Cumbria County Council

Carbon Management Strategy 2022

cumbria.gov.uk

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AC	Air conditioning
AHU	Air handling unit
BMS	Battery management system
CCC	Cumbria County Council
CO_2e	Equivalent carbon dioxide
DHW	Domestic hot water
DNO	Distribution network operator
EPH	Elderly Persons Home
EV	Electric vehicle
GHG	Greenhouse gas
GIA	Gross internal area
HVAC	Heating, ventilation and air conditioning
HVO	Hydrotreated vegetable oil
PV	Photovoltaic
tCO_2e	Tonnes of carbon dioxide equivalent

Glossary

Carbon neutral
This represents the position where the CO_2 released by an organisation is balanced by an equivalent amount being removed.

CO_2e
A quantity that measures the global warming potential (GWP) of any mixture of greenhouse gases using the equivalent amount or concentration of carbon dioxide.

Decarbonisation
The reduction of the carbon emissions from an energy system.

GHG Scope 1
Direct GHG emissions from buildings, plant and vehicles owned or controlled by Cumbria County Council, e.g. natural gas used in boilers or fuel used company owned vehicles.

GHG Scope 2
Indirect emissions associated with purchased energy consumed by Cumbria County Council, e.g. grid supplied electricity.

GHG Scope 3
All other indirect emissions that occur in the Council's supply chain, e.g. business travel, purchased goods and maintenance contracts.

Greenhouse Gases (GHG)
There are seven major Greenhouse Gases. These are, together with their respective Greenhouse Warming Potential (GWP):

Carbon dioxide (CO_2)	**GWP 1**
Methane (CH_4)	**GWP 23**
Nitrous Oxide (N_2O)	**GWP 296**
Hydrofluorocarbons (HFCs)	**GWP 77 to 14,800**
Perfluorocarbons (PFCs)	**GWP 6,500 to 12,200**
Sulphur hexafluoride (SF_6)	**GWP 22,200**
Nitrogen trifluoride (NF_3)	**GWP 8,000**

Insetting
The reduction of emissions by the implementation of measures such as re-forestation, renewable energy and regenerative agriculture within an organisation's own management scope.

Net zero
The organisation has achieved a position where the effects of its activities are such that they release no carbon dioxide emissions into the atmosphere.

Offsetting
The purchase of a tradeable unit, representing emissions rights or emissions reductions, to balance the climate impact of an organisation, activity or individual. Although they can be stored and traded like a commodity, they are not material things; offset credits are not literally "tonnes of carbon" but stand in for them and are better regarded as intangible assets or financial instruments. To act as an offset, units must be cancelled to represent a reduction and prevent further trading.

Residual Emissions
The estimated emissions left after the reduction measures have been implemented.

Sequestration
The process of capturing, securing and storing of CO_2 from the atmosphere in either a solid or dissolved form. This can by either by a biological or geological process.

Executive Summary

Climate change remains one of the greatest challenges to this generation, and for many generations to come. It is one of the greatest threats to humanity globally and we have already seen and experienced the devastating impacts of it here in Cumbria with extreme weather events such as Storm Desmond in 2015.

Cumbria County Council (CCC) is well placed to play a significant role in achieving the national goal of developing a position of net zero emissions, with the added benefit of making significant savings on expenditure and achieving long term energy security.

CCC has a long history of working to reduce carbon emissions. Its first Carbon Reduction Plan published in 2009 led to the development of the county's first Climate Change Strategy in 2012 and the production of the Cumbria Joint Public Health Strategy in 2019 with the aim to become a 'carbon neutral' county and mitigate the likely impact of existing climate change. In 2020, CCC began co-chairing the Zero Carbon Cumbria Partnership alongside Cumbria Action for Sustainability (CAfS), and CCC's Cabinet unanimously agreed the Council's first Carbon Management Strategy (Corporate Estate) 2020-2025.

Building on the 2020 Carbon Management Strategy, the Council commissioned a comprehensive Carbon Emissions Baseline Study covering all of the Council's services, as part of its climate action plan to reduce the organisation's carbon footprint. The study looked to measure the total greenhouse gas (GHG) emissions generated by the operations of the Council and the services it delivers and provide measures to reduce these emissions.

This is aligned to the national ambition of meeting the Government's net zero target for the UK by 2050 and the regional ambition of making Cumbria the first 'carbon neutral' county in the UK by 2037.

CCC is one of only a small number of local authorities in the country to undertake such an extensive piece of work, measuring not only Scope 1 and Scope 2 emissions but also Scope 3 emissions for the whole Council.

The three types of GHG scope emissions are explained below:

Category	Description
Scope 1	Direct GHG emissions from buildings, plant and vehicles owned or controlled by Cumbria County Council, e.g. natural gas used in boilers or fuel used company owned vehicles
Scope 2	Indirect emissions associated with purchased energy consumed by Cumbria County Council, e.g. grid supplied electricity
Scope 3	All other indirect emissions that occur in the Council's supply chain, e.g. business travel, purchased goods and maintenance contracts

Table 1: Definitions of Scope GHG emissions

Due to impact of Covid-19 on the Council's operations and the services provided, a baseline year of April 2019 to March 2020 was chosen as the reference period as it was considered representative of the normal operations of the Council and services it provides.

The report sets out to summarise the greenhouse gas (GHG) emissions of the Council's operations between April 2019 and March 2020 and breaks down the total into Scope 1, 2 and 3 according to the GHG Protocol Guidelines published by the UK Government. In this report the total GHG emissions are collectively referred to as tonnes of carbon dioxide equivalent (tCO_2e).

The total emissions reported during Cumbria County Council's baseline period are 139,663 tonnes of carbon dioxide equivalent (tCO_2e).

Of the total emissions calculated, 83% of CCC's total baseline are attributable to the Scope 3 GHG emissions. This is significantly greater than the combined Scope 1 and Scope 2 emissions and reflects the magnitude of the services provided by the Council's supply chain, many of whom are based in Cumbria. The allocation between Scope 1, 2 and 3 emissions is reflective of analysis undertaken by the Carbon Trust.

The distribution of emissions across each scope type is shown in Figure 1 and broken down further in Table 1. The three most significant sources of emissions were:

1. Buildings - including schools, care homes and offices
2. Transport - including staff travel and fuel use in fleet vehicles
3. Supply chain - including emissions from Capital Programme (including highways, suppliers and external care suppliers)

Up to 90% of an organisation's carbon impact lies outside its immediate sphere of control – from areas such as the procurement of good and services, capital construction projects and investments

Carbon Trust (2022)

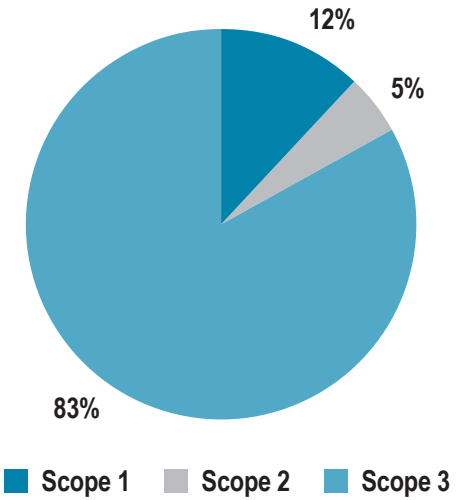


Figure 1: Cumbria County Council's Scope 1, 2 and 3 overview

Emissions Breakdown by Scope		
GHG Scope	GHG Emissions	
	Tonne CO_2e	Proportion
Scope 1	16,501	12%
Scope 2	6,862	5%
Scope 3	116,300	83%
Total	**139,663**	

Table 2: Cumbria County Council's Scope 1, 2 and 3 emissions breakdown

Local Government Reorganisation

Local Government Reorganisation (LGR) is taking place in Cumbria which will see the current county council and six district and borough councils merge and split into two new local authorities.

With the transition to two new successor councils from 1 April 2023, it was also important for Cumbria County Council to consider the baseline carbon emissions of the successor Councils of Cumberland and Westmorland and Furness.

The baselines for the two new successor Councils have been calculated from Cumbria County Council's baseline data. The data was then split according to the new Councils' land boundaries. This does not include emissions from the current six district and borough councils.

The below table shows the estimated emissions breakdown for the Cumberland and Westmorland and Furness areas:

	Cumbria County Council	Cumberland	Westmorland and Furness
Scope 1	16,501	8,645	6,590
Scope 2	6,862	3,657	2,948
Scope 3	116,300	60,194	55,884
Total Emissions	**139,663**	**72,495**	**65,422**
Proportion		53%	47%

Table 3: Regional emissions breakdown

Delivery Strategies

The Strategy identifies the key CCC operational service areas producing the greatest emissions. This allows for the identification of a clear approach to reduce, and ultimately move the Council's emissions, towards a Scope 1 and 2 net zero carbon position by 2037 and Scope 3 emissions by 2050.

To achieve net zero CO_2e emissions should be reduced in line with the energy hierarchy where the priority is to reduce energy demand followed by improving efficiency and then integrating renewable energy sources. Any remaining CO_2e emissions can then be offset by renewable energy generation on Council owned land and buildings.

The energy hierarchy is:

- **Prevent** – the need for energy consumption by ensuring that the wastage is avoided or reduced
- **Reduce** – the amount of energy consumed by the upgrade of the current building systems and equipment to equivalent and more efficient systems
- **Recover** – 'used' energy and resources and re-use where there is an opportunity
- **Replace** – the energy consumed with renewable energy supply options

In response to the baseline four delivery strategies have been developed to address the core areas of emissions:

Buildings Emission Management Strategy

Buildings are the largest generator of Scope 1 and 2 emissions for the Council. This includes both the energy used by the building systems, such as lighting and heating, as well as the plant and equipment, such as catering, and office systems used by the occupants. The measures identified to reduce these emissions follow a hierarchy of activities and include behaviour change, building fabric improvements and energy reduction measures which will involve capital investment. Reduction measures include the upgrading of the heating, ventilation and air conditioning (HVAC) systems through change from fossil fuel to electric heat pumps and a programme to replace the existing lighting with LEDs and domestic hot water (DHW) generation systems. Where appropriate local solar PV installations and small-scale wind generation may be installed on or around buildings.

Supply Chain Emission Management Strategy

The supply chain accounts for approximately 112,700 tCO_2e and reflects such items as capital programme spend (including highways contracts, external care provision and school supply chains). The strategy presented recognises that the emissions associated with the delivery of these services are outside of the direct control of CCC but through active engagement and encouragement with the service providers, improvements in emissions can be delivered.

Four sub-strategies have been set out: Building Capacity, Rewarding Progress, Leveraging Procurement and Enforcing Performance. Each will use existing processes and contract structures to deliver measurable improvements which will include: sharing learning experiences, rewarding progress, and encouraging emission reporting.

Transport Emission Management Strategy

There are two principal strategies for the management of the transport emissions. Firstly, improve management and staff training to ensure that the existing plant and equipment is being used efficiently. Secondly, where possible, implement alternative fuelled vehicles such an EV cars and vans. Low carbon fuel replacements for the diesel fuelled vehicles include HVO, a biofuel alternative, and when fully developed ‘green’ hydrogen should be implemented. It is expected that the conversion of the transport fleet may start quickly but must be planned over a long-term programme to take advantage of the market changes that are expected over the next 15 years.

Residual Emissions Management Strategy

Utilising insetting through development of renewable energy on Council land will aim to balance residual carbon emissions at all Scope 1 and 2 levels. CCC is currently developing up to 12.9MW of renewable projects across Cumbria. This strategy proposes the installation of a further 11MW with additional tree planting in appropriate locations as part of an insetting plan.

Introduction

1.1 General

Local authorities consume over 26 billion kWh[1] of energy per year, resulting in annual CO_2e emissions of more than 6.9 $MtCO_2e$.

Energy use is a major expenditure for local authorities at a total cost of around £750 million. Local authorities are therefore well placed to play a significant part in achieving the national goal of developing a net zero carbon economy, with the added benefit of making significant savings on expenditure and achieving long term security.

1.2 Context

Following COP21 in Paris in 2015, the Paris Agreement, a legally binding international treaty on climate change, was adopted by 196 Parties. This was agreed with the goal to limit global warming to below 2, preferably to 1.5 degrees Celsius compared to pre-industrial levels.

In 2018, the UN's Intergovernmental Panel on Climate Change (IPCC) issued a special report on the impacts of global warming of 1.5c above pre-industrial levels, acting as a stimulus for Local Authorities to act on the 'climate emergency'. The report stated that in order to remain within a 1.5c increase, governments must cut greenhouse gas emissions (globally) by 45% by 2030. This was followed up in 2021 with a landmark study by the IPCC in which the report was called a 'code red for humanity'[2], warning that we are at imminent risk of hitting 1.5c in the near future.

In June 2019, the UK Government amended the Climate change Act (2008) to commit the UK to 'net zero' for greenhouse gas emissions by 2050, reducing the UK's net emissions by 100% relative to 1990 levels. This was a significant change on the target set in the original act in 2008 that committed the UK to an 80% reduction of GHG emissions by 2050, compared to 1990.

As part of the Climate Change Act 2008, five-yearly carbon budgets were fixed which set a cap on the total GHG emissions in order for the UK to meet its overall commitments.

In the UK, we have seen significant and encouraging legislative and policy developments in the last year including the Environment Act 2021, UK Net Zero Strategy and UK Hydrogen Strategy.

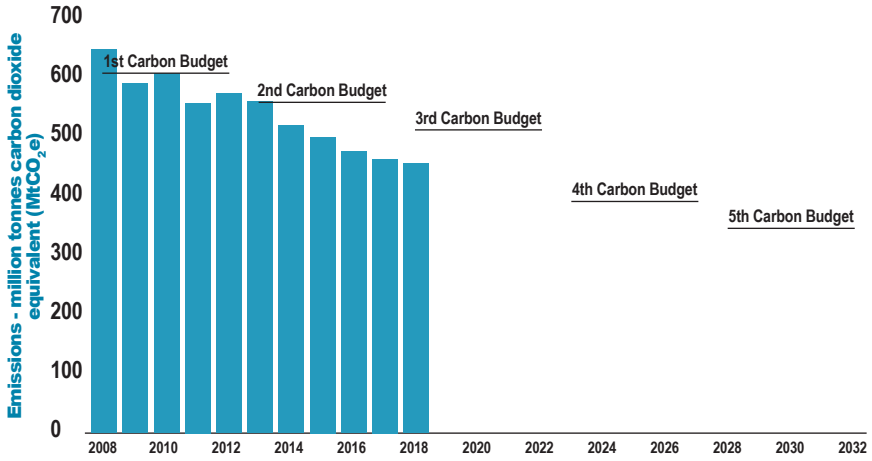


Figure 2: UK Carbon budgets and total annual emissions of GHG 2008 to 2032

[1] Carbon Trust: Local authorities, saving energy in local authority buildings (2012).
[2] www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment

1.3 Methodology

In order to properly evaluate the route to achieving net zero emissions, Cumbria County Council undertook a study to assess:

- The current GHG Emissions Baseline of Cumbria County Council's operational service activities against which net zero should be measured
- Appropriate emissions reduction measures for each service area in order to achieve net zero emissions
- Techno-economic considerations associated with each emissions reduction measure identified and evaluated
- The financial and economic benefits of achieving net zero emissions
- Stakeholder engagement considerations required to achieve net zero emissions across the supply chain and other areas

The study involved a two-step engagement process with CCC's key service areas. The first step involved the following:

- meetings with service leads to outline the aim of the study
- service level data gathering and analysis

The second step involved workshops with each service area to present the carbon reduction measures and agree their suitability for achieving net zero. The outputs of these workshops were used to develop and evaluate the bespoke emissions reduction pathways.

1.4 Policy

1.41 Cumbria Clean Energy Strategy 2022

Cumbria Local Enterprise Partnership (CLEP) have identified two strategic priorities of focus as part of the overall achievement of net zero:

1. Clean Energy Generation

- Offshore Wind
- Nuclear
- Hydrogen / CCUS
- Renewables

2. Business Decarbonisation

- Energy Efficiency/optimisation
- Switch to low carbon energy sources

The focus of the Clean Energy Strategy is on Clean Energy Generation as part of the overall achievement of net zero. This includes the decarbonisation of buildings, transport, industry and the natural environment and is being taken forward through aligned strategies, including CLEP's 10 Point Business Decarbonisation Plan. The Clean Energy Strategy provides stakeholders with a comprehensive assessment of how a wide range of clean energy opportunities could be deployed in Cumbria in alignment with government policy.

The delivery of the Clean Energy Strategy will be led by Cumbria Local Enterprise Partnership and overseen by the Clean Energy Sector Panel, working in partnership with investors, developers and operators to drive positive economic, social and environmental outcomes.

1.42 Cumbria Local Plans

All six district and borough Councils and two National Park Authorities produce individual local plans for all types of development (besides mineral and waste). Each Local Plan sets out a strategy of how the Council will encourage development. The Plans describe the planning policy including what types of development and where, and how the developments should be implemented. A common refrain through each document is the attitude towards climate change and emissions, with a consensus to reduce CO_2e emissions through better energy efficiency and adoption of low-carbon technology.

1.43 Corporate Plan

The Cumbria Council Plan 2018-2022 sets out changes to be made in the four-year period between 2018 and 2022 to improve the lives of the people of Cumbria. Continuing improvements to be made include sustainable growth in the local economy, developing infrastructure and advancing schools and community care and services.

1.44 Cumbria Carbon Baseline Report

In April 2019, Cumbria County Council, all six District Councils and the Lake District National Park Authority formally adopted the Cumbria Joint Public Health Strategy. Incorporated within this strategy is the following aim: 'To become a "carbon neutral" county and to mitigate the likely impact of existing climate change.'

The Cumbria Climate Change Working Group came together to take this work forward. The Group would:

- Propose a shared definition of "carbon neutral"
- Propose a target date by which this is to be achieved (that is in line with a maximum warming of 1.5C)
- Commission an independent baseline carbon audit for the County and agree ongoing monitoring mechanisms
- Identify leadership for developing action across key topics and sectors. Establish a programme of action by key partners
- Lead joint campaigning to encourage wider public awareness and action
- Propose a target and pathway to achieve net zero carbon in Cumbria

The Carbon Baseline Study is now complete and has recommended an ambitious but achievable target of 2037 to reach a net zero carbon position for Cumbria. The report states that this is the most feasible target and one that works within the requirements laid down by the Intergovernmental Panel on Climate Change (IPCC) for "limiting warming to 1.5 degrees or below" to curb current global warming trends.

A sector led approach to reducing carbon will now follow to allow clear targets to be set at an achievable and deliverable scale across the key carbon emitting areas. The approach will be based around these 3 stages:

1. Understanding sector carbon footprints - understanding of sector footprints and options for carbon reduction in each sector
2. Develop Sector Roadmaps and Work streams – set targets by reviewing and updating baseline assumptions and where possible including timing for delivering action. This will then form a high-level sector 'roadmap'.
3. Current Policy Framework and Funding landscape – what can be achieved within the current local and national policy framework. Identify where shifts in policy/strategy will be required to reach the targets and implement the assumptions.

1.45 Carbon Management Strategy (Corporate Estate) 2020-2025

The Cumbria County Council Carbon Management Strategy – Corporate Estate (Non-schools or Highways) 2020 (The Strategy) was adopted by Cabinet on the 12 November 2020. The Carbon Management Strategy concluded that the Council's corporate estate operations result in 5,392 tCO_2e annually.

The Strategy establishes that building CO_2e emissions should be reduced in line with the energy hierarchy where the priority is to reduce a building's energy demand followed by improving efficiency and then integrating renewable energy sources.

The Strategy proposes that the remaining building related CO_2e emissions will be inset by offsite renewable energy generation on Council owned land and buildings.

The key priorities of the strategy are to:

- Reduce carbon emissions from the Corporate Estate
- Save money
- Improve energy security
- Lead in delivering good practice
- Improve air quality
- Contribute to the local economy
- Enhance organisational image and improve public relations

1.5 Project Drivers

To deliver this programme to achieve net zero, a number of local drivers have been identified:

- **Climate emergency** - in addition to the need for reduction of energy use and investment in renewable energy highlighted in the individual Local Plans, four out of six District Councils in Cumbria[3] have declared a climate emergency, stating that attention is needed to combat climate change above that of which is currently suggested by the government
- **Improve energy security** - decreasing energy use and developing self-supply to reduce the reliance on purchasing energy from third-party sources
- **Investing in the local economy** - investing in renewable energy not only provides business to local companies and creates new jobs but also develops new and existing local infrastructure (e.g. biomass fuel supply chains)
- **Improving quality of life for local residents** - cutting CO_2e and NOx emissions will improve the air quality in the local area and reduce ailments related to poor air quality, potentially leading to reduced cost of related health care
- **Saving money** - savings can be made to the Council budget through reduced energy usage, cheaper energy supply, incentives and grants, and energy sales
- **Lead in delivering good practice** - effective implementation of a challenging carbon management strategy will enhance organisational image and provide reputational benefits

[3] The four District Councils who have declared a climate change emergency at the time of writing this report are Barrow Borough Council, Carlisle City Council, Eden District Council and South Lakeland District Council.

1.6 Influence

According to the Climate Change Committee, local authorities have direct control over between 2-5% of their local area's emissions and have powers or influence over roughly a third of emissions in their local areas. CCC has the ability to **directly control** its own emissions i.e. Scope 1 and Scope 2 but only has a weak influence over Scope 3 emissions and encourage reductions of Scope 3. As such, these emissions will prove the most challenging to reduce as their sources are largely out of the Council's control.

However, through strong engagement with the supply chain, developing frameworks, adjusting KPI scores and updating procurement processes, the Council, or its successors, can influence its suppliers to minimise emissions for which they have direct control over i.e. the supplier's Scope 1 and Scope 2 emissions. As such, it would not be beneficial or in the Council's interest to offset these emissions.

Scope	Influence
1	Direct control
2	Direct control
3	Weaker influence

Table 4: Council scopes and the associated level of influence

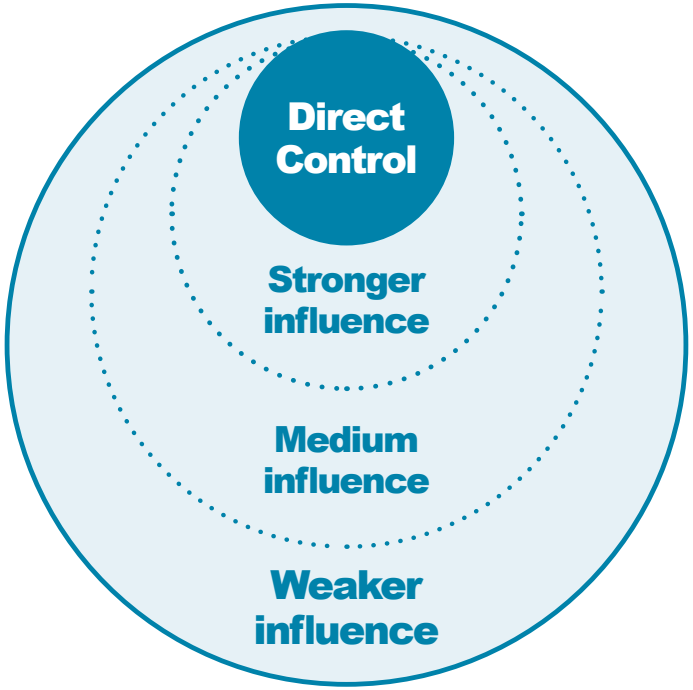


Figure 3: Circles of influence

Baseline CO_2e emissions

Cumbria County Council

Cumbria County Council is one of only a small number of local authorities in the country to undertake such an extensive piece of work, measuring not only Scope 1 and Scope 2 emissions but also Scope 3 emissions for its operational services.

The three types of greenhouse gas (GHG) scope emissions are explained below:

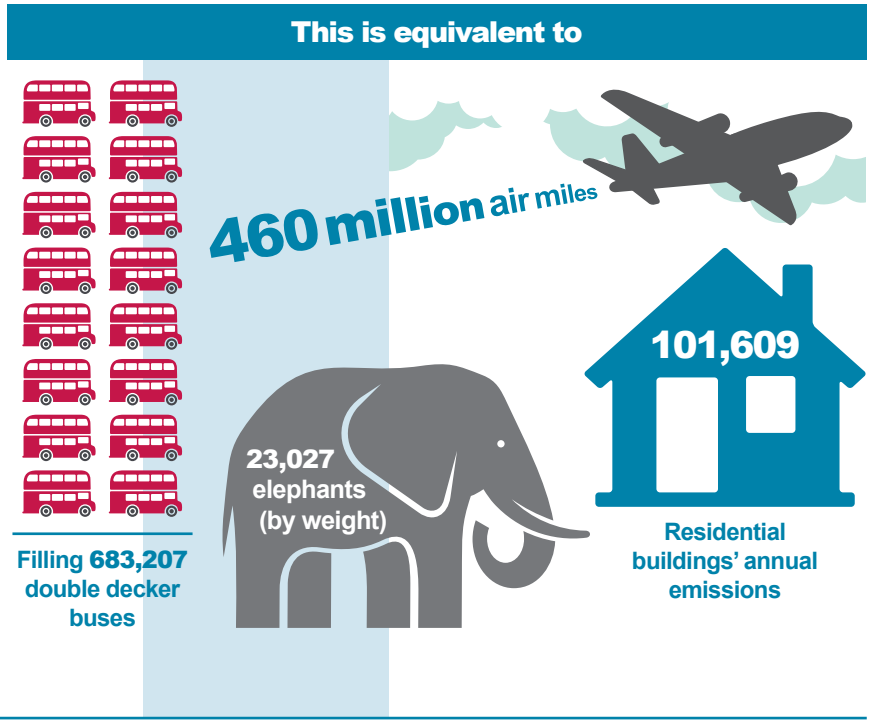
Category	Description
Scope 1	Direct GHG emissions from buildings, plant and vehicles owned or controlled by Cumbria County Council, e.g. natural gas used in boilers or fuel used company owned vehicles
Scope 2	Indirect emissions associated with purchased energy consumed by Cumbria County Council, e.g. grid supplied electricity
Scope 3	All other indirect emissions that occur in the Council's supply chain, e.g. business travel, purchased goods and maintenance contracts

Table 1: Definitions of Scope GHG emissions

The total emissions reported during the Council's baseline period are 139,663 tonnes of carbon dioxide equivalent (tCO_2e).

Emissions Breakdown by Scope		
GHG Scope	GHG Emissions	
	Tonne CO_2e	Proportion
Scope 1	16,501	11.8%
Scope 2	6,862	4.9%
Scope 3	116,300	83.3%
Total	**139,663**	

Table 2: Cumbria County Council's Scope 1, 2 and 3 emissions breakdown



Of the total emissions calculated, 83% of CCC's total baseline are attributable to the Scope 3. This is significantly greater than the combined Scope 1 and Scope 2 emissions and reflects the magnitude of the outsourced services that are managed and delivered by the Council.

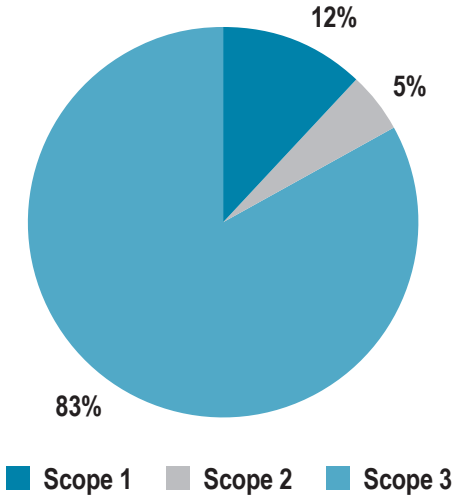


Figure 1: Cumbria County Council's Scope 1, 2 and 3 overview

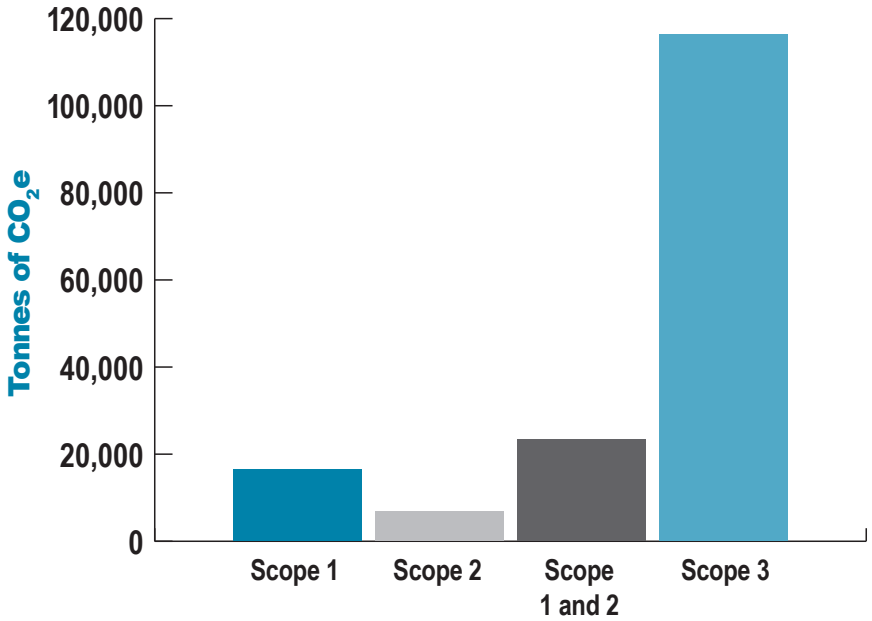


Figure 4: Cumbria County Council's Scope emissions breakdown

The distribution of emissions across each scope is shown in Figure 1 and broken down further in Table 1. The three most significant sources of emissions were:

1. Buildings including schools, care homes and offices - 14% of total emissions (20,387 tCO_2e)
2. Transport including staff travel and fuel use in fleet vehicles - 5% of total emissions (6,506 tCO_2e)
3. Supply chain including emissions from capital programme (including highways, suppliers and external care suppliers) - 81% of total emissions (112,700 tCO_2e)

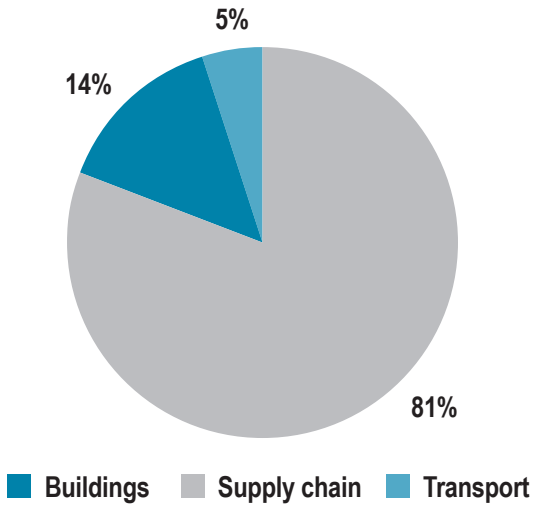


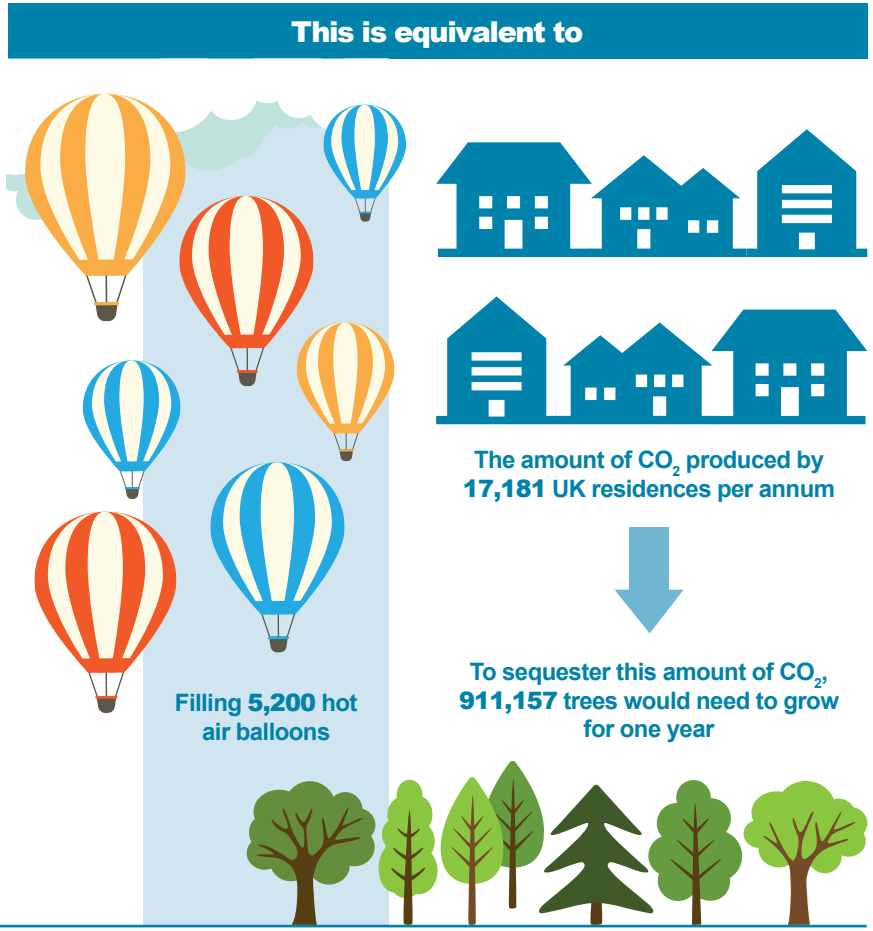
Figure 5: Total emissions breakdown by emissions category

Emissions Breakdown by Category		
GHG Scope	GHG Emissions	
	Tonne CO_2e	Proportion
Supply Chain	112,770	81%
Buildings	20,387	14%
Transport	6,506	5%
Total	**139,663**	

Table 5: Total emissions breakdown by emissions category

2.1 Scope 1 and 2 emissions

Of the total emissions, 17% (23,263 tCO_2e) is attributable to Scope 1 and 2 emissions – direct emissions from owned or controlled sources (i.e., direct combustion of fuel in boilers and council operated vehicles) and indirect emissions from purchased energy (i.e., electricity consumption of the Council's operated properties including schools). These are the emissions that the Council has the most influence over.



2.2 Scope 1 emissions

Scope 1 emissions accounts for just under 12% of the total emissions. The emissions associated with buildings, which includes heating, accounts for 79% of the total Scope 1 emissions. Transport, which includes use of vehicles and maintenance plant (powered by diesel, gas oil and petrol), makes up the remainder.

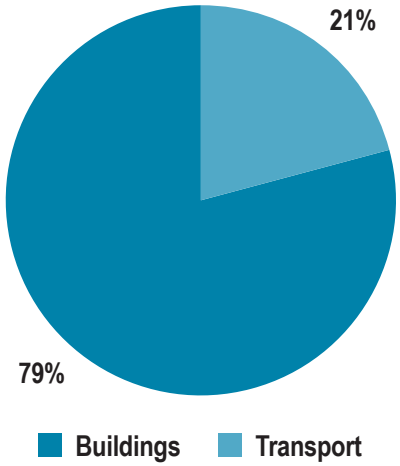


Figure 6: Cumbria County Council's Scope 1 emissions breakdown

Of the building related Scope 1 emissions, over 96% is due to the combustion of Natural Gas with the remaining 3.8% associated the use of heating oil.

For transport just over 68% is associated with consumption of purchased bulk fuel i.e. diesel, with the remaining 32% attributed to fuel used by Council vehicles including pool cars and fuel cards.

2.3 Scope 2 emissions

The Scope 2 emissions are predominantly the indirect emissions from energy consumed in the broad range of Council buildings which includes offices, libraries, day centres, care homes and schools which the Council owns.

The chart below shows that the Scope 2 emissions are principally associated with schools and corporate buildings:

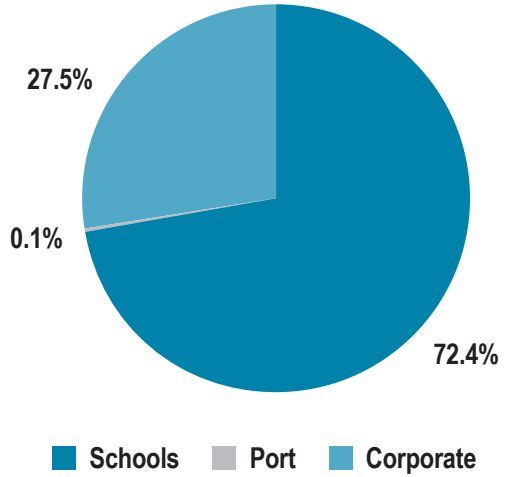


Figure 7: Cumbria County Council's Scope 2 emissions breakdown

2.4 Scope 3 emissions

The Scope 3 emissions breakdown provides an overview of all other indirect emissions that are related to Council services. This Scope accounts for an estimated 83% (116,300 tCO_2e) of the total emissions and reflects the magnitude of the services that are managed and delivered by the Council's supply chain.

For each of the following service areas the emissions were determined from the accounting records provided by the Council:

- **Corporate** – central services, properties and operations
- **Care** – both residential care and Adult and Children's Care
- **Capital programme and highways** – the management and maintenance of the roads and infrastructure projects
- **Schools** – the council owned education properties
- **Port of Workington** – emissions associated with the operation of the port

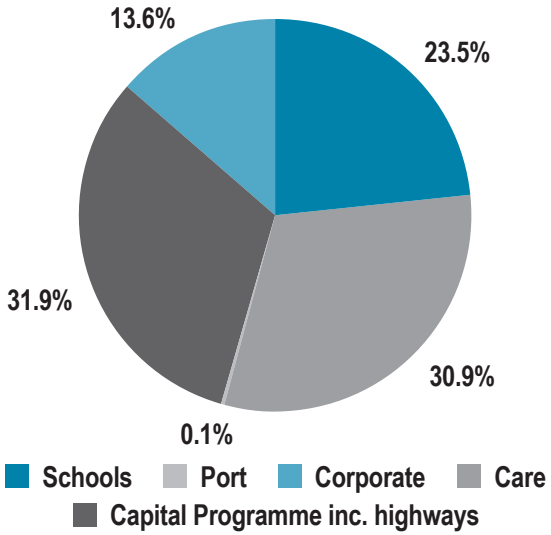
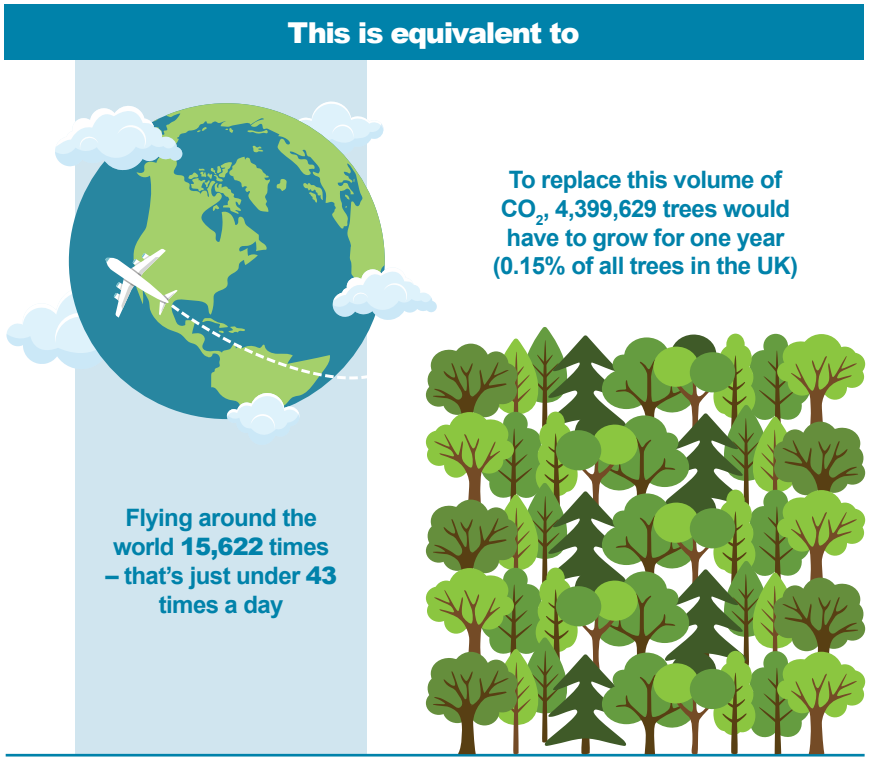


Figure 8: Total emissions breakdown by business area

The major contributor for Scope 3 emissions is CCC's supply chain,, which includes the contracts for the delivery of highway maintenance, capital projects, and care, and accounts for 97% of the Scope 3 emissions.



Successor Councils' baselines

As part of Cumbria County Council's carbon emissions baseline study, reports were also commissioned breaking down the total greenhouse gas (GHG) emissions for what will be the two new successor councils in Cumbria as of 1 April 2023 – Cumberland Council and Westmorland and Furness Council.

As the Councils do not yet exist, this data is based on the same baseline year as CCC, April 2019 to March 2020.

3.1 Cumberland Council

The total baseline emissions for the Cumberland Council area are 72,658 tonnes of carbon dioxide equivalent (tCO_2e).

Of the total emissions calculated, 83% are attributable to Scope 3, with Scope 1 and Scope 2 accounting for the remaining 17%. Scope 1 and 2 account for a total of 12,363 tCO_2e which is principally associated with building emissions and emissions related to transport and construction equipment.

Emissions Breakdown by Scope		
GHG Scope	GHG Emissions	
	Tonne CO_2e	Proportion
Scope 1	8,681	11.9%
Scope 2	3,682	5.1%
Scope 3	60,295	83.0%
Total	**72,658**	

Table 6: Cumberland Council's Scope 1, 2 and 3 emissions breakdown

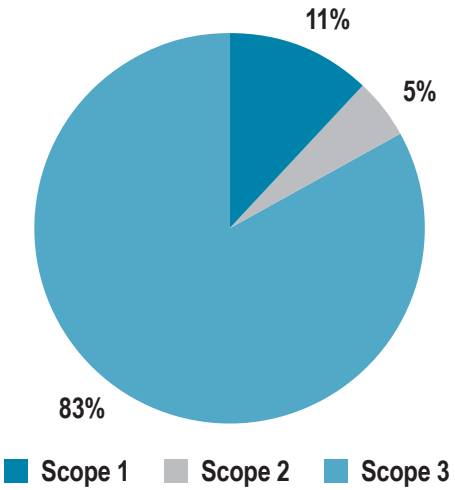


Figure 9: Cumberland Council Scope 1, 2 and 3 emissions overview

3.11 Scope 1 emissions

Scope 1 emissions accounts for almost 11.9% of the total emissions. The emissions associated with buildings, which includes heating, accounts for 80% of the total Scope 1 emissions. Transport, which includes use of vehicles and maintenance plant (powered by diesel, gas oil and petrol), makes up the remainder. Of the transport emissions, 68% of this was associated with bulk fuel purchases which includes both diesel and gas oil.

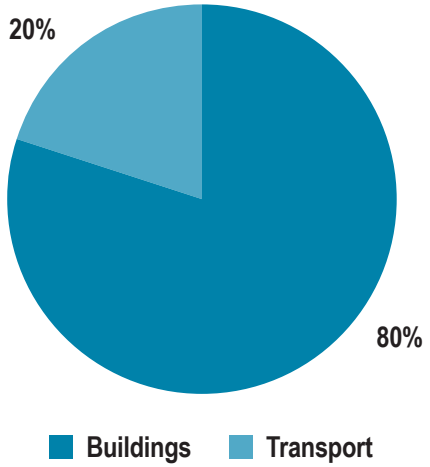


Figure 10: Cumberland Council Scope 1 emissions breakdown

3.12 Scope 2 emissions

Scope 2 emissions account for almost 5.1% (3,682 tCO_2e) of total emissions and is associated with electricity consumption in the buildings. There are 141 corporate properties in the Cumberland area and 69 schools. The chart below shows Scope 2 emissions are principally associated with schools and corporate buildings.

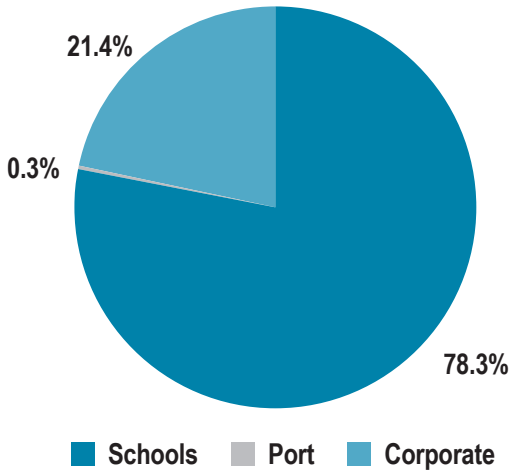


Figure 11: Cumberland Council Scope 2 emissions breakdown

3.13 Scope 3 emissions

Of the total emissions for the Cumberland area, 83% (60,295 tCO_2e) are classed as Scope 3, a significant percentage which reflects the magnitude of the outsourced services that are managed and delivered.

As can be seen from the chart below, the major contributing area to the total Scope 3 emissions is the supply chain, accounting for 97%.

While Cumberland Council will have direct control over its Scope 1 and 2 emissions, it will only have weak influence over its indirect Scope 3 emissions.

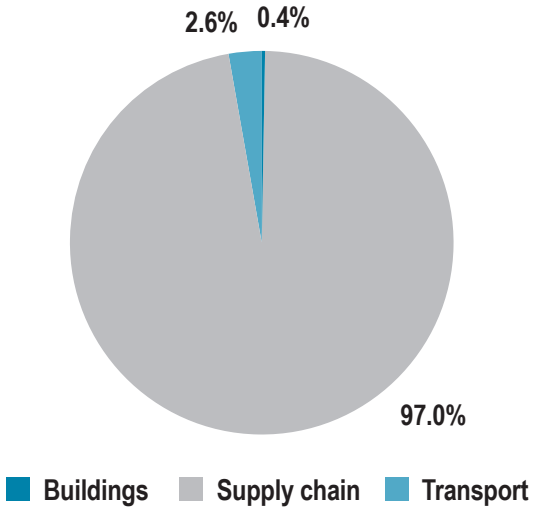


Figure 12: Cumberland Council Scope 3 emissions breakdown

3.2 Westmorland & Furness Council

The total baseline emissions for the Westmorland and Furness Council area are 67,005 tonnes of carbon dioxide equivalent (tCO_2e).

Of the total emissions calculated, 83% are attributable to Scope 3, with Scope 1 and Scope 2 accounting for the remaining 17%. Scope 1 and 2 account for a total of 10,999 tCO_2e which is principally associated with building emissions and emissions related to transport and construction equipment.

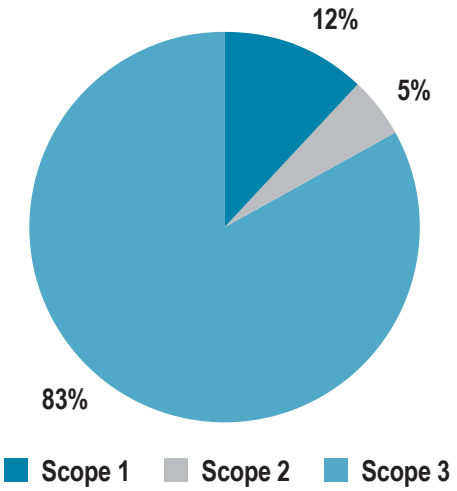


Figure 13: Westmorland and Furness Council Scope 1, 2 and 3 emissions overview

Emissions Breakdown by Scope		
GHG Scope	GHG Emissions	
	Tonne CO_2e	Proportion
Scope 1	7,819	11.7%
Scope 2	3,180	4.7%
Scope 3	56,006	83.6%
Total	**67,005**	

Table 7: Westmorland and Furness Council's Scope 1, 2 and 3 emissions breakdown

3.21 Scope 1 emissions

Scope 1 emissions accounts for 11.7% of the total emissions. The emissions associated with buildings, which includes heating, accounts for 84% of the total Scope 1 emissions. Transport, which includes use of vehicles and maintenance plant (powered by diesel, gas oil and petrol), makes up the remainder. Of the transport emissions, 68% of this was associated with bulk fuel purchases which includes both diesel and gas oil.

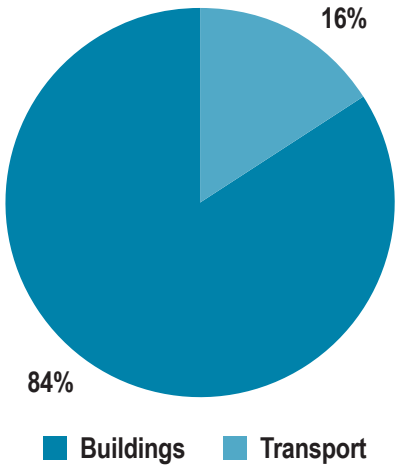


Figure 14: Westmorland and Furness Council Scope 1 emissions breakdown

3.22 Scope 2 emissions

Scope 2 emissions account for 4.7% (3,180 tCO_2e) of total emissions are all associated with electricity consumption in the buildings. This is separately attributed to the 136 corporate properties. There are 136 corporate properties in the Westmorland and Furness area and 56 schools. The chart below shows Scope 2 emissions are principally associated with schools and corporate buildings.

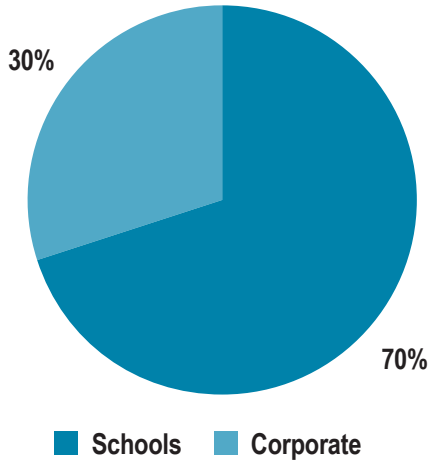


Figure 15: Westmorland and Furness Council Scope 2 emissions breakdown

3.23 Scope 3 emissions

Of the total emissions, for the Westmorland and Furness area, 83.6% (56,003 tCO_2e) are classed as Scope 3, a significant percentage which reflects the magnitude of the outsourced services that are managed and delivered.

As can be seen from the chart below, the major contributing area to the total Scope 3 emissions is the supply chain, accounting for around 70%.

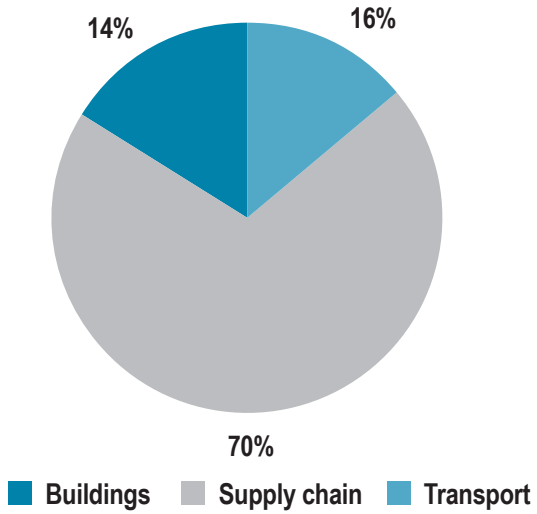


Figure 16: Westmorland and Furness Council Scope 3 emissions breakdown

While Westmorland & Furness Council will have direct control over its Scope 1 and 2 emissions, it will only have weak influence over its indirect Scope 3 emissions.

Delivery Strategies

The baseline study identifies the key CCC operational service areas producing the greatest emissions. This allows for the identification of a clear approach to reduce, and ultimately move the Council's emissions, towards a Scope 1 and 2 net zero carbon position by 2037 and Scope 3 emissions by 2050.

To achieve net zero CO_2e emissions should be reduced in line with the energy hierarchy where the priority is to reduce energy demand followed by improving efficiency and then integrating renewable energy sources. Any remaining CO_2e emissions can then be offset by renewable energy generation on Council owned land and buildings.

In response to the baseline, four delivery strategies have been developed to address the core areas of emissions:

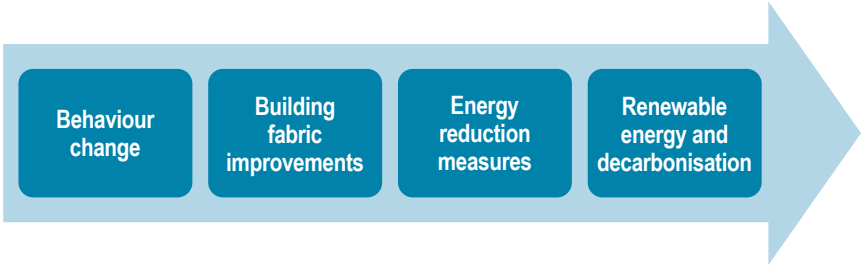
- **Buildings Emission Management** – Scope 1 and 2 emissions associated with the operation and management of the properties across the whole of the Cumbria area.
- **Transport Emission Management** – Management of the Scope 1, 2 and 3 emissions that are applicable to operation and management of both the plant, equipment and vehicles directly owned and operated by Cumbria County Council and a strategy for the emissions associated with staff commuting and the use of personal cars for business trips.
- **Scope 3, Supply Chain Emissions Management** – This is associated with the purchases and contracts required for the operation of the Council and delivery of the services expected by the communities within Cumbria.
- **Residual emissions** – After the measures identified have been implemented, there is a residual emission mass. This sets out the magnitude of the offsetting and insetting necessary to achieve the target.

Buildings Emission Management

There are two approaches for the delivery of net zero emissions. The first approach follows the principals of the energy hierarchy in terms of:

Prevent – the need for energy consumption by ensuring that the wastage is avoided or reduced.
Reduce – the amount of energy consumed by the upgrade of the current building systems and equipment to equivalent and more efficient systems
Recover – 'used' energy and resources and re-use where there is an opportunity
Replace – the energy consumed with renewable energy supply options.

And is structured into the following four stages:



The secondary approach focuses on the most significant areas of consumption and emissions. These are, in order of priority:

1. Space heating and HVAC systems
2. Lighting
3. Domestic hot water
4. Other electricity consumption areas such as catering
5. Office equipment (relative low implementation cost but small overall benefit)

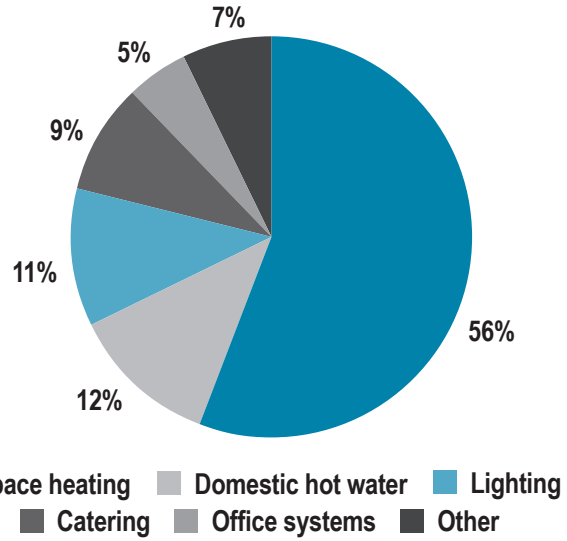


Figure 17: Typical building energy distribution showing heating, hot water and lighting are priority areas for carbon reductions

A review of the Council's buildings was undertaken to identify the property type, floor area and the annual energy consumption to calculate the overall emissions breakdown.

The Cumbria County Council built estate consists of approximately 125 school properties and 277 corporate properties which currently range from libraries and office buildings to care homes. Due to the size and distribution of this portfolio the strategy has been designed in two stages. The initial focus would be on the principal energy consuming properties. A second stage would focus on the remaining properties within the portfolio.

It has been assessed that the top 10 properties, in terms of overall CO_2e emissions, are:

- Cumbria House
- Parkhouse Building
- Carlisle Library
- Burnrigg Court EPH
- Parkview Gardens EPH
- Elmhurst EPH
- Carlisle Archive Centre
- Inglewood EPH
- Barrow Fire Station

The measures identified in the table below have been given a financial payback category:

Short are those with a payback of less than 4 years.
Medium are those with a payback between four and eight years.
Long are those with a payback in excess of eight years.

Those measures with a payback identified as NA are survey and review projects which will not direct deliver emissions and cost savings but will support the development of the other measures identified.

The following summarises the emission reduction measures and estimated savings:

Reduction category	Emission reduction measure	Payback	Estimated Emission Saving, tCO_2e per annum	Estimated Cost per tCO_2e
Behaviour change	Ongoing delivery of an energy awareness programme in the target properties	Short	1,320	NA, funded from existing service budgets
	Implementation of an energy use monitoring and targeting programme in the target properties	Short		
	Energy surveys to identify low and no cost opportunities and shape improvement programmes	NA		
Building Fabric Improvements	Fabric review including thermographic survey of the target properties to shape improvement programmes	NA	2,389	£1,700
	Upgrade of windows, assumed that it can be implemented in 60% of the target buildings	Long		
	Upgrade of the external doors, assumed that it can be implemented in 60% of the target buildings	Long		
	Improved loft insulation, assumed that it can be implemented in 60% of the target buildings	Medium		
	Wall insulation improvement, including the implementation of cavity wall insulation, assumed that it can be implemented in 40% of the target buildings	Medium		

Reduction category	Emission reduction measure	Payback	Estimated Emission Saving, tCO_2e per annum	Estimated Cost per tCO_2e
Energy Reduction Methods	Upgrade of the lighting to LED in target properties	Short/Medium	8,917	£6,900
	Replacement of the fossil fuel and electric resistive heating with Air Source Heat Pump or Air Conditioning heating systems in the target buildings.	Long		
	Replacement of the fossil fuel and resistive heating of Domestic Hot Water in the target buildings.	Medium/Long		
	Replacement of the fossil fuel heated catering systems with comparable electrically heated systems	Long		
	Air Handling Unit fan motor and control upgrade at six locations [1]	Short		
	Refit occupancy controllers to the existing split systems	Short		
	Integrate a continuous learning module with the existing BMS in nine of the target buildings [2]	Short		
Renewable energy	Local solar panels on properties with a GIA of greater than 1,000 m^2	Medium/Long	697	£8,300
	Local small and medium size wind turbines in suitable locations	Long		

Table 8: Building Emission Management measures summary

Note 1 – Carlisle Central Library, West Cumbria House, Penrith Library, Cumbria Archives, Cumbria House, Cumbria Archives Services
Note 2 – Carlisle Central Library, Gillford Cente, Maryport Business Centre, Cumbria House, Burnrigg Court EPH, Parkview Gardens EPH, Applethwaite Green EPH, Ulverston Blue Light Hub, Parkhouse Building

Building Emission Management Strategy Timeline

			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Building Emission Management	Behaviour Change																	
		Energy Awareness																
		Monitoring and Targeting																
		Energy Survey																
	Building Fabric																	
		Fabric Review																
		Windows																
		Doors																
		Roof insulation																
		Wall insulation																
	Energy Reduction																	
		LED Lighting																
		Heating upgrade - Heat Pump																
		DHW upgrade																
		Catering Systems																
		AHU fan and control																
		AC controls																
		BMS continuous learning																
		Local PV																
		Local Wind Generators																
	Local Renewables																	
		Local PV																
		Local wind generation																

Table 9: Building Emission Management outline delivery programme

Transport Emission Management

Cumbria County Council's Transport baseline accounted for 16% (22,109 tCO_2e) of the total emissions. 17% (3,878 tCO_2e) is associated with Scope 1 emissions from Council owned and operated vehicles. The majority of the emissions, 83% (18,231 tCO_2e) are associated with outsourced services and are categorised as Scope 3.

This is summarised as follows:

Category	tCO_2e	Proportion	GHG Scope
Bulk Fuel	2,330	10%	1
Fuel Card	1,017	5%	1
Pool Car	69	0.3%	1
Car Hire	462	2%	3
Car - staff owned	1,510	7%	3 [1]
Commute	1,006	5%	3
Adult Transport	2,183	10%	3
School Transport	13,532	61%	3
Total	**22,109**		

Table 10: Transport emissions summary

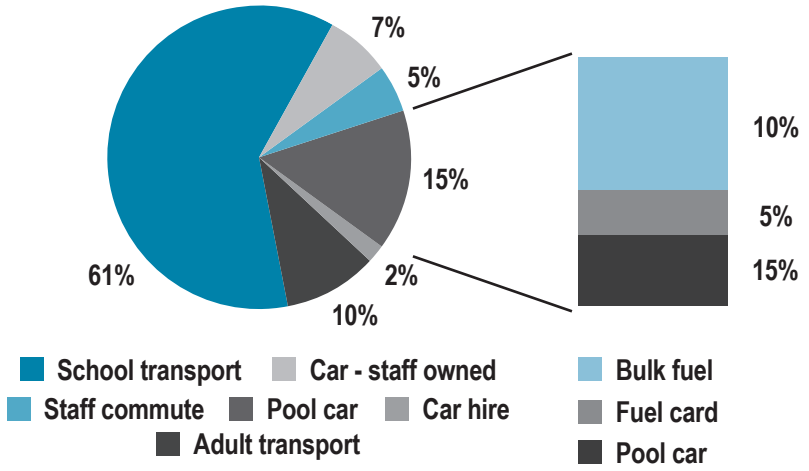


Figure 18: Transport emissions breakdown

Three target areas have been proposed for the delivery strategy for Transport Emissions Management. These are:

- Management process
- Infrastructure upgrade
- Technology options

The overall emission reductions and the individual measures are summarised in the following charts.

Note [1] – Although emissions in staff owned cars are normally categorised as Scope 3, for the basis of this Transport strategy, they have been included in the Scope 1 emissions as the use of the vehicles is directly managed by the Council.

Reduction category	Emission reduction measure	Payback	Estimated Emission Saving, tCO_2e per annum	Estimated Cost per tCO_2e
Management Process	Install telematics in all council fleet vehicles. Introduce route optimisation software to regularly analyse journeys to identify opportunities to reduce business mileage levels.	Short	1,360	NA, funded from existing operational budget
	Require all staff driving for work and/or claiming business mileage to complete the e-learning eco-driving module.	Short		
Infrastructure Upgrade	Installation of EV charging points through the council estate. It is assumed that, dependent upon the available power supply infrastructure, a number of charging points will be available at each of the council properties.	NA	No direct emission savings	£17.5 M (1)
Emissions Reduction Technology	Transition to biodiesel (e.g, HVO) for vehicles over 7.5 tonnes and diesel fuelled plant equipment. This will lead to a 90% reduction in CO_2.	Long	2,297	£26,000
	By 2035 all business car travel by battery electric car or similar ultra-low emission vehicles.	Medium	2,490	£11,000
	Introduce a new Cycling and Walking Programme to enable active travel.	Short/Medium	460	£8,640
	Introduction of a pool of electric bikes and e-cargo bikes to encourage active travel where it is safe and appropriate to service delivery.	Short		

Table 11: Transport Emission Management measures summary

Note 1 – Estimated programme cost

Transport Emission Management Strategy Timeline

			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Transport Emission Management	Management and Process Change																	
		Fleet replacement programme																
		Install vehicle Telematics																
		EV and ULEV procurement policy																
		Workplace travel plan prepared																
		Eco-driving learning introduced																
		Update working at home process																
	Infrastructure																	
		EV charging points installed																
	Energy Reduction																	
		Transition from diesel to HVO																
		Introduce EV in the fleet																
		Review electric plant and equipment replacements																
		Introduce cycling and walking programmes																
		Pool e-bikes available																

Table 12: Outline strategy delivery programme

Scope 3 – Supply Chain Emissions Management

The principal focus of this strategy is the management of the emissions related to the Council's supply chain including the purchases and contracts required for the operation and delivery of CCC services, in particular delivery of the capital programme (including highways contracts) and the operation of care services.

The following chart breaks down the emissions of the different service areas:

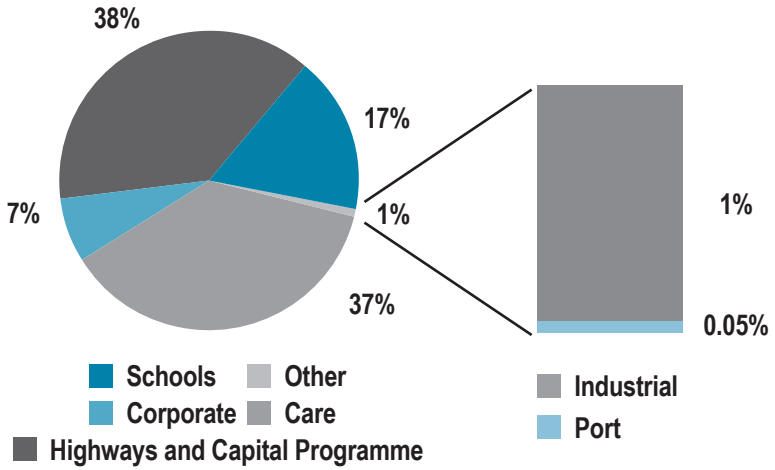


Figure 19: Scope 3 services emission breakdown

The greatest proportion of CCC emissions is within Scope 3 and are therefore the most challenging to directly mitigate. Scope 3 emissions fall into three categories which have been ordered with respect to the ability of the Council to influence their impact, from Easy to Difficult, and summarised below.

EASY: Those emissions that are directly associated with the day-to-day CCC staff activities, this includes business travel, the use of personal and non-CCC vehicles, and water and sewage (utilities) related emissions.

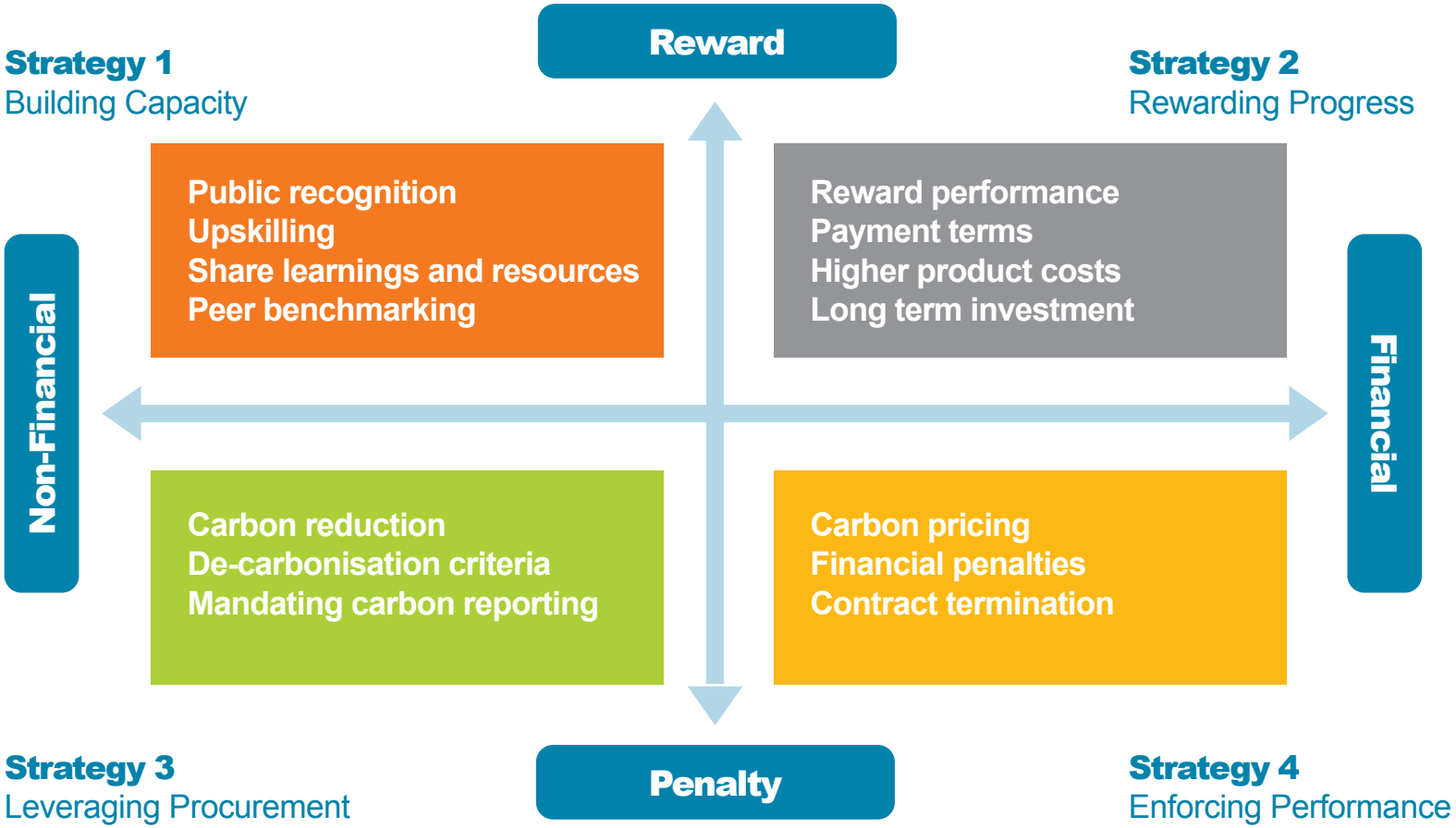
MEDIUM: Outsourced services where the organisation is providing labour, and consumable goods, to manage and deliver a service on behalf of CCC. This includes the following:

- Schools and Adult service transport
- Operation of care homes, schools and day centres
- Roads and grounds maintenance
- Project delivery through the Capital Programme

DIFFICULT: The supply contracts associated with the provision of the school, care home and corporate foods stuffs and office consumable goods. It is estimated that this accounts for approximately 2% of the Scope 3 and just under 2% of the total Council emissions.

The Council will work with the supply chain to identify the carbon emissions associated with the products and services that they provide and help them to implement improvements to reduce their emissions. The strategy for the delivery improvements in this area is summarised below and uses the principals of reward and disincentive in both financial and non-financial ways.

The strategy structure set out is summarised by the following chart:



Residual Emissions

Based upon the emissions baseline, without the investment in developments such as large-scale solar and wind generation there would be an emission reduction shortfall of around of 4,200 tCO_2e for Scope 1 and 2. There are two principal methods available to address the residual mass of CO_2e, this is either offsetting or insetting.

Emissions offsetting involves the purchase, via one of the recognised schemes, of CO_2e credits. There can be negative feelings associated with these schemes if the projects invested in are outside of the UK and the benefits that are delivered are not transparent. Furthermore, this requires ongoing investment to maintain the emission credits and there are no cost savings to balance the investment made.

Emissions insetting is the reduction of the organisation's emissions by investment in their measures such as the proposed large-scale solar and wind projects in the Cumbria region. A review of the use of large-scale wind and solar PV generation in the Cumbria region has been undertaken and several potential projects have been identified, with some under delivery.

There is 12MW of solar PV under development as part of the existing Carbon Management Strategy (Corporate Estate) and 0.9MW of wind turbine development.

Renewable Project	Avoided Emissions, tCO_2e	Estimated Cost per tCO_2e
12MW Solar PV across Cumbria	2,303	£7,620
0.9MW wind turbine	534	£2,810

Table 13: Large scale renewable project summary

In order to offset the estimated residual emissions, further emission reduction measures need to be implemented. The following developments are proposed:

Renewable Project	Avoided Emissions, tCO_2e	Estimated Cost per tCO_2e
Large Scale Solar PV – 8 MW	1,535	£7,620
Tree planting – 36 hectares	1,435	£1,350

Table 14: Additional large-scale renewable and tree planting project summary

Development of solar infrastructure is dependent on land availability, external permissions and consents.

Cumbria County Council - Net Zero Pathway

The waterfall diagram and programme below provide an overall summary of the measures and the magnitude of the reductions that will be necessary to deliver a reduction of 23,443 tCO_2e to achieve a Scope 1 and 2 net zero target by 2037 for an estimated total expenditure of up to £180 million.

It is estimated that this will equate to a cost saving of approximately £15.2 million per annum by 2037.

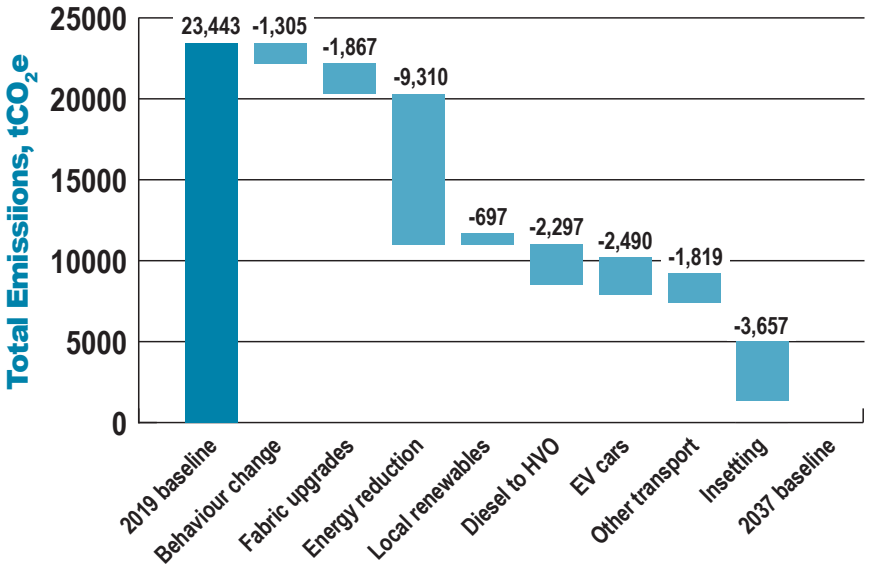


Figure 20: Cumbria County Council Waterfall diagram

The numbers appended to the above chart reflect the emission reductions estimated for each of the measures identified.

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Building Emission Management	Behaviour Change	■	■	■	■	■	■										
	Building Fabric	■	■	■	■	■	■	■	■	■	■	■					
	Energy Reduction	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Local Renewables	■	■	■	■	■	■	■									
Transport	Management and Process Change	■	■	■													
	Infrastructure	■	■	■	■	■	■	■									
	Emission Reduction Option	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Residual Emission	Large Scale Renewable Projects	■	■	■	■	■	■										
	Additional Insetting	■	■	■	■	■	■	■	■	■	■	■					

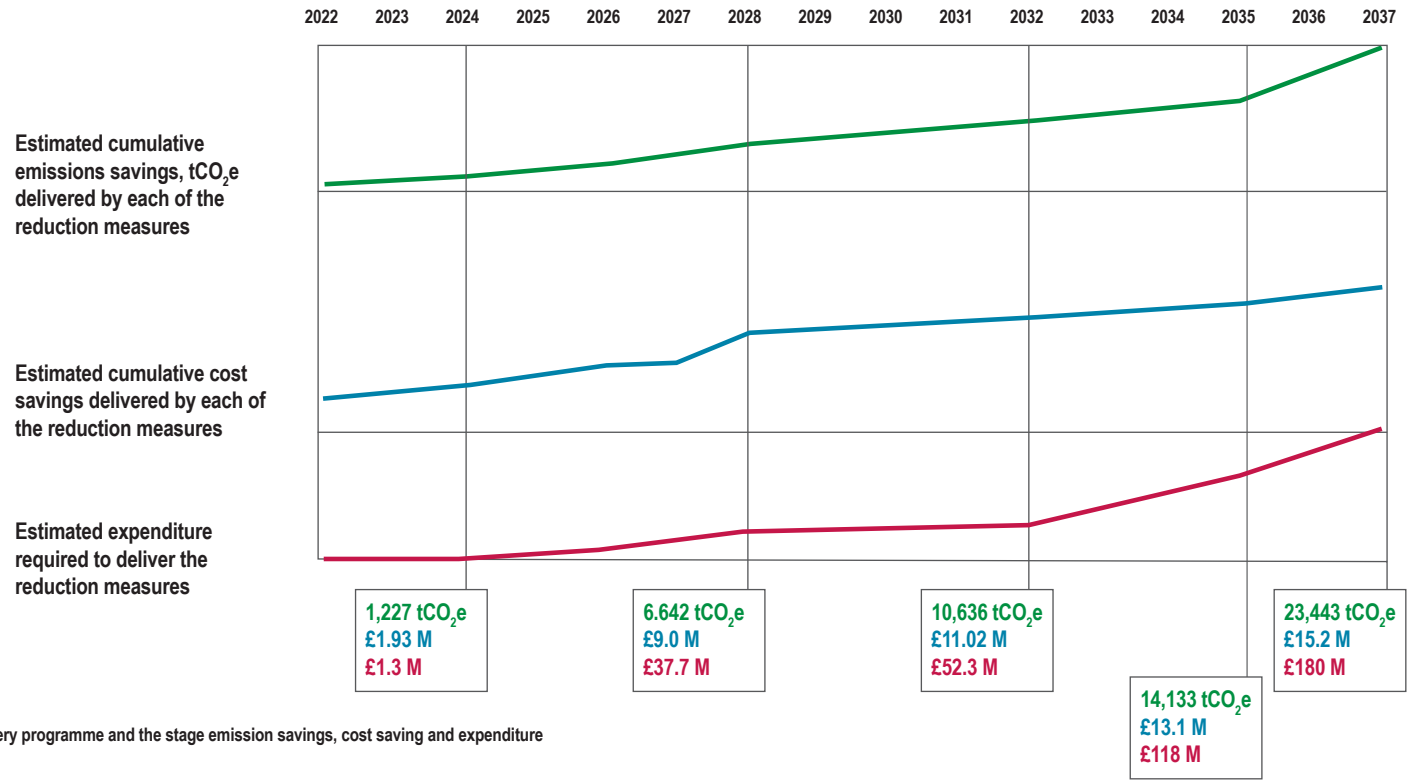


Figure 21: Cumbria County Council outline delivery programme and the stage emission savings, cost saving and expenditure

Conclusions

Baseline CO_2e Emissions and Objective

Cumbria County Council (CCC) is well placed to play a significant role in achieving the national goal of developing a position of net zero emissions by 2050, with the added benefit of making significant savings on expenditure and achieving long-term energy security.

A strategy to reach net zero is reflective of international, national and regional policy which set challenging targets for the delivery of net zero over the next two decades.

Based upon the 2019/20 consumption and financial baseline data, Cumbria County Council produces 139,663 tCO_2e annually of GHG Scope 1, 2 and 3 emissions. The equivalent figures when breaking this down for the future successor Councils Cumberland and Westmorland and Furness is 71,362 and 65,422 tCO_2e respectively.

Scope 1 and 2 emissions are directly within the Council's control and are typically targeted by organisations taking steps to move towards a net zero position. Scope 1 and 2 activities include building energy use and transport which are primary sources of emissions. The CO_2e emissions from natural gas accounts for over 60% of the GHG Scope 1 emissions. Without any large-scale conversion of the building space heating and domestic hot water generation from fossil fuel to electric there will be minimal reduction in these emissions in line with the Council's goals

Electrifying heating systems enables the benefits of the investment by CCC in renewable energy to be realised and to take advantage of the forecasted decarbonisation of the UK electricity grid supply as a consequence of the national investment in large-scale wind, solar photovoltaic (PV) and low carbon generation.

Scope 3 emissions are associated with the supply chain and account for approximately 83% of the total emissions reported. These are principally associated with capital projects including highways maintenance, and care contracted services that account for 38% and 37% of the Scope 3 emission respectively.

The Council's emissions can be managed through buildings, transport, supply chain and residual emission delivery strategies.

The strategies will deliver a reduction of 23,443 tCO_2e in Scope 1 and 2 emissions by 2037 for an estimated total expenditure of up to £180 million.

Buildings Emission Management

Buildings are the largest generator of Scope 1 and 2 emissions for CCC. This includes both the energy used by the building systems, such as lighting and heating, as well as the plant and equipment, such as catering, and office systems used by the occupants. The measures identified to mitigate these emissions follow a hierarchy of activities:

- Implement no cost and low-cost measures through behaviour change
- Building fabric improvement that will identify the areas of energy loss and then implement the systems and processes to reduce these losses through increased insulation and improvements in building air tightness.

- Energy reduction measures which will involve capital investment. These will address the opportunities through the upgrade of the space heating and HVAC systems though change from fossil fuel to electric heat pumps, lighting and a programme to replace the existing lighting with LED, DHW generation, and improve the emission rating of the addition building plant and equipment through the introduction of more efficient systems as part of their end-of-life replacement.
- Where appropriate, implement local solar PV installations and small-scale wind generation.

Transport Emission Management

There are two principal strategies for the management of the transport emissions. Firstly, improve management and staff training to ensure that the existing plant and equipment is being used efficiently. Secondly, where possible, implement alternative fuel use such an EV cars and vans and low carbon fuel replacement for the diesel fuelled vehicles, this will include HVO, a biofuel alternative, and when fully developed 'green' hydrogen. Due to the investment already made in transport fleet and plant replacement the conversion will be part of a long-term programme, taking advantage of the market changes that are expected over the 15 years.

Supply Chain Emission Management

The supply chain accounts for approximately 112,700 tCO_2e and reflects items such as capital programme spend including highways maintenance and care services. The strategy presented recognises that the emissions associated with the delivery of these services are outside of the direct control of the Council but through active engagement and encouragement with the supply chain, improvements in emissions can be delivered.

Four sub-strategies have been set out: Building Capacity, Rewarding Progress, Leveraging Procurement and Enforcing Performance. Each will use existing processes and contract structures to deliver measurable improvements which will include:

- sharing learning experiences
- reward progress; and
- encouraging emission reporting.

This will enhance supply chain transparency with the goal of delivering improvements required.

Residual Emissions

Utilising insetting through development of renewable energy on Council land can balance residual carbon emissions. The Council is currently developing up to 12.9MW of renewable projects across Cumbria. This strategy proposes the installation of a further 8MW with additional tree planting in appropriate locations as part of an insetting plan.

Route to Net Zero

The following chart sets out the high-level route to net zero for the Scope 1 and 2 emissions by 2037. The reduction of the supply chain Scope 3 emissions will be part of an ongoing strategy which will not be completed until 2050.

Monitoring Strategy

To support the delivery of the measures identified a monitoring programme should be established. The proposed monitoring strategy is:

- Quarterly review of the strategy measures identified to assess and report on progress of their delivery
- Annual review and update of the emissions inventory report and spreadsheet for Cumbria County Council, and the successor councils of Cumberland and Westmorland and Furness
- Revisit the workshops to review progress, and identify further measures that could be considered and consider the impact of the national policy and supply changes on the local delivery plans.

			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Building Emission Management	Behaviour Change																	
		Energy Awareness																
		Monitoring and Targeting																
		Energy Survey																
	Building Fabric																	
		Fabric Review																
		Windows																
		Doors																
		Roof insulation																
		Wall insulation																
	Energy Reduction																	
		LED Lighting																
		Heating upgrade - Heat Pump																
		DHW upgrade																
		Catering Systems																
		AHU fan and control																
		AC controls																
		BMS continuous learning																
		Local PV																
		Local Wind Generators																
	Local Renewables																	
		Local PV																
		Local wind generation																

			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Transport Emission Management	Management and Process Change																	
		Fleet replacement programme																
		Install vehicle Telematics																
		EV and ULEV procurement policy																
		Workplace travel plan prepared																
		Eco-driving learning introduced																
		Update working at home process																
	Infrastructure																	
		EV charging points installed																
	Energy Reduction																	
		Transition from diesel to HVO																
		Introduce EV in the fleet																
		Review electric plant and equipment replacements																
		Introduce cycling and walking programmes																
		Pool e-bikes available																

Figure 22: Cumbria County Council outline delivery programme

Key Risks and opportunities

'Do nothing' will not deliver a managed reduction in the Council's emissions, however, the emission reductions that would be delivered by the decarbonisation of the UK electricity grid and engagement of the UK supply chain with the national Net Zero obligation, will deliver reductions in the baseline emissions.

The Buildings Emission Management strategy is supported by the projected decarbonisation of the UK national electricity grid supply.A reduction in the long-term grid emission targets will impact the amount of CO_2e savings delivered by the conversion from fossil fuelled to electric heating and DHW systems.

Cost savings, revenue generation and economics and social value are impacted by changes in electricity and natural gas prices. An increase in natural gas price will increase potential savings and improve the economic case for fossil fuel reduction. An increase in the electricity supply price will negatively affect the economics of converting from fossil fuel to electric systems but will support the investment in renewable energy generation systems.

Capital investment will increase and decrease with project complexity; issues include planning restrictions and consents required for building alterations, and there will be specific risks associated with each individual project.

Corporate Considerations

A strategy to achieve net zero by for Scope 1 and 2 emissions by 2037 and Scope 3 emissions by 2050 will deliver against a number of key corporate priorities.

- **People in Cumbria are Healthy and Safe.**
  This Strategy originates from the Cumbria Public Health Strategy 2019. The outcomes of this Strategy include reducing use of, and reliance on, fossil fuels which through direct emissions impact negatively on the health of Cumbrian communities. This Strategy also promotes the use of local cycling and walking initiatives for council resources and stakeholders who, within the Local Government sector form a core group within the Cumbrian workforce.
- **Places in Cumbria are well connected and thriving.**
  In order for future communities to thrive they must be encouraged to make a commitment to net zero. This Strategy will provide an example of best practice for communities to follow with regard to decarbonisation of buildings, transport and supply chains. This Strategy will also deliver renewable projects which may be replicated at a community level with the potential for the Council to become a catalyst for community energy projects into the future. Development of further electric charging points and cycling and walking initiatives will also contribute to modern transport networks across communities.
- **The Economy in Cumbria is growing and benefits everyone.**
  This Strategy will directly invest in the Cumbrian economy through development of decarbonisation projects and initiatives. This Strategy is aligned with the Cumbria Local Enterprise Partnership Clean Energy Strategy and the Local Industrial Strategy (LIS). The projects will also lead to savings within the Council's own operating budget in future years.

This Strategy contributes to the Cumbria Clean Energy Strategy and Cumbria's Local Industrial Strategy (LIS) in driving sustainable economic growth, helping to capitalise on existing energy credentials and further developing Cumbria's green energy infrastructure.

Emission reduction measures

Timeframe	Activity	Actions
Short term 2022-2027	Appoint dedicated carbon reduction delivery	● Specify role ● Secure budget ● Recruit appropriate candidate
	Install LEDs across all buildings	● Conduct further building surveys ● Develop specifications ● Engage with contractors ● Procure equipment and services
	Implement behavioural change measures across all buildings and fleet activities	● Employ carbon reduction delivery manager ● Develop strategy to include staff engagement, behavioural change, training and improved energy management and controls
	Design, procurement and installation of 12MW solar PV	● Discussions with planning team over suitability of sites ● Liaison with DNO ● Detailed feasibility studies for selected sites ● Planning application
	Design and planning of 0.9 MW wind turbine	● Discussions with planning team over suitability of sites ● Liaison with DNO ● Detailed feasibility studies for selected sites ● Planning application

Timeframe	Activity	Actions
Medium term 2023-2030	Procurement and construction of 8MW solar PV arrays	● Discussions with planning team over suitability of sites ● Liaison with DNO ● Detailed feasibility studies for selected sites ● Planning application
	Develop and maintain vehicle and plant replacement strategy	● Employ carbon reduction delivery manager ● Identify low carbon replacement options
	Implement an EV charging network across the council region	● Identify suitable sites ● Engage with contractors ● Procure schemes
Long term 2023-2037	Identify and deliver emission reduction measures across the built estate	● Detailed feasibility studies ● Develop specifications ● Engage with contractors ● Procure schemes

Table 15: Outline programme of activities

Cumbria County Council

Cumbria House
117 Botchergate
Carlisle
CA1 1RD

01228 606060
cumbria.gov.uk

cumbria.gov.uk