Sheffield City Council
Annual climate action report 2022/23

Sheffield
City Council

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Introduction

I am pleased to introduce Sheffield City Council's first Annual Climate Progress Report, which outlines the actions that we are taking to tackle the climate emergency.

The climate emergency is arguably the most significant challenge we face globally. The consequences are already affecting us and will have greater impacts in years to come.

In response, the Council declared a climate emergency in February 2019 and, along with many other local authorities, has set a target for the local authority and the city to reduce greenhouse gas emissions to net zero by 2030. These ambitious targets are 20 years ahead of the Government's 2050 target for the UK to reach net zero.

Our target was set in 2019, in the run up to the 26th UN Climate Change Conference of the Parties (COP26), when there was hope that the 2030 target set by many local authorities would influence government to act at pace. Since then, the UK's Committee on Climate Change has published increasingly pessimistic reports of progress towards the government's net zero 2050 target in the UK. There needs to be an urgent step change in approach from government.

Policy, legislation and funding needed has not been delivered at the pace and scale needed. In some areas, funding has been cut drastically and positive interventions, such as the ban on the sale of new diesel and petrol cars from 2030 and the ban on new homes having gas boilers from 2025, have recently been revoked. A lack of clear, consistent national policy and funding for retrofit and solar has also resulted in national skills shortages and supply chain issues.

All of this will make it more difficult for Sheffield and other local authorities who have committed to achieving net zero by 2030, to achieve those targets - in Sheffield, we are seeing this impact on progress towards our net zero target, which is below where we would hope to be by now.

Despite a lack of action nationally, we are making real progress in Sheffield. This includes drawing in millions of pounds of funding to support people to improve the energy efficiency of their homes, particularly people on low incomes and with health conditions affected by cold. We are supporting businesses to reduce their emissions and are improving transport infrastructure to make it easier for people to make healthier travel choices. We are delivering changes that are not only protecting the planet, but saving local people money, improving air quality and health and wellbeing, and supporting our economy to grow and prosper sustainably, long term.

We are proud of the changes that we have achieved, and I would like to thank officers and fellow councillors for the hard work that has taken place behind the scenes. Most of all, I would like to thank citizens and organisations of Sheffield for their determination to join together and help us tackle the climate emergency.

At the same time there is still a lot that Sheffield needs to do, and we are very aware that the scale and pace of progress will need to increase if we are to achieve our ambitions. This ambition must be backed up by support from government and we will continue to make that case. I hope that by outlining our progress and the scale of change needed, we can inspire further action across the city.

Cllr Ben Miskell, Chair Transport, Regeneration and Climate Policy Committee

Context

The human led changes to climate and the existential threat it poses to our society and economy are an accepted fact and, along with the majority of local authorities in the country, Sheffield City Council has declared a climate emergency. We were one of the first local authorities in the country to do so in 2019.

Along with many other local authorities, we have committed to working towards ambitious targets of 2030 for both the local authority itself and the city. Local authorities across the country have a range of targets. Nottingham City Council has a target to be carbon neutral by 2028, many are aiming to achieve net zero by 2030, and there are a variety of targets between 2030 and the legally binding target requiring the UK to achieve net zero emissions by 2050 (there is also a legally binding target for the UK to reduce emissions by 78% by 2035).

National progress towards net zero

The transition to net zero and to adapting to climate change are recognised as being amongst the greatest challenges of our time. There is clear evidence to indicate that the cost of investing in achieving net zero early will be far less costly than delaying or failing to keep global climate increases to a maximum of 1.5 degrees centigrade. However, the up-front investment and socio-economic and political challenges required to make progress at the necessary pace are exceedingly challenging. Governments globally, and local authorities in the UK, are not making the progress that is needed.

The UK Committee on Climate Change reports annually on national progress. In June 2023, the committee reported that their confidence in the UK meeting interim target has decreased in the last year, and that policy change is too slow. Particular attention was paid to the need to reform planning policy, to develop demand-side and land use policies, as well as to develop a consistent public engagement rt individuals to make low carbon choices.

National local authority progress towards net zero

Local authority finance is in crisis nationally and Sheffield, like most other local authorities, is faced with severe challenges. Core funding for Sheffield City Council has reduced by £856 per household or 30% in real terms since 2010 and the Local Government Association estimate that by 2024/25 the real cost of delivering services for local authorities is expected to increase by 29% from 2021[1]. This situation, coupled with the limited progress in national policy and investment, alongside the ongoing challenges of Covid, means that all local authorities are struggling to make the progress needed to tackle the climate emergency, both in terms of reducing emissions and planning for the adaptation that will be needed as the climate continues to change.

[1] Save local services: Council pressures explained | Local Government Association

Sheffield's citywide emissions

City baseline emissions

The 'Pathways to Zero Carbon in Sheffield' report set Sheffield's city baseline emissions at 2,466 $ktCO_2e$[2] in 2017. This was based on carbon dioxide (CO_2) data from the UK local authority and regional greenhouse gas emissions national statistics released annually by the Department of Energy Security and Net Zero (DESNZ), and on methane (CH_4) and nitrogen dioxide (N_2O) data from the National Atmospheric Emissions Inventory (NAEI). The NAEI data is based on location of where emissions are emitted, rather than the end user, and therefore while this gave a good picture, it was not consistent with the CO_2 data from DESNZ.

Since then, improvements have been made to DESNZ's UK local authority and regional greenhouse gas emissions national statistics data:

- The 2022 data release of 2020 emissions included CH_4 and N_2O emissions data as well as CO_2, backdated to 2018.
- The latest 2023 data release of 2021 emissions included CO_2e emissions data, backdated to 2005.

The 2023 data release showed Sheffield's 2017 emissions were 2,580 $ktCO_2e$ and this has been taken as the city's baseline. This dataset will be used from here on for the reporting against Sheffield's net zero target.

The chart below shows that the largest contributors to our 2017 emissions baseline are Housing (30%), followed by Industrial and Commercial (24%), and Transport (22%). Waste management contributes 6%, public sector 5%, and agriculture 2%. LULUCF (Land Use, Land Use Change and Forestry) sequesters carbon rather than emits it, reducing the baseline emissions by 1% in 2017.

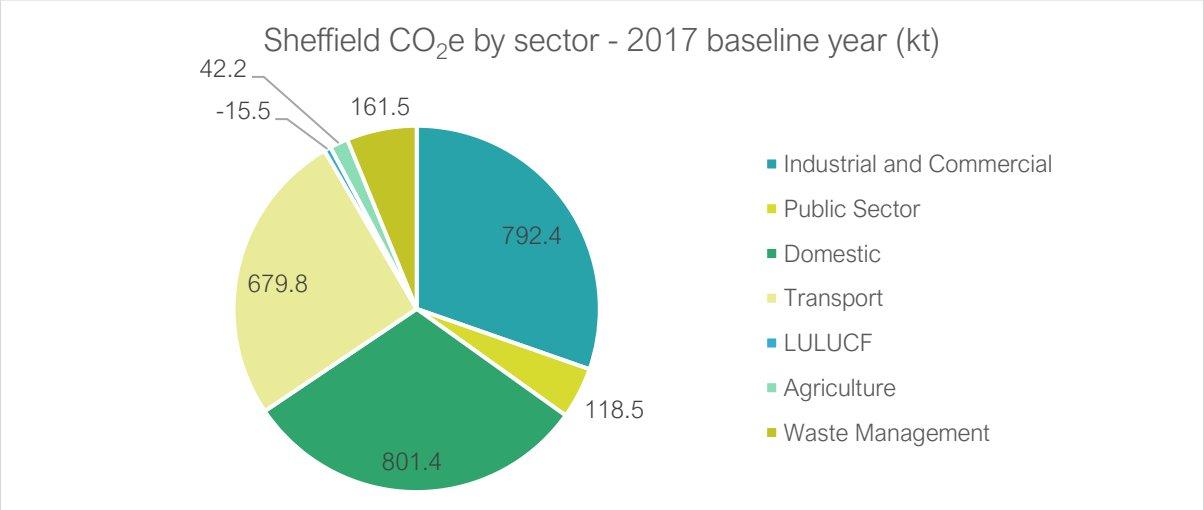


Table: Local authority and regional area greenhouse gas emissions dataset by sector for baseline year of 2017

[2] CO_2e = Carbon dioxide equivalent.

Performance summary

Target	80% reduction in carbon emissions by 2030 Remaining 15% of emissions to be accounted for through large-scale renewable energy generation
Target measure	Carbon dioxide equivalent (CO_2e)
Baseline year	2017
Baseline emissions	2,580 $ktCO_2e$
Current reporting period	2017-2021
Data source	*Local authority and regional area greenhouse gas emissions dataset*

The latest 2021 CO_2e emissions data set released by the Department of Energy Security and Net Zero (DESNZ) shows Sheffield:

- produced 2,270 $ktCO_2e$ in 2021.
- increased annual emissions by 89 $ktCO_2e$ (4.09%) since 2020.
- has reduced annual emissions by 310 $ktCO_2e$ (12.03%) since 2017 baseline.
- needs to reduce emissions by a further 68% to reach the 80% reduction that the Pathways to Decarbonisation report suggested might be achievable by 2030 (the remaining 15% of emissions reductions to reach the net zero target of 95% would need to be achieved by the installation of large scale renewables).

Year	Total ($ktCO_{2e}$)	Annual % change	Baseline % change (cumulative)
2017	2,580	-	-
2018	2,567	-0.51%	-0.51%
2019	2,497	-2.75%	-3.25%
2020	2,181	-12.65%	-15.49%
2021	2,270	+4.09%	-12.03%

Table: Local authority and regional area greenhouse gas emissions dataset for Sheffield's baseline year of 2017 to 2021, the most recent year for which data is available.

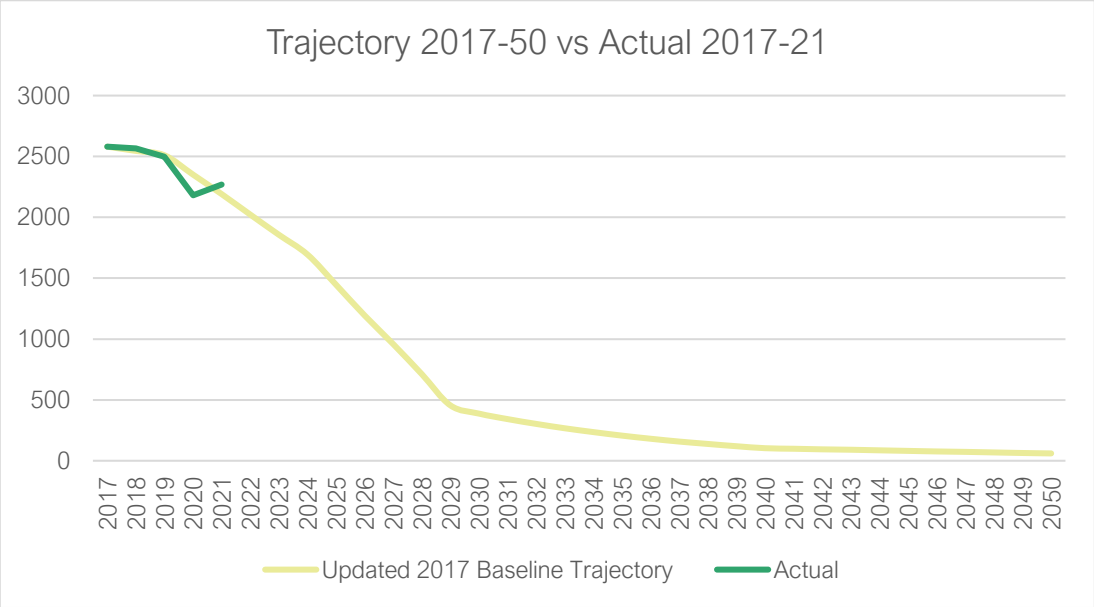
Lockdown measures implemented in response to the COVID-19 pandemic led to a sharp drop in local, national and global carbon emissions due to reductions in travel and other economic activities. Sheffield saw a 12.65% reduction in emissions in 2020 compared to 2019, and while our annual emissions increased again in 2021, they remained lower than pre-covid levels. It is expected that reported levels will increase in 2022.

Future emissions trajectory

ARUP's 'Pathways to Zero Carbon in Sheffield' report provided a high-level trajectory for reducing emissions between 2020 and 2030, by fuel type. This trajectory was based on the original calculation of Sheffield's city baseline emissions, 2,466 $ktCO_2e$ in 2017,

which indicated that emissions might potentially be reduced to 334 $ktCO_2e$ (-85% against baseline) by implementing of their recommended measures and timescales, with the remaining 15% to be achieved by decarbonisation of the grid.

We have updated the trajectory to reflect the updated 2017 baseline to 2,580 $ktCO_2e$ baseline and tracked this against our actual emissions to data.



Graph: Sheffield city emissions trajectory (ARUP 'Pathways to zero carbon in Sheffield' report) updated and apportioned, versus actual emissions;(Local authority and regional area greenhouse gas emissions dataset).

Each year that we miss our trajectory emissions increases the annual emission reductions that we need to achieve needed in the following years, and therefore increases the pace and scale of action required over an ever-decreasing period of time.

If we were to aim to reduce emissions by approximately the same amount each year, we would need to reduce emissions (supported by the largescale generation of renewable energy and the sequestration of carbon) by approximately 232 $ktCO_2e$ annually (9% per year against the 2017 baseline) in order to achieve net zero by 2030.

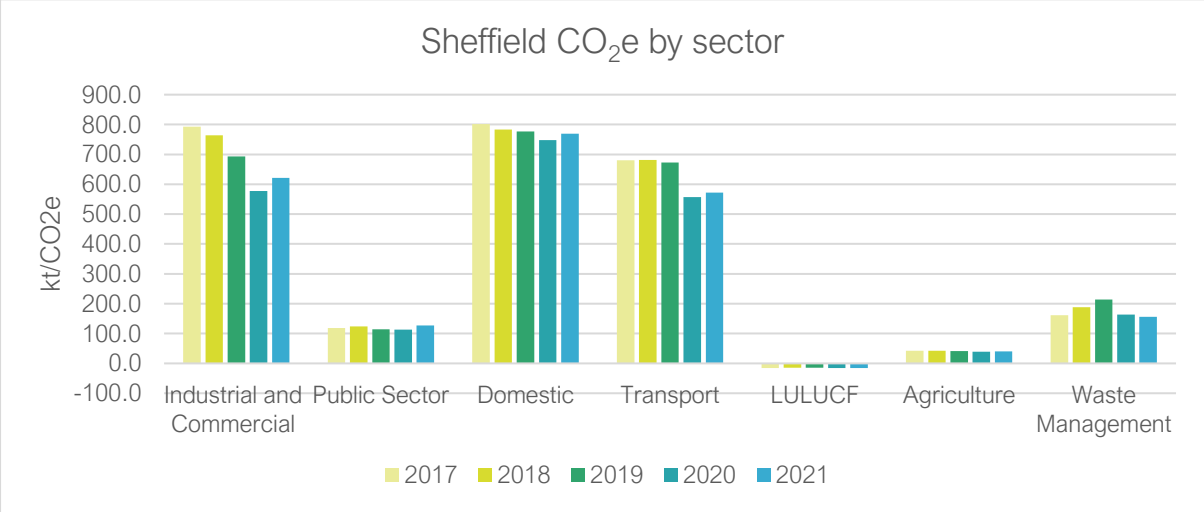
Reductions by sector

The latest 2021 CO_2e emissions data set released by the Department of Energy Security and Net Zero (DESNZ) shows that whilst we reduced emissions as a city between 2017 and 2021, different sectors have reduced at different rates during that period.

Reductions in emissions have been made in five sectors since 2017. Significant reductions have been made by the transport (-15.6%) and industrial and commercial (-21.6%) sectors. This is due in part to the nationwide response to the COVID-19 pandemic when travel and other economic activities were reduced due to lockdown measures.

	2017 Baseline ($ktCO_2e$)	Annual Change (%)				Cumulative change from baseline (%)
		2018	2019	2020	2021	
Emitting sectors						
Domestic	801.37	-2.3	-0.8	-3.8	+3.0	-4.0
Industrial and Commercial	792.43	-3.5	-9.2	-16.8	+7.7	-21.6
Transport	679.80	+0.2	-1.2	-17.2	+2.6	-15.9
Waste Management	161.51	+16.3	+13.7	-23.3	-5.0	-3.7
Public Sector	118.52	+4.6	-7.6	-1.7	+13.2	+7.7
Agriculture	42.22	-0.7	-2.6	-5.6	+3.6	-5.4
Sequestering sectors						
LULUCF	-15.54	+4.2	-0.8	-4.8	+0.6	-0.5

Table: Sector emissions, Local authority and regional area greenhouse gas emissions dataset for Sheffield's baseline year of 2017 to 2021, the most recent year for which data is available.



Graph: Sheffield emissions by Sector Local authority and regional area greenhouse gas emissions dataset for Sheffield's baseline year of 2017 to 2021, the most recent year for which data is available.

Public sector emissions have increased by 7.7% since 2017, with a 13.2% increase between 2020 and 2021. This is considered likely to reflect the increase in public sector activity during the pandemic in response to the public health emergency, especially in critical areas like the NHS and adult and children's social care.

While emissions in the transport, public, and industrial and commercial sectors increased between 2020 and 2021, transport and industrial and commercial emissions remain lower than pre-covid levels. It is likely that an ongoing impact from covid plays at least some role in the lower emissions and that this will not be sustained in future years.

There has been a small increase (improvement) in LULUCF carbon sequestration between 2017 and 2021.

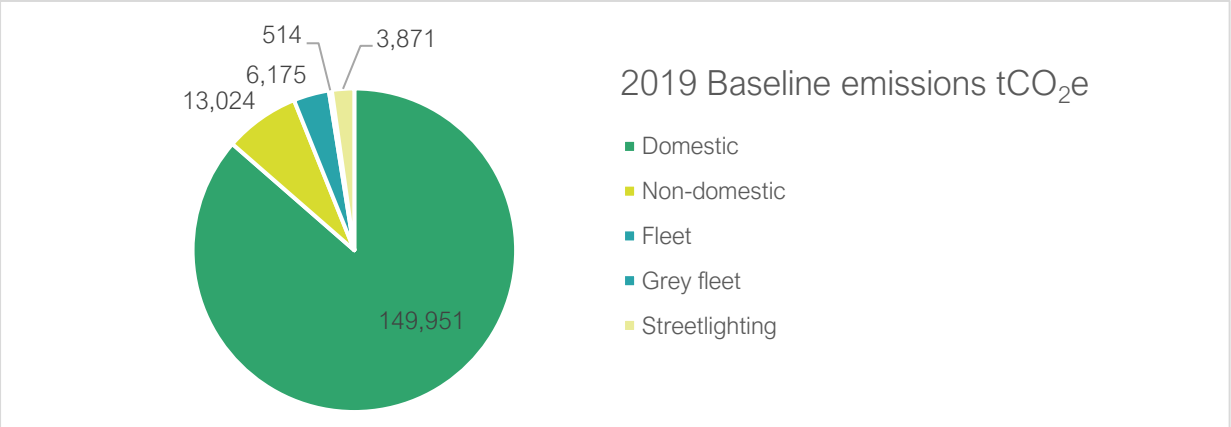
Sheffield City Council emissions

Council baseline

The 'Zero Carbon Pathways for Council Assets' report set Sheffield City Council's baseline emissions at 162,699 tCO_2 in 2019, based on the latest data available at the time. This reflected emissions from our housing stock, some of our operational estate, fleet, including that of our contractors, and streetlighting.

Whilst developing the council decarbonisation Routemap in 2022, it was determined that our baseline emissions and net zero target should include all of our operational buildings and our grey fleet. In addition, it was determined that we should be monitoring and reporting on all greenhouse gas emissions, not just CO_2. As such, our 2019 baseline year has been re-calculated as 173,535 tCO_2e.

The chart below shows that the largest contribution, 86%, of our greenhouse gas emissions comes from our domestic stock; 8% from our non-domestic estate; 4% from our fleet and grey fleet and 2% from our streetlighting.



Graph: Sheffield City Council baseline (2019) emissions by sector

Performance summary

Target	80% reduction in carbon emissions by 2030 Remaining 15% offset through LULUCF measures
Target measure	Carbon dioxide equivalent (CO_2e)
Baseline year	2019
Baseline emissions	175,535 tCO_2e
Current reporting period	2019-2022
Data sources	
Housing	Pathways to Decarbonisation (EPC data)
Non-domestic	Utility consumption data
Fleet	SCC and Veolia fuel consumption. Amey data unavailable, baseline data from Pathways to Decarbonisation
Grey fleet	SCC employee mileage claims
Streetlighting/highways infrastructure	Utility consumption data

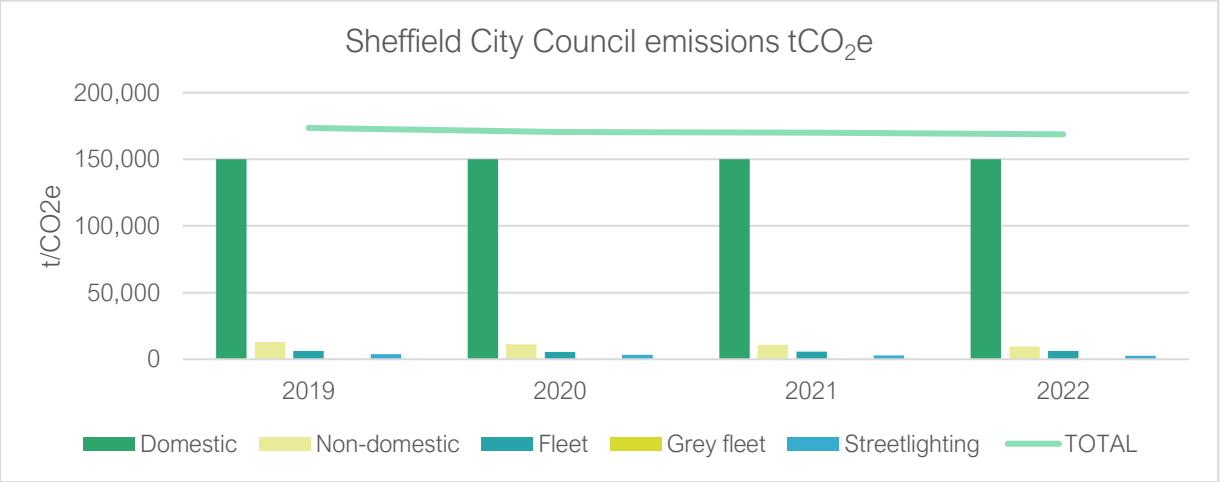
The latest 2022 council CO_2e emissions shows that Sheffield City Council:

- produced 168,742 tCO_2e in 2022.
- reduced emissions by 4,793 tCO_2e (3%) since the 2019 baseline.
- has achieved a reduction every year since 2019.
- needs to reduce by a further 77% by 2030 to reach the net zero target (an 80% reduction on 2019 emissions with remaining 15% being offset via LULUCF measures).

The following table provides a breakdown for each sector and more detail is provided in the sector sections below:

Sector	2019 Baseline (tCO_2e)	Annual Change (%)			% change from baseline
		2020	2021	2022	
Domestic	149,951	unknown	unknown	unknown	unknown
Non-domestic	13,024	-13%	-4%	-12%	-27%
Fleet	6,175	-10%	+4%	+5%	-1%
Grey fleet	514	-36%	+34%	+24%	+6%
Streetlighting	3,871	-13%	-15%	-8%	-32%
TOTAL	**174,724**	**-2%**	**0%**	**-1%**	**-3%**

Table: Sheffield City Council emissions by Sector. Data supplied by SCC services for council baseline year of 2019 to 2022.



Graph: Sheffield City Council emissions by Sector. Data supplied by SCC services for council baseline year of 2019 to 2022.

If we were to aim to reduce emissions by approximately the same amount each year, we would need to reduce emissions in in each sector by the following per cent, per year from 2019 to achieve net zero by 2030:

- Non-domestic 7%
- Fleet 10%
- Grey fleet 11%
- Streetlighting 7%

We are unable to calculate the annual reduction needed in relation to housing emissions due to the lack of up-to-date emissions data since 2019.

Reductions by sector

Domestic emissions

Baseline emissions from the council's housing stock were calculated using Energy Performance Certificate (EPC) data. EPCs are not undertaken each year so do not provide a useful way in which to annually report on the council's housing emissions. During the development of the decarbonisation routemaps, it was determined that this annual report would include a qualitative review of work undertaken within the year to decarbonise the housing stock (p.18), even though actual emissions would not be reported.

We are currently exploring software options that will sit alongside our asset management database to help calculate emissions reductions of our projects as well as developing guidance to help householders understand the savings (both financial and carbon) they can make by undertaking certain energy efficiency measures.

Non-domestic emissions

Emissions from the council's non-domestic estate come from its operational buildings that provide public services. This includes maintained schools, libraries, community buildings, depots, offices and residential settings.

Since 2019, emissions from the council's operational estate have reduced by 27%. In large part, this has been achieved by the decarbonisation of grid electricity which has reduced by around 24% in that period. Estate rationalisation and the conversion of maintained schools to academies in that period have resulted in an 8% reduction in emissions due to the transfer of ownership of assets away from the council.

Council fleet emissions

Since 2019, emissions from the council's fleet (including small mechanical plant) and the fleet of the council's main contractors Amey and Veolia have reduced overall by 1%. Emissions from the council's own fleet have reduced by 3%.

Since 2019, emissions from our grey fleet have increased by approximately 6% (grey fleet emissions data is not accurate as the vehicle type is not recorded for each mileage claim, so average greenhouse gas conversion factors have been used).

Street lighting emissions

The electricity consumption from our streetlighting and other highways infrastructure such as CCTV, traffic lights and other external lighting in public spaces has reduced by 11% since 2019. Coupled with the decarbonisation of grid electricity, this has resulted in a 32% reduction in emissions.

Progress against the 10 Point Plan

Our '10 Point Plan for Climate Action' was approved in March 2022, and sets the framework for our action for the transition to net zero. It is based on the evidence in the Pathways to Zero reports which identify the actions that needs to be taken for the city to become carbon neutral by 2030.

This section covers progress updates for the period April 2022 to October 2023. Where actions in the 10-Point Plan have been superseded by approved decarbonisation routemaps or are specific to a particular Routemap theme, we have included these in the relevant thematic "Key Progress and Achievements" section.

1. We will put climate at the centre of our decision-making.
Investing in our climate education and training. Making climate aware decisions. Making climate action everybody's business. Improving our data.

- The Constitution states under the council functions of each committee that 'when devising policy, evaluating service delivery and taking decisions the committee must consider…climate and biodiversity.'
- A Climate Oversight Board established to provide senior leadership on the council's commitment to be a net zero city by 2030 and support delivery of Sheffield's net zero programme and adaptation to climate change.
- Climate Impact Assessments (CIAs) are carried out for all decisions valued over £500k or affecting more than one ward, at every stage of development to ensure climate impacts and mitigation actions are considered and explored. Officers are encouraged to consider climate impacts of lesser decisions.
- Three online council-wide staff events focused on the climate emergency and the decarbonisation routemaps.
- The council's commitments and approach to tackling the climate emergency is included in employee and councillor induction.
- 155 officers have attended half or full day's training, including the majority of executive directors and directors in post at the time that training was delivered.
- 65% of current elected members have received at least an hour and a half of formal training, with 27 having completed a full day's carbon literacy training.
- Reported to the Carbon Disclosure Project (CDP), an international charity monitoring climate mitigation and resilience progress by organisations and cities. Our first submission in 2022 was scored A-, and in 2023 we retained that score.

2. We will be proactive in finding ways to resource the action that is needed.
Have projects ready for investment. Prioritising climate action in our budgeting. Apply for available government and combined authority funding. Be creative and ambitious in our approach to investment.

- Our investment strategy helps us to prioritise and to identify funding and investment routes for our decarbonisation programme.
- We are engaging with funders and investors, including the UK Infrastructure Bank (UKIB) and the UK Cities Climate Investment Commission (UK3Ci) to explore innovative funding models.
- Partnering with South Yorkshire Mayoral Combined Authority, Connected Places Catapult and other three local authorities on a successful Innovate UK bid. The aim of the project is to build and test an investable regional net zero pipeline, using South Yorkshire as a pilot, employing and embracing a human connected design approach to proactively drive investments into a wide array of regional projects. By incorporating human perspectives, needs, and aspirations into the process, we aim to ensure that these projects not only deliver significant financial returns but also generate meaningful positive impacts on the well-being of the communities and the environment within the region.
- Submitted a proposal to the UK Cities Commission for Climate Investment (UK3Ci) as part of their Net Zero Neighbourhoods programme that aims to attract institutional investment to facilitate the delivery of multiple interventions to scale up delivery and generate efficiencies and wider socio-economic benefits at a neighbourhood level, for Gleadless Valley.
- Climate impacts of spending changes now considered in annual budget setting process, with each budget proposal required to identify impacts and consider appropriate mitigation measures.

3. We will act in a way which supports social justice.
Listen better to the people who will be affected most by interventions. Vary our approach to suit different needs and circumstances. Work with and encourage third party sector and other partners to provide support to those they work with or represent.

- Equality Impact Assessments (EIAs) continue to be required on all council committee and leadership reports, budget proposals, new or reviews of existing policies, projects, service and functions, commissioning or decommissioning proposals and in managing employee reductions.
- Met with a range of equality, diversity and inclusion groups during development of the Our Council and The Way We Travel Routemaps, including Disability Sheffield, Cycling 4 All and Sheffield 50+.
- Prioritise retrofit activity for residents who are less likely to be in a position to act themselves (p.25).
- Provide 75% discount for allotment tenants on low incomes, to help make growing food sustainably more affordable for people, as well as funding initiatives to repurpose surplus food.
- Clarified that residents charging an electric vehicle by trailing a cable across the pavement, or hanging it overhead, is considered a hazard, in particular for those with limited mobility, and therefore is not currently permitted even with the use of cable protectors or ramps.

- Continued to apply for external funding for tree planting which largely focuses on improving canopy cover in areas of the city where it is lowest. These areas tend to be areas of higher deprivation and planting includes 4500 hedging whips being planted in Shirebrook Valley.
- Support and training has been funded by Local Area Committees to support communities to better maintain existing community orchards in Beighton and Darnall, supporting tree health and providing opportunities for communities to have access to affordable, fresh and sustainably produced food.
- Community tree planting has been carried out in or adjacent to a number of schools in areas with low canopy cover including Arbourthorne, Chaucer, Intake Primary, Lowfield and Norfolk Park Community Schools, improving conditions for children.

4. We will work towards reducing council emissions to net zero by 2030.
Decarbonising homes. Using our land and assets to further our ambitions. Decarbonising our fleet. Our role as an employer.

- Point 4 of the 10 Point Plan, relating to decarbonising our council, has now been superseded by the decarbonisation Routemap 'Our Council'. Updates relating to this are covered in the section on council progress at pages 18-21.

5. We will work to bring the city together to make the changes that we need.
Listen to the expertise that exists within our city to help develop our plans and interventions. Encourage action and collaboration to allow action at scale. Create ways for people and businesses to invest in our future.

- Sheffield City Council became a partner in the South Yorkshire Sustainability Centre, a £5m Research England funded programme led by the University of Sheffield.
- Held a climate summit under the umbrella of Sheffield's Health and Wellbeing Board to bring together organisations across the city and from South Yorkshire Mayoral Combined Authority to raise awareness of climate. Organisations shared progress and pledges, connections were made, and ideas generated.
- Work in partnership with a wide range of organisations across all areas, referenced in relevant thematic areas and in the "Regional and national partnerships" section at page 33.

6. We will work with the city to develop routemaps for the areas where change needs to happen.	
Our council. The way we travel. Our homes. Energy generation and storage.	Our business and economy. How we use our land. What we buy, eat and throw away.

- Worked across services and external partners to develop the Our Council and The Way We Travel decarbonisation Routemap chapters, which were approved by the Transport, Regeneration and Climate Policy Committee on 19th July 2023.
- Incorporated development of the Our Homes Routemap into the developing Housing Strategy 2024-34, under the draft objective "Housing fit for a net zero future".

7. We will work with and support people, businesses and organisations to take action that is needed
Understanding the motivations and barriers facing people and businesses. Providing information and inspiration. Maximising the funding available to businesses and individuals in the city. Finding ways to make it easier for people to take the action that is needed.

- Funded the development of a package of support and resources delivered through Learn Sheffield to support schools to decarbonise.
- Improved our climate emergency web pages to include more information about how to act on climate change and are liaising with the South Yorkshire Climate Alliance on their project to support community action.
- Accessed grant funding to deliver a range of interventions to support people, businesses and organisations to decarbonise, referenced in the relevant sections.

8. We will work to build the skills and economy we need for the future.
Stimulating and celebrating Sheffield's low carbon economy. Building skills to deliver the transition. Educating children, young people and communities.

- Content on the economy and skills is covered in the Business and Industry Routemap theme update.
- The funding provided to Learn Sheffield to support schools to decarbonise has also provided resources to support the curriculum with climate education.
- In October 2022, King Edwards VI School hosted the 2nd UK Schools Climate Assembly. This brought together young people from across the country and from a variety of Sheffield schools and was supported by Conference Sheffield and the Sustainability and Climate Change Team.

9. We will work to ensure we have the planning and infrastructure we need for the future.
Using the planning system to support our ambitions. Ensuring our energy infrastructure is fit for purpose. Investing in our transport infrastructure.

- The developing Local Plan addresses climate change through the choice of spatial strategy and by inclusion of policies in the Plan that embed sustainable principles within the decision-making process relating to development proposals. The Plan has

been submitted to government, with adoption expected by December 2024. Relevant elements of the Plan are included in How We Use Our Land at page 28.
- Updates relating to 'ensuring our energy infrastructure is fit for purpose' are covered in the section on Energy Generation and Storage progress at page 31.
- Updates relating to 'investing in our transport infrastructure' are covered in the section on The Way We Travel progress at page 21.

10. We will prepare the city to adapt for a changing climate.
Develop our understanding of the impacts of climate change on our city, and on the people who live and work here. Create a resilience plan for the city. Future-proofing our city. Supporting our people and businesses to adapt.

- Partnered on a project led by the Met Office to develop Climate City Packs, which provide high-level, non-technical summaries of climate change projections for individual cities and towns. This provides us with information about the potential future climate in Sheffield.
- Worked with University of Manchester to access the Sheffield data behind their Climate Just web-tool. This is now hosted on our Local Insight webtool for organisations across Sheffield to access.
- Serve as a local authority representative on the Yorkshire and Humber Climate Commissions (YHCC) Resilience Working Group, which is responsible for the delivery of the resilience and adaptation actions in the YHCC action plan. This includes being part of a one-year programme to pilot the development of service-level climate adaptation plans.
- Highlighted climate adaptation in our Corporate Risk Register and to address this all council services will be required to consider the risks from climate change for their service and how they will plan to adapt to climate change. The process for this is currently in development.
- Despite extreme rain events in recent years, flood prevention activity across the city has meant that Sheffield has not experienced a repeat of the severe flooding experienced in 2007. Flood defences completed in the Upper and Lower Don Valley and Sheaf have held well in recent extreme rain events and although we have experienced some localised flooding in a number of locations across the city, our improvements and property flood protection installed by homeowners have prevented a repeat of the damage experienced in 2019, preventing flooding to over 200 homes and businesses.
- Delivering the Flood Risk Management Strategy and our £120m citywide flood protection programme, including building defences, storing floodwater in open spaces and using natural flood management measures in the higher ground above the city.
- Completed the Upper Don Phase One Flood Alleviation programme. Funded by the Environment Agency, Sheffield City Council and the South Yorkshire Mayoral

Combined Authority, the £11m scheme better protects 152 businesses and 63 homes along the River Loxley from Malin Bridge to its confluence with the River Don. This will significantly reduce risk to the communities of Hillsborough and Owlerton, which suffered flooding in 2007 and 2019, providing security and reassurance for residents and confidence for businesses to invest and grow into the future.

- Completed natural flood management capital project works delivered by Sheffield City Council, the Environment Agency and Sheffield and Rotherham Wildlife Trust in the Limb Valley, and the Environment Agency funded Steel Valley Project in Stocksbridge and Bradfield.
- Current major works in delivery include new Grey to Green and sustainable urban drainage (SuDS) within the regeneration of Fargate, West Bar and Tenter Street.
- Working with partners on the Connected by Water to reduce flood risk through surface water management, aligning with Yorkshire Water asset management plans and sewer overflow.
- People and businesses are supported to prepare for and adapt to flood risk through visits from our Flood & Water team, as well as through working with colleagues in other services such as Business Sheffield, Amey and Highways Services.
- A new flood awareness campaign in partnership with DEFRA and Local Area Committees is being carried out over the winter.
- Beaver feasibility studies continue to assess the impacts of reintroducing beavers into the landscape. Studies have widely shown that these 'ecosystem engineers' slow the flow through creation of dams which hold back water.
- Sheffield City Council is part of the South Yorkshire Woodland Partnership which works collaboratively to increase tree canopy cover in the region.
- Sheffield Housing Company continue with implementation of a further SuDS on Manor Fields Park. This has been possible through the council led Three Brooks flood project which provided the intelligence to design this 2000m3 wetland to temporarily store flow from the Kirkbridge Dyke when in spate. This upstream work allows the housing to drain at a higher rate removing the need for huge underground tanks but also generates wildlife habitat, attractive landscapes and income to manage this part of the park.
- Stonebridge Housing continue to build the SuDS that serves their site at Deepcar. This wetland basin will be adopted by Sheffield City Council and contribute to the connective blue green infrastructure that links to Fox Glen. The SuDS will control flow to mimic the greenfield site that was previously there before development and remove pollutants from road run-off ensuring the brook is protected.
- Barratt Homes are near completion of a small bioretention SuDS at Oughtibridge. This captures pollutants that typically get washed off roads in small rainfall events whilst also adding new greening/biodiversity to the residential street. In our climate over 90% of rainfall events are small (10mm) and typically do not make it to a watercourse as they are lost into soil or into the air in a natural landscape. These bioretention features mimic nature by ensuring these 'losses' and thus avoid adding to the flashiness typical of urbanised rivers where all rainfall events find their way off hard surfaces.

Key thematic progress and achievements

This section covers progress updates in the seven Routemap themes for the period April 2022 to October 2023.

Our Council

Our domestic stock is decarbonised by improving the building fabric, reducing consumption and transitioning to renewable energy

- Funded with match funding from the Housing Revenue Account (HRA) capital programme:
    - Secured £4m of Social Housing Decarbonisation Funding (SHDF 2.1) which will upgrade 374 council homes currently below Energy Performance Certificate (EPC) C to bring them up to that standard. It will support the installation of energy performance measures to help deliver warm, energy efficient homes, reduce carbon emissions, tackle fuel poverty, support green jobs, develop the retrofit sector and improve the comfort, health and wellbeing of our social housing tenants.
    - Local Area Delivery Fund 2 (LAD2) – 120 properties benefit from energy efficiency measures.
    - 354 homes will have their external walls insulated under External Wall Insulation (EWI) phase 2, which went live in October 2023 and External Wall Insulation (EWI) phase 3, which went live in July 2023.
- Undertaken electrical upgrades to 2,836 homes and installed 1,197 new boilers, improving the efficiency of those homes and reducing costs for tenants.
- Currently exploring Energy Company Obligation (ECO4) funding to support energy measures within council housing and working to identify properties within scope of the eligibility.
- Approved funding for feasibility work looking to connect four housing sites to the Veolia District Energy Network.
- Commissioned consultants to develop a ‘roadmap’ to drastic carbon emissions reductions which will provide a baseline of technical information and evidence to inform the measures required to decarbonise social housing (this is different from the Routemap which covers both social and private sector housing and is higher level). A final report is due to be published in Spring 2024.
- Berners Road and Daresbury View Stock Increase Programme Schemes are delivering 73 units across the two sites. In comparison with the notional building, these are expected to achieve average CO_2 reductions of 5.6% and 6.9% respectively and an average total reduction in energy of 21.9% and 20.7% respectively. 63 houses have been completed, and the apartments are due for handover Q3 2023/24.

Our non-domestic and commercial stock is decarbonised by improving building fabric, reducing consumption, and transitioning to renewable energy

- Delivered £1.5m of decarbonisation projects (£1.1m secured from Phase 1 of Public Sector Decarbonisation Scheme) including draught proofing and a new building energy management system at Town Hall; air source heat pump, 20kWp solar PV and LED lighting at Acres Hill Store and LED lighting and 32kWp solar PV at Moor Market.
- Continued to remotely manage heating and controls through our building energy management systems installed in 60 schools and 15 non-domestic buildings, helping to reduce energy inefficiencies.
- A £3.5m allocation for energy efficiency and renewable energy projects on council buildings has been made available, known as the Local Renewable Energy Fund (LREF). Buildings have started to be identified and energy audits have been undertaken on a first tranche.
- £64k of LREF funding was used to match fund the Department for Levelling Up, Housing & Communities (DLUHC) Rough Sleeping Accommodation Programme for the provision of six one-bedroom units of move-on accommodation. The funding from the LREF was used to fund solar PV, solar assisted hot water systems and upgrade building fabric above building regulation standards. This scheme is our first net zero operational carbon housing project.
- Reduced ICT infrastructure leading to reductions in energy consumption. In addition, power settings on laptop devices have been altered to reduce energy consumption, in line with Microsoft best practice. Improvements to server rooms including more efficient air conditioning units and installation of LED lighting have also led to efficiency savings.
- Included ten council buildings in the North-East & Yorkshire Net Zero Hub Public Sector Decarbonisation programme, resulting in two heat decarbonisation plans and eight desk top studies.

Our fleet is decarbonised by reducing mileage and replacing our fleet with decarbonised vehicles

- Introduced 72 electric and seven hybrid vehicles to our fleet since 2019.
- Currently in the 4th year of our six-year fleet replacement programme, which will see 105 unsustainable and operationally inefficient vehicles and plant, such as equipment used for grounds maintenance, replaced, in addition to the 476 vehicles and plant already replaced, this is also leading to reduced maintenance costs of old fleet.
- Services use route planning to reduce mileage and increase journey efficiency as well as managing driver behaviour to increase efficient driving.
- Where possible, we have reduced the size of vehicles, including the introduction of 26 smaller wheelchair accessible buses.
- 49 electric vehicle charges have been installed at our depots.

- Veolia are working to improve the efficiency of their fleet and are running anti-idling campaigns and driver training as well as using smaller vehicles where possible.
- Launched an electric car benefit scheme to help our employees access electric vehicles and choose less polluting ways to travel.

Our street-lighting is decarbonised by reducing energy consumption

- Converted all the old sodium, yellow glow traditional streetlights to lower consumption, bright white LEDs.
- Invested in a new comprehensive control system (Telensa), which provides an enhanced capacity to adjust the timing and intensity of lighting on individual lighting columns.

Our land management supports the council's and city-wide net zero target

- Sheffield Tree and Woodland Strategy includes a headline target to plant at least 100,000 additional trees and replace trees on a two for one basis in our greenspaces and woodlands between 2018 and 2028. They will be planted across the whole city, but largely in the areas where tree coverage is lowest, and the health benefits will be greatest. During the 2022/23 winter planting season the Community Forestry service planted 8679 trees in our schools, greenspaces and woodlands, working with schools and communities. Over 10,000 per year have been planted on average since the approval of the Strategy so we remain on target.
- The Sheffield Street Tree Partnership, including Sheffield City Council, Amey, Sheffield and Rotherham Wildlife Trust, Sheffield Tree Action Group and the Woodland Trust amongst others, is working to ensure the sustainability and increase of Sheffield's street trees. Sheffield has been accredited as a Tree City of the World in 2021 and 2022 and intends to reapply for 2023 accreditation. It has also achieved Trees Outside Forests certification for sustainably managing our trees. We are part of the Trees for Streets programme which enables communities to sponsor and fundraise to plant new street trees. We intend to plant 156 trees through this scheme in the 23/24 planting scheme.
- Secured £143,000 funding through the Woodland Creation Accelerator Fund to accelerate tree and woodland planting.
- Sustainable Drainage Systems (SuDS), including schemes at Manor Fields, across council parks and countryside protect the city from flood risk and extreme heat and to capture carbon from the atmosphere to offset residual emissions.
- Rural Estate Management Plan approved in April 2023. Two of the five objectives are focused on tacking climate change:
    - Low Carbon Economy, Renewable Energy and Climate Change: To contribute towards the council's net zero, environmental and sustainability targets.
    - Integrated Land Management: To utilise the rural estate to maximise the provision of ecosystem services, reduce emissions and address the nature and climate emergencies; utilising nature-based solutions in collaboration with third parties where appropriate. The Parks and Countryside Service currently manages 98.3ha of grassland with relaxed mowing regimes and have an

ongoing commitment to review and implement alternative approaches to intensive grass cutting to support addressing the nature emergency and increasing biodiversity within the city's green spaces, with consideration also being given to how carbon emissions can be reduced.

Our procurement, governance and decision making will support the council's and city-wide journey to net zero

- Committee decisions that are over £500k or affect more than one ward are required to include a Climate Impact Assessment (CIA). In addition, capital business cases are required to include a CIA irrespective of value.
- A new Commercial Strategy is in development, including an Ethical and Sustainable Procurement Policy.
- Tendering increasingly requires contractors to evidence their contribution towards reducing emissions. For example, the schools catering contract includes requirements which contribute towards emissions reductions and the creation of a more sustainable food offer. This includes the provision of locally supplied meat, with a 40% reduction in beef consumption; use of fairtrade and other sustainably procured products; the growing of own herbs and vegetables for use in the school kitchen and a compost scheme for food waste.

Our employees are carbon literate and fully engaged in the council's journey to net zero

- Since 2021, we have 12 Repairs and Maintenance employees trained to install air source heat pumps and a further six employees have recently received training at Sheffield College. This will put us in a position to install air source heat pumps to industry standards.
- Eight employees in the Housing Service have been trained in retrofit skills; three to retrofit coordinators, two to retrofit assessors and three to retrofit advisors.
- Six Repairs and Maintenance employees completed a solar PV installation course in Autumn 2023, and the service are in the process of gaining Microgeneration Certification Scheme accreditation.
- Parks and Countryside Service continue to recruit to and develop their apprentice programme to reflect the changing skillset needed to understand and tackle the climate and biodiversity emergencies and changes in land management techniques and approaches.

The Way We Travel

Strategic decisions taken in line with a clear vision and policy

- Transport Review undertaken by Strategy and Resources Policy Committee, resulting in a commitment to deliver a Sheffield Transport Plan.

- The Way We Travel decarbonisation Routemap approved by the Transport, Regeneration and Climate Policy Committee.
- Currently supporting the South Yorkshire Mayoral Combined Authority with the development of the South Yorkshire Local Transport Plan.

Improved routes and facilities that enable as many people as possible to make journeys by walking, wheeling and cycling

- Continued to deliver scheme within the Connecting Sheffield programme.
    - Kelham Neepsend active travel scheme under construction.
    - Temporary Active Travel Neighbourhood Scheme in Crookes and Walkley approved to become permanent.
    - Temporary measures to improve Sheaf Valley cycle route approved for construction.
    - Meadowhall Interchange cycle hub now open.
- Continuing delivery of 20 new pedestrian crossing across the city, including working with Local Area Committees on their priority sites.
- Under the Traffic Management Act 2004 Part 6, we are developing 'Camera enforcement of moving traffic' schemes at Queens Road/Bramall Lane, Upper Hanover Street/Glossop Road and Hoyle Street, which will make our roads safer and less congested, and enable safer active travel participation.
- Transport Regeneration and Climate Policy Committee approved the first phase of the Kelham/Neepsend parking scheme.
- Residential cycle parking scheme now in delivery, with covered lockable hangers being trialled in Walkley and Crookes, and a City Centre hub currently in development.
- 47 Sheffield schools are ModeshiftSTARS accredited, with data from the schools showing a clear decrease in car use and an increase in walking, cycling and scooting. We have also recently recruited two extra school engagement officers to support these schools further, and more schools moving forward.
- We now have nine permanent school street in place across Sheffield, three schools running long-term trials and a further two in the planning stages.
- Launched BetterPoints Sheffield to inspire citizens across the city to get around in more sustainable and healthy ways by rewarding points that can be exchanged for either Sheffield Gift Cards (accepted by over 80 city centre businesses), or donations to The Children's Hospital or S6 Foodbank. 3,704 users had signed up within 14 days of the launch on 25/09/2023.
- Continued to partner with A Different Gear to deliver CycleBoost, which aims to promote active travel and encourage more people to replace shorter car journeys with cycling through training and bike loans. The new scheme started Summer 2023, with 46 loans by September and 76 on the waiting list.
- Allocated £137,710 revenue grant for 2023/24 to deliver a program in partnership with Cycle North to provide Bikeability cycle training for children and young people attending education and training, and to train additional Instructors. Over 6,000 children completed this training between Apr-22 and Sept-23.

Improved low carbon public transport network to provide attractive alternatives to private vehicles journeys

While the council is not the Transport Authority for Sheffield, we work with the South Yorkshire Mayoral Combined Authority (SYMCA) to deliver improvements to our public transport system, primarily journey time reliability and accessibility at bus stops:

- Clean Air Zone (CAZ) funded temporary Arundel Gate Bus Gate went live in March 2023. This restricts all traffic except buses, taxis and private hire cars to provide increased public transport and cyclist priority to ease congestion and support faster journey times and improved air quality. We are currently developing the proposal for a more permanent solution.
- Development of two bus priority schemes in progress for Upper Don Valley area, and Northern Communities to City Centre, and a scalable bus improvement project for A61 Chesterfield Road, through the City Region Sustainable Transport Settlement programme (CRSTS).
- £100m allocated to the Tram Mass Transit renewal by SYMCA and SuperTram, which will be delivered by SYMCA.

Goods and services provided via a consolidated low-carbon LGV/HGV and freight/delivery system to reduce vehicles and road traffic

- The Way We Travel Routemap, which outlined action we will take to consolidate freight in Sheffield over the next two years, was approved.

Decreased vehicles emissions and improved air quality through a shift to electric and zero-emission vehicles

- Established internal Electric Vehicle Steering Group to co-ordinate and progress activity across the council.
- Funding in the region of £1m was made available by the Department for Environment, Food and Rural Affairs (DEFRA) via the Clean Air Fund, and we have commissioned a scoping study to support delivery of a minimum of 14 rapid and nine fast chargers.
- EV Public Charging Infrastructure Short-term Action Plan approved by Transport, Regeneration and Climate Policy Committee.
- Introduced a Class C clean air zone covering the inner ring road and city centre.
- All 48 of the original sites under the SYMCA EV Charging Infrastructure Project went live, funded by the government Getting Building Fund (GBF) through SYMCA. The project has been extended to deliver four further chargepoints.
- Secured £84,230 from the On-street Residential Charging Scheme (ORCS), funded by the Government Office for Zero Emissions Vehicles (OZEV) towards delivery of 22 7kW chargepoints across nine proposed sites, including on-street and carparks.
- Supporting SYMCA with the development of a South Yorkshire EV Infrastructure Strategy (expected spring 2024) and Local Electric Vehicle Infrastructure (LEVI) capital fund application.

- Department for Environment, Farming and Rural Affairs (DEFRA) funded electric taxi trial scheme ended with 99 trials having been completed.
- Extended the Highways England funded electric van trial scheme for an additional six months until February 2024. This offers organisations the chance to trial an electric van to support accelerated uptake. To date, 244 trials are in progress or have been completed, with 20 more scheduled to complete by 8th March 2024.
- SYMCA approved the acceptance of LEVI Capability Fund grant from the government, and onward award of said grant, £125,000, to Sheffield City Council for the recruitment of a Principal EV Officer for two years.

Our homes

The Decarbonisation Routemap covering Our Homes is being developed as part of the Housing Strategy 2024-2034.

Housing fit for a net zero future

- Established the Housing Energy Efficiency Team within the Housing Service. The team focusses on delivering grant funded schemes, strategic priorities such as fuel poverty, and horizon scanning of innovative delivery and financing approaches to deliver net zero housing in Sheffield.
- Secured approximately £250,000 from the North-East and Yorkshire Net Zero Hub's Local Energy Advice Demonstrator (LEAD) fund to support former right-to-buy homes participate in schemes being delivered to council homes across eight estates by engaging with right to buy owners to explain work being carried out and the benefits, offer a free EPC and full retrofit survey, and provide advice and signposting to potential grant support.

Good quality, safe and comfortable homes

- Broadened eligibility to the installer-led scheme Energy Company Obligation (ECO4) to include fuel-poor and vulnerable households that are not in receipt of means-tested benefits, but who may benefit from heating and energy-saving measures through the ECOFlex initiative, increasing the number of people eligible for help. In the first six months, we have achieved:
    - 133 declarations signed.
    - 29 properties fully completed with 126 measures including first time central heating, room in roof insulation, boiler upgrades, thermostatic radiator valves, programmers and thermostats, loft and internal wall insulation.
    - Of the 29 properties, 21 have increased by two EPC bandings, four by three bandings and four by four bandings with 26 now achieving a C and three achieving D.

    - Total expected annual bill savings for 29 properties £24,474.87 (Average £843.96).
    - Highest bill saving for one property £2262.49 per year.
- Launched Warm Homes Sheffield, a partnership with energy experts AgilityEco, that provides a single route to access energy advice and different sources of grant funding to help Sheffield residents to reduce energy use and stay warm and well:
    - Launched Sheffield's Connected for Warmth project which offers fully funded cavity wall insulation and loft insulation to homeowners and private rented tenants in homes that are in Council Tax bands A- D and have an EPC rating of C or below. Households may also benefit from other support such as heating controls, air source heat pumps, smaller energy saving measures and personalised energy advice.
    - Secured £4 million of DESNZ funding through Home Upgrade Grant (HUG2) and launched a fully funded, free-of-charge scheme to improve energy efficiency. This aims to help 200 homes of eligible low-income owner occupiers and private rental tenants living in poorly insulated properties that are not heated by mains gas. Potential energy efficiency measures include insulation, air source heat pumps and solar panels, and are installed through Warm Homes Sheffield.
    - The council was recognised as being highly commended in the Council of the Year category of the Yorkshire Energy Efficiency Awards for this partnership.

More homes and housing choice

- Detail on Local Plan policies can be found at pages 28-29.

Supporting a local retrofit supply chain

- Solar PV and heat pump installation training is now being delivered by Sheffield College, in partnership with Sheffield City Council, to improve skills and capacity in the city, with two cohorts currently being trained and recruitment for further cohorts underway.
- Secured funding for insulation training to be delivered on site in employers' premises where possible.
- Innovation Fund application being submitted to SYMCA by Sheffield College in partnership with Sheffield City Council to expand the retrofitting skills offer.
- Instructed that Warm Homes Sheffield (see above) should give preference to using Sheffield's local suppliers where possible, to support and develop the local retrofit supply chain.

Our businesses and industry

The Routemap covering our businesses and industry is scheduled to be developed during 2024. Despite this, work is already taking place to address these areas.

We will maximise the funding and support available to businesses and individuals in the city to transition to net zero

- Low Carbon Business Support Programme ran between January 2021 and June 2023 and provided 156 energy audits for Small and Medium sized Enterprises (SMEs) across the four local authority areas in South Yorkshire. This has resulted in 72 low carbon grants to SMEs to support them to implement carbon reduction measures and reduction in greenhouse gases (GHG) equivalent to 597.08 TCO_2e, exceeding the contract target of 450TCO_2e and at least £541,964 of SME match funding was secured to support £1,173,948 total investment in carbon reduction measures. In addition to emissions reductions, energy costs for businesses are reduced and customer experience improved in some cases.
- Shared Prosperity Funding has been secured to continue the project. Again, Sheffield will act as the accountable body for the South Yorkshire wide project. £1,291,899 has been committed for Sheffield businesses, which will fund a Specialist Advisor to support SMEs and targets to deliver 104 energy audits and sustainability plans, and 87 grants to Sheffield SMEs. The aim is to save 475 tonnes of carbon per year for Sheffield businesses.
- £2.3m of Shared Prosperity Funding has been allocated to support cultural and community organisations to decarbonise their venues and buildings, with a target to reduce emissions by 520 tonnes of carbon per year, also saving organisations money.
- Partner in the South Yorkshire Sustainability Support Consortium, a partnership of the various organisations in South Yorkshire offering funded advice and support to businesses on sustainability. The consortium has held a range of events for businesses, based on their needs, with themes including getting buy in for action; carbon measurement; supply chain and procurement and common pitfalls on the sustainability journey.
- The Economic Recovery Fund (ERF), a grant funding scheme supporting work to improve local high streets and encourage residents and visitors to spend their time and shop there. Applicants were asked to consider the climate impacts of their proposals, how these could be mitigated, and additional climate-positive actions introduced. The scheme provides a series of training sessions to successful applicants, one of which is intended to be around Climate Awareness. Several of the awarded grants have projects which will benefit the climate or nature in their area, including Greener Greenhill, Crookes and Westfield.
- Sheffield City Council have supported publicly accessible swimming pools in Sheffield to apply for a Swimming Pool Support Fund - a government funded

programme aiming encouraging the leisure sector to transition to a position of environmental and financial sustainability. In Phase 1 of the programme, Stocksbridge Community Leisure Centre has been awarded £78,942, in the form of revenue grant. Phase 2 of the programme focuses on capital interventions which will reduce energy usage and carbon output of facilities. Sheffield has submitted an application totalling £440,000 for energy saving capital interventions across four swimming facilities (Zest Centre, King Edwards Swimming Pool, Stocksbridge Community Leisure Centre and Heeley Swimming Pool).

We will stimulate and celebrate Sheffield's low carbon economy

- The South Yorkshire Innovation District (formerly referred to as the Advanced Manufacturing Innovation District or AMID) commissioned the High Value Manufacturing Catapult (HVM Catapult) to explore and provide insights into the current innovation capabilities and how these can be applied to realise emerging economic opportunities for South Yorkshire in the advanced manufacturing sector. The final report (2023) identified clean energy, including (including electrification, hydrogen, and nuclear) as emerging market-driven opportunities where Sheffield has distinctive research and technological knowledge to develop and deploy commercial solutions, and offer substantial business and job growth prospects to the advanced manufacturing sector within South Yorkshire.
- Sheffield participated in the Global Destination Sustainability Index (GDS-Index) for the first time in 2023, working on a collaborative project with Visit England and the Core Cities. The GDS-Index measures and benchmarks the sustainability performance of tourism destinations, to drive innovation and regeneration of the tourism industry. Sheffield scored 43.9%, which GDS-Index has confirmed is very good for a first-year entrant, scoring particularly highly on the environmental elements. We are now developing an improvement plan to support the tourism industry in Sheffield to become more sustainable.

We will build skills to deliver the transition to net zero

- We have worked with Sheffield College to establish short courses for experienced workers to be trained to install solar panels and heat pumps for electricians and plumbers respectively. These courses are free to learners and are now available on an ongoing basis.
- Through our Adult Education Budget (AEB) we have commissioned training in skills for a 'greener economy', these include construction and building skills courses that will improve energy efficiency and the sustainability of our built environment. These activities will upskill / reskill residents and employees to remain in work or find work as the green economy evolves.
- Using community learning activities to develop and promote awareness, responsibility and understanding of environmental sustainability and the steps that individuals can take to protect their environment. This is done through embedding sustainability into foundation level adult learner curriculum. These activities will

enable residents to become more conscious, active citizens who recognise there is a global concern and that we all have a responsibility to protect the environment.

How we use our land

The Routemap covering how we use our land is scheduled to be developed during 2024. Despite this, work is already taking place to address these areas. Further detail is also included in the 10 Point Plan section on climate adaptation at pages 16-17.

Using our planning and regulatory powers to progress towards net zero and future-proof our city

- The climate emergency has been the key factor in determining the overall spatial strategy in the Local Plan. The Draft Local Plan was submitted to the Government for examination in October 2023 and is expected to be adopted by around the end of 2024. The approved strategy means concentrating future growth in the existing urban areas with a particular focus on the Central Area of Sheffield (the City Centre and areas immediately outside the Inner Ring Road). We plan to deliver around 20,000 additional homes in the Central Area over the period to 2039 (the end date of the new emerging plan). This equates to over half the city's housing growth (35,530 homes) over the plan period but concentrates new homes in the most accessible locations where there are opportunities to access jobs and local services by foot or by cycle. We are making a conscious decision not to extend the existing built-up areas outwards because this increases the need to travel. Densification of the existing urban areas also helps to support the viability of public transport. The only land in the Green Belt to be allocated for development are brownfield sites in sustainable locations (close to the tram terminus).
- A number of policies in the Draft Local Plan relate directly to the climate emergency. These include sustainable design, accessibility to services, housing density, renewable energy generation, managing flood risk and responding to the biodiversity emergency. Reuse of existing buildings will be encouraged, and where new buildings are required, a 'fabric first' approach will be taken to minimise energy demand, whilst still ensuring that high standards of health and wellbeing for building users are met.
- The Draft Plan proposes a 75% reduction in operational carbon emissions in new buildings from 2025 (compared to the 2013 Building Regulation Standard) and new buildings will be required to be net zero carbon for both operational and embodied energy from 2030. The requirements take account of what is economically viable to achieve, given other standards introduced by the new plan, as well as other requirements to provide community benefits such as affordable housing (which all impact on development costs).

Climate specific policies include:

- Developments that result in new dwellings will be required to reduce regulated carbon emissions by at least 64% from 1 January 2025 and be net zero carbon from 1 January 2030.
- All new developments will be expected to use low-carbon energy sources and where feasible, avoid the onsite combustion of fossil fuels.
- Renewable energy generation schemes will be supported where the individual or cumulative impacts of such schemes are acceptable or can be sufficiently mitigated.
- Decentralised renewable and low energy networks will be promoted.
- All developments will be expected to maximise the incorporation of sustainable design features[3].
- Residential development in the Central Sub-Area should be car-free or provide a maximum of one space per 10 dwellings where a clear need can be demonstrated.
- Proposals will be expected to include a proportionate package of measures to minimise trips and reduce car reliance.
- Proposals must prioritise travel by public transport, cycling, and walking and incorporate inclusive infrastructure which provides connections to and within the development.
- Provision for new technologies, such as electric vehicle charge points, will also be required within developments to support the uptake of zero emission vehicles.
- For residential developments with a capacity for 100 or more dwellings, at least 10% of the site should be laid out as open space with some exceptions. For those with a capacity of less than 100 dwellings, provision of open space off-site will usually be acceptable but amenity greenspace and landscaped areas should be provided on-site.
- The Functional Floodplain has been updated and new Land Safeguarded for Flood Storage has been designated to prevent inappropriate development, allow for improved flood defences and make space for water storage in times of flood. Planning policy has been strengthened to ensure that decisions on new developments take into consideration the increased risks of surface water flooding as well as river flooding.

Supporting sustainable regeneration and development

- Our Heart of the City regeneration, for which the council is the developer, is ambitious with all buildings designed to be at least BREEAM Very Good standard. Elshaw House, completed in 2023 has 5 star NABERS and BREEAM Excellent accreditation. Reuse of existing materials, lean design and low carbon choices have resulted in a structure with 40% lower embodied carbon than average.

[3] Sustainable design features: Making best use of natural features; use of natural light; passive and active ventilation measures; passive solar design; flood resistance; sustainable drainage systems; flexibility of uses; limiting the consumption of wholesome water; minimising waste and maximising reclaim, reuse and recycling; providing green, blue or brown roofs.

- Following the successful pioneering development of Little Kelham, Sheffield City Council and Citu exchanged contracts in May 2023 on the Attercliffe development, a 23-acre urban regeneration scheme which will transform brownfield land either side of the Sheffield and Tinsley Canal. It will be one of the largest zero carbon communities in the UK, featuring more than 1,000 homes alongside climate conscious creative spaces, an arts venue and retail opportunities to bring the neighbourhood to life.

What we buy, eat and throw away

The Routemap covering what we buy, eat and throw away is scheduled to be developed during 2024. Despite this, work is already taking place to address these areas.

Reducing waste and increasing reuse and recycling

- In the financial year 2022/23, 183,919 tonnes of household waste was collected.
  - 66.64% of solid waste was utilised for waste to energy in 2022/23.
  - 28.18% of solid waste was recycled in 2022/23.
  - 33.35% of solid waste was diverted from landfill or incineration in 2022/23.
- A food waste trial was conducted for 12 weeks during summer and autumn 2022. 123 tonnes of waste were collected, and the trial provided useful learning points for future implementation.
- Government has provided local authorities with the opportunity to defer the start date of food waste collections via a transitional arrangement from March 2026. The Waste and Street Scene Committee has taken a decision to defer food waste collections until 2038. This is due to the marginal carbon savings associated with the provision of a food waste collection service when compared to disposal via energy recovery, to protect the Council from the ongoing budgetary pressure associated with the high risk that the New Burdens Funding will not cover all of the revenue or capital costs associated with the service, and to protect the Council from costs for any negative commercial impacts the diversion of the food waste has on the Energy Recovery Facility for the duration of the integrated waste management contract. The decision committed to explore how the council can encourage citizens to consider options for voluntary home and community composting and recycling, working with partners.

Increasing the sustainability of our food

- Strategy and Resource Committee in July 2023 approved the *Sheffield Food Strategy: Fairer, healthier greener*, a collaborative strategy developed by the ShefFood partnership with a wide range of Sheffield organisations.
- The Food Strategy has been followed by the ShefFood partnership's Local Food Action Plan and Sheffield has recently been awarded a Sustainable Food Places Silver award. The award recognises what the city is doing to promote healthy, sustainable,

and local food, and is a testament to the work of Sheffield's food partnership, ShefFood, alongside everyone in the city who is taking a joined-up approach to transform Sheffield's food system for the better.

- The Sheffield City Council school catering contract includes requirements which contribute towards emission reduction and the creation of a more sustainable food offer.
- The South Yorkshire Mayoral Combined Authority have made funding available to tackle food security across South Yorkshire. In Sheffield we are investing in FoodWorks, a local social enterprise who intercept and upcycle quality surplus food. The investment will allow more food to be intercepted so that Food Works markets can be held in more locations. This will reduce the environmental impact of our food and increase access to affordable fresh food.

Energy generation and storage

The Energy Generation and Storage Routemap is scheduled to go to committee in Spring 2024, but work is underway on connected actions.

Decarbonised heat

Heat Network Zoning Pilot Programme

- As part of the UK's commitment to achieve net zero by 2050, the UK Government are considering policy and legislative instruments to increase the number of heat networks. Heat networks currently provide about 3% of heat and according to the Climate Change Committee, which needs to increase to around 18% to meet net zero targets.
- The Energy White Paper 2020 stated that Government would introduce Heat Network Zones by 2025 and primary legislation included in the Energy Bill is currently progressing through Parliament. Heat Network Zones are defined as geographical locations within which heat networks can provide the lowest cost solution to heat decarbonisation within which certain buildings will be mandated to connect to new or existing heat networks within a set timeframe.
- Sheffield was one of 28 towns and cities that were invited to participate in the Department for Energy's Heat Network Zoning Pilot Programme. This programme aims to test the methodology for identifying and designating Heat Network Zones and inform the policy and secondary legislative development, including setting the justification for mandating buildings to connect to heat networks and is due to conclude in autumn 2023.

Advanced Zoning Programme

- Alongside the Heat Network Zoning Pilot Programme, Sheffield was also selected to participate in the Department for Energy's Advanced Zoning Programme which aims

to accelerate the development of heat network zones ahead of legislation coming in in 2025. The programme aims to signal to the market an increase in the scale and pace of delivery with a view to initiate construction in zones by 2025.

Heat Network Delivery Unit – techno-economic feasibility studies

- Building on the work undertaken through the Heat Network Zoning Pilot Programme and the clear opportunities for expanding both the EON and Veolia networks, we submitted two successful applications to the Heat Network Development Unit (HNDU) for techno-economic feasibility studies for both network areas, levering in a total of £177k of public and private funding. The studies will assess the feasibility of connecting (domestic) housing, particularly social housing, and non-domestic buildings onto the networks as well as looking at opportunities for integrating waste heat sources into the heat networks to help further decarbonise the heat supplied. The studies will be completed by the end of 2023.

Renewable electricity

- By the end of 2022, there was an estimated 121MW installed renewable energy capacity in Sheffield, an increase in 10% since the net zero baseline year of 2017.
- Local Plan policies covering renewable energy generation energy networks and shared energy schemes to be adopted by around the end of 2024. Further guidance for developers will be provided in a revised supplementary planning document (SPD) on sustainable design. Our target is to produce a draft of the SPD by spring 2024; it will be finalised once the local plan is adopted.

Whole system energy planning

Local Area Energy Plan

- Commissioning a Local Area Energy Plan (LAEP) for the city. The Local Area Energy Plan will consider the whole energy systems and needs of the city and will take an evidence-based approach to identifying the most effective route for energy decarbonisation. The approach will engage with businesses, communities, energy networks and regulators and encourage greater collaboration and to take a whole energy system perspective. It will identify near-term actions and projects, providing stakeholders with a basis for taking forward activity and prioritising investments and action.

Community energy

- Working with local community energy groups to provide support and advice and to learn from them to understand and develop how best we can enable the increase of community energy in the city. This workstream will develop over the next year.

Regional and national partnerships and peer-learning

We work with other cities and key strategic organisations regionally and nationally to maximise use of resources, learn from good practice and seek to influence government policy. Examples of the ways that we do this and some of the organisations that we are involved with include:

- Association for Public Service Excellence (APSE) Energy – a collaboration formed out of APSE to bring Local Authorities together to share information and best practice on local energy projects. APSE Energy provides resources, knowledge and collaborative opportunities to enable councils to develop a range of energy related initiatives. The council is a member and regularly attend training and events organised by APSE Energy. The council make good use of networking through this group to gain best practice knowledge and have used consultants available through our membership to conduct energy audits for our operational estate.
- Cities Commission for Climate Investment (3Ci) - an innovative collaboration of local government (through the Core Cities, below) and the private sector. 3Ci is working to leverage the combined scale of cities and regions to mobilise finance and drive investment into low and net zero carbon projects across all local areas together, rather than individual ones, to unlock investment.
- Core Cities – The Core Cities network is a network of the largest cities in the UK (outside London) and works together to support each other, influence government and create solutions for cities on a range of subject areas. Key elected members meet regularly and there is an officer climate leads network which frequently meets with government representatives,3Ci and a climate communications group.
- Danish Embassy District Heat Mentoring Programme – Sheffield has recently been invited by DESNZ to participate in this 12-month mentoring programme. This partnership between the UK Government, Danish Embassy and the Danish Board of District Heating has been running since 2016 and aims to build capacity within local authorities through directly helping them to accelerate heat network developments.
- District Heating Divas – a network of women working in the UK's heat network sector that connect with and support each other. The network aims to raise awareness of the industry to develop a thriving, collaborative and diverse industry for the future workforce. The network seeks to create awareness of heat networks and their benefits and support initiatives that provide end users with a positive customer experience, whilst contributing to the optimisation of heat networks to ensure their continuous improvement to enable heat decarbonisation.
- Local Climate Involvement project - Sheffield was chosen to take part in a collaborative learning project led by engagement organisation Involve.
- Local Government Association - Sheffield City Council has been part of a collaboration with Sheffield Hallam and Yorkshire and Humber local authorities to consider how behavioural science can increase active travel (resources produced

are listed below). The LGA Behaviour Change Climate Emergency Subgroup also shares learning with each other:
    - COM-B model of behaviour and the behaviour change wheel (BCW)
    - EAST (easy, attractive, social and timely) framework and 'nudges'
    - Reviewing published literature
    - Framework analysis
    - Final report
- South Yorkshire Mayoral Combined Authority – the local authority is part of the South Yorkshire Mayoral Combined Authority, with representation from elected members on all Committees. Elected members and officers work closely together on a range of areas relevant to climate, particularly transport, skills and the economy (developed the Strategic Economic Plan for South Yorkshire). It holds budgets for economic growth, adult education and skills and housing, as well as other key budgets such as the Shared Prosperity Fund. SYMCA also hosts the North East and Yorkshire Net Zero Hub local capacity support who work South Yorkshire with local authorities and stakeholders and to help support the development of innovative projects, energy strategies and plans.
- South Yorkshire Sustainability Centre - Led by the University of Sheffield through a partnership including SYMCA, the four South Yorkshire local authorities, Sheffield Hallam University as well as private and voluntary sector organisations. The Centre aims to connect research with regional partners to support, develop and implement plans to reduce emissions, increase climate resilience and provide jobs and economic growth and we have been involved in their retrofit work package and are exploring the potential for collaborative work on the Gleadless Valley Masterplan.
- South Yorkshire Woodland Partnership - Sheffield is part of the South Yorkshire Woodland Partnership which aims to establish well-designed, resilient woodland that provides multiple benefits to people, wildlife and the climate.
- UK100 – Sheffield is part of the UK100 network of highly ambitious local authority climate leaders. Several councillors have taken part in their Climate Leadership Academy schemes in recent years.
- Yorkshire and Humber Breastfeeding and Climate Change Group - the group consists of infant feeding leads working in a variety of healthcare and local authority settings in Yorkshire and the Humber and was established to raise awareness of the positive effects of breastfeeding on the environment. They have created a range of resources for professionals and parents.
- Yorkshire and Humber Association of Directors of Public Health - Greg Fell, SCC Director of Public Health, is the lead Public Health Director in the organisation. The network has developed resources for public health services.
- Yorkshire and Humber Climate Commission - Sheffield City Council's Chief Executive is a commissioner on the Yorkshire Climate Commission (YHCC), an independent body made up of public, private and voluntary sector commissioners and officers attend meetings of the commission and work on shared projects, in particular the Climate Adaptation and Resilience Programme.

Appendix 1: Methodological notes

Citywide emissions

During the development of the decarbonisation routemaps, it was determined that rather than focus and report on CO_2 and some other greenhouse gases from some sectors, the council would monitor and report against all greenhouse gases to align with other reporting systems, such as the Carbon Disclosure Project (CDP), which the council reported into for the first time in 2022. As such, the Department for Energy Security and Net Zero's (DESNZ) local authority and regional area greenhouse gas emissions database will be used to monitor and report on the council's progress to net zero by 2030, taking into account all greenhouse gases (GHGs), rather than CO_2 alone as in our reporting against the carbon budget above.

Current reporting period: 2017-2021

- The 'Pathways to Zero Carbon in Sheffield' report set's Sheffield's city baseline year as 2017.
- The Department for Energy Security and Net Zero (DESNZ) publishes local authority and regional area greenhouse gas emission data on an annual basis. There is an 18-month lag between when the emissions occurred, and when the data is released. 2021 is the most recent year for which data is available.

Performance measure: carbon dioxide equivalent (CO_2e)

- Carbon dioxide equivalent (CO_2e) is the measure of total greenhouse gases emitted, expressed in terms of the equivalent global warming impact of carbon dioxide. Using CO_2e provides a more accurate measure of all our emissions that contribute to climate change.

Council emissions

The Pathways to Zero reports were developed during 2020 at the height of the Covid pandemic and officer redeployment to Covid duties meant that it was not possible to access all the data sets that were needed to develop a completely comprehensive baseline for the council's emissions (the baseline year being 2019). During the development of the Our Council chapter of the Decarbonisation Routemap, adopted in July 2023, it was agreed that the baseline would be recalculated to include the council's grey fleet (business travel by employees using their own vehicles), all infrastructure on the highways such as CCTV and traffic lights, small agricultural plant and all operational council buildings. In addition, the baseline was recalculated to report on all greenhouse gas emissions (CO_2e) and not just CO_2.

Appendix 2: Sheffield's Carbon Budget

What is a carbon budget?

Carbon budgets show a local area's share of the remaining CO_2 that can be released by human activities, while still meeting commitments set in the Paris Agreement in 2015 to keeping a global temperature rise this century well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5°C.

The Tyndall Centre provides Local Authority area 'energy only' carbon budgets for the period 2018 to 2100. These are reviewed and updated on an annual basis, informed by the latest science on climate change, and defined by science-based carbon budget setting. The carbon budgets highlight the immediate as well as long-term action needed, support decision-making with science-based evidence, and enable everyone to play a fair and equitable part in addressing climate change.

A short video explaining carbon budgets can be found here.

Sheffield's carbon budget

The total remaining carbon budget for Sheffield was last updated in 2022, and made the following recommendations:

Stay within a maximum cumulative CO_2 budget of 19.6MtCO_2 for the period 2018 to 2100.

Cut emissions by an average 12.3% per year to deliver on the Paris Agreement aligned carbon budget.

Reach zero or net zero carbon no later than 2043 at which point 5% of emissions remain and low level emissions continue at a diminishing level to 2100.

The Tyndall Centre also provides recommended carbon budgets for each 5-year period between 2018 and 2100, aligned to the budget periods set within the Climate Change Act 2008.

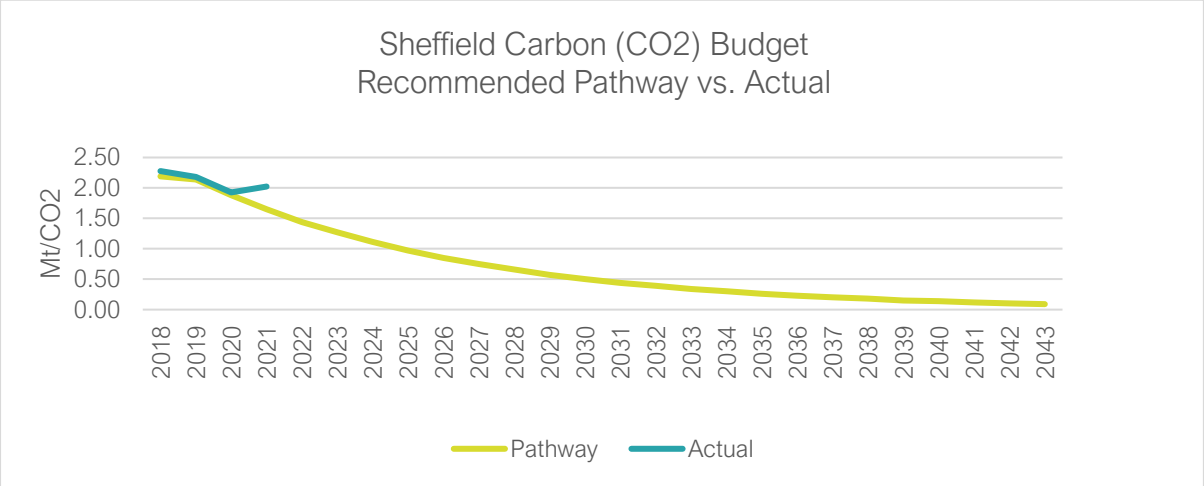
Carbon Budget Period	Carbon Budget ($MtCO_2$)	Used to date ($MtCO_2$)
2018 – 2022	9.3	8.4
2023 – 2027	4.9	
2028 – 2032	2.6	
2033 – 2037	1.3	
2038 – 2042	0.7	
2043 – 2047	0.4	
2048 – 2100	0.4	
TOTAL	19.6	

Table: 2018–2100 recommended carbon budgets (Tyndall Centre,2022) against budget used to date (DESNZ 2021)

You can find the latest carbon budget report, released by the Tyndall Centre in October 2022 at: Tyndall Centre report: Setting Climate Commitments for the City of Sheffield .

Has Sheffield stayed within its recommended carbon budget?

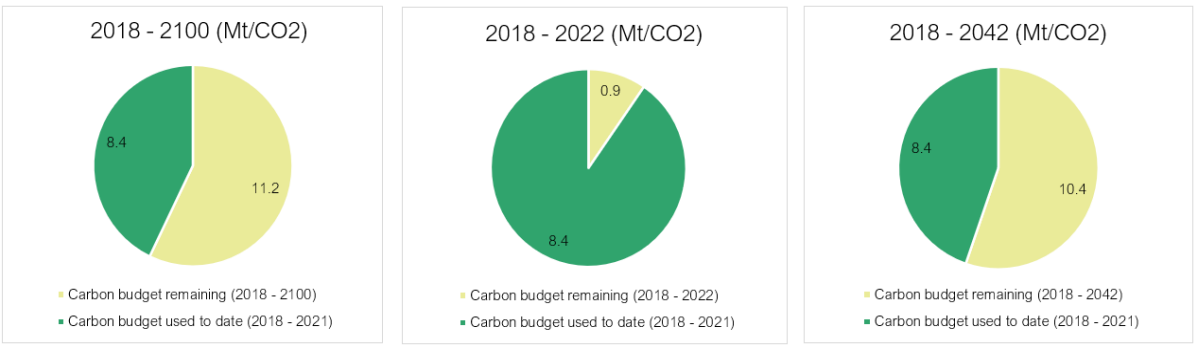
Energy-only emissions data is released from the Department of Energy Security and Net Zero (DESNZ) on an annual basis, however there is a delay between when the emission occurred and when the data is made available, so we can only report up to 2021.



Graph: Recommended carbon budget pathway in which Sheffield reaches net zero (a 95% reduction in CO_2) by no later than 2043, vs actual emissions between 2018 and 2021.

Sheffield's emissions data between 2018 and 2021 shows that 8.4Mt/CO_2 has been emitted by Sheffield to date for the period 2018-2022, meaning we have used:

- 90% of the recommended carbon budget for that period.
- 45% of the recommended carbon budget to the end of 2042, by which time it is recommended that Sheffield is at net zero.
- 43% of the 2018 – 2100 recommended carbon budget.



Graph: Sheffield's carbon budgets from 2018 to (1) 2022 (2) 2042 and (3) 2100 against carbon budget used to date (2018-2021)

While the data shows that as of 2021, Sheffield has remained within our recommended carbon budget of 9.3Mt/CO_2 for the period 2018-2022, we emitted 1Mt/CO_2 (13%) more than recommended for the first 4 years (2018-2021) of the 5-year period.

It is highly unlikely that we have limited energy-only emissions to the remaining 0.9Mt/CO_2 in 2022. We anticipate that when the 2022 emissions data is released next year, it will confirm that Sheffield has not stayed within its recommended carbon budget for the full period of 2018-2022.