation, etc.
BEV	Battery Electric Vehicle	A vehicle powered by an electric motor with a battery charged from the grid.
BREEAM	Building Research Establishment's Energy Assessment Method	A method for determining how sustainable a building will be once it is constructed.
DCC	Durham County Council	The Local Authority.
DEC	Display Energy Certificate	An energy efficiency rating for buildings based on their use.
EPC	Energy Performance Certificate	An energy efficiency rating for buildings based on their design.
ERDF	European Regional Development Fund	Fund from the European Union previously available for projects in Durham.
EV	Electric Vehicle	A vehicle powered entirely by electricity through a battery.
EVCP	Electric Vehicle Charge Point	A socket or series of sockets that facilitate electric vehicle charging.
GHG	Greenhouse Gas	Any gas released into the atmosphere which contributes to global warming.
GNC	Great North Cycleway	A cycling route that will run from Blyth to Darlington.
HNDU	Heat Networks Delivery Unit	Funding and guidance for local authorities in for heat networks.
HNIP	Heat Networks Investment Project	Funding for public and private sector heat networks.
IT	Information Technology	Such as computers.
IPCC	Intergovernmental Panel on Climate Change	UN body responsible for advancing knowledge on Climate Change.
LCWIP	Local Cycling and Walking Infrastructure Plans	UK government initiative asking local authorities to create strategic plans for cycling and walking.
LED	Light Emitting Diode	A very efficient type of light bulb.
LULUCF	Land Use, Land Use Change and Forestry	Defined by the United Nations Climate Change Secretariat as a "greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use such as settlements and commercial uses, land-use change, and forestry activities."

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Acronyms

Acronym	Stands For	Description
LNRS	Local Nature Recovery Strategy	A new system of spatial strategies for nature, which will cover the whole of England.
NETP	North East Transport Plan	The region's transport aspirations up to 2035.
NELEP	North East Local Enterprise Partnership	Organisation to assist regional local authorities and organisations to support the economy.
NPPF	National Planning Policy Framework	Sets out UK government's planning policies for England and how they are expected to be applied.
OASES	Outdoor and Sustainability Education Specialists	Deliver and promote outdoor learning and sustainability education.
PCT	Propensity to Cycle Tool	Provides an evidence base to inform cycling investment.
PHEV	Plug-in Hybrid Electric Vehicle	Vehicle with both a battery motor and a petrol or diesel engine.
PV	Photovoltaics	Solar Panels which generate electricity from the sun's energy.
SME	Small and Medium Sized Enterprise	Businesses with fewer than 250 employees or less than €50m turnover.
SPV	Special Purpose Vehicle	A subsidiary company formed to undertake a specific business purpose.
SUP	Single Use Plastic	Plastic products that aren't kept but are used once then thrown away.
TBC	To be confirmed	Not yet decided or announced.
T&P	Town and Parish	Related to smaller local councils.
ULEV	Ultra-Low Emission Vehicle	Umbrella term for any vehicle with very low emissions, including electric and hydrogen powered vehicles.
UTCF	Urban Tree Challenge Fund	Provides funding to plant more trees in urban areas.

Notations

Notation	Stands For	Description
°C	Degrees Celsius	Temperature.
kWh	Kilowatt hours	Energy, equal to using one thousand Watts of power for a whole hour.
CO_2	Carbon Dioxide	The most common greenhouse gas.
CO2	Carbon Dioxide	Where is it not possible to change formatting, such as in image files, CO_2 or CO_2e may be written as CO2.
CO_2e	Carbon Dioxide equivalent	The amount of emissions that has the equivalent climate change contribution as that much CO_2. This includes all measurable greenhouse gasses as well as CO_2.
CH_4	Methane	A greenhouse gas.
k	kilo	One thousand of something, such as a kilogram (kg) being 1,000 grams.
M	mega	One million of something, such as a megawatt (MW) being 1,000,000 Watts.
kg	kilogram	Unit of mass.
t	Tonne	Unit of mass equal to 1,000kg.
kt	kilotonne	Unit of mass equal to 1,000t.
ha	Hectare	Unit of area equal to 10,000m^2.
NO_x	Nitrogen Oxides	A group of greenhouse gasses.
SO_x	Sulphur Oxides	A group of greenhouse gasses.

Terms

Notation	Description
e-bike	A bicycle with an integrated battery to supplement pedal power.
Energy	Word often used to describe electricity and gas and other heat utilities.
Carbon Budget	The amount of carbon emissions that can be produced by an organisation, area, or activity over a period of time while the organisation, area, or activity meets its carbon targets.
Carbon Emissions	A general term for all greenhouse gas emissions, including CH_4 and CO_2 or CO_2e.
Carbon Footprint	Amount of carbon emissions directly associated with the organisation, area, or activity.
Carbon Neutral	Having no carbon emissions that are not also countered by additional carbon off-setting or sequestration.
Carbon Off-setting	Additional carbon reduction elsewhere to compensate for the actual emissions associated with the organisation, area, or activity. This could include tree planting, carbon capture, or renewable electricity generation to be used other than by the organisation, area, or activity.
Carbon Reduction	Actual reduction of carbon emissions, which cannot include carbon off-setting.
Cargo bike	A bicycle or tricycle designed to carry a large load.
Minewater	Water that naturally fills the abandoned mines beneath the ground.
f	Having no carbon emissions that are not also countered by additional carbon off-setting.
Payback Period	The amount of time a project takes to generate enough income or savings to off-set its cost.
Semi-natural	An ecosystem with most of its processes and biodiversity intact, though altered by human activity in strength or abundance relative to the natural state.
Sequestration (of carbon emissions)	The removal of carbon emissions from the atmosphere, commonly by growing trees.
The Council	Durham County Council
Whips	A whip is a slender, unbranched shoot or plant. This term is used in forestry to refer to unbranched young tree seedlings of approximately 0.5-1.0 m in height and 2–3 years old, that have been grown for planting out.
Zero Carbon	Having no CO_2e emissions at all from any aspect of the organisation, area, or activity.


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