

Barnsley Zero Carbon Sustainable Energy Action Plan (SEAP)

2020-2025



BARNLSLEY
Metropolitan Borough Council

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1. Why do we need a Sustainable Energy Action Plan (SEAP)?

Since the United Nations Intergovernmental Panel on Climate Change (IPCC) reported in October 2018, a Climate Emergency movement has emerged. The report warned of the rapid and far reaching consequences of the earth's warming of over 1.5°C. It concluded that limiting global warming to 1.5°C and so limiting the most extreme impacts of climate change would require rapid, far-reaching and unprecedented changes in all aspects of society.

In response, Barnsley Council set out in its climate emergency declaration in September 2019 an ambitious and realistic vision for the borough to become net **Zero Carbon** by 2045 (Zero45) and as an organisation to lead by example to become net zero carbon by 2040 (Zero40).

This is the first draft of a series of five-year Sustainable Energy Action Plans (SEAPs) that aim to deliver a Zero Carbon programme across the borough and within our own organisation. Each plan will successively take us towards our targets.

The purpose of this SEAP 2020-2025 is to set out how we'll deliver on the commitment made by Cabinet in September 2019. It will help us to plan wider positive engagement around climate change, as well as providing the governance structure and carbon reduction targets.

This SEAP recommends an ambitious first borough-wide ambition for **2025** to reduce its emissions by **65%** (2017 baseline) and that as part of this, we have an ambition to reduce our own emissions by **60%** (2019 baseline). This will provide us with the best opportunity to be zero-carbon by 2035.

Achieving net zero carbon is possible over time and our approach will be predicated on a hierarchy of reducing energy demand; engaging in positive behavioural change; using developed technology; using renewable energy; and offsetting emissions via programmes such as tree planting and nature-based carbon capture. This methodology is in line with the UK government's approach and their national target of being net zero by 2050.

This SEAP is based on the IPCC recommendations and indicates where we need to be, the direction of travel to get there, and some early steps so we can move quickly.

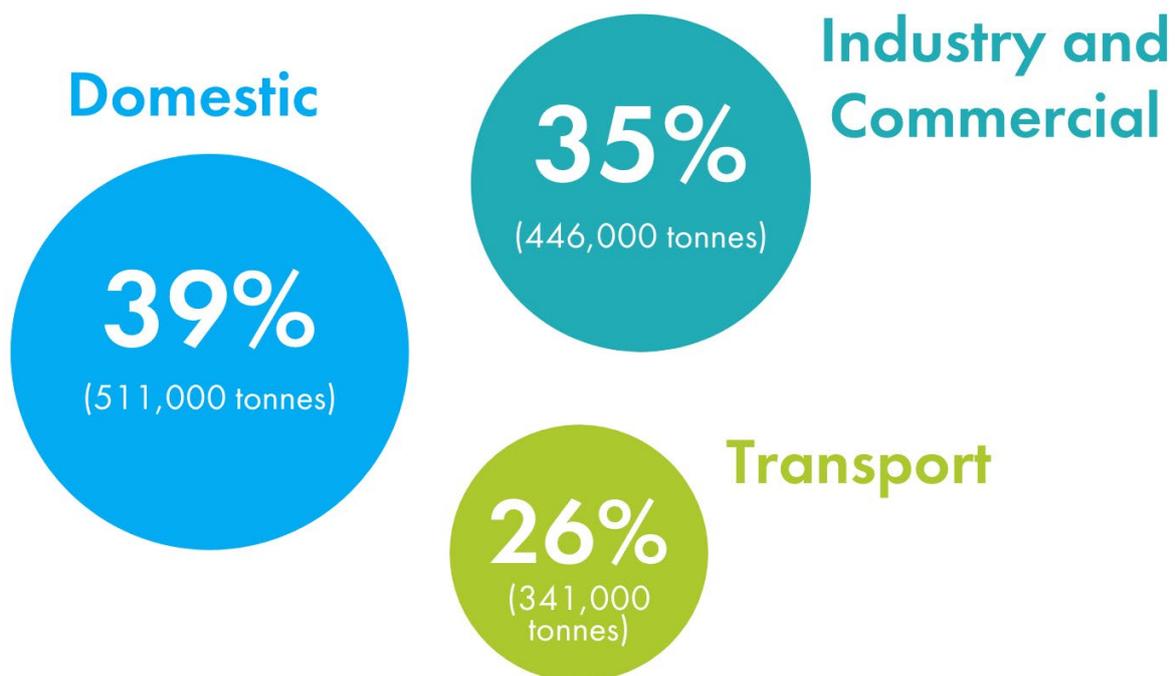
2. Current position in the borough

Most of the borough's emissions are from three broad areas:

- residential housing
- commercial/industrial activities
- transport

In 2017, the Borough emitted **1,310,880 tonnes** of carbon in what is termed scope 1 and scope 2 emissions combined. Scope 1 relates to the direct burning of fossil fuels, and scope 2 refers to the indirect burning of fossil fuels such as through the use of traditionally-generated electricity.

Emissions arise from the borough's commercial, residential, institutional and industrial buildings; from agriculture activities generating food; from transportation via rail, road; and through the use and treatment of water and wastes.



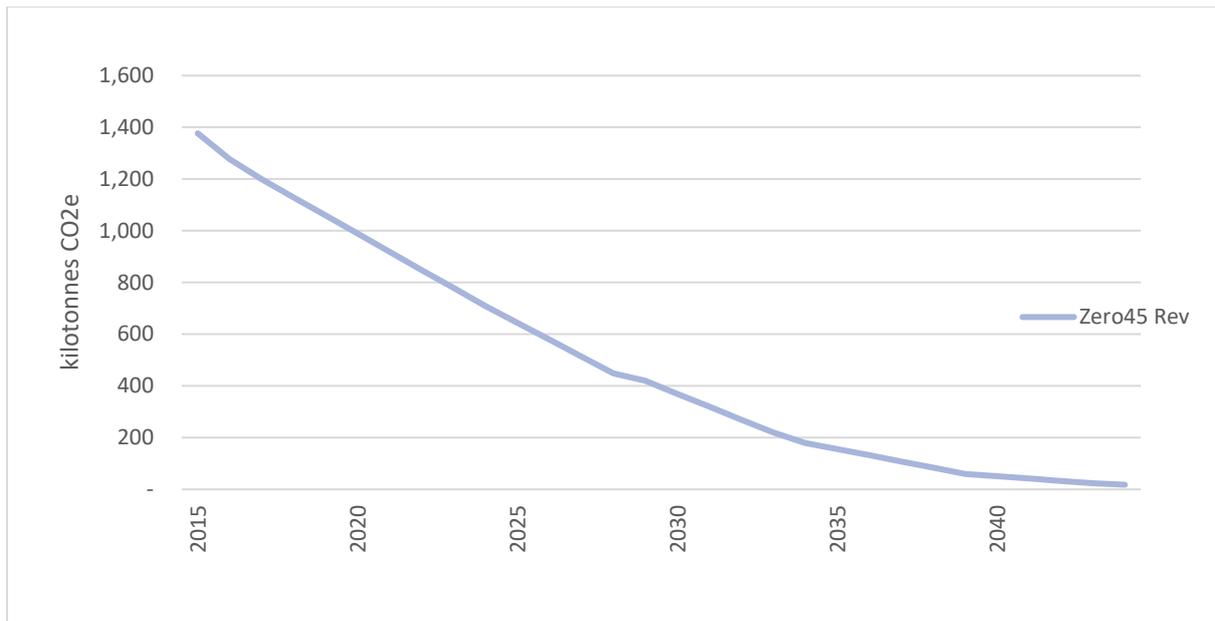
3. Where we want to be in the borough: Zero 45

Barnsley's local carbon reduction goals are based on the borough meeting its 'fair share' of the UN's global carbon target and allocation of carbon budgets.

In order to meet the borough's carbon budget, it's proposed that most carbon savings are made in the first years up until 2030. This means reducing the borough's emissions from a 2017 base line as follows:



Our ambition is that by 2025 the borough reduces its direct and indirect emissions (scope 1 and 2) by 65% of its 2017 emissions.



This means that in Barnsley we:

- reduce greenhouse gas emissions by three-and-a-half times more each year than we have achieved so far
- reduce our demand for energy, while supporting our economy to recover from the wider impacts if the Coronavirus (COVID-19) pandemic
- develop programmes which support the switch to clean zero carbon energy sources by around 2045
- shift to fossil fuel free local travel by around 2030
- make our homes more energy efficient.

Our aims are to:

- positively engage, cutting carbon and improving people's lives
- create a fairer society
- create more and better jobs
- improve the local economy
- improve air quality
- provide more active modes of travel
- reduce our consumption and dependency on energy
- improve the quality of the homes we live in
- provide improved green spaces and ensure greater health equality.

As a leading anchor institution, we'll seek to use our powers and create policies to facilitate, encourage and support the reduction of emissions across the borough. However, the areas where the need to reduce emissions is greatest are also the areas where we have limited influence. It will be necessary for government to play a

significant part in addressing these issues either through legislation, grants or other financial incentives.

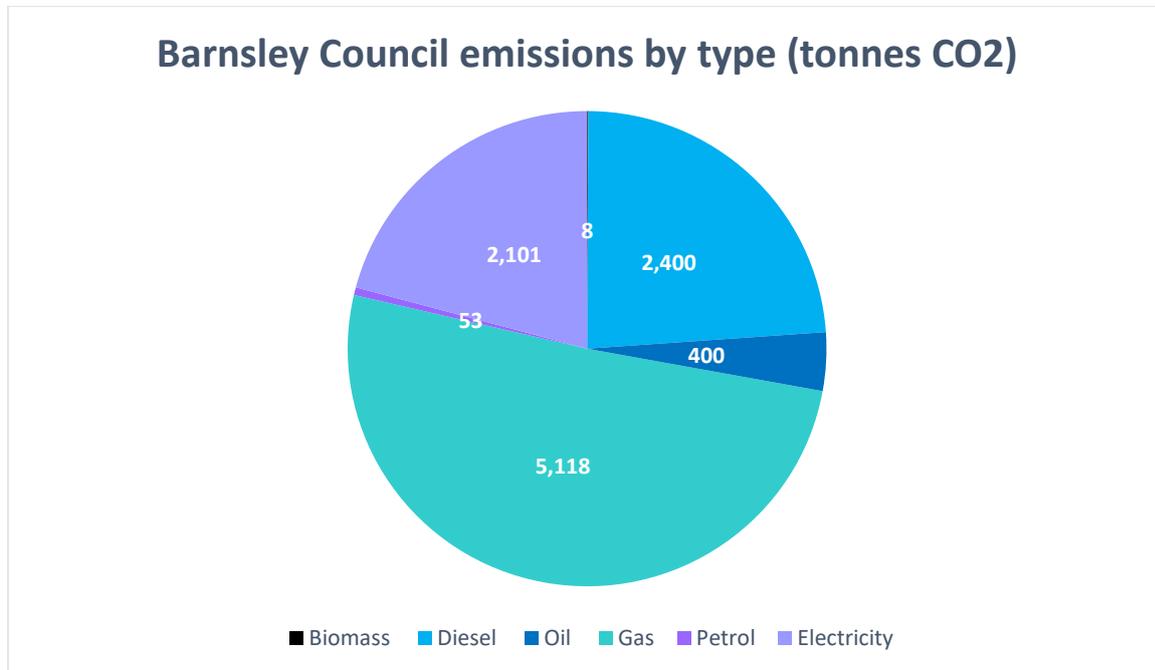
Barnsley will seek to secure local contributions from those with an interest in our borough to help meet this local goal. Local contributions are commitments towards carbon reduction that different organisations and businesses in Barnsley will pledge to achieve, for example, Zero40 is our local contribution. Some organisations already have climate-related action plans, others are committed to develop them. Many more need to be encouraged and supported to do so.

These local contributions vary and together will need to add up to the scale of ambition set out in this SEAP. Over time we will get a sense of whether this strategy is working by the number and quality of local contributions coming forward.

4. Current position in the council

During 2019, the we emitted 10,083 tonnes of carbon during our normal operations.

Most of the emissions are associated with our fleet of diesel vehicles, heating our buildings and the purchase of electricity and other fuels.



These form the principal areas of our own action plan and we'll focus on reduction activities such as improving the energy efficiency of our buildings and purchasing electric vehicles.

We also work with our partners to develop their local contributions toward the borough's targets.

For example:

- In partnership with Barnsley Premier Leisure, we're replacing the coal fired boilers at the Metrodome Leisure Complex which is helping reduce carbon emissions by more than 50% at the centre.
- We're working with Berneslai Homes to develop programmes to improve the energy efficiency of our homes and replace older polluting vehicles with new electric vehicles.
- We're working with Energise Barnsley to deliver solar PV programmes to council owned buildings, schools and domestic properties which will generate renewable electricity using the sun's energy.

5. Where we want to be in the council: Zero 40

We recognise the need to reduce our own emissions quickly, and the majority of our reduction to happen in the next ten years.

Our target is that by 2025, the council will have reduced its emissions by 60 per cent based on 2019 levels.

We'll aim to achieve our carbon emission targets by using a combination of existing schemes and development of new programmes.

We're committed to being a leader in sustainability by reducing our environmental impact, protecting our natural environment, empowering our staff and operating responsibly, enhancing social value and collaborating with our partners to work with our local communities.

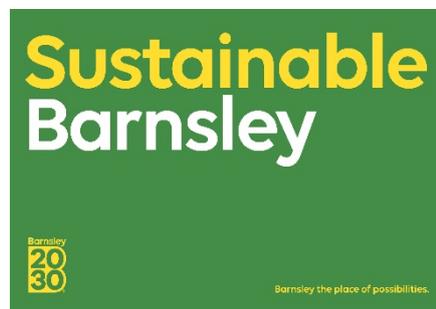
We'll do this by embedding sustainability into our workplace practice and across our supply chain, applying our vision of 'doing no harm' and working collaboratively with our partners.

6. Engagement and governance

It's important that our residents and stakeholders are consulted as widely as possible.

We'll build on the recent Barnsley 2030 engagement which is the basis of the strategic direction for the borough over the next ten years.

We'll work closely with key stakeholders across the borough such as the area councils, councillors, youth services such as Barnsley's Youth Council, schools and colleges, community leaders and groups, voluntary sectors and our businesses.



We'll use best practice to develop our engagement proposals. We'll reflect feedback and ideas in our plans.

The emerging governance arrangements for Barnsley 2030 will set out the strategic direction for the borough, and it is anticipated that they will oversee the annual reporting process for zero carbon with both Zero40 and Zero45 programmes reporting into it.

A Positive Climate Partnership will report to the emerging Barnsley 2030 board for Zero45. It will champion and co-ordinate local action on climate change. We'll support the them, but it will be an independent partnership.

The Positive Climate Partnership will:

- monitor delivery of carbon reduction targets for Zero45
- provide a forum with an independent voice to co-ordinate and champion local action
- help to grow the wider network of interest
- gather and present data to inform action with a set of indicators to show if we are making progress
- produce annual reports on local progress.

Our existing Carbon Management Group will report on Zero40 to the emerging Barnsley 2030 board. The group will monitor our own delivery of carbon reduction targets and embed a carbon reduction culture across our organisation.

Where possible, existing boards in our governance structure will have a standing item in respect of environmental impact in their terms of reference.

As part of Sheffield City Region, Barnsley Council is also a member of the NZ:SCR partnership which will oversee the City Region's reduction to net zero and provide a link between the City Region's authorities and government's Department of Business Energy and Industrial Strategy.

We'll be responsible for monitoring and reporting progress in achieving the Zero40 and Zero45 targets set out in this SEAP. For this to be meaningful it will be

necessary to develop a measuring and accreditation methodology which reports annually to the governance structures set out. We'll develop this methodology during the first six months of this SEAP with the intention of reporting on the success of the first year of the programme at the end of 2020-2021.

7. How will we do it: the key principles

Our response to the climate emergency will be successful if we acknowledge the scale of the change required.

This will require:

- **Positive engagement and co-creation** with the residents and businesses of Barnsley
- **Developing a clear view of climate risk** to identify vulnerabilities in the face of extreme weather events.
- **Promotion of adaptation** to put in place policies, practices and infrastructure, including natural 'green and blue' infrastructure, to help limit negative impacts from climate change.
- **Creation of lifelong learning and training opportunities** for residents and business allowing them to adapt and improve the local supply chain.
- **Ensuring that a just transition takes place** with all residents able to benefit fully from the new opportunities and the costs of the transition will not fall disproportionately on those least able to pay.
- **Develop wider climate understanding** to raise awareness about the climate emergency and about the opportunities and benefits.
- **Adequate resourcing** to secure increased investment (capital and human resources) to match the scale of the challenge.
- **Create stronger partnerships and networks** to ensure climate action is given the priority it needs and is developed in a collaborative and co-ordinated way.
- **Understand our residents' ambitions** via regular and ongoing engagement and consultation.
- **A recognition that health and economy outcomes are linked to the climate agenda.**

7.1 Aims, themes and goals

This SEAP identifies four Zero Carbon Community Aims. These will be delivered via five themes and it will align with the 17 United Nations' Development Goals. This is set out below in the following section.

7.2 Four Community Carbon Aims

The SEAP's Delivery Plan has the aim of delivering four Zero Carbon community aims set out below:



These are aims which if achieved will help to deliver a greener, more inclusive and healthier borough.

7.3 Five Emerging Delivery Themes

We'll look to achieve our four Zero Carbon Community Aims by focusing on delivering projects focused on the five following themes:



Energy efficiency:

Reducing the demand for energy, including retrofitting both domestic and non-domestic properties for better efficiency.



Renewable energy:

Generating or resourcing our energy from zero carbon and renewable sources, including biodiesel, solar PV and microhydro.



Sustainable transport:

A transition to fossil-fuel-free local travel, including supporting active travel and increasing electric and hybrid vehicles.



Resource efficiency:

Use resources, materials, land and food in a sustainable way, minimising waste and developing new uses for waste products.



Decentralised heating:

Using alternative sources of heating, like heat networks, rather than natural gas as our primary source of heat.

It's likely that these themes will develop and change over time following consultation.

Themes for actions

The SEAP will seek to achieve carbon reduction through addressing the five themes set out in section 5. Each thematic area will be reviewed to identify projects and programmes which can be delivered locally.

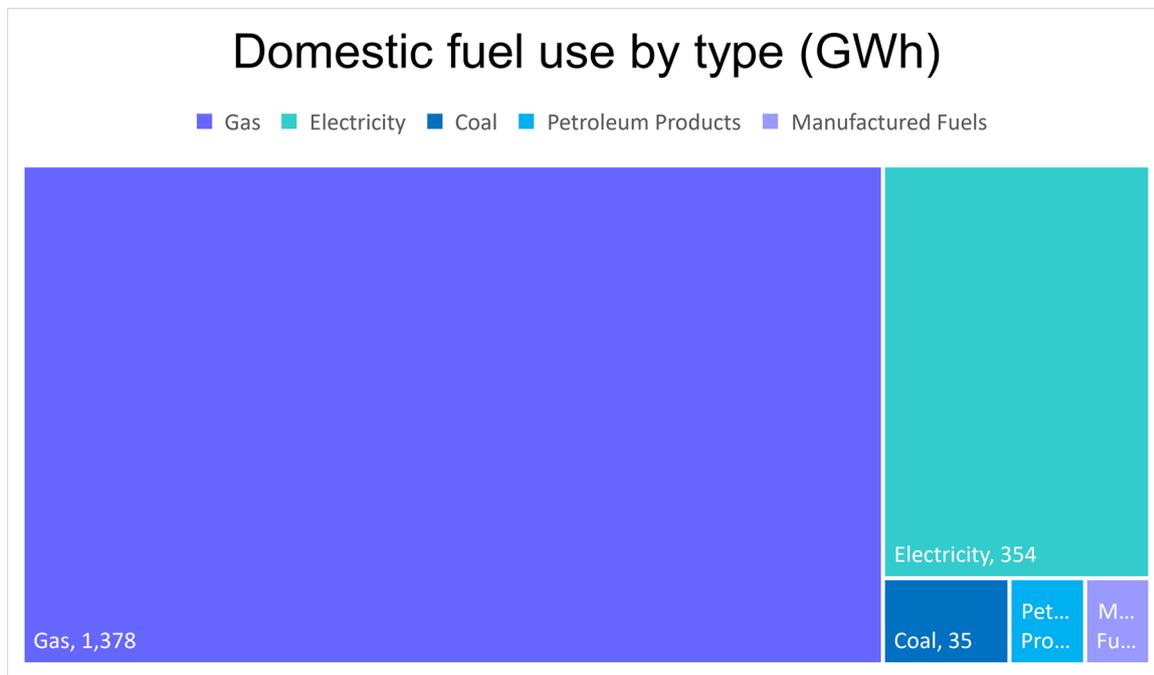
Improving Energy Efficiency

Over 40% of the UK's energy consumption is from the way our buildings are lit, heated and used. Energy use in existing residential and commercial buildings in Barnsley is a major contributor to carbon emissions and therefore represents the biggest opportunity for reduction.

This includes a range of retrofit measures for both domestic and non-domestic properties including boiler efficiencies, insulation, controls and energy management systems. Awareness and behaviour change will be an important component of this,

as will working with partners and communities and those with the highest consuming buildings.

We'll look to use our levers of influence, especially regarding planning policy and the development of our own buildings.



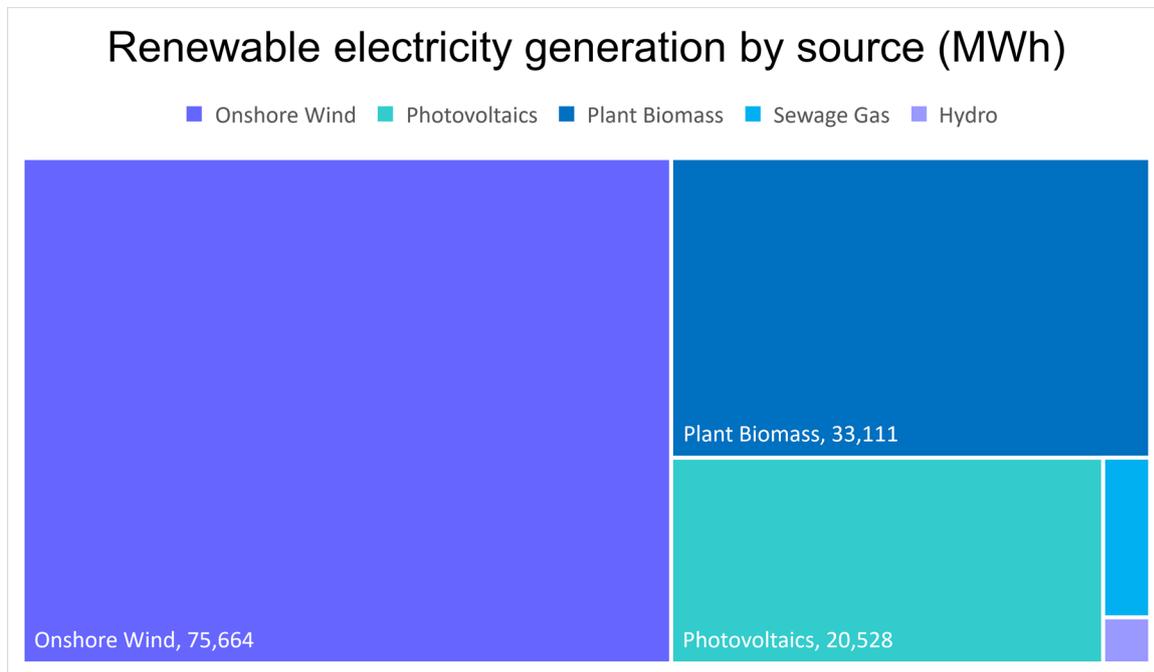
The most difficult issue for the borough is how heat is provided and how we can move away from natural gas as visible above, gas is the most used fuel in domestic settings in Barnsley.

Renewable Energy

We want to increase the proportion of renewable energy that is generated within the borough and to increase the proportion of this energy that is owned within the borough - retaining a greater proportion of our energy spend will have a significant impact including on fuel poverty.

We want to expand the use of renewable technologies for both electricity and heat across the borough and integrate these into buildings, assets and infrastructure. A key objective of the SEAP is to develop a supportive regime for installing renewable technologies. Currently there is a lack of awareness of the potential opportunities across Barnsley and no strategic policy framework to assist with installations. This awareness needs to be developed further. The main aim of any review would be the identification of investable renewable projects to power Barnsley's homes, public and commercial buildings.

We want to provide guidance for community groups and householders; and assessing opportunities for a number of specific renewables projects such as biodiesel, solar PV and micro hydro.



Sustainable Transport

Transport emissions in Barnsley still accounted for 26% of all emissions in 2017. This SEAP programme aims to support the work of our Active Travel Plan and Sustainable Travel Strategy by developing initiatives specifically aimed at reducing carbon emissions from transport such as encouraging residents to cycle more.

How often do Barnsley Residents cycle	%
At least once per month	10.9
At least once per week	8.1
At least three times per week	2.8
At least five times per week	0.7

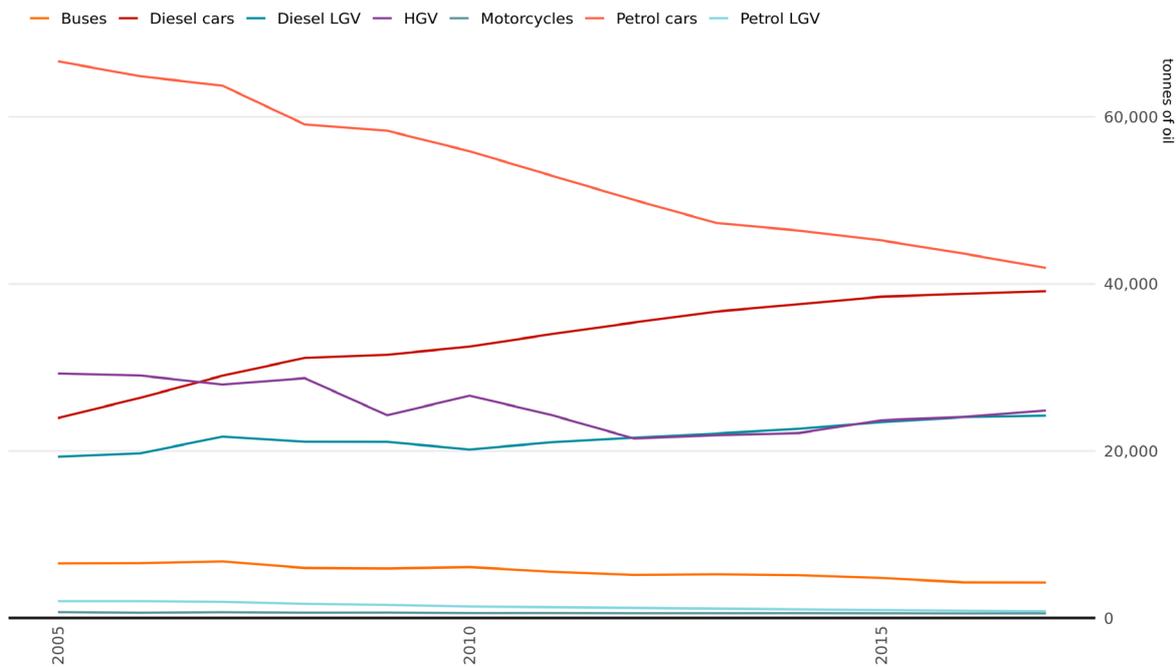
Source: Department of Transport

The SEAP will also work with partners on a major programme to substantially increase the number of electric and hybrid vehicles in the borough including cars, buses and vans, and ensure that there is infrastructure in place to support this. An important element of this work will be to ensure that the electricity generation for the vehicles is decarbonised. It will seek to understand the opportunities for alternative fuels such as hydrogen.

Barnsley’s Transport Strategy aims to reduce the need to travel, encourage active travel and decarbonising travel. This includes a range of measures in the Active Travel Action Plan. Other initiatives include working with large employers to set travel targets, promoting green fleet health checks, creation of a Town Car Club; supporting and engaging with local bus service providers on decarbonising public transport.

Fuel use by vehicle type

Barnsley, 2005-2017



Source: BEIS

Resource Efficiency

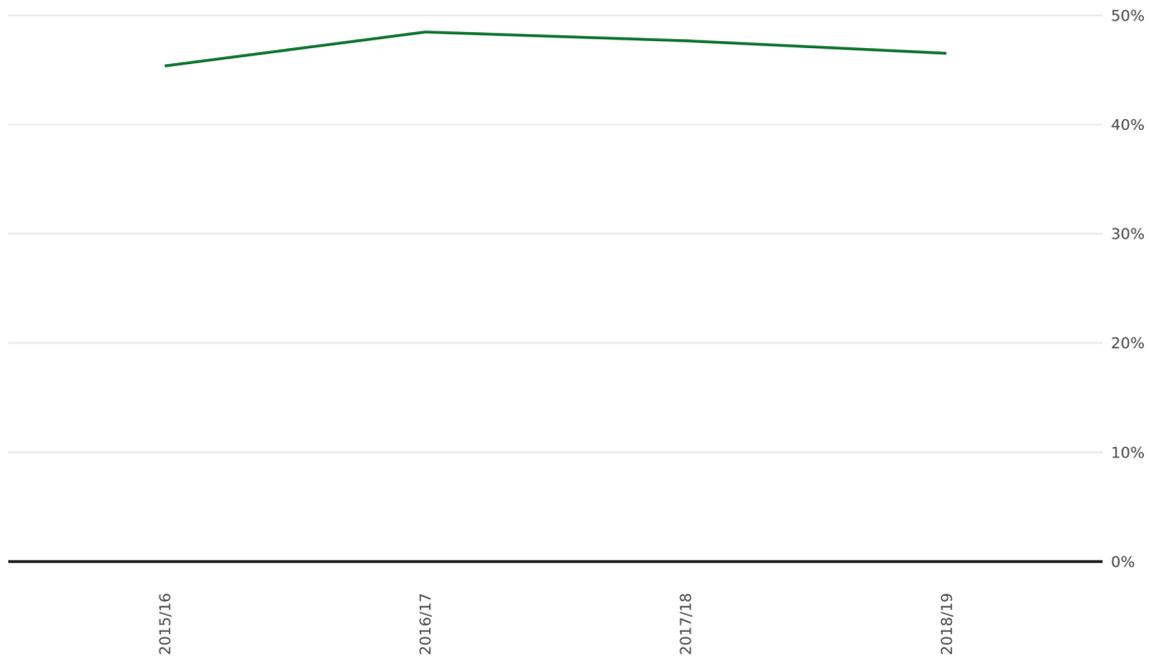
Natural capital is nature’s ability to renew and provide resources. These resources include water, land, minerals and timber and are not finite. Human activities are consuming these inefficiently, producing more waste leading to increasing carbon emissions.

This means that there is a need to find new sustainable methods of production to address wasteful consumption and develop new uses for products previously considered ‘waste’.

This programme will encourage resource efficiency across Barnsley with businesses and consumers. Actions will include working in partnership with Sheffield City Region to deliver a programme to support SMEs and evaluate opportunities for capturing waste heat and power, working with colleagues delivering the town’s food agenda, joining the Circular Economy 100 programme, promoting the Resource Efficient UK advisory and support service, engaging with organisations involved in reuse and repair activities in Barnsley.

Reuse, recycling or composting of household waste

Barnsley, 2015 - 2018



Source: DEFRA

Decentralised Heating

Heat networks form an important part of our plan to reduce carbon and cut heating bills for customers (domestic and commercial). They are one of the most cost-effective ways of reducing carbon emissions from heating, and their efficiency and carbon-saving potential increases as they grow and connect to each other. They provide a unique opportunity to exploit larger scale – and often lower cost – renewable and recovered heat sources that otherwise cannot be used. It's estimated by the Committee on Climate Change that around 18 per cent of UK heat will need to come from heat networks by 2050 if the UK is to meet its carbon targets cost effectively.

Our activities will focus on the opportunities to create new heat networks across Barnsley providing locally generated heat for residential and commercial properties. Actions will include publishing a Barnsley District Heating Strategy and heat maps, evaluating the potential from its own estate, providing guidance for developers, working with partners to assess opportunities from new developments.

7.4 Seventeen UN Sustainable Development Goals

It's our aspiration that this SEAP becomes closely aligned with the United Nation's Sustainable Development Goals (2015-2030). These global goals aim to end all forms of poverty, reduce inequalities and fight climate change while ensuring that no one is left behind.

These goals are represented below:

www.un.org/sustainabledevelopment/sustainable-development-goals/



7.5 Ambitions in numbers

The table below details the principle carbon objectives of this SEAP.

Our Ambitions	date to be achieved by	how are we going to measure it	What's our starting point	What's our target for 2025
Zero45 65% reduction in scope 1 & 2 carbon emissions	December 2025	Annual validation by third party	1,310,810 tCO2E	458, 708 tCO2E
Zero40 60% reduction in scope 1 and 2 carbon emissions	December 2025	Annual validation by third party	10,083 tCO2E	4,033 tCO2E

Appendix 1 DEFINITIONS

Net Zero: This is described as achieving a position in which the activities of an organisation or an economy (in the case of this SEAP the council and the wider borough) result in no net impact on the climate from greenhouse gas emissions. This is achieved by reducing greenhouse gas emissions and by balancing the impact of any remaining greenhouse gas emissions with an appropriate amount of carbon removal.

Greenhouse gas emissions: Carbon dioxide (CO₂) makes up the vast majority of greenhouse gas emissions, but other gases such as Methane (CH₄) and nitrous oxide (N₂O) and Ozone (O₃) are also defined as greenhouse gases as they can all contribute to the warming of the atmosphere. Greenhouse gases are typically expressed as 'carbon dioxide equivalent', or CO₂e, and this measure incorporates all greenhouse gases as defined by the Kyoto Protocol.

Net Zero Targets: This SEAP refers to two net zero targets Zero 40 for the council and Zero 45 for the wider borough. Other bodies have set net zero carbon targets which do not in all cases correspond to the council's; the government, for example, has set a net zero target for the country of 2050, the Sheffield City Region has set a target for its geography of 2038. It is not clear, at this point, whether these different targets will at some point in the future be rationalised however the council believes that the targets it has set namely Zero 40 for its own activities and Zero 45 for the wider borough are realistic and achievable. It should also be noted that the council's Energy Strategy 2015-2025 which informed the Climate Emergency Declaration speaks of a zero carbon target by 2040, at this moment absolute zero is not achievable and we are therefore focusing on a net zero target with offsetting where necessary.

Carbon Budget: this is the total amount of carbon that can be emitted, allocated to a country, region, or organisation in order to constrain the rise in global temperature to no more than 1.5°C. More information is given under Science Based Targets and Monitoring below.

Scope: in order to establish which carbon emissions are to be counted when looking at the emissions of a business or a geography (borough, region, country) a number of definitions of what is in and what is out of scope have been developed. Scope 1 emissions are those generated by activities within the organisation or geography principally from the burning of fossil fuels for heating, Scope 2 are emissions generated outside the organisation principally electricity, and Scope 3 emissions are those generated by outsourcing activities to another organisation. 'Scopes' help us to understand which activities cause greenhouse gas emissions and how emissions are allocated within a wider organisation or geographical location.

Appendix 2

Barnsley's 2017 greenhouse gas emissions by source (metric tonnes CO2e)

The borough's emissions	Direct emissions (Scope 1)	Indirect emissions (Scope 2)	Total Tonnes of Carbon emitted
Residential buildings	262,241	125,315	387,556
Commercial buildings	62,188	21,361	83,549
Institutional buildings	101,212	107,946	209,158
Industrial buildings	95,214	62,574	157,788
Agriculture	4,291	2	4,293
Rail	4,601		4601
Road	400,087		400,087
Waterways	12		12
Solid waste disposal	48,641		48,641
Wastewater	15,195		15,195
Total	993,682	317,198	1,310,880

Fig 1 Tyndale Centre Scatter analysis University of Manchester: 2020

Barnsley Council emissions by type	Direct emissions (Scope 1)	Indirect emissions (Scope 2)	Total Tonnes of Carbon emitted
Biomass	8		8
Diesel	2,400		2,400
Oil	400		400
Gas	2,057	3,061	5,118
Petrol	53		53
Electricity		2,101	2,101
Total	4,921	5,162	10,083

Fig 2 Barnsley Councils emissions by fuel

Appendix 3: Governance structure

