

Low Carbon Framework



**City of
Sunderland**

Contents

Foreword	3
Introduction	9
Approach to reducing carbon	11
Context and background	15
Carbon inventory in Sunderland	19
Carbon reduction targets, commitment and vision	21
Strategic priorities and objectives	25
Strategic Priority 1: Adapt our behaviour	29
Strategic Priority 2: Adapt the policies and operational practices of our organisations	31
Strategic Priority 3: Create an energy efficient built environment	35
Strategic Priority 4: Develop renewable energy generation and storage	37
Strategic Priority 5: Low carbon and active transport	39
Strategic Priority 6: Grow the city's green economy	41
Strategic Priority 7: Reduce consumption and waste	43
Get involved	46



Foreword

Climate change remains the challenge of our generation. The World (and the UK) is heating up. Governments from all around the World (including the UK) acknowledge this and that urgent change is required.

The UK Committee on Climate Change states that the ten warmest years on record in the UK have all occurred since 1990. The likelihood of experiencing a summer heatwave comparable to that experienced in 2018¹ in any particular year is now 10–20%, double the likelihood of a few decades ago. Sea levels are rising, and rainfall patterns are changing. The impacts of climate change are accelerating, and public concern about climate change is increasing as our level of understanding increases (July 2019).²

The 2018 UN (IPCC) report sets out that an average global rise in temperature of 1.5°C above pre-industrial times would be an unacceptable risk. In truth, there is no safe level of global warming, and we have already seen a rise of 1°C, with each decade adding more than 0.2°C to that figure. This tells us that global action is needed now and efforts must be made to go faster and further in reducing emissions to keep us safe. This is the climate emergency.

As a city Sunderland needs to act now to reduce direct and indirect carbon emissions. We need to prepare and adapt to deal with the projected impacts of climate change.

This Low Carbon Framework is a call to action. We are calling on you, as people who live, work, visit and invest in Sunderland, to join with us on this exciting decade of transformation. This Framework gives the city clear focus and direction in our quest for significant carbon

reduction and provides the strategy within which we can each take responsibility and work together.

This Framework has been prepared by the 2030 Shadow Board, made up of partner organisations across Sunderland working together to achieve our collective vision and objectives. It is a high-level strategy that demonstrates the city's commitment to reducing its carbon impact. It will need to evolve as global and national policy evolves, and as science continues to understand the impact of the changing environment.

We will continue to monitor and assess our progress and refine this Framework accordingly over time. Our work is partly about ensuring Sunderland plays its full part in limiting the impacts of climate change, ensuring that we help to keep global heating to well below 2°C. However, it is also about ensuring our communities can thrive and our businesses can prosper, and that we continue to draw people and businesses to the city to help build and share in our success.

This Framework sets out the vision, purpose and direction of actions necessary to enable us, together with our residents and businesses, to deliver on these necessary goals. Collective sustainable action will help to ensure that Sunderland's vision of becoming a dynamic, healthy and vibrant city is realised for all.

This is the first iteration of Sunderland's Low Carbon Framework and it will be underpinned by a series of individual Action Plans developed by partners across the city. It is expected that the Framework will be reviewed and refined following feedback and ongoing engagement, with our communities, businesses, residents and

¹ 2018 was the joint hottest summer on record for the UK as a whole since records began in 1910 - <https://www.bbc.co.uk/news/uk-45399134>

² <https://www.theccc.org.uk/wp-content/uploads/2019/07/CCC-2019-Progress-in-preparing-for-climate-change.pdf>

partner organisations as required. Its success relies on a collaborative effort from organisations and individuals to decide how they will change their own activities to help achieve the city's shared ambition to become carbon neutral.



CLlr Graeme Miller, Leader of Sunderland City Council said:

"Climate change remains the challenge of our generation. Sunderland is committed to playing its part in tackling the global climate change emergency.

As a city, we recognise that we need to act now to reduce direct and indirect carbon emissions. We need to prepare and adapt to deal with the projected impacts of climate change.

This Low Carbon Framework sets out the vision and purpose to enable us, together with our residents and businesses, to deliver on these goals. Collective sustainable action will help to ensure that Sunderland's vision of becoming a dynamic, healthy and vibrant city is realised for all."



Diane Carney, Director of Property at Gentoo Group, said:

"Gentoo is fully committed in supporting Sunderland to reach its carbon reduction target and is investing heavily in low carbon initiatives, such as the pioneering Core 364 project in Roker. Our pledge to reduce carbon emissions in the city sits alongside our ongoing commitment to minimise fuel poverty across our tenants and the city-wide partnership approach to the Low Carbon Framework is key to the anchor organisations in Sunderland achieving shared goals."



South Tyneside and Sunderland NHS Foundation Trust

Ken Bremner, Chief Executive of South Tyneside and Sunderland NHS Foundation Trust, said:

"Reducing our carbon footprint is one of our key priorities and of significant benefit to our patients, staff and the communities that we serve. We are committed to creating a more eco-friendly environment across our Trust by focussing on how we can be more sustainable in our actions and investing in areas such as greener energy sources and electric vehicles.

Working closely with our partners and stakeholders we can deliver more sustainable reductions in our carbon emissions and fully embrace our role as a responsible employer. We very much welcome and support a city-wide approach to carbon reduction through the Low Carbon Framework and the opportunity to work together and share experiences across Sunderland to help us achieve our goals."



North East England Chamber of Commerce

James Ramsbotham CEO North East England Chamber of Commerce said:

"Climate change is a global emergency, working with our members we will ensure that sustainability is at the heart of our recovery plans for the North East, helping to create new jobs and opportunities for the region. We commit to working collectively to deliver on our net zero commitments."



Steve Knight, University of Sunderland's Chief Operating Officer, said:

"At the University of Sunderland we are committed to making a positive difference to society and this includes minimising our own climate-related impact. At the same time, we know that making a meaningful response to the climate emergency will require a collaborative effort.

We welcome the opportunity to be a partner organisation in the city's ambitious Low Carbon Framework and look forward to our staff and students working together with the wider community, to achieve our collective sustainability targets."



Sunderland

Clinical Commissioning Group

Dr Neil O'Brien, Chief Officer, NHS Sunderland Clinical Commissioning Group (CCG) said:

"Climate change brings new challenges, both in direct effects to our healthcare services, but also to patient health. Examples in recent years include heat waves, air pollution, prolonged periods of cold, floods and droughts.

As an NHS organisation, and as a spender of public funds, NHS Sunderland CCG have an obligation to work in a way that has a positive effect on the communities we serve, which includes the efficient use of natural resources to help build healthy, resilient communities.

The CCG acknowledges its responsibility towards reducing our carbon emissions and creating health services that are environmentally sustainable in the future. To help achieve this, the CCG has created a Green Plan that informs our efforts to help reduce the overall carbon footprint of the NHS.

We are proud to support the city-wide approach set out in the Low Carbon Framework so that collectively we can achieve more."

Simon Marshall, Director of Education at Together for Children said:

"This Framework is about the next generation. It's about driving change and empowering young people to be the focus of this change. We want to encourage leadership and foster a sense of ownership amongst young people, ensuring they have a strong voice throughout and are the leading force behind this agenda. We're looking forward to continuing to work with partners, including engaging with the city's schools, in 2021 and onwards to enable them to play a leading role in this effort."



Ellen Thinnesen OBE, CEO at Education Partnership North East, said:

"Over the past year we have been very busy accelerating improvements to our carbon footprint and ensuring the college's operations support a growing green agenda.

"We are delighted to support this ambitious new Low Carbon Framework and intend to use it to raise awareness and bring about further positive change right across our North East college community."

Introduction

Sunderland is committed to playing its part in tackling the global climate change emergency.

Over the past decade we have responded to the climate change crisis and taken steps to reduce our carbon. However, as a city we still emit 1,436,600 tons of CO₂ annually (based on 2017 Department for Business, Energy and Industrial Strategy data). We all need to act urgently to reduce our carbon emission to help in the global fight to limit global temperature rise to below 1.5°C.

The people of Sunderland are concerned about climate change. Many people are already taking action as individuals and communities, and they support changes to the city which would help them to reduce carbon emissions. However, the pace and scale of change for us to deliver our vision requires fundamental and radical changes to the way that we currently work as a city.

We are proposing to embed climate change and carbon neutrality throughout our city. Moving forward to achieve our targets will require significant investment of time, money and energy from the council, the government, partners and residents all working together. This is a shared challenge, and this Framework reflects our approach to realising this, acting with urgency as a city.

This Framework has been prepared by Sunderland's 2030 Shadow Board to set out our approach for Sunderland to reduce its carbon and achieve carbon neutrality. It sets out the direction of change for Sunderland and focuses attention on our seven strategic priorities.

There may be many ways to achieve the outcomes we need. This Framework is not intended to plot a fixed and definitive course to carbon neutrality but, as an evolving pathway, to incorporate new developments in technology and adapt to

the emerging climate science and carbon reduction process. It establishes a high-level strategic framework for how we will play our part as a city in meeting the commitments under the Paris Agreement, and our commitments as a signatory of the EU Covenant of Mayors, UK100 Pledge, and through our declaration of a climate emergency.

It has been shaped by scientific data to ensure it is in line with the commitments in the Paris Agreement and other national commitments.

There are many areas where further detail or support from Government is required. However, given the urgency for action, we are choosing to drive this Framework forward now as a city partnership, based on what we already know we need to do, with further development work to follow on an ongoing basis.



Approach to reducing carbon

Achieving our target to be carbon neutral won't work through business-as-usual approaches. It will require us to work in different and new ways to ensure we remain agile and joined-up to effectively solve and tackle the issues we face.

We recognise that achieving our vision will not be easy. There are entrenched market and wider forces that will support existing fossil-fuel dependent, consumption-based systems. We will need to show strong leadership to create opportunities for all to participate. We have an exciting opportunity to address the challenge of climate change whilst also delivering new homes, reducing inequalities, creating a city with enhanced green spaces, places for our children to play, cleaner air, jobs and opportunities for all.

Working with partners

We know that no individual or organisation can deliver the city's carbon neutral commitment alone, and we must work together to enable everyone across the city to engage in a meaningful way and to understand the individual, collective and organisational changes that we must deliver together. This Framework can only be delivered if we all work together.

We have been working across the city to establish a partnership-based approach drawing in other public sector organisations, businesses, residents and stakeholders to set out a collective understanding and vision.

2030 Shadow Board

That is why Sunderland has set up a partnership board known as the 2030 Shadow Board with representatives from across the city such as the NHS, University of Sunderland, College, NE Chamber of Commerce, Sunderland Youth Council as well as cross-party Elected Member representation from each Group on the Council. The 2030 Shadow Board's purpose is to work collectively to drive forward Sunderland's ambitions and commitment to tackling climate change.

This Framework

Our approach to reducing carbon emissions cannot be linear. We need to learn, identify our priorities and projects, engage, act and monitor to ensure we are reducing our carbon footprint and making progress towards our target and revise our approach as necessary. This is why we are doing things slightly differently to others. We don't think it is appropriate to prepare a single document which could be left on a shelf, we want to embed low carbon into everything we do. That is why we have prepared this Framework to establish a high-level approach for Sunderland.

As set out in chapter 1, this Framework establishes a high-level strategy for meeting our commitments under the Paris Agreement, EU Covenant of Mayors and our declaration of a climate emergency. It focuses activity around seven strategic priorities, putting people at its heart – changing our behaviours, changing our organisational practices, and setting out 5 thematic areas for work to be taken forward including;



- Creating an energy efficient environment.
- Developing renewable energy generation and storage.
- Developing low carbon and active transport modes.
- Growing the city's green economy.
- Reducing consumption and waste

Action Plans

Supporting this Framework will be a number of Action Plans. Rather than preparing one document which attempts to establish what everyone must do in the city to achieve our targets, each member of the 2030 Shadow Board Partnership has committed to prepare their own Action Plan. Each partner's Action Plan will set out their organisation's/body's commitment to the Framework, their targets and the actions they intend to take to achieve Sunderland's ambitions to become carbon neutral.

The Action Plan presents each partner's view of how their organisation can achieve its ambitions to be carbon neutral. They set out the actions that must be taken to deliver our vision of carbon neutrality. The Action Plans are based on what we know today. There will be many other actions that will emerge over time that will need to be identified and progressed, and therefore there will be no such thing as a 'final version' of the Action Plans. They will be in constant review as real world events happen and new technologies and delivery methods become available.

Engagement and discussion

Engagement is at the heart of this Framework. It is fundamental to achieving success. Taking people along with us in our journey of carbon neutrality will increase a sense of ownership and empowerment across the city.

Initial engagement has already commenced and we have started the conversations but we still have a long way to go. We need to have an ongoing, open dialogue and engage with individuals, households, organisations and businesses over the coming months, years and decade. We need to engage to develop a shared understanding and language on what Carbon neutrality means for the city and a shared commitment to the actions that we need to take. The 2030 Shadow Board has prepared an Engagement Plan to help with this.

Working with the Community

We all have a role in the city's planning, decision making and delivery of climate actions. We know that different people and community groups have different needs and ideas which can help shape our approach and actions.

We need all of our communities to help create, shape and be part of the city's transformation. Communities should be connected, feel empowered and able to influence the future of the city. Improving a community's green space, for example, requires local residents to feel a sense of ownership and empowerment for it.

Engagement with Businesses

Working together with city and regional business forums and partners, we will engage with businesses operating in the city and further afield who have a unique and crucial role to play in helping achieve the city's carbon neutral ambitions. We will engage and listen to businesses of all sectors and sizes to ensure we understand and can help them to respond to the challenges they face as well as to take advantage of the potential commercial and growth opportunities.

Initial business surveys have been undertaken in order to start to obtain the views of businesses on current growth prospects.

Engagement with young people

Engaging young people and students in climate change discussions is fundamentally important to ensuring that they understand how the world is changing and we learn from their insight.

Our aim is to involve children, young people and students in initiatives which will help them to contribute to delivering carbon neutrality in Sunderland. We will do this by:

- Engaging with the University and the Students' Union.
- Developing a School Programme with Together for Children.
- Ensuring young people continue to be represented on the 2030 Shadow Board.

Understanding Carbon Data

The UK Government department BEIS (Department for Business, Energy & Industrial Strategy) annually release each summer local authority carbon emissions. The BEIS data reports what are known as Scope 1 and 2 carbon dioxide emissions at local authority level. These reports are the most relevant data to monitor our progress on a city scale.

In order to deliver on our carbon neutral commitment, we must ensure we tackle emissions where they arise and we must deploy our limited resources to achieve the greatest carbon reduction impact. It is therefore essential that we have a full understanding of carbon datasets.

We need to understand the nature and sources of the climate emissions at city level by using reliable baseline information in order to determine an appropriate scale and type of intervention. Whilst data is very important to our low carbon planning, we must not allow the absence of perfect data to prevent us taking action.

We recognise that this is an area which will require further development over the coming months and years to create

meaningful Key Performance Indicators and an annual report. In some cases, the local structures and datasets are in place, but in some cases we will need to do further work to seek access to existing datasets, work with partners to develop new datasets and establish new monitoring programmes.

Monitoring our success

Action on climate change is a fast-moving agenda. It is likely there will be developments over the life of this Framework that will require it to be updated and we will do this as required.

We will produce an annual report setting out the city's progress. We will establish a system to enable Sunderland organisations and sectors to measure and report their performance according to a consistent methodology. This will also enable annual reporting and reviews for each Action Plan.

Annual progress reports in relation to the Action Plans will set out the actions that have been delivered over the preceding year, confirm whether the actions that are proposed over the coming years remain relevant.

The annual reports, alongside BEIS data, will help establish if we need to update this Framework.

Funding

To achieve the transformational change set out in this Framework, we will need long-term financial resources. This Framework is ambitious and wide-ranging, but the extent of the actions we can take will be determined by the funding that we have available and Government support to enable carbon reduction. At this stage it is not known what scale of investment is required to deliver our target of carbon neutrality. Further work on this is progressing.

Context and background

Global effects of climate change

The earth is close to 1°C warmer than it was 100 years ago and without action this could increase to 3°C, which will be catastrophic for our society and the natural world. As a result of climate change people in Sunderland can expect to experience rising sea levels, increased flooding and increased extreme hot and cold spells which will affect human life.

The Greenhouse Effect:

When sunlight reaches the Earth, some of the energy is absorbed on the surface and re-radiated as infrared energy that we call heat.

This goes back into the atmosphere where greenhouse gases, such as carbon dioxide (CO₂), trap this heat and send it back out in all directions. This natural process stops our planet being cold and is called the 'Greenhouse Effect'.

There is overwhelming evidence that the changes we are experiencing in our climate, predominantly in the form of global warming, are caused by human activity.

Human activity increasing the greenhouse effect:

Human activities are impacting on the greenhouse effect, which in turn is contributing to the increase in the Earth's temperature. The removal from the ground and burning of fossil fuels for electricity, heating and transport creates more greenhouse gas, particularly carbon dioxide, which is changing the balance of the Greenhouse Effect.

The increase in these greenhouse gases, which can last from years to centuries in the atmosphere, trap even more heat and cause the planet to get hotter.

These rising temperatures are now altering the global climate resulting in longer and hotter heat waves, more frequent droughts, heavier rainfall, rising sea levels and more powerful storms and hurricanes. This is seen in the retreat of glaciers, melting of ice, loss of habitats, as well as floods and fires around the world.

The UN Conference of the Parties (COP) and 2015 Paris Climate Agreement (Paris Accord) recommend that all nations take a share of the responsibility and seek to reduce CO₂ emissions urgently. Most importantly, major reductions need to occur within the next 10 years.

Governments have agreed to take action to limit the global temperature rise to below 2°C above pre-industrial levels and to pursue efforts to limit it even further to 1.5°C. The UK government has committed to reducing greenhouse gas emissions to net zero by 2050.



In 2018, the Intergovernmental Panel on Climate Change (IPCC) published a report which advised that global warming must be limited to 1.5°C, as opposed to the previous target of 2°C. The IPCC's review of over 6,000 sources of evidence found that, with a rise of 1.5°C, there would be risks to health, livelihoods, food security, water supply, human security and economic growth. A rise to 2°C would be even more catastrophic. It warned that there are 12 years to take the serious action required to avert this crisis and avoid the worst impacts.

The UK Climate Change Act now legislates for a commitment to net zero greenhouse gas emissions by 2050. The 2019 amended UK Climate Change Act commits the UK to at least a 100% reduction in greenhouse gas emissions by 2050 from 1990 levels on the basis that the UK's would become net zero' by this point. This is not the same as zero greenhouse gas emissions by 2050.

Feedback loops:

Increasing temperatures result in an increase in melting ice and permafrost, and an increasing number of global fires, all of which contribute to further greenhouse gas releases.

As these processes escalate, they help to warm the planet up quicker. These spiralling effects are often referred to as 'feedback loops'.

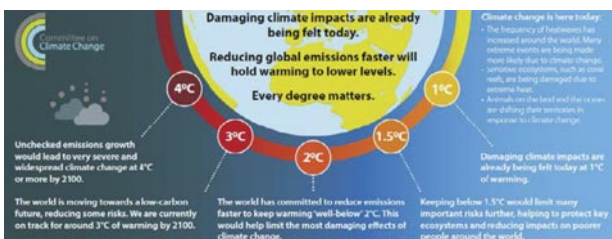


Figure 1:

Climate change in Sunderland

Climate change will affect different people and places unevenly, and so is likely to lead to further inequalities globally as well as between people living in Sunderland and between current and future generations, so creating injustice. At a global level, this is in part why different emissions reduction targets are set between developed and developing nations, through climate change negotiations. At a local level, we need to ensure that our actions achieve 'climate justice' and enable benefits to be achieved and felt by all the city's residents.

The local effects of a changing climate are already apparent. Extreme weather events may affect the city independently of climate change, but climate change is increasing their likelihood. The growing severity and frequency of extreme weather events is being fuelled by climate change from the emissions already released to the atmosphere.

In Sunderland, through climate change, we can expect:

- an increase in extent, depth and frequency of flooding within the city from surface water, rivers and the sea due to sea level rise, storm surges and increasing intensity of rainfall;
- hotter summers, which will also lead to increased heat stress, particularly on vulnerable members of the community such as the elderly, as well as increased energy consumption for cooling;
- colder winters which will not only increase demand on our energy supplies for heating, but will also impact on our most vulnerable residents;
- disruption to transport and power networks through weather events, and increased repair costs to fix damaged infrastructure;

- increased health issues such as skin cancer and cataracts caused by extra sunlight, and respiratory problems associated with traffic pollution;
- the global economy to be affected, and certain products (like food) may become more expensive which would affect Sunderland residents on the lowest household incomes.

These impacts will affect individuals' health, safety and well-being, affect homes, buildings and transport infrastructure, impact on service delivery and create new forms of demand upon our resources.

Carbon inventory in Sunderland

Where does our carbon come from?

Sunderland's carbon emissions primarily stem from:

- industrial and commercial emissions;
- domestic emissions; and
- transport emissions.

Sunderland has reduced its carbon emissions by 28% from 1,992,900 tonnes of CO₂ in 2005 to 1,436,600 tonnes in 2017. Domestic emissions savings have been highest (37%), whilst transport emissions has reduced by 13% (see Figure 2, below).

Figure 2 shows a more detailed breakdown of emissions in 2017. It demonstrates that:

- Road transport accounts for virtually all the city's carbon transport emissions;
- Three times more carbon emissions arise from domestic gas as opposed to domestic electricity;
- Industrial emissions account for 40% of total carbon emissions, while agriculture accounts for 0.1%.

The main sources of CO₂ emissions that Sunderland is responsible for, or which we have influence over, are as follows:

- Direct (energy-related) CO₂ emissions: from homes, workplaces and ground transport activities inside the city.
- Indirect/consumption-based CO₂ emissions: from the things that we buy and ultimately dispose of, for example, food, clothes, phones, electrical equipment, furniture, construction materials, many of which are produced outside of the city.



Carbon reduction targets, commitment and vision

To meet the Paris Agreement objective there is a limited amount of CO₂ we can emit globally. Climate change scientists refer to this as the global 'carbon budget'.

A carbon budget provides an indication of the maximum total amount of carbon dioxide that can be emitted to the atmosphere through human actions, between 2020 and 2100, to be in line with

keeping global temperature rise well below 2°C and pursuing efforts to limit to 1.5°C rise by the end of the century. A carbon budget is needed to ensure that global CO₂ emissions do not collectively go beyond the level that would increase the risk of global temperatures reaching dangerous levels.

Sunderland must abide by its carbon budget and ensure that its emissions fall

Sunderland carbon emissions breakdown by source (per thousand tonnes)



Figure 2: Sunderland carbon emissions breakdown by source (per thousand tonnes)

Sunderland carbon emissions breakdown by source (in detail, per thousand tonnes)

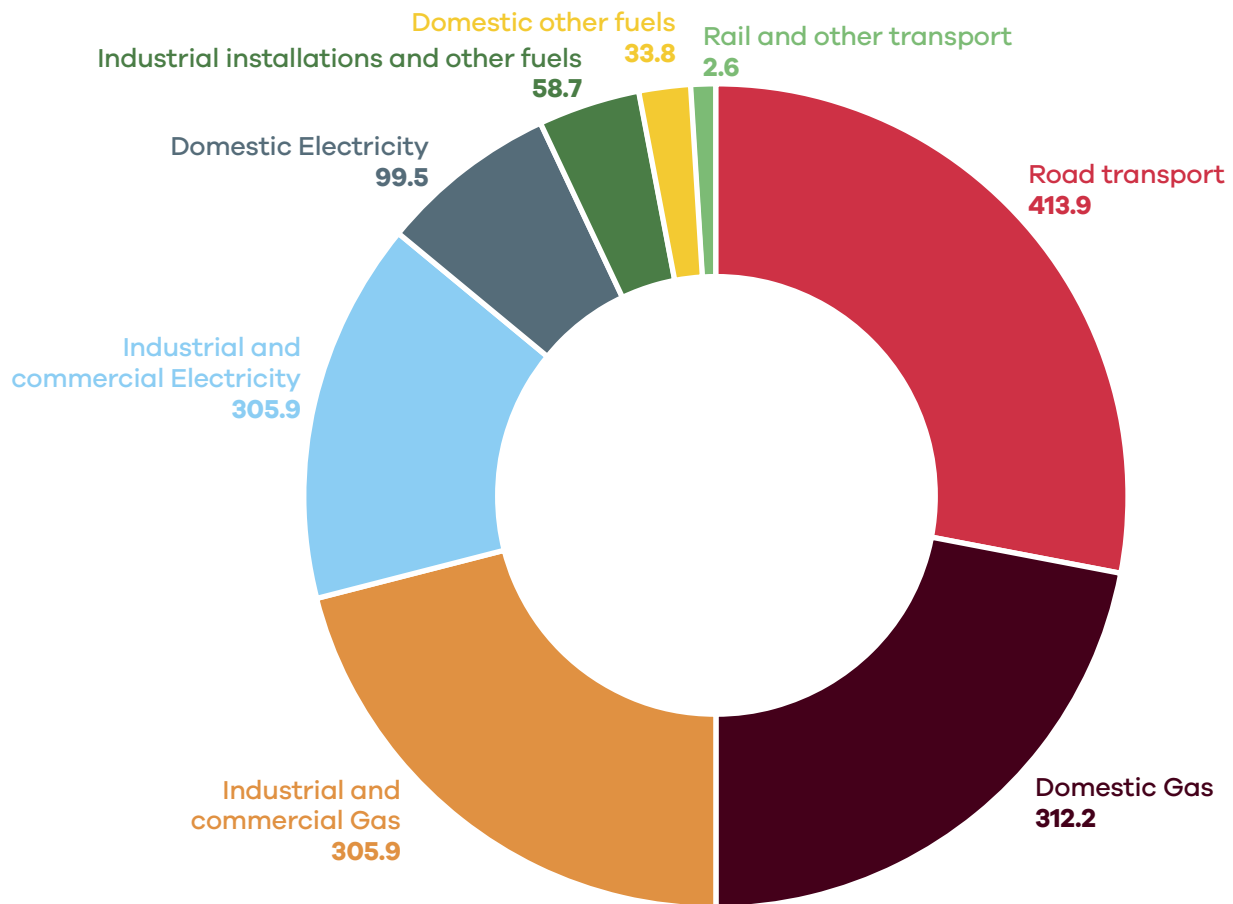


Figure 3: Sunderland carbon emissions breakdown by source (in detail, per thousand tonnes)

below its appropriate global share. The carbon budget shapes the rate at which we need to decrease emissions each year.

The Tyndall Centre, based at Manchester University, has calculated carbon budgets for all UK Local Authorities³. Their report for Sunderland makes 3 key recommendations, “in order for the city to make its ‘fair’ contribution towards the Paris Climate Change Agreement”. These are that Sunderland should:

1. Stay within a maximum cumulative carbon dioxide emissions budget of 8.2 million tonnes (MtCO₂) for the period of 2020 to 2100;
2. Initiate an immediate programme of CO₂

mitigation to deliver cuts in emissions averaging a minimum of -14.4% per year to deliver a Paris-aligned carbon budget;

3. Reach zero or near zero carbon no later than 2040.

The need to achieve significant reductions in the short term are clear. At 2017 CO₂ emission levelsⁱⁱⁱ, Sunderland would use this entire 8.2m tonnes budget within 6 years from 2020.

The Tyndall Centre states that, by following this carbon reduction recommendation of a reduction of 14.4%, 5% of the city’s carbon budget would remain by 2040. This remaining budget could either be offset

³ The Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER) tool, commissioned by Department for Business Energy and Industrial Strategy (BEIS), has developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement.

through carbon saving measures, or Sunderland could opt to forgo all of these remaining emissions in one go and cut emissions to zero at this point.

The following figure (Figure 4) indicates how the Tyndall Centre recommendation of a - 14.4% annual decrease would reach the 2050 target, as well as significantly reducing carbon emissions across the city by 2030. By comparison, as a second scenario, continuing with the current reduction trend shows that Sunderland would fall short of achieving the 2050 UK commitment.

A third scenario in Figure 4 proposes a 25% per year reduction in carbon emissions which, in theory, might enable the city to reach carbon neutrality by 2030 by including an element of offsetting. However, to reach this target, Sunderland would have to reduce its carbon emissions by over 70% (1m tonnes) within the next 5 years to achieve this.

Carbon Reduction Scenarios

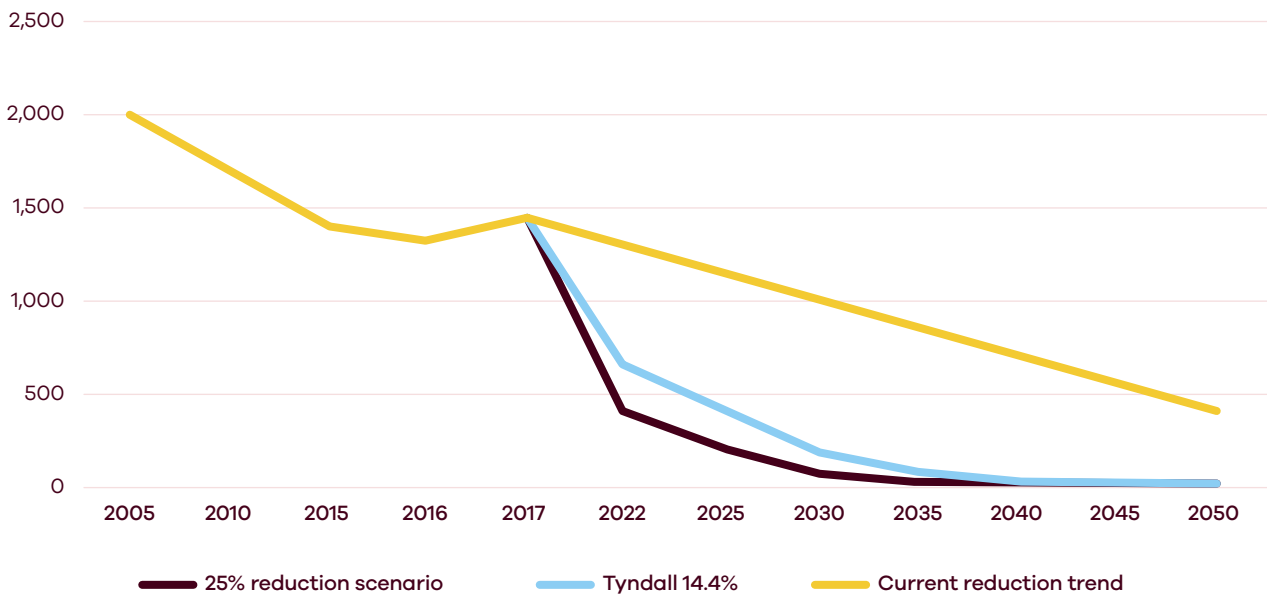


Figure 4: Tyndall Carbon Reduction Scenarios

Declaration of climate change emergency and commitment

In recognition of the Paris Accord, in March 2019 Sunderland City Council declared a climate emergency and agreed to the following motion:

“In recognition of the threat posed to our environment by climate change Sunderland City Council will declare a climate emergency. Numerous local authorities around the country have declared climate emergency and it is important for the Council to show it takes the issue seriously. Recent weather and changes in ecosystems show that we are already seeing changes as a result of climate change so it is important to join other councils in giving the issue suitable attention and clearly setting out how we will meet our targets on cutting emissions.”

In addition, the Council has also signed the UK 100 Pledge, which is a commitment to shifting to 100% clean energy by 2050. It is therefore likely that the energy system will need to be decarbonised by 2050.

Sunderland will play its full part in limiting the impacts of climate change by adopting and meeting science-based targets, in line with the 2015 Paris Accord. The city has therefore adopted the recommendation made by the Tyndall Centre to achieve a minimum -14.4% per year reduction in CO₂ emissions.

Our vision

“Through joint partnership with local residents, communities and business, Sunderland aims to become a carbon neutral city by 2040 and for the city to achieve net-zero greenhouse gas emissions by 2045 or as soon as possible.”

To help us achieve our vision, we will work with partners and with Government to identify support and investment which can enable us to bring forward achievement of our vision.

The Shadow Board is referred to as the 2030 Board, this was to reflect our aspirations to achieve our vision by 2030. However, we must be led by science and the data.

Sunderland City Council reaffirmed its commitments to UK100 by signing the renewed Net Zero pledge in January 2022 with the support of partners across the 2030 Shadow Board. Signatories of this pledge are working collaboratively to ensure net-zero targets are reached as soon as possible and signing the pledge further raises the ambition of Sunderland City Council's low carbon ambitions for the wider city to achieve net-zero greenhouse gas emissions by 2045 or as soon as possible.



Strategic priorities and objectives

City Plan and delivering on carbon reduction

The City Plan, published in 2019 provides the blueprint for all partners and communities to work together, to address the economic and social challenges that Sunderland faces so that the city and its people can achieve their full potential.

The City Plan is clear about what we need to do to achieve our bold and ambitious vision to create a connected, international city by 2030 with opportunities for all our residents. To achieve this, the city Plan has three themes:

- by 2030 Sunderland will be a dynamic city with more and better jobs, it will be on course to become a low-carbon economy with a great choice of housing. It will be a digitally connected city providing fibre to every premise, and the best ultra-high capacity, low latency wireless network for its businesses, residents and visitors
- it will be a healthy city where people will live healthier lives for longer, with people accessing our wonderful natural assets such as our beaches, parks and countryside
- and it will be a vibrant city, rich with the diversity of great creative and cultural businesses. The residents of Sunderland will be active, enjoying a fulfilling cultural life, and clean, green and safe neighbourhoods

Whilst the development of a low carbon economy is directly linked to the Dynamic City theme in the city Plan, it is clear that a sustainable approach to carbon reduction in Sunderland should be adopted across all fields of work and that this Framework will play a major role towards delivering wider City Plan key objectives and social value. The benefits that a low carbon approach can bring to these wider objectives are as follows:

- Helping to eliminate fuel poverty - by supporting and helping residents to improve the energy performance of their homes and to make savings on heating costs;
- Providing cleaner air - by replacing existing polluting vehicles with ultra low emission alternatives and ensuring that public transport, walking and cycling become the preferred choices of transport;
- Creating safer streets - by adapting streets to provide more pleasant conditions for walking and cycling, this in turn will reduce the of motor vehicles, making streets safer to use for all;
- Developing a green and successful economy - by supporting the city's green economy to grow, all businesses to become more sustainable, as well as adding to the city's inward investment offer through the city's special landscape mixture of seaside, river estuary, industrial heritage, wildlife and geology;

- Improving physical and mental health - by encouraging active travel and better use of our environment, Sunderland people will gain better physical and mental health, which in turn will reduce the impact on healthcare services;
- Helping to eliminate food poverty - by expanding local food networks and increasing the availability of fresh and seasonal food;
- Reducing social isolation - by enabling local residents to have increased opportunities to be involved in community projects, which in turn can raise civic pride, increase community wealth-building and encourage active and healthier lifestyles;
- Reducing waste, which will not only reduce the impact on the environment but also save money for residents by reducing the volume of food thrown away. Using our waste in smarter ways could also support the growth of green business;
- Developing our green infrastructure, which will help to reduce the potential for flash flooding, help to cool our city in the summer, support wildlife diversity, tourism and provide quality greenspaces for local people to enjoy;
- Developing varied local sources of energy which will help to ensure that the city has energy security.

Low carbon strategic priorities

The action that is needed to achieve our ambition is complex and multifaceted. This Framework details seven strategic priorities where action is needed to achieve the vision for Sunderland. Across each of these, we need action at every level.

These priorities need to be embedded into the everyday life of residents, partner organisations, community groups, businesses and students. Each of these priorities are explained in more detail below, together with an appended range of actions which will deliver the objective.

Our behaviour



Strategic Priority 1:

Engage with residents, communities and partners and encourage positive behaviour change to reduce individual carbon footprints.

Policies and operational practices



Strategic Priority 2:

Adapt the policies and operational practices of our organisations to embrace and support carbon initiatives, including climate resilience and offsetting, procurement, governance and engagement.

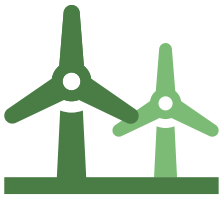
An energy efficient built environment



Strategic Objective 3:

Improve energy efficiency of existing homes and buildings and infrastructure and work towards zero carbon for new homes and buildings

Renewable energy generation and storage



Strategic Objective 4:

Develop renewable energy generation and storage, and renewable/district heating schemes

Low carbon and active transport



Strategic Priority 5:

Develop low carbon and active transport modes such as walking, cycling, rail, Metro, electric and innovative technologies for buses and private vehicles, and help make public transport a more attractive choice.

Green economy



Strategic Priority 6:

Grow the city's green economy, and engage with businesses to work towards environmental sustainability

Consumption and waste



Strategic Priority 7:

Reduce the volume of all consumption and waste, changing what we consume and how it is produced, continuing to avoid the disposal of waste by landfill and increasing opportunities to reuse materials and recycle waste wherever possible.





Strategic Priority 1: Adapt our behaviour

Our objective is to:

Engage with residents, communities and partners and encourage positive behaviour change to reduce individual carbon footprints.

Background

To reach carbon neutrality, collective action is needed. It will require the input of every employee, every resident and every individual in the city to be successful.

As individuals, people often report feeling unable to make changes on a scale that matters for something as big as climate change. But individual behaviour change, when taken up by many people, makes a decisive difference. Nearly two-thirds of global emissions are linked to both direct and indirect forms of human consumption - if we all re-address our individual behaviours we can make an enormous contribution to reducing global emissions.

As businesses and organisations, we must act responsibly and positively to these challenges, in order to influence change and encourage others to follow our example. Meeting our climate challenge requires finding innovative ways of engaging individuals, households, and communities, and changing patterns of behaviour that are ingrained in routine ways of life.

10 key behaviour changes

Our collective approach to achieving our goals can be supported via mobilising and incentivising individual behaviour change through 10 key behaviour changes as follows:

Home Energy

1. **Manage home heating** - Some of the greatest savings could be made by turning down heating and hot water thermostats and making sure heating is on only when it needs it to be. This would also save money;
2. **Upgrade your heating** - Upgrading to modern A-rated condensing boilers could make a big difference to emissions and bills. In some areas, even greater savings could be achieved by installing microgeneration technologies, such as solar water heating, biomass boilers and heat pumps or participating in district heating schemes;
3. **Improve home insulation** - Ensuring that insulation, draught proofing and double glazing help reduce the amount of heat lost from homes, meaning we could reduce the energy we need to use to heat them and save money;
4. **Save electricity** - Buying energy efficient appliances, lightbulbs, TVs and other products, when these need to be replaced, and using them as efficiently as possible (for example turning off lights, not leaving things on standby, filling up washing machines and dryers instead of running half loads) would help to tackle emissions from electricity consumption and reduce bills;

Transport

5. **Become less reliant on the car** - Active travel (walking and cycling) for short journeys is good for health, low cost and low carbon. Where active travel isn't possible, public transport and/or car sharing offer lower carbon alternatives;

6. **Drive more efficiently** - Using a fuel efficient, hybrid, alternative fuel or electric car can significantly reduce emissions. Some best in class cars for fuel economy emit half the carbon of the worst cars in the same class and can save large amounts of money on fuel. Driving more efficiently by following 'eco-driving' principles also saves fuel and money;
7. **Limit air travel** - Using alternatives to flying where practical, compared to alternatives, planes create a lot of emissions. While flying may be the only practical choice for some journeys, there are often alternatives that can work instead, taking the train or teleconferencing for business, for example;

produced in the first place (for example avoiding over-packaged goods or choosing items that will last longer). This can be achieved by improving the use of already available resources, reusing or refurbishing products and materials so that they don't become waste and considering the whole life cycle of products before buying (known as the Circular Economy). Where waste is unavoidable, materials like cans, glass, paper and textiles can be recycled to make new products.

Food

8. **Avoid food waste** - Most of us say we don't like wasting food, but evidence suggests that two thirds of the food thrown away could be avoided. Food waste is estimated to be equivalent to removing one in four cars from the road, so this is an issue that it is important for us all to address;
9. **Consider what we eat and drink** - Eating a healthy diet, high in fruit and vegetables that are in season where we live. There is some dispute about the exact make-up of a low-carbon diet. What is clear is that food in season locally usually needs less energy for growing and transporting, that locally sourced fruit and vegetables have lower carbon footprints than most meat and processed foods, and that a healthy diet can help reduce carbon emissions from the food we eat.

Consumption

10. **Reduce and reuse** - We need to reduce the amount of waste we produce and reuse materials where possible in addition to the efforts we already make on recycling. Production of goods and disposal of materials contributes directly to emissions. The most sustainable option is to prevent waste being



Strategic Priority 2: Adapt the policies and operational practices of our organisations

Our objective is to:

Adapt the policies and operational practices of our organisations to embrace and support carbon initiatives including climate resilience, including offsetting, procurement, governance and engagement.

- Resources they use and how these can be reduced or improved
- Local and sustainable sourcing of materials
- Training and awareness raising within the organisation and in the wider community
- Investment in green spaces and the local built environment.

Organisational Policies

Organisational policies such as agile working, sustainable travel plans can have a significant impact on reducing carbon emissions across the city. The 2030 Shadow Board and other partners will be working together to align their policies and procedures where appropriate.

The pandemic has accelerated some of these practises across the partnership such as working from home. Time is required to fully understand the impact on reducing carbon across Sunderland.

Procurement

Procurement is key, and national guidance is under review that may encourage and enable changes to be instigated swiftly. Nevertheless, procedures must be reconsidered to fully evaluate and assess the lifetime carbon footprint of everything that is purchased and commissioned. Through procurement and supply chains, organisations should think about:

Revising our procurement process could enable significant carbon savings to take place by purchasing goods with lower carbon footprints and altering our whole approach to consumption.

Climate Resilience and Adaptation

Climate change is increasing the likelihood of extreme weather events. Local residents and businesses will increasingly be at risk from flooding, and those identified to be living in the most vulnerable parts of the city will have more difficulty obtaining affordable property insurance. The increased frequency of hot and cold spells will also particularly impact on elderly and vulnerable people and will therefore increase the impact on health services. We must therefore adapt our city to ensure that it is more climate resilient to minimise these impacts.

Adaptation refers to actions that reduce vulnerability to climate change impacts, reducing its effect on social, economic and natural systems. Resilience refers to the ability of a system and its components to

anticipate, absorb and recover from effects of an event in an efficient and timely manner. Both adaptation and resilience are especially important when taking action against future climate change and must be considered alongside actions to reduce carbon emissions across the city.

Offsetting

Sunderland will also develop an off-setting approach. This could involve increased capture of CO₂ in a process called carbon sequestration, which means using nature or geology around the city to take carbon from the atmosphere and store it. This could be stored in plants, trees and soil, or in underground spaces between rocks.

If we can increase the city's capability of storing carbon, this will support our goal of reaching carbon neutrality. There are wider benefits from this approach including improved access to quality greenspace which in turn will encourage better physical and mental health, and environmental improvements to wildlife and habitat.

Offsetting will make a positive contribution to the city's carbon emissions, by increasing the city's capability for carbon storage. Currently, BEIS data indicates that carbon offsetting relates to a saving of 7,500 tonnes annually in Sunderland, which is made up of the city's carbon stock in woodland, cropland, grassland and wetlands. There is scope through improved green infrastructure to increase this annual figure.

Effective engagement

Effective engagement of organisations' workforces, partner agencies, sectors and all people who live and work in, or visit, the city is vital to this process, ensuring that everyone embraces these principles within their daily lives and activities.

Current/recent activities and actions

- Businesses across the city are undertaking revised procurement methods to adapt to initiatives such as 100% renewable energy tariffs or adopting whole lifestyle approaches towards procuring products and the environmental impacts of product providers;
- Partners have worked together to carry out schemes to minimise incidents of groundwater, surface and fluvial flooding in key locations of the city. Improvements have also been carried out to riparian habitat that helps to reduce the immediate flow of water into and through the main river channels;
- The Council has increased tree cover through the Urban Tree Fund, which in time will help to shade areas and to reduce heat extremes in urban areas, where built development may otherwise absorb and increase local temperatures;
- The city's Core Strategy and Development Plan protects open countryside and wildlife habitats, which is vital to retaining the city's existing carbon sink;
- Wildlife and green infrastructure improvements are being carried out in a range of locations across the city to mitigate for approved development schemes;
- Reclamation of former industrial land has been carried out across various sites in the city, often transforming land into country parks;

Opportunities and Benefits

- Helping to develop a green and successful economy by supporting the city's green industry sector through procurement;
- Developing our green infrastructure to help to reduce the potential for flash flooding, and to cool our city in the summer. This will also support wildlife

diversity, tourism and provide quality greenspaces for local people to enjoy;

- Providing cleaner air by improving green infrastructure across the city that can store more carbon and other greenhouse gases and contribute towards better air quality;
- Reducing social isolation by encouraging active local involvement in community green infrastructure projects, we can encourage more interaction, better physical and mental health and pride in local areas.





Strategic Priority 3: Create an energy efficient built environment

Our objective is to:

Improve energy efficiency of existing homes and buildings and work towards zero carbon for new homes and buildings.

Our homes and our communities are at the heart of our lives, providing a place of warmth, security and rest. The quality of the homes in Sunderland and future new build homes need to be upgraded to be more energy efficient.

Existing Homes

An estimated 80% of the buildings that will exist in the UK in 2050 have already been built. They were built at a time when climate change and energy considerations were much less of a priority than today. Existing buildings typically have a large carbon footprint due to the energy required to heat them.

Adapting homes to be more energy efficient and resilient to climate change will improve living conditions, reduce energy demand, reduce fuel costs, improve health and wellbeing of residents and minimise incidents of fuel poverty in the city.

15,678 households in Sunderland live in fuel poverty (2017)⁴, in poorly insulated homes which cost more to heat and are hard to retrofit. Action on our homes needs to support Sunderland's most vulnerable residents out of fuel poverty and provide

the most energy efficient, low or carbon neutral homes possible.

Retrofitting makes a building more energy efficient. Improving the performance of existing homes requires upgrading of the fabric of the building and the heating systems. This will improve the thermal performance of the building by ensuring that the roof, walls and floors are fully insulated, and windows and doors have a high thermal performance.

There are currently low levels of domestic and non-domestic retrofitting taking place in the city, other than by registered housing providers, such as Gentoo and a handful of proactive private homeowners. This is partly due to a lack of knowledge and demand for retrofitting, limited access to funding (including low-cost loans), lack of skills and local supply chain, and a lack of financial incentives and business models to make investment in retrofit stack up for homeowners, public and private landlords. This is in part due to the amount it costs to retrofit a property and the time it takes to recover that investment through reduced energy costs.

New Build

Sunderland, like many cities, is growing and is set to continue to grow. We need to tackle the amount of CO₂ that is emitted through the construction of new buildings (including the emissions embodied in the materials themselves) and those emitted once the building is occupied. We need to ensure that

⁴ 2019 Public Health England

new developments in the city don't eat into our limited carbon budgets.

Sunderland has seen a steady increase in the number of new build properties in the city and the number of these that are built to EPC band A-B standard. This is a significant improvement and has been driven by a change in Building Regulations but we are still not seeing properties being built beyond building regulations standards.

It is expected that an average home built to the Future Homes Standard will have 75-80% less carbon emissions than one built to current energy efficiency requirements (Approved Document L 2013). This will be achieved through very high fabric standards and a low carbon heating system. This means a new home built to the Future Homes Standard might have a heat pump, triple glazing and standards for walls, floors and roofs that significantly limit any heat loss. The Future Homes Standard will be achieved through a staged approach starting with the revised building standards in 2020 and then further requirements in a new Future Homes Standard by 2025.

Emissions contribution

Emissions from domestic electricity and gas totalled 445,000 tonnes in 2017, dominated by gas emissions (70%) and electricity emissions (22%). Overall, since 2005, there has been a 36.7% reduction in CO₂ emissions.

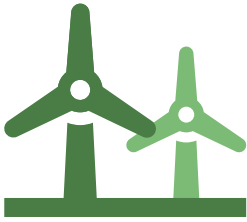
Current/recent activities and actions

- local planning policies have been approved that encourage new development to minimise the impacts of climate change, avoid unacceptable adverse development impacts, maximise energy efficiency and integrate the use of decentralised, renewable and low carbon energy;
- several partners across the city are carrying out energy saving measures across their respective estates, including the introduction of LED lighting, automatic metering, improved insulation and green power use;

- Gentoo has installed ground source heat pumps, thermal batteries, smart controls and thermostats to 7 high rise blocks of flats, and has also provided solar panels on over 5,500 properties in Sunderland;
- the Council is also working with local businesses on energy savings initiatives, providing advice, guidance and support funding through EU funded projects.

Opportunities and Benefits

- improving the energy performance of homes and saving heating costs will help to eliminate fuel poverty;
- improving energy efficiency of commercial premises will reduce running costs for businesses and make commercial buildings easier to lease;
- introducing cleaner and greener energy for housing will improve air quality and provide purity of supply and cost.



Strategic Priority 4: Develop renewable energy generation and storage

Our objective is to:

Develop renewable energy generation and storage, and renewable/district heating schemes.

Background

Energy is essential for our city. It provides heat for our homes and places of work and powers our transport. It also accounts for the lion's share of our city-wide emissions.

The vision of being carbon neutral requires producing more renewable and low carbon energy locally in addition to reducing the overall amount of energy consumed. Storing energy locally and managing our energy in a smarter and timelier way will be essential. This can reduce the peaks that make energy demand hard to cater for, and get more out of the renewable energy we produce, reducing both bills and carbon.

Industrial and domestic buildings emit 71% of the city's carbon emissions. Whilst improving the energy efficiency of buildings and processes, we begin to reduce the size of the energy decarbonisation challenge. Without sufficient energy efficiency improvements, the UK and Sunderland will struggle to sufficiently decarbonise energy supply, as higher carbon options will continue to be needed to meet peak demand.

Since 2010, the UK electricity national grid has seen its CO₂ intensity figures decrease by 47%. Huge progress has been made over recent years to decarbonise the UK's

national grid electricity by phasing out the remaining coal-fired power stations and recently removing restrictions on new onshore wind energy development. We now get more of our electricity from renewable sources than ever before, however as the generation from renewable energy sources is often variable, electricity storage and management to use power when it is available is increasingly important.

The vast majority of our homes, our public and commercial buildings, are heated using gas from the national gas grid. Gas is also a key component of our national electricity system, being burned in gas power stations to generate electricity. Unlike the electricity grid, the gas grid is very much at the start of the decarbonisation process, and is primarily looking towards hydrogen to act as the future fuel vector for supply of energy through the existing gas grid.

The UK has two main options for natural gas use in the UK:

- stop using it (except in a small number of instances where viable alternatives don't exist, such as in some industrial processes) and move to electric heating, heat pumps and zero carbon district heating instead, or;
- replace it with biogas and/or hydrogen.

We need to consider alternatives sources of energy across the city.

Emissions contribution

Renewable energy generation and storage can provide a very positive contribution to carbon emissions, creating green, zero emission technology that will replace more traditional, carbon-emitting forms of energy.

Current/recent activities and actions

- Nissan's Sunderland plant is partly powered by wind turbines and solar panels;
- the council is installing solar panels on a number of its sites including buildings and car ports, and battery storage facilities are being created at 6 council buildings;
- investigation is underway into the potential of minewater heating;
- Gentoo has installed ground source heat pumps, thermal batteries, smart controls and thermostats to 7 high rise blocks of flats in Sunderland.

Opportunities and Benefits

- improving the energy performance of homes and saving heating costs will help to eliminate fuel poverty;
- introducing cleaner and greener energy for housing and industry will improve air quality;
- developing varied local sources of energy will help to ensure that the city has power certainty/security.



Strategic Priority 5: Low carbon and active transport

Our objective is to:

Develop low carbon and active transport modes such as walking, cycling, rail, Metro, electric and innovative technologies for buses and private vehicles, and help make public transport a more attractive choice.

Background

Transport is the UK's largest contributor to greenhouse gas (GHG) emissions. 28% of UK emissions originate from transport, and this does not include international aviation and shipping. Most domestic transport emissions, approximately 90%, are from road transport and, while emissions from other sectors of the economy have fallen, an increase in vehicle kilometres driven has negated increased vehicle efficiencies, resulting in only modest reductions of emissions since 1990.

Transport enables the movement of people and goods, supports economic growth and provides employment for city residents. Despite many recent technological and efficiency improvements, transport in the city is still responsible for approximately 416,000 tonnes of CO₂ in 2017, 29.0% of Sunderland's total CO₂ emissions.

Historically, Sunderland has had a level of car ownership that is lower than the UK average. However, in recent decades car ownership and car trips have steadily risen, while use of public transport has fallen. Despite the extension of Metro to Sunderland in 2001, access to Metro and rail stations remains limited across the city, including areas that were once served by rail stations but lost these rail links when

services were closed during the 1960s under the 'Beeching' Act.

There is considerable scope to improve public transport services and Ultra Low Emissions Vehicle/Electric Vehicles infrastructure across the city, together with developing strategic cycling routes that link homes to jobs, shops, schools and everyday services. Improvements in neighbourhood design can also encourage more walking trips locally and reduce the number of short trips undertaken by car.

The rise of cleaner fuels, in particular electric fuel, will continue over the next decade following proposals to end the sale of all new petrol and diesel cars by 2035. Currently there are almost 3,000 registered electric vehicles in the North East, and over 800 chargers. Other sectors including the bus and logistics industries are also investing in this area. A cleaner vehicle fleet results in potentially improved air quality and a more efficient energy sector.

The North East has been at the forefront of decarbonisation and developing low-carbon solutions for its transport network, with successes in offshore wind technologies and electric vehicles. The North East Automotive Alliance (NEAA) is an internationally significant automotive cluster that brings together regional organisations on workstreams including advanced propulsion.

Transport operators are also reducing emissions from buses and freight vehicles, including the successful deployment of biomethane operated buses in Sunderland by Stagecoach and the roll-out of nine electric buses for Go North East. The new Metro fleet will be 32% more energy efficient, saving tonnes of carbon over the coming years.

Emissions contribution

Transport emissions contributed 416,000 tonnes of CO₂ in 2017, 29.0% of Sunderland's total CO₂ emissions. Of these emissions, 99.4% come as a result of road transport on 'minor' roads, 'A' roads and Motorways from cars, vans, lorries and buses.

Since 2005, there has been a 13% decrease in transport emissions across the city, despite the overall number of vehicle miles broadly staying the same. Until recently, concentrations of the air pollutant NO₂, emitted mainly by diesel vehicles, were above limits set to protect public health.

- More public transport options for local residents and increased accessibility;
- Safer and more attractive conditions for walking and cycling;
- Improved air quality and environment;
- Healthier and more active lifestyles supported;
- Contributing to Sunderland being a better and more attractive place to live, work and invest in.

Current/recent activities and actions

- Introduction of EV filling stations in the city;
- Decarbonisation of Sunderland council vehicles;
- Work with Nexus and the bus operators to develop low carbon bus options and seek funding to help operators to purchase biogas, hydrogen and electric buses;
- Develop new Metro routes in the city;
- The continued roll-out of new cycling routes across the city;
- Neighbourhood improvements that encourage more walking and influence behaviour change; and
- Working with businesses to adopt sustainable transport practices.

Opportunities and Benefits

The steps taken towards low carbon transport will have broader positive impacts within Sunderland. These will include:



Strategic Priority 6: Grow the city's green economy

Our objective is to:

Grow the city's green economy, and engage with businesses to work towards environmental sustainability.

Background

Industrial operations and business premises require high-intensity energy use and are a significant source of carbon emissions. However SMEs and larger businesses form the backbone of the local economy, creating vital employment and delivering goods and services.

Their potential for carbon reduction via energy efficiency and renewable energy improvements is significant and realising this potential is an essential component in the shift towards a low carbon economy.

SMEs need ongoing support to recognise the vital role they play in creating a low carbon economy.

Emissions contribution

Emissions from industry totalled 582,000 tonnes in 2017, a rise of 131,000 tonnes on 2016, but still representing a 28% reduction from 2005 CO₂ emissions.

Business Renewables Energy Efficiency Sunderland (BREEZ), the Business Energy Saving Project (BEST) and the Sunderland Energy Storage & Efficiency Project (SESEP) will contribute towards significantly reducing the CO₂ footprint from many Sunderland based SMEs. All three projects are part-funded by the European Regional Development Fund (ERDF).

Current/recent activities and actions

- Nissan continues to build its all electric LEAF in Sunderland, with batteries also being manufactured in the city by Envision AESC
- Businesses like Hyperdrive Innovation, Advanced Electric Machines, Green Marine, PowerRoll, EDF Energy and many more provide key employment in the city's green economy
- The Driving the Electric Revolution (DER) Centre NE, led by Newcastle University, will play a critical role in electrification of advanced manufacturing across all sectors - from automotive to marine, rail, and energy - and the commercial development of Power Electronics, Machines and Drives.
- BREEZ and BEST combine to offer 135 eligible SMEs in Sunderland a flexible approach to cutting their carbon emissions;
- Free initial energy review to assess the potential for carbon reduction in an SME - BREEZ/BEST eligibility check, open discussion and walk around survey;
- Fully-funded commercial EPC for SMEs (Level 3 or 4) if required via BREEZ; or
- BEST provide a fully funded comprehensive Energy Audit which details the broader opportunities to further cut carbon emissions and save energy;

- Support through awareness raising campaigns and bespoke costed energy saving advice and guidance, including upgrades to industrial process machinery and plant;
- 50% grants through BREEZ and BEST for Sunderland-based, eligible SMEs 50% funding towards the cost of installing renewable energy, insulation, low carbon heating and LED lighting improvements to business premises;

Opportunities and Benefits

- Developing a green and successful economy – by supporting the city's green economy to grow, all businesses to become more sustainable, as well as adding to the city's inward investment offer through the city's special landscape mixture of seaside, river estuary, industrial heritage, wildlife and geology;
- Reducing carbon emissions from SMEs;
- Increasing the economic success of SMEs through reducing the costs arising from energy requirements, enabling investment in other areas;
- Exploring the potential to become a test bed for geothermal energy
- Creating education and training opportunities in technical roles which support green technologies.



Strategic Priority 7: Reduce consumption and waste

Our objective is to:

Reduce the volume of all consumption and waste, changing what we consume and how it is produced, continuing to avoid the disposal of waste by landfill and increasing opportunities to reuse materials and recycle waste wherever possible.

Background

Our consumption of the planet's resources is threatening the wellbeing of future generations and limited natural resources we depend upon. Our material footprint is rapidly outpacing population and economic growth. Evidence shows that our total environmental footprint is greater than what the planet can sustain, something known as 'overshoot'.

Food and Drink is particular has a large and visible impact on the environment, and our greenhouse gas emissions – whether in production, consumption or disposal. British households throw away 7.2 million tonnes of food and drink (the majority of which could have been consumed) worth £12 billion every year (source: WRAP).

Food waste includes surplus food (when too much was purchased, stocked or produced) and food that is not fit for animal or human consumption but which could be used for compost or energy recovery (anaerobic digestion).

Waste

Greenhouse gas emissions from the waste sector mainly comprise methane released from landfill sites. Landfill emissions can be reduced in three ways: creating less waste, sending less waste to landfill and capturing more of the methane released at landfill sites. Increased reuse and recycling and other waste prevention measures are generally low cost and can also contribute to reductions in upstream emissions (e.g. avoiding food waste not only avoids emissions in disposal of that waste, it also avoids emissions in production and processing of the food in the first place).

Consumption

Much of Sunderland's carbon footprint originates from outside of the city, because the things that we buy and consume have been created elsewhere. These are called 'imported emissions'. This includes everything from appliances, lightbulbs, phones and computers, to tyres, clothing, food and packaging.

As with reducing waste, one of the ways to address our carbon footprint is to reduce non-essential consumption, reusing, repairing and sharing existing goods, finding local producers and more ethical or sustainable options.

The benefits of efficient resource management are greater than simply reducing emissions arising from the manufacturing, transportation, use, disposal and processing of waste.

By thinking differently about how we manage resources and what we throw away we can generate many benefits to the city such as: reducing the number of heavy-load

vehicles on our roads; alleviating congestion and improving air quality; avoiding plastic entering our watercourses and oceans; reducing ecological and biodiversity damage; and creating partnerships between organisations to derive value from our waste in a local, circular economy.

All of our actions need to be reviewed in terms of reducing the carbon footprint from waste and consumption and this includes reviewing how organised events are undertaken within the city. Key issues to address will be increasing local food production, reducing food miles and air pollution as well as tackling food poverty, diet-related ill health and access to affordable healthy food. We should also find ways to reduce food and package waste such as single use plastics.

Sunderland must also look at ways to increase recycling rates and to ensure landfill decreases even further, alongside a reduction in the total amount of household waste. This will require changes to processes and physical infrastructure, as well as city-wide behavioural changes to disposal, sharing, shopping and dietary habits.

The recycling rate in Sunderland is 27% (2018–19) and broadly follows the national trend. In recent years, recycling rates have levelled out, and the UK Government is now developing further measures to minimise waste and promote resource efficiency.

Emissions contribution

Everything we consume has a carbon footprint trail. Food and drink that we buy comes from all over the world, some foodstuffs having a high carbon footprint by the way they are created, and/or by the way/distance they are transported. These are classed as 'non-local' or 'imported' greenhouse gas emissions, unlike the emissions that more directly relate to the city's transport network or energy emissions relating to our buildings.

When you consider the direct, indirect and imported emissions together (Scope 1, 2 and 3 emissions respectively), it is estimated that around half of the city's carbon footprint relates to 'imported' emissions from what we buy and consume.

Current/recent activities and actions

- Sunderland Partnership has committed to the Single Use Plastics Pledge committing to eliminating the use of single use plastics wherever possible, e.g. straws, plates, take away boxes and cups, from partner estates;
- Through the revision of the procurement process, key businesses will lead by example and become more sustainable in their use and consumption of resources;
- The Council continues to extend the range of materials that residents can recycle in the household kerbside service through the introduction of additional materials, such as drinks cartons and plastic pots, tubs & trays;
- Communal recycling facilities for high-rise flats etc. are now in place that replicate the kerbside recycling service. This means all households across Sunderland can easily recycle the same materials;
- No Council contract waste has required disposal by landfill since April 2015. All household waste that has not been presented at the kerbside for recycling is sent to an energy-from-waste facility, where it is incinerated to power a turbine that generates electricity for the National Grid. This waste disposal process is also known as landfill diversion;
- The Sunderland Household Waste Reuse and Recycling Centre (HWRRCC) management contract is now incentive-based, where the contractor is rewarded for exceeding pre-agreed targets for recycling materials disposed by residents. This has enabled new,

additional, recycling outlets to be secured for some traditionally difficult-to-recycle materials, such as carpets and mattresses;

- Businesses are supporting the introduction and development of community food networks.

Opportunities and Benefits

- Developing a green and successful economy, increasing local and low-carbon food production, reducing food waste, developing smarter ways of recycling;
- Reducing waste to not only limit the impact on the environment but also save money for residents by reducing the volume of food thrown away;
- Helping to eliminate food poverty by growing more food locally and communally and increasing the availability of fresh and seasonal food, encouraging more low carbon cooking and meals;
- Encouraging healthier eating and active lifestyles, which will help Sunderland people gain better physical and mental health, which in turn will save money on healthcare services;
- Reducing social isolation by encouraging active lifestyles and increasing the number of community projects;
- Reducing the carbon emissions of city events and developing sustainable tourism.

Get involved

Sunderland has set a target to become carbon neutral by 2040 and for the wider city to achieve net-zero greenhouse gas emissions by 2045 or as soon as possible.

This Carbon Neutral Framework has been created to set out the vision, and it is widely understood that collective sustainable action will be required in order to achieve this goal.

No individual or organisation can deliver the city's vision alone, and we must work together to encourage everyone across the city to engage in a meaningful way and to support people to understand the individual, collective and organisational changes that we must deliver together.

Residents

We will engage with Sunderland residents to understand attitudes and behaviours around the environment and to find out what carbon neutral means to them.

We will use quantitative survey findings, as well as desk research to inform a marketing and communications strategy for Sunderland to collaboratively take forward as a tactical campaign.

We hope to create a sense of ownership, personal responsibility and empowerment with our own city's carbon footprint and the small measures and actions we can all take to reduce it collectively.

Young people

How we act now will have a direct impact on the next generation. Actively engaging with young people, children and students in climate change discussions is fundamental in ensuring that the Framework reflects their views of how Sunderland should adapt and address climate change and that they feel they can help us to deliver it.

The partnership includes representation from Sunderland Youth Council, but we want to do more to encourage engagement and ensure that this Framework and the Action Plans reflect the views of young people. We will work with Together for Children to undertake a programme to engage and discuss carbon reduction with as many schools in the city as possible. We will listen to students concerns regarding climate change and their ideas for how we can tackle challenges.

Following this initial engagement, we will produce a comprehensive feedback report which will identify the key actions and changes we will make as a result. We will continue to engage in this way on an ongoing basis.

Businesses

We will engage with businesses of all sectors and sizes operating in the city who have a crucial role to play in achieving the city's carbon neutral ambitions. We want to talk to businesses to ensure we understand the challenges they face and help support them to capitalise on opportunities associated with Low Carbon as well helping them work towards carbon neutrality.



**City of
Sunderland**