

Cheshire West and Chester Council

Carbon Management Plan

- Introduction
- Council priorities
- Legislative drivers
- Performance
- Carbon budget analysis
- Vision and strategy
- Baseline v Current
- Key actions
- Finance
- Monitoring
- Offsetting
- Governance
- Glossary

Introduction

In May 2019 Cheshire West and Chester Council declared a Climate Emergency.

This declaration represents a major statement of intent to treat Climate Change as requiring urgent local action, believing that now is the time to take further practical action.

In making the declaration, we have set an ambitious target date of 2030 to achieve carbon neutrality for the Council's own emissions, to be delivered through this Carbon Management Plan.

Although the Council only has direct control over 0.6 per cent of borough-wide carbon emissions, we have a great responsibility to show leadership by reducing our own emissions, as well as supporting local people, business and our partners to reduce their impact.

Whilst a separate Climate Emergency Response Plan is being developed for borough-wide emissions, this Carbon Management Plan provides an overview of the Council's current position and outlines the plan for carbon neutral services from 2030.

The ambition to reduce carbon emissions is not being made from a standing start; over the past decade there have been two prior Carbon Management Plans; 2010-2015 and 2016-2020. Whilst relatively good progress has been made to date, making further progress will require a significantly increased programme of action including the transition to using cleaner forms of

energy – replacing the use of fossil fuels; improving energy efficiency across all Council functions; investing in clean energy supply; and balancing our carbon emissions through investing in a variety of accredited environmental offsetting projects.

Between 2009 and 2020 we have reduced the Council's own carbon emissions by 50.9 per cent through:

- installing solar photovoltaic systems on Council assets
- Light-Emitting Diode (LED) conversion of street lighting
- robust and flexible energy purchasing strategy
- ambitious waste recycling targets
- managing business mileage
- asset improvement and reduction.

Despite our achievements to date, the science and evidence is clear - climate change poses a significant threat to our way of life, and the time for action is now. While Government and other bodies should take a national and international lead, a big difference can be made at a more local level.

Cheshire West and Chester has set an ambition to become a carbon neutral borough, reducing emissions of greenhouse gases to net zero by 2045 or earlier.

As local leaders, the Council will take decisive action and proactive measures to be a carbon neutral Council by 2030.

Council priorities

The Cheshire West and Chester Corporate Plan 2020-2024 sets out six key priorities that will form the focus of the Council's actions for the next four years.

Tackling the climate emergency is a Key Priority in the [Council Plan 2020-2024](#).

In making the Council a greener organisation, we will work with businesses and communities to ensure that our Council provides carbon neutral services by 2030 and that future generations are protected from climate change. We have a shared responsibility to act and there will be a real urgency to our response. While this is a real challenge, it presents great opportunities to build a green economy and encourages innovation to find better and a more efficient uses of our resources.

Legislative drivers

The [Kyoto Protocol](#) is the first agreement between nations to mandate developed countries to reduce greenhouse gas emissions.

The [Climate Change Act 2008](#) sets the framework for how the UK will manage and respond to the Kyoto Protocol. It set a target committing the UK to reducing total greenhouse gas emissions by at least 80 per cent in 2050 from 1990 levels. The [Climate](#)

[Change act 2008 \(2050 Target Amendment\) Order 2019](#) amends the 2050 target in Section 1 of the Act from an 80 per cent reduction in greenhouse gas emissions by 2050 relative to 1990 to 100 per cent over the same period.

The [Paris Agreement 2015](#) provides a framework for governments as well as business and investors to keep global warming well below 2 degrees Celsius, pursuing efforts to limit the temperature increase to 1.5 degrees Celsius. A temperature rise of 1.5 degrees Celsius is seen by some countries, such as low-lying islands at risk of rising sea levels, as the limit beyond which their existence is threatened.

Cheshire West and Chester carbon performance

The Council follows the [Greenhouse Gas Protocol](#) Corporate Standard for monitoring and reporting emissions. It is an international accounting tool for Government and businesses to understand, quantify and manage greenhouse gas emissions.

The Greenhouse Gas Protocol breaks down emissions into three categories in order to better understand the source; - Scope 1, 2 and 3 emissions.

Scope 1 – All direct emissions from the activities of an organisation or under their control. Including all fuel combustion on site such as gas boilers and fleet vehicles.

Scope 2 – Indirect emissions from electricity purchased and used by an organisation. Emissions are created during the production of the energy and eventually used by the organisation.

Scope 3 – All other indirect emissions from activities of an organisation occurring from sources that they do not own or control. These are usually the greatest share of the carbon footprint, covering emissions associated with business travel, procurement, waste and water.

The Cheshire West and Chester Carbon Management Plan for 2016-2020 set a target to reduce in-scope carbon emissions by 30 per cent by 2020. A reduction of 50.9 per cent was achieved.

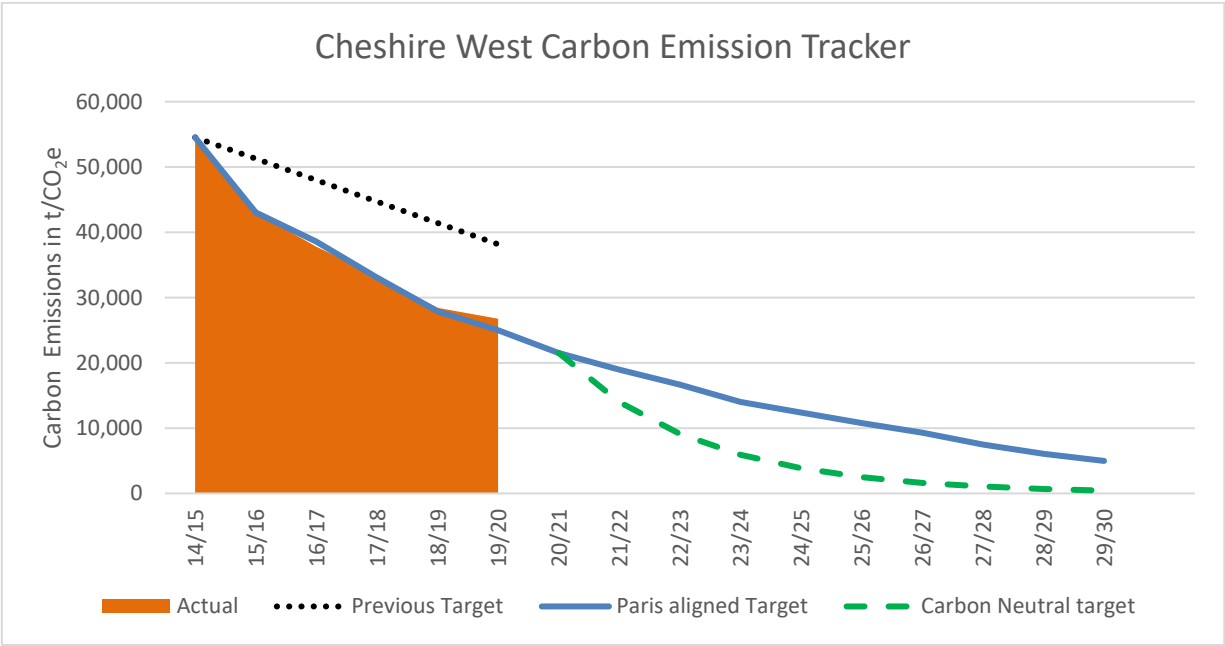
This is based on primarily Scope 1 and Scope 2 emissions with reductions in emissions associated with waste in Scope 3. These substantial reductions were achieved through a range of measures including the use of solar energy on assets, the Light-Emitting Diode (LED) street lighting programme and enabling schools to invest in energy efficiency projects.

Carbon budget analysis

The chart and table show the progress the Council made in the last Carbon Management Plan.

It also highlights the Council's performance trajectory against a Paris Agreement aligned target and the Council's own climate emergency declaration target*.

As a minimum, the Council will need to continue to maintain an Actual position below the lines to successfully meet its commitments.



*The Council's Carbon Neutral target pathway shows a compressed regressive curve to 2030 based on the Paris Agreement aligned target for the Council, as set out in carbon budget reports produced by The Tyndall Centre for Climate Change Research. The Council is demonstrating its leadership in setting a pathway for immediate action and deep cuts to emissions in order to avoid Cheshire West using its Paris aligned emissions budget to 2100 by 2026.

Year	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30
Previous Target	54,519	51,248	47,977	44,706	41,435	38,163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paris Aligned Target	54,519	43,048	38,576	33,065	27,872	24,986	21,524	18,941	16,681	13,990	12,376	10,762	9,315	7,507	6,061	4,976
Actual	54,519	43,053	37,793	33,395	28,410	26,779										
Carbon Neutral Target	N/A	N/A	N/A	N/A	N/A	N/A	21,524	13,990	9,093	5,911	3,842	2,497	1,623	1,055	685	445

Impact of COVID-19

During the formation of this framework the COVID-19 pandemic affected the operations of the Council in an unprecedented way and at the time of writing continues to do so. The most significant impact on the Council's emissions has been that the workforce has been displaced from usual places of work to working from home or in some cases being furloughed. The associated impact on emissions has been to take monitored sites and displace emissions to non-monitored sites (i.e. homes) where the workforce continues to work. This is further complicated by the removal of the emissions of the work forces in their commute. While this is noted as a positive in terms of overall reduction in emissions with the nation and world as a whole showing a circa 5 per cent drop, the ongoing ramifications of this change in working practice will be fed into the asset review. Changes to the assets as a result will be demonstrated through this plan. Where emissions are displaced to domestic premises, these emissions will be picked up in the Council's wider Climate Emergency Response Plan.

Carbon Management Strategy

Vision

In recognition of all the drivers identified to embark upon this programme, Cheshire West and Chester Council has set out this vision.

‘Cheshire West and Chester Council to be operating carbon neutral services reducing our contribution to climate change.’

Target

The Council has set a target to achieve its vision of carbon neutral services on the current scope by 2030. The Council will also have made preparations to expand the scope of data capture and taken actions to limit the emissions associated with additional monitoring.

Action plan

A 10-year action plan to deliver carbon neutral emissions on the current scope of Cheshire West and Chester Council's operations and will be known as the Council's Carbon Management Plan 2020-2030.

The Carbon Management Plan will set out how the Council will achieve carbon neutrality in relation to its own in-scope emissions by 2030, which are predominately Scope 1 and Scope 2 emissions within the financial boundary. These are the emissions that the Council can directly influence.

The Council also has an ambition to monitor and reduce emissions throughout its supply chain, and ensure staff are supported to travel sustainably while at work.

In addition to current work to ensure carbon considerations are included in procurement activity, the Council will consider the expansion of reported emissions to include these supply chain (Scope 3) emissions during the 2030-2035 Carbon Management Plan.

The Council will also consider the move from market to the preferred location reporting i.e. using local instead of national carbon factors, to improve the accuracy for carbon accounting. A full explanation of the differences in reporting can be found in the [Greenhouse Gas Protocol](#)

Scope

It is only feasible, at this stage, to include within the Carbon Management Plan what can reasonably be baselined now and in the near future.

In scope factors will include all energy and water consumed in buildings within the Council's financial boundary and street lighting that is paid for and maintained by the Council.

In addition, business mileage will be monitored and reported in scope. Emissions from services delivered by third parties on behalf of the Council will also be included where a reasonable measurement can be established or continued.

Improving monitoring methods and procedures for other sources of emissions, predominantly those defined in Scope 3, will continue over the initial reporting period.

The table below summarises which sources for emissions are in scope for this plan.

Scope One	Scope 2	Scope 3
Gas and Oil Consumption	Electric Consumption (Grid)	Business Travel Purchased Heat and Steam Consumption

		Transportation and Distribution (up and downstream)*
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*selected categories

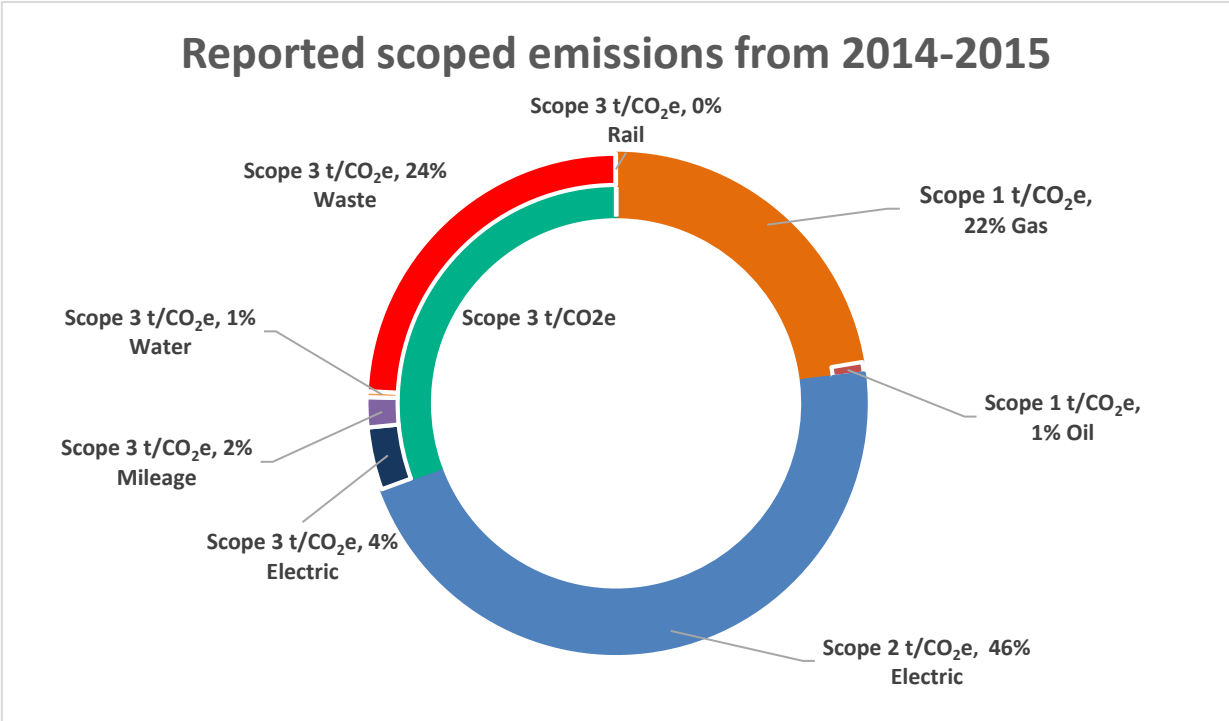
Baseline

The Council will retain the baseline scoped emissions for financial year 2014-2015 of 54,519 carbon dioxide equivalent (CO₂e).

The table and chart represent the derivative sources of emissions in the baseline year and show the largest source of emissions as scope 2; generated from the production of electricity consumed across the Council estate. This accounted for 46 per cent to the total emissions measured. The remaining emissions are largely split between gas burnt on site (22 per cent) to produce heat, and emissions associated with the collection and treatment of waste from the borough (24 per cent). The remaining 8 per cent are residual emissions split up from a variety of sources.

Source	Scope 1 t/CO ₂ e	Scope 2 t/CO ₂ e	Scope 3 t/CO ₂ e	Total t/CO ₂ e	Percentage of Total
Electric		25,252.6	2,208.2	27,460.8	50 per cent (46 per cent+4 per cent)
Gas	12,184.5			12,184.5	22 per cent
Oil	401			401.29	1 per cent
Business Mileage			1,058.9	1,058.95	2 per cent
Rail			16.5	16.55	0 per cent
Water			209	209	1 per cent
Waste			13,188	13,188.04	24 per cent
Grand Total	12,585.5	25,252.6	16,680.6	54,519.13	100 per cent

The chart below is intended as a visual aid and shows the make-up, in percentage, of the sources of emissions as shown in the right hand column of the table above.



Latest results

The last full year of emissions reported by the Council was for financial year 2019-2020 with a total of 26,778.7 t/CO₂e. This represents a 50.9 per cent reduction against the baseline year 2014-15.

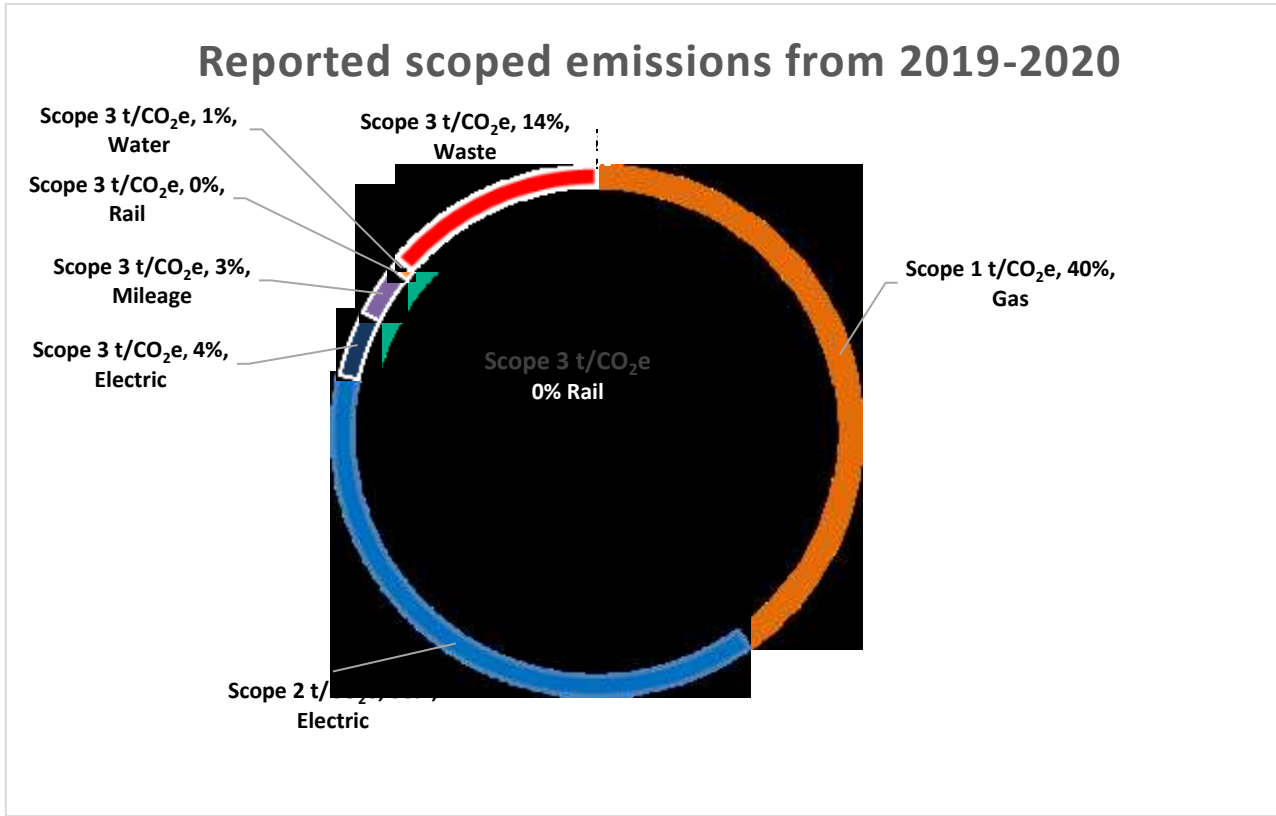
2019-20 values will form the new baseline year against which energy and carbon reduction activity by Cheshire West and Chester Council will be monitored.

The table and chart represent the derivative sources of emissions in the baseline year and show the largest source of emissions as scope 1; generated from the gas burnt on site consumed across the Council estate. This accounted for 40 per cent to the total emissions measured. The remaining emissions are largely electricity consumption (38 per cent) and emissions associated with the collection and treatment of waste from the borough (14 per cent). The remaining 8 per cent are residual emissions split up from a variety of sources.

Source	Scope 1 t/CO ₂ e	Scope 2 t/CO ₂ e	Scope 3 t/CO ₂ e	Total t/CO ₂ e	Percentage of Total
Electric		10,245.53277	1,086.283	11,331.81578	42 per cent (38 per cent+4 per cent)
Gas	10,774.07			10,774.06639	40 per cent
Mileage			836.2795	836.2794941	3 per cent
Rail			21.55261	21.5526108	0 per cent
Water			187.9419	187.941904	1 per cent
Waste			3,627.049	3,627.049	14 per cent

Grand Total	10,774.07	10,245.53277	5,759.106	26,778.70518	100 per cent
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The chart below is intended as a visual aid and shows the make-up, in percentage, of the sources of emissions of the latest results from 2019-2020 as shown in the right hand column of the table above.



Key actions

The key action tables are designed as live information resources and will be updated on regular basis. The Council's detailed project activity will be held separately and used to inform performance against the key themes.

Scope 1

Scope 1 emissions relate only to the use of gas in heating and cooking in the Councils estate. The Council recognises that over the period the following external trends will have an affect both in the actions the Council needs to take and the carbon emissions that the Council will be able to directly influence in this plan.

- **Asset disposal** - where the Council no longer occupies and pays for the gas used by a property. This includes where a school converts to an academy.
- **Hydrogen** – where hydrogen is injected into the gas grid as part of the fuel mix.

The Council under this plan intend to take action by:

- **Technologies (T)** – working with developing technologies over the period to increase efficiencies and decrease emissions including hydrogen technologies.
- **Heating and cooking electrification (HE)** – moving from using gas to heat buildings and cooking to electric allows the power to be produced from an direct owned or certified renewably generated source e.g. solar, wind, hydro or tidal.

- **Improving building envelopes (BE)** – where viable to increase insulation, install or renew windows and doors to increase thermal efficiency and reducing the amount of gas needed to heat to appropriate temperatures
- **Asset rationalisation* (AR)** – where a building is no longer efficiently used and could be repurposed if sold or leased.
- **Offset** – the balance of in-year residual emissions to net zero following all planned actions.

The table below demonstrates the planned actions, so far, the Council are undertaking to meet carbon neutrality under this plan. The table will be updated following reviews of additional planned actions

2019-20 Baseline		20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30
Gas 10774.1	T	0	0	0	0	0	0	0	0	0	1,965.5
	HE	0	0	0	0	0	0	0	0	0	0
	BE	40.0	85.9	91.9	91.9	91.9	91.9	91.9	80.0	91.9	80.0
	AR	145.6	515.6	869.3	869.3	869.3	869.3	869.3	869.3	869.3	869.3
	Offset	10,588.5	10,172.6	9,813.0	9,813.0	9,813.0	9,813.0	9,813.0	9,824.8	9,813.0	7,862.1

*The Council recognises where an asset passes out of this plan it will be covered under the wider borough plan for decarbonisation.

Scope 2

Scope 2 emissions relate only to the use of electricity in in the Councils estate and street lighting. The Council recognises that over the period the following external trends will have an affect both in the actions the Council needs to take and the carbon emissions that the Council will be able to directly influence in this plan:

- **Asset disposal** - where the Council no longer occupies and pays for the electricity used by a property. This includes where a school converts to an academy.
- **Grid emission factor** – where the production of electricity by renewable or low carbon sources in the electricity grid affects the carbon emitted per unit of electricity consumed.
- **Electrification of other fuels (E)** – the move from gas heating systems and transport to electric has the consequence that additional emissions for electric will need to be planned for to reduce to carbon neutral services.

The Council under this plan intend to take action by:

- **Technologies (T)** – working with developing technologies over the period to increase efficiencies and decrease emissions including in particular Light-Emitting Diode (LED), direct solar photovoltaic (PV) and energy storage technologies.
- **Heating and cooking electrification (HE)** – the move from gas heating systems to electric has the consequence that additional emissions for electric will need to be planned for to reduce to carbon neutral services.
- **Improving building envelopes (BE)** – where viable to increase insulation, install or renew windows and doors to increase thermal efficiency and decrease the electric need to heat/cool to appropriate temperatures.

- **Asset rationalisation* (AR)** – where a building is no longer efficiently used and could be repurposed if sold or leased.
- **Offset** – the balance of in-year residual emissions to net zero following all planned actions.

The table below demonstrates the planned actions, so far, the Council are undertaking to meet carbon neutrality under this plan. The table will be updated following reviews of additional planned actions.

2019-20 Baseline		20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30
Electricity 10,245.5	T	61.2	1,084.7	2,047.0	2,047.0	2,047.0	2,047.0	2,047.0	2,047.0	2,047.0	2,047.0
	HE	0	0	0	0	0	0	0	0	0	0
	BE	0	0	0	0	0	0	0	0	0	0
	AR	110.8	358.3	986.1	986.1	986.1	986.1	986.1	986.1	986.1	986.1
	Offset	10,073.5	8,802.5	7,212.4	7,212.4	7,212.4	7,212.4	7,212.4	7,212.4	7,212.4	7,212.4

*The Council recognises where an asset passes out of this plan it will be covered under the wider borough plan for decarbonisation.

Scope 3

Scope 3 emissions are more varied in the source of the emissions and generally are strongly influenced by factors outside of the Council. The Council recognises that over the period the following external trends will have an affect both in the actions the Council needs to take and the carbon emissions that the Council will be able to directly influence in this plan.

- **Asset disposal** - where the Council no longer occupies and pays for the electricity used by a property. This includes where a school converts to an academy.
- **Grid emission factor (T&D)** – where the carbon emission associated transmitting and distributing and electricity across the grid affects the carbon emitted per unit of electricity consumed.
- **Water Emissions** –where the carbon emissions associated transporting water/treatment of waste water from a site affects the carbon emitted per unit of water consumed/treated.
- **Staff vehicles used for business mileage** – the council can influence the ways in which staff travel and incentivise use of carbon efficient or not travelling. However, staff vehicle choice in personal vehicles will influence emissions going forward.

The Council under this plan intend to take action by:

- **Technologies (T)** – to work with developing technologies over the period to increase efficiencies and decrease emissions including in particular Light-Emitting Diode (LED) technologies.
- **Improving building envelopes (BE)** – where viable to increase insulation, install or renew windows and doors to increase thermal efficiency and decrease the gas need to heat to appropriate temperatures

Actions to embed carbon management in the organisation

The following actions are considered essential for ensuring carbon emissions are reduced over the period of the plan.

- Directorate carbon emission reduction targets
- Increase monitoring and baseline to expand scope
- Implementation of the key actions outlined in this plan
- Development of refined monitoring and reporting systems
- Core centralised team with external support to maintain direction and focus
- Annual reporting against annual budgets
- Reduction of annual budgets where previous year has been exceeded (one year lag)

The following emissions sources have been identified as being able to put in place monitoring and baseline to add to the scope at an appropriate time.

- Fleet
- Supply chain
- Services supplied externally

Carbon management plan financing

Parallel to reducing greenhouse gas emissions, the Carbon Management Plan aims to reduce costs on an ongoing basis. This needs to be set against a context of rapidly increasing fuel costs; decreasing resources available to local authorities; and that a high portion of savings being attributed to schools' devolved budgets instead of the Councils core budget.

This Plan will seek to maximise the use of existing resources including the existing planned maintenance programme, new capital investment, and schools devolved budgets. A strong proactive asset rationalisation programme will have a significant impact on the Council's own carbon footprint however it will serve only to shift emissions into the borough wide footprint.

It is the intention to address many of the financing gaps with innovation and partnering arrangements. Examples of this include utilising our estate to generate electricity and creating a further investment partnership with schools for the utilisation of renewable energy sources.

Corporate Funding

In order to support low-carbon projects and programmes, the Council's budget and capital programme includes provision for permanent revenue funding to enable the Council to support borough-wide decarbonisation.

The Council's capital programme totalling around £400 million will leverage carbon reductions across the borough, as schemes will be required to evaluate their impacts, positive and negative on climate change.

The budget includes £7.5 million of dedicated carbon reduction investment between 2020-2024, and £8 million of funding for the Light-Emitting Diode (LED) street lighting programme. The dedicated capital funding will be used to support a range of priorities, including support for energy investment, energy efficiency, and offsetting residual emissions from Council activities. In addition to traditional value for money considerations, these investments will also be considered in terms of which offer the best carbon return on investment, to ensure that activities are appropriately prioritised.

Furthermore, there is not a requirement that this expenditure should only be used to fund 'invest to save' projects; funded projects may exclusively deliver carbon benefits. In this regard, elements of this capital expenditure may be seen as support for the maintenance and repair of the natural environment, in the same way that the Council invests to protect the value of other crucial assets, such as highways or facilities.

Salix funding

Funded by the Department of Business, Energy and Industrial Strategy, Salix has been working with local authorities in England for over ten years.

Salix is able to fund energy efficiency projects across local authority estates, with over 100 energy efficiency technologies supported, including boilers, combined heat and power, insulation, Light-Emitting Diode (LED) and lighting upgrades.

Cheshire West and Chester Council have been using Salix since 2010 for solar photovoltaic installations and street lighting conversion to Light-Emitting Diode (LED).

Monitoring and annual review

Systems to effectively monitor and demonstrate reductions have been selected for the current scope. However, the Council will continue to develop effective methods for analysing and reporting, working with technology and policy as it develops.

Carbon emission management is not a static process. It has multiple feeds of data information, as such, it is recognised that the scope, emissions and targets may need to be adjusted over the lifetime of this document.

This Plan sets out a strategy based on all available information to direct urgent action towards reducing directly influenced and managed quantities of emissions.

The Carbon Management Plan is designed as a working document. The Plan, its effectiveness, and additional actions will be continuously reviewed by the Climate Emergency Steering Group and Climate Emergency Taskforce and updated with public reporting on an annual basis.

Any adjustments to the scope, baseline, targets, additional or adjusted actions will be noted with explanation to the rationale.

Offsetting

The Council recognises that there will be carbon emissions from its services even after following the extensive planned actions to reduce them throughout the life of this plan. These are known as residual emissions and will be offset by certified schemes. The certified schemes are schemes recognised, independently checked, are traceable to source and accepted as reducing quantified carbon emissions.

Following annual review, the Council will purchase offsets to the residual emissions remaining after accounting for all scoped emissions sources.

Examples include:

- the purchase of Renewable Energy Guarantees of Origin Certificates
- investment in directly supplied renewable energy systems
- reforestation and tree planting
- Gold Standard Carbon offsets.

All offsets are to be demonstrated to be additional or accelerated and would not have taken place without the Council offsetting residual emissions.

Governance

Reduction of carbon dioxide emissions from the Councils services to achieve the target needs to be embedded throughout the organisation. There is a need for ownership of this plan to be the responsibility of all staff, it cannot be delivered by one team in isolation.

The success of the Carbon Management Plan will be the result of appropriate, organised and responsible programme governance aligned to existing and created structures to deliver the Climate Emergency agenda.

This framework will ensure that the Carbon Management Plan is effectively scoped, planned and managed. A robust monitoring system will be implemented and reported to the Climate Emergency Taskforce on at least an annual basis. This will ensure that the Carbon Management Plan continues to be managed effectively and in accordance with corporate standards.

Glossary

Term	Definition
BEIS	Government Department for Business, Environment and Industrial Strategy.
Carbon Equivalent (CO ₂ e)	An estimate of how much global warming a given green-house gas may contribute, using carbon dioxide as the reference.
Carbon Management Plan	Council's strategic document detailing actions required and timescales set for achieving reduced carbon emissions.
Carbon Neutral	Describes actions taken that result in no net release of carbon dioxide into the atmosphere, usually as a result of carbon offsetting.
Carbon Sequestering	Process by which carbon dioxide is removed from the atmosphere and stored in a solid or liquid state to mitigate against or help reverse global warming.
Climate Advisory Panel	Group which meets bi-monthly and welcomes members of the public, groups and organisations to discuss issues relating to climate change across the borough.
Climate Change	Global, long term shift in average weather patterns which remain in place for extended periods of time.
Climate Emergency	Recognition that human-induced excess GHG's in the earth's atmosphere are posing an existential threat to life.
Climate Emergency Declaration	Statement of Intent produced by the Council to address, with urgency, GHG emissions across the borough, setting targets to reach carbon neutrality
Climate Emergency Task Force	Cross-party working group set up to better understand, plan for and identify new opportunities and practical actions to tackle climate change across the borough.
Decarbonisation	To reduce the amount of carbon from a process, product, activity, service etc.
Energy Efficiency	Reducing the amount of energy used through better more efficient use of a product or service

EPC Rating	An Energy Performance Certificate (EPC) provides an energy efficiency rating for a building, from A (most efficient) to G (least efficient). An EPC also provides information of the most cost effective ways to improve a building.
Electric Vehicle (EV)	Vehicles which operate fully or partially on electricity
Global warming	A slow and steady increase in the temperature of the earth and its atmosphere.
Green Energy	Otherwise referred to as renewable energy, and produced using renewable sources such as the sun, wind and wave technologies which are less polluting.
Green House Gas	A type of gas that absorbs and emits radiant energy. Most common GHG's are: carbon dioxide (CO ₂), water vapour (H ₂ O), ozone (O ₃), methane (CH ₄) and nitrous oxide (N ₂ O); all of which contribute to the greenhouse effect or warming of the planet.
IPCC	The Inter-governmental Panel on Climate Change is the United Nations Body responsible for communicating the science relating to climate change
Light-Emitting Diode (LED) Lighting	Long lasting, energy efficient lighting
Low Carbon Energy	Energy produced from renewable sources including the sun, wind, waves and nuclear.
Net Zero	The point at which emissions produced are equal to or less than emissions removed – usually by offsetting.
Offsetting	Act of compensating for emissions produced, for example tree planting or carbon capture and storage.
Solar PV	Photo voltaic panels used to generate electricity from the sun
Zero Carbon	Production of no carbon dioxide emissions or CO ₂ e