# Stockton-on-Tees Borough Council
# Environmental Sustainability & Carbon Reduction Strategy 2022-32

## Leader's Foreword

We have a duty to protect the wellbeing of all our residents for the long term, creating and sustaining a physical, social and economic environment in which our communities can thrive. Changes to our climate and biodiversity represent unprecedented threats to the wellbeing of our communities and our response should touch almost everything we do and involve all of society. We should have particular regard for today's young people who will either live with the receding threat of dangerous global warming, if our actions are sufficient, or with the terrible effects of volatile weather, rising sea levels, food insecurity and the extinction of species we have always taken for granted.

Stockton-on-Tees Borough Council has a proud history of protecting our environment. Our efforts in the past ten years have reduced our own greenhouse gas emissions by nearly 60% and delivered major environmental enhancements across the Borough. National and international climate protection policies are strengthening and technology is evolving rapidly, but significant warming is already locked in and there is strong evidence that the impacts of climate change will be worst for our poorest and most vulnerable residents. Stockton Borough Council can make a difference through its own actions and it can also provide leadership and advocacy, bringing partners together and encouraging change.

To play our part in national efforts to keep global temperature rises to 1.5°C will require considerable resources that are not yet identified, but we know where we need to focus the resources we do get, to achieve the greatest benefit:

- **We believe we should aim to be net zero for greenhouse gas emissions by 2032, using the critical next decade to shift to sustainable practices and systems.**
- **We will protect and enhance the natural environment, improving air and water quality and creating habitats that sustain diverse species and lock in carbon.**
- **We aim to use all our resources efficiently and minimise waste, helping our businesses and residents to consume less and recycle more.**
- **We will adapt to climate change, making services and operations more resilient and strengthening preparations for extremes of weather.**

There are many agencies and groups committed to this agenda, but there are still many sceptics and there will be inertia as well as practical challenges as we try to break old habits and forge new, sustainable ones.

**Councillor Bob Cook, Leader of the Council**

# 1. Introduction

## National and International context

Climate change is a global phenomenan; what we do in Stockton on Tees may seem irrelevant, but if what we do aligns with national and international efforts, collectively we can make a meaningful difference. For this reason it is important that this strategy is understood in the context of national policies and international treaties.

Our overall approach to the development of the strategy has been informed by recent legislation and government policy, most notably:

- The Climate Change Act 2008 (2050 Target Amendment) Order 2019[1], which states that **by 2050 greenhouse gas emissions are to be cut by 100% compared to 1990 levels, i.e. 'net zero'**. An interim target states that **by 2035 emissions are to be cut by 78% compared to 1990 levels**;
- A Green Future: Our 25 Year Plan to Improve the Environment (2018)[2], which aims to leave the environment in a better state than in which we inherited it.
- **The Environment Act 2021**[3], which focuses on enhancing and protecting the natural environment, including **air and water quality, biodiversity** and measures to improve **waste and resource efficiency**.

In addition, other national strategies, policies and plans have informed individual elements of this strategy, and over the coming years we will need to take account of the changing national and international legislative and policy context for this very broad, evolving agenda.

## How will the strategy make a difference?

The Council itself can only make a small direct contribution to the broad range of issues identified within the strategy. For example, in relation to climate change mitigation we should note that local authorities across the country generate just 2% of total UK greenhouse gas emissions, so while it is important that they reduce those emissions this will only make a relatively small contribution at a national scale. However, it is estimated that councils have influence over around 33% of emissions (Figure 1). So while we must focus on how we operate as an organisation, we also want to work with partners to achieve change at the Borough scale and have wider influence where possible.

[1] https://www.legislation.gov.uk/ukdsi/2019/9780111187654
[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf
[3] https://services.parliament.uk/Bills/2019-21/environment.html

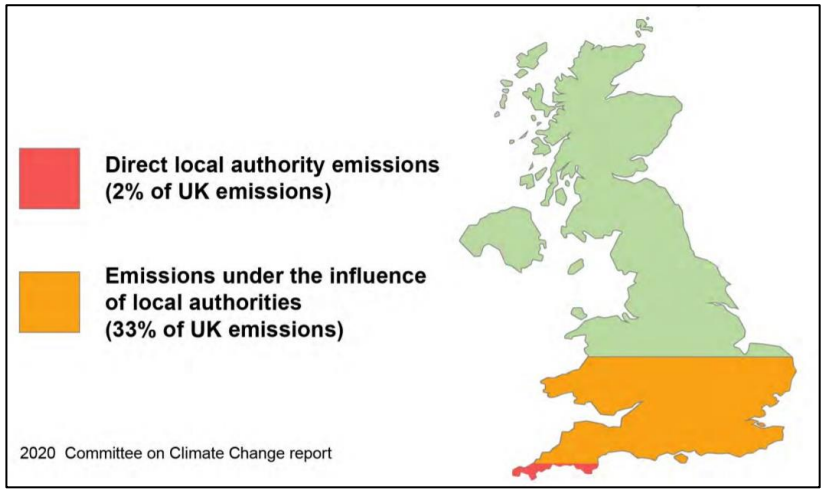


***Figure 1: UK greenhouse gas emissions and local authorities***[4]

Therefore the strategy seeks to make a difference in three ways:

1. **By focusing on Council operations and infrastructure**
   The Council can deliver the strategy in part through the way it manages its operations, buildings, land and other assets. These are areas over which the Council has direct control and where it can take action, subject to the availability of resources.

2. **Through the delivery of strategies, policies and work programmes**
   The Council can also achieve improved environmental outcomes through the strategies, policies and programmes of work it delivers in partnership with others.

3. **By influencing others**
   Finally, the strategy should act as a catalyst to encourage and inspire residents, businesses and other organisations to adopt practices and take positive action which will contribute to an environmentally sustainable borough.

We want to work with a wide range of partners and develop coalitions which can achieve major changes across the Borough and beyond.

# Technical report

Due to the breadth and complexity of issues covered by this strategy a separate technical report has been prepared. This provides a summary of the detailed information which underpins our overall approach, and will be used as a basis for the action planning process.

[4] Committee on Climate Change (2020)

# 2. Strategic aims & objectives

We have set four overarching aims for environmental sustainability and carbon reduction. For each aim we have a series of objectives, identifying what we need to do in order to achieve them.

These aims and objectives should not be viewed in isolation; individual actions will often contribute towards two or more of these aims. For example, any natural habitats we restore can help to achieve 'net zero' by locking up carbon in plants and trees (Aim 1), support nature recovery (Aim 2), and contribute to climate change adaptation by reducing flood risk (Aim 4).

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|---|---|
| **Aim 1: Achieve net zero greenhouse gas emissions**<br>*Objectives:*<br>a) Reduce energy demand wherever possible<br>b) Accelerate the shift towards use of sustainable energy<br>c) Take other action to reduce harmful emissions<br>d) Capture and store carbon in woodlands and other natural habitats | **Aim 2: Protect and enhance the natural environment**<br>*Objectives:*<br>a) Protect, extend and connect areas of natural habitat and help address the decline in native species<br>b) Help to improve air quality by reducing harmful emissions<br>c) Take action to improve water quality and reduce local demand for water |
| **Aim 3: Use all resources efficiently and minimise waste**<br>*Objectives*:<br>a) Ensure sustainable purchasing and procurement of goods and services<br>b) Maximise the use of existing resources, minimise waste and achieve high levels of re-use and recycling<br>c) Minimise litter and waste crime and encourage responsible disposal of waste | **Aim 4: Adapt to the impacts of climate change**<br>*Objectives:*<br>a) Ensure essential services and operations are resilient to the likely future impacts of climate change<br>b) Increase the preparedness and resilience of local communities and businesses<br>c) Plan and adapt the built and natural environment to withstand the impacts of climate change |

# Aim 1: Achieve net zero greenhouse gas emissions

Global temperatures have increased by more than 1°C since the 19th century, and this is already having serious impacts on people, environments and economies across the globe as a result of changes to our weather patterns and rising sea levels. Greenhouse gas emissions are the main cause of climate change, with carbon dioxide comprising 80% of total emissions. But other greenhouse gases also have a major impact, principally methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. For example, over a 100-years one tonne of methane generates 28 times the amount of warming compared to one tonne of carbon dioxide; so although methane only represents 12% of total global emissions it is a major contributor to climate change.

We are very aware of how climate change is affecting us in the UK with the top-ten warmest years since 1884 all having occurred in the period since 2002. Records also show that the UK was on average 6% wetter between 1991-2020 compared to the preceding 30 years; and 2020 was the first year when annual values for rainfall, temperature and sunshine were all in the top ten in the same year. It was in fact the third warmest, fifth wettest and eighth sunniest on record for the UK.[5]

It is inevitable that we will experience the impacts of climate change for decades to come given that the world is currently heading for 2.4°C of warming, despite pledges made at COP26[6] in 2021 to reduce net greenhouse gas emissions. Furthermore, an analysis of international governments' actual policies (as opposed to pledges) suggests that we may experience 2.7C warming by 2100, according to the Climate Action Tracker[7]. So it is essential that we take action now to reduce greenhouse gas emissions, and according to scientific advice if we can limit global warming to 1.5°C we can still prevent the most dangerous global impacts of climate change from occurring.

In order to meet its target to be 'net zero' by 2050 the UK will have to reduce greenhouse gas emissions from all sectors including transport, energy supply, construction, residential, business, agriculture and waste. But as well as reducing emissions we should also increase the rate at which carbon dioxide is absorbed from the atmosphere. This can be achieved in part through industrial processes, but terrestrial and marine ecosystems perform an essential function in removing (or 'sequestering') greenhouse gases from the atmosphere and storing them in soils, vegetation and sediments. Globally these ecosystems absorb over half of the emissions caused by people, and in the UK habitats such as peatlands, woodlands, marine and coastal habitats are particularly effective carbon sinks[8].

The transition towards a decarbonised economy brings with it considerable economic opportunities. Research commissioned by the Local Government Association found that in order to achieve the UK's 2050 net zero target it will require, for example, "close to 28 million homes and the premises of 6 million businesses to change the way they use energy via the installation of energy efficient lighting and measures, microgeneration, and heating systems that produce next to no greenhouse emissions"[9]. This, together with measures to decarbonise other sectors of the economy, is likely to result in a massive increase in jobs in the low-carbon and renewable energy economy**.**

[5] State of the UK Climate 2020 published in The Royal Meteorological Society's 'International Journal of Climatology'
[6] The 26th UN Climate Change Conference of the Parties (COP26): https://ukcop26.org/
[7] Based on data provided by the Climate Action Tracker - an independent scientific analysis that tracks government climate action and measures it against the globally agreed Paris Agreement aim of "holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C": https://climateactiontracker.org/
[8] Carbon Storage and Sequestration by Habitat (2021) Natural England: http://publications.naturalengland.org.uk/publication/5419124441481216
[9] Local green jobs – accelerating a sustainable economic recovery - An Ecuity Consulting report for the Local Government Association (LGA): https://gemserv.com/wp-content/uploads/2021/06/Local-green-jobs-accelerating-a-sustainable-economic-recovery_final-1.pdf

## *Local context*

Achieving net zero presents a major challenge for the Borough as a whole. According to the *Tyndall Carbon Budget Reports*[10], based on 2017 $CO_2$ emission levels, Stockton-on-Tees as a whole will exceed the recommended budget available within 6 years from 2020. To stay within the recommended carbon budget Stockton-on-Tees will, from 2020 onwards, need to achieve average mitigation rates of $CO_2$ from energy of around -14.6% per year".

The Council can make a small but important contribution towards reducing greenhouse gas emissions through management of its own assets and operations, and between 2009/10 and 2019/20 we delivered a 57.6% reduction in net greenhouse gas emissions.[11] As shown in Figure 2 we have achieved a reduction in emissions across most areas of operation. However, emissions from fleet transport remain particularly high and there is also still scope to achieve further significant reductions in emissions in other areas of operation too.

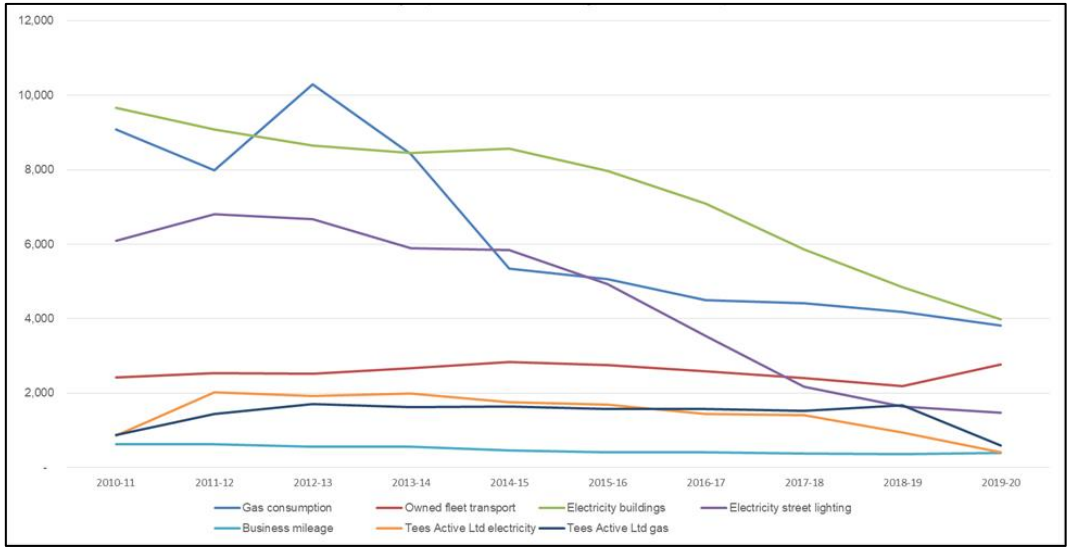


***Figure 2: 2010 to 2020 emissions from Scope 1, 2 and 3 Council* activity, *in tonnes of $CO_2e$***

Reductions in Council emissions have been achieved through a variety of measures aimed at reducing energy use, improving energy efficiency, and transitioning to renewable energy. In the four years leading up to March 2020 this resulted in savings of over £1.1 million. Some of the most significant interventions have included a £14 million programme to replace over 28,000 street lights with energy efficient LED units (delivering a 76% reduction in $CO_2e$ emissions since 2012) and the

[10] Local and Regional Implications of the United Nations Paris Agreement on Climate Change (manchester.ac.uk)
[11] Stockton-on-Tees Borough Council (2021) Air Quality Annual Status Report: https://www.google.com/url?client=internal-element-cse&cx=005297830846990773169:qiuvpx9vvdq&q=https://www.stockton.gov.uk/media/1963104/air-quality-annual-status-report-asr-2021.pdf&sa=U&ved=2ahUKEwj4r7ec-tH0AhWmyIUKHSmgCCcQFnoECAAQAQ&usg=AOvVaw1oGooHttNNptZ4Tk9I9Wqi

development of 27 individual renewable energy installations at Council premises, including a number of photovoltaic (PV) schemes and ground source heat pumps. The total amount of renewable energy generated by the Council has increased from 8,133.43 kWh in 2011/12 to 160,820.78 kWh in 2019/20, resulting in financial savings in excess of £20k per annum. Other measures have also helped to reduce the Council's carbon emissions. For example, the introduction of electric and 'hybrid' vehicles into the Council's fleet (8 vehicles in operation in 2021); the promotion of initiatives such as a Cycle to Work scheme; and the use of new low-heat products for repairing potholes which reduce the need for machinery and result in fewer vehicle movements.

We are also delivering and supporting other projects to help reduce greenhouse gas emissions across the Borough as a whole. This includes the development of a network of electric vehicle charging points; implementation of programmes to improve the energy efficiency of the Borough's housing stock and increase use of renewable energy; and the provision of infrastructure to encourage sustainable and active travel.

Finally, we should take into account the role that our natural environment plays in capturing and storing carbon and thereby 'off-setting' some of the emissions generated within the Borough. Here we are already developing projects to increase the amount of woodland and intertidal habitat, both of which can be highly effective in sequestering carbon. More widely across the Tees Valley the 13% of land which is natural or semi-natural habitat acts as a net sequester of carbon, capturing approximately 64,000 tonnes of $CO_2e$ per year. However, a much larger area of land (40%) is under arable production or horticulture and this generates emissions of approximately 157,000 tonnes of $CO_2e$ per year[12]. So at the Borough scale it would be beneficial to increase the total area of woodland, intertidal and other habitat with a high carbon sequestration unit value, while at the same time ensuring that sustainable forms of agriculture thrive and continue to make an important contribution to the local economy and will be driven by national policy.

## Objectives

### 1a. Reduce energy demand wherever possible

*This should include:*

- Continuing to improve the energy efficiency of Council assets
- Supporting delivery of national programmes to improve the energy efficiency of existing housing stock
- Providing advice and information to residents, businesses and the third sector on ways to reduce their overall demand for energy
- Supporting and encouraging Council staff to reduce business mileage
- Providing improved walking and cycling infrastructure to encourage active and sustainable travel

### 1b. Accelerate the shift towards use of sustainable energy

*This should include:*

[12] Natural England (2020) *A Natural Capital Account for the Tees Valley:* http://publications.naturalengland.org.uk/file/4780728085905408

- Working towards full or partial decarbonisation of the Council's fleet
- Continuing to develop the Council's capacity to generate its own renewable energy
- Assisting homeowners, social housing providers and private landlords to access government and other funding to transition to non-fossil fuel heating
- Providing advice and information to residents, businesses and the third sector to increase use of renewable energy
- Working with partners to provide an extensive network of electric vehicle charging points across the Borough and the Tees Valley
- Undertaking further work to assess the viability of developing battery storage facilities and district energy schemes - utilising renewable energy sources

## 1c. Take other action to reduce harmful emissions

*This should include:*

- Reducing carbon emissions by minimising waste
- Utilising 'carbon foot-printing tools[13] to assess the impact of activities and operations, and to inform decision-making

## 1d. Capture and store carbon in woodlands and other natural habitats

*This should include:*

- Increasing the total area of those natural habitats which have a high capacity to sequester carbon (e.g. woodlands and inter-tidal habitats)
- Improving the management of existing habitats to maximise their potential to sequester carbon

[13] Usually software tools which are used to calculate the greenhouse gas emssions generated by a service, activity or product

# Aim 2: Protect and enhance the natural environment

We continue to experience an overall loss of biodiversity with a recent national report stating that "in the UK, 40% of species are in decline and more than 40 million birds have been lost from our skies over the past 50 years, and a quarter of mammals are threatened with extinction"[14]. Similarly there remain considerable challenges in improving air and water quality, with air pollution still posing the 'largest environmental risk to public health in the UK'[15], and only 14% of our rivers achieving 'good ecological status', a figure that has not improved over the past ten years[16].

Biodiversity, clean air and water are essential for life; our health and wellbeing and our economy depend upon these natural resources. However, the real value of our natural assets is often overlooked and as a result it has not always been factored into decision-making processes; resulting in a lack of investment in the natural environment, or at worst actions which degrade our natural assets. To address this issue we are increasingly considering the natural environment in terms of 'natural capital'. This recognises that the natural environment provides a very wide range of ecosystem services (including carbon sequestration, food, water, flood alleviation, biodiversity and improved public health and wellbeing) which should be valued for the benefit they provide to people and the economy.

Numerous human and natural factors continue to have major impacts on the UK's natural environment: our biodiversity, air and water in particular. Tackling these issues requires action at international, national, regional and local levels:

Threats to UK species and habitats include:[17]

- Climate change – resulting in changes to the distribution and abundance of many species.
- Urbanisation – between 1970 and 2018 there was an 8% increase in proportion of UK population living in urban areas, with development resulting in increased habitat fragmentation and disturbance to species.
- A lack of effective habitat management
- Agricultural management – with intensification of land management often impacting on natural habitats and species.
- Hydrological change – resulting on loss of wetland habitats.
- Invasive non-native species, pests, and pathogens – the spread of which can have negative impacts on native species and ecosystems.
- Air and water pollution - can have serious impacts on terrestrial, freshwater and coastal habitats and species
- Exploitation of natural resources - resulting in degradation of habitats (e.g. peatlands) and loss of species (e.g. fish stocks).

Causes of air pollution include:[18]

- Industrial processes including power generation – can result in a wide range of air pollutants including sulphur dioxide, oxides of nitrogen, benzene, carbon monoxide, particulate matter and volatile organic compounds.

[14] Joint Nature Conservation Committee, Natural England, Natural Resources Wales, NatureScot and the Northern Ireland Environment Agency (2021) *Nature Positive 2030 Evidence Report*: https://data.jncc.gov.uk/data/6de7bf27-055e-4407-ad29-4814e1613d90/nature-positive-2030-evidence-report.pdf

[15] Public Health England (2019) *Review of interventions to improve outdoor air quality and public health*: https://www.gov.uk/government/publications/improving-outdoor-air-quality-and-health-review-of-interventions

[16] Environment Agency (2020) The state of our waters: the facts: https://environmentagency.blog.gov.uk/2020/10/02/the-state-of-our-waters-the-facts/

[17] National Biodiversity Network Trust (2019) State of nature report: https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf

[18] https://uk-air.defra.gov.uk/assets/documents/What_are_the_causes_of_Air_Pollution.pdf

- Road transport - resulting in emissions of particulate matter, oxides of nitrogen, carbon monoxide in particular
- Household activities such as burning coal, wood and charcoal - generating emissions such as sulphur dioxide, polycyclic aromatic hydrocarbons and particulate matter
- Agriculture – with fertiliser use, farm machinery and livestock farming resulting the release of nitrogen compounds. Ammonia (NH3) emissions from cattle are particularly significant[19].

Causes of freshwater pollution include:

- Run-off of soil, nutrients and pesticides from farming and forestry; contaminated drainage from roads and urban areas; and the deposition of pollutants from the air. This is referred to as 'diffuse pollution'.
- Emissions from specific locations such as industrial premises and sewage treatment works, referred to as 'point source emissions'.
- Plastic and other solid waste.

In addition there are other factors impacting on our water resources and environments:

- Domestic and commercial demands for freshwater place added pressure on this natural resource, and these demands may increase as temperatures rise as a result on climate change (e.g. increasing dependance on irrigation in agriculture).
- Physical modifications to many rivers, lakes and estuaries (e.g. flood defences) prevent them from functioning as natural systems.

Furthermore, over the next few decades it is likely that the UK will also face increasing demand for water due to a growing population, and we must also consider the impact of climate change on water availability (e.g. make water supplies more resilient to drought,) and replace unsustainable abstractions which have negative environmental impacts. So where feasible we should seek to reduce demand both domestically and across all sectors of the economy.

## *Local context*

According to the Natural Capital Account for the Tees Valley it is estimated that the monetary value of quantifiable benefits from natural capital across the sub-region "is in excess of £100 million per year, with a natural capital asset value of about £3bn"[20]. This highlights value of the existing ecosystem services and benefits the natural environment brings to the Tees Valley and the Borough, but we could increase those benefits still further if we take action to create, extend and connect natural habitats, improve the quality of our water bodies and tackle pockets of poor air quality.

*Biodiversity*

The Borough has a diverse range of natural habitats, including sites of national and international significance around the Tees Estuary (Teesmouth and Cleveland Coast Special Protection Area, Ramsar Site and SSSI) and 50 Local Wildlife Sites, some of which form part of the 643 hectares of 'natural' greenspace owned by the Council (55% of the total area of open space under Council management). Over many decades much work has been undertaken to manage, improve and create areas of natural habitat, but previous urban development, industry and intensive farming practices have resulted in a high degree of habitat fragmentation. Additionally, while many areas of natural habitat are thriving, a large proportion are not under positive management and are declining in quality, which in turn has negative impacts for individual species. Reversing this decline is a major challenge and while the Council can achieve so much through the way it manages its own land (mainly in urban and urban fringe locations), achieving wider nature recovery will require a strategic Borough-wide approach.

[19] Air Quality Expert Group (2018) *Air pollution from agriculture:* https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/2800829_Agricultural_emissions_vfinal2.pdf
[20] Natural England (2021) *A Natural Capital Account for the Tees Valley* *http://publications.naturalengland.org.uk/publication/5271371803525120*

Some local species and habitats are under threat from the spread of certain non-native invasive species (e.g. giant hogweed, Japanese knotweed, and Himalayan balsam) and our native population of ash trees is in decline as a result of the disease Chalara, or 'ash dieback'. Significant progress has been made in controlling the spread of some invasive species, but this will need to continue – particularly bearing in mind the impact climate change will have on the distribution of both native and non-native species.

*Air*

In recent years we have seen improved air quality within the Borough as a whole. The main source of air pollution is from vehicle traffic which results in emissions such as oxides of nitrogen (NOx), particulate matter 10 ($PM_{10}$) and particulate matter 2.5 ($PM_{2.5}$). Historically the highest levels of air pollution have been detected in the vicinity of the A19 and A66, although there are localised problems in urban areas where traffic congestion occurs and as a result of emissions from buses and heavy goods vehicles in particular. Other sources of air pollution include emissions (such as sulphur dioxide and ammonia) from industry, construction sites, non-road transport (rail and air) and residential dwellings.

*Water*

Most of the rivers and streams flowing through the Borough are currently not achieving 'good ecological status' so we should support the work of partners such as the Environment Agency, Natural England, the Tees Rivers Trust and the Canal & River Trust to tackle the causes of pollution. There is a particular priority to improve water quality in the Lustrum Beck, Billingham Beck and Saltergill Beck catchments. Furthermore some of the Borough's water bodies are classified as 'heavily modified, which means the natural form of the water body has been changed over time often to facilitate housing or other forms of development (for example, construction of weirs, flood walls, culverts and the Tees Barrage). In some cases these engineered features reduce the value of our rivers as amenity and environmental assets. So where feasible we should consider restoring sections of these modified waterbodies to a more natural state, provided this does not have a negative impact on neighbouring communities, businesses or property.

Finally, across the North East region we currently use over 140 litres of water per person per day and although water is generally plentiful in the region, reducing our demand for treated water will this have environmental and economic benefits, and any surplus of water could help to meet demand in other regions.[21]

# Objectives

## 2a. Protect, extend and connect areas of natural habitat and help address the decline in native species

*This should include:*

- Working with partners to develop and implement a Local Nature Recovery Strategy
- Taking practical action to create, extend and connect areas of natural habitat, including projects to increase woodland cover
- Improving the management of existing habitats, including possible measures to support individual species
- Where feasible seek to restore waterbodies to a more natural state to improve their ecological value and create new an improved water-dependant habitat

[21] Environment Agency (2020) *Meeting our Future Water Needs: a National Framework for Water Resource* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873100/National_Framework_for_water_resources_summary.pdf

- Controlling the spread of non-native invasive species and putting in place measures to ensure effective biosecurity
- Utilising emerging mechanisms such as 'biodiversity'net gain' and habitat banking to enhance biodiversity
- Provision of information and education to raise awareness and understanding of biodiversity
- Facilitating greater community and third-party involvement in the natural environment
- Reviewing policies and operations across the Council to ensure compliance with the Council's duty under the Environment Act 2021 to 'enhance biodiversity'

## 2b. Help to improve air quality by reducing harmful emissions

*This should include:*

- Continuing to monitor local air quality to ensure that legal National Air Quality Objective levels are not exceeded
- Interventions to improve local air quality where appropriate such as no idling zones, reduced speed limits and no parking zones near to education facilities
- Raising awareness of air quality issues and encouraging residents, businesses and other organisations to take positive action to minimise harmful emissions

## 2c. Take action to improve water quality and reduce local demand for water

*This should include:*

- Working with partners to support 'catchment sensitive farming' to help reduce diffuse agricultural pollution
- Working with partners to help tackle pollution on urban water courses such as Lustrum Beck
- Provision of sustainable drainage systems, incorporating features such as swales and storage ponds to manage surface water run-off from highways and urban areas
- Reducing local demand for treated water, alongside measures to encourage rainwater harvesting and use of 'grey' water
- Raising awareness of water quality issues and encouraging residents, businesses and other organisations to take positive action to reduce their demand for treated water and to care for the water environment

# Aim 3: Use all resources efficiently and minimise waste

Globally and nationally our consumption of natural resources has huge implications for the environment and is a major contributor to climate change. At each stage in the life-cycle of a material resource there are a range of possible environmental impacts. This begins with the sourcing of raw materials and the production of food; followed by processing, manufacturing, transport and distribution of products; and finally their use and ultimate disposal. Impacts may be local, national or international and might include:

- loss of natural habitats and disturbance to ecosystems
- use and potential over-exploitation of scarce, non-renewable resources
- water, air, soil, noise and light pollution
- generation of greenhouse gas emissions.

Both as individuals and as organisations, the choices we make when purchasing, using, consuming and disposing of products can have major implications for the climate and the environment. We continue to use and throw away too much, and this 'linear' approach to the use of resources is unsustainable in the long term. We need to consume less in the first place, and then maximise the value of the resources embedded in the materials and products that we do use. This can be achieved by adopting the principles of the 'circular economy' as illustrated by Figure 3. This 'lifecycle' approach moves society away from that inefficient 'linear' model where products are made, used and then disposed of, towards a model where there is a stronger emphasis on sustainable production and where resources and products are kept in use as long as possible, preserving the energy and materials embedded within them. It recognises the true value of our finite resources: the Earth's natural capital.


***Figure 3: Preventing waste across the product lifecycle***

Where materials and products can no longer be used or re-used we should aim to achieve the highest possible recycling rates. Household waste recycling rates in England were just 11% in 2000/01 and rose dramatically to around 43-46% in 2013, but have remained fairly static since then. Recycling rates in construction have also plateaued in recent years[22].

But as we face the combined challenge of reducing our demand for resources, minimising waste and driving up levels of recycling we must not lose sight of the fact that the efficient use of resources can also deliver economic as well as environmental benefits. For example, research has shown that in the UK "a series of no or low-cost interventions by businesses could deliver business savings of around £3 billion per year through a more resource efficient use of materials and waste"[23].

[22] Department of Environment Food & Rural Affairs (2018) *Our waste, our resources: a Strategy for England* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf

[23] Defra research report by Oakedene Hollins (2017) *Business Resource Efficiency – Quantification of the no cost/low cost resource efficiency opportunities in the UK economy in 2014 (EV0482)* http://randd.defra.gov.uk/Document.aspx?Document=14112_BusinessResourceEfficiency.pdf

### *Local context*

At a sub-regional scale there is an aspiration for the Tees Valley to be a 'demonstration region for the circular economy in England'; the area having the company base and expertise to achieve innovation in design and production and develop opportunities for the use and re-use of industrial by-products, waste and heat. [24]

At a local level we can work to encourage and support the development of the circular economy approach across all sectors. We need to be aware of the full environmental implications of our purchasing and procurement decisions, and how resources are used, re-used and recycled. The Council can lead by example on this issue and already has a policy in place to phase out single use materials by 2025[25], aswell as a Social Value Policy which seeks to 'embed practical and effective commissioning for social value in every aspect of its procurement, commencing at the pre-procurement stage'. Under the 'green and sustainable' theme of this policy we aim to "commit to protecting the environment, minimising waste and energy consumption and using other resources efficiently. In addition we have implemented numerous practical measures to achieve more efficient use of resources, such as the use of rubber-modified asphalt (made from recycled car tyres) to surface roads and measures to reduce food waste in schools.

We should also encourage local residents, schools, businesses and others to take action. On current predictions the amount of household waste being produced in the Tees Valley is expected to increase by approximately 0.25% per year up to 2035 (*Tees Valley Joint Waste Management Strategy 2022-35*[26]), so we have to consider how we can change behaviours to focus on preventing waste in the first place; maximising the use and re-use of existing resources; and driving up local recycling rates. There is scope for greater collaboration with local partnerships such as the Stockton-on-Tees Food Power Network which promotes the benefits of locally produced food and supports its distribution, helping to minimise food waste.

Household recycling rates within the Borough are currently well below the national average (in 2019/20 the recycling rate of 26.5% ranked Stockton Borough 322nd out of 341 local authorities in England, where on average 43.8% of household waste was sent for reuse, recycling or composting[27]). At the same time the amount of household waste collected is above the national average (in 2019-20 the Council collected an average of 707.3kg of domestic waste per household, compared to a national average of 529.3kg per household). So we face a challenge in bringing about a significant increase in household recycling and reducing the amount of waste we generate (although it should be noted that all residual waste from the Borough is directed to the Energy from Waste plant combustion facility at Haverton Hill).

Finally, continued action is needed to reduce littering, fly-tipping and waste crime within the Borough. Although the Council delivers highly effective cleansing operations to remove litter and dumped materials this obviously has financial implications for the authority, and these activities can cause serious environmental damage. Littering and fly-tipping can also be seen as a missed opportunity to recyle and re-use resources.

[24] Tees Valley Combined Authority - Tees Valley Strategic Economic Plan 2016-2026 https://teesvalley-ca.gov.uk/wp-content/uploads/2016/12/TVCA207-SEP-Document-Full-WEB.pdf
[25] Stockton-on-Tees Borough Council (2020) Single Use Materials Policy: http://www.egenda.stockton.gov.uk/aksstockton/images/att38439.docx
[26] https://www.stockton.gov.uk/media/1962756/joint-waste-management-strategy-2020-2035.pdf
[27] https://www.letsrecycle.com/councils/league-tables/2019-20-overall-performance/

# Objectives

## 3a. Ensure sustainable purchasing and procurement of goods and services

*This should include:*

- Phasing out single use materials including plastics, in line with the Council's existing Single Use Materials Policy (2020)
- Seek to achieve positive outcomes for the environment through application of the Council's Social Value Policy
- Continuing to work with NEPO to ensure social value benefits are delivered through the procurement process (e.g. local food purchasing)
- Providing information to enable Council departments to take environmental factors into consideration when making purchasing and procurement decisions

## 3b. Maximise the use of existing resources, minimise waste and achieve high levels of re-use and recycling

*This should include:*

- Campaigns, advice and information to promote re-use of resources and recycling - internally within the Council and across the Borough
- Continuing to roll out improved recycling facilties within Council premises
- Continuing to dispose of all equipment and assets responsibly, ensuring items and components are re-used or recycled wherever possible
- Keeping household waste collection and recycling services / facilities under review
- Investigating weekly food waste collections in line with national legislation
- Supporting community groups, charities, social enterprises and businesses with initiatives to minimise waste and facilitate the efficient use of resources, e.g. community food projects.

## 3c. Minimise litter and waste crime and encourage responsible disposal of waste

*This should include:*

- Continuing to deliver highly effective cleansing operations and taking enforcement action against those committing littering and fly-tipping offences
- Supporting community and business-led activity to remove litter, e.g. community litter-picking groups
- Campaigns, advice and information to promote responsible disposal of waste and help reduce littering and fly tipping.

# Aim 4: Adapt to the impacts of climate change

Climate change is already having a significant effect on people, environments and economies across the globe. So while we must continue to take urgent action to reduce greenhouse gas emissions, we should also do whatever we can to adapt to the inevitable impacts of climate change: increasing temperatures, changing weather patterns, more extreme weather events and rising sea levels.

Since the mid to late 19th century global and UK average land temperatures have risen by around 1.2°C, and we are already having to adapt to some major changes in UK weather patterns as illustrated by the examples shown in Table 4.

***Table 4 Changes to UK weather patterns*** [28]

| *Variable:* | *Observed change in England* |
|---|---|
| Average annual temperatures | Increase of 0.9°C from mid-1970s to mid-2010s |
| Annual mean rainfall | Increase of 4.5°C from mid-1970s to mid-2010s |
| Sunshine | Increase of 9.2°C from mid-1970s to mid-2010s |
| Weather extremes | UK-wide increase in extreme heat events / Little evidence yet on changes in extreme rainfall |
| Sea level rise | UK-wide increase of approximately 1.4mm per year since 1901 (16cm to date) |

Even if international efforts are successful in slowing the rate of global climate change, we will continue to experience changes in our weather for many decades to come. So we need to adapt to a future where we will experience warmer and wetter winters, hotter and drier summers, and more frequent and intense weather extremes. This means taking action now to minimise risks to people, nature, business and infrastructure.

The UK Climate Change Committee has identified the following key areas of risk in England. These are risks that have a 'high future magnitude score' and where the Committee feels more action is required now, after taking into consideration any existing adaptation responses:[29]

- Direct impacts on the natural environment, including terrestrial, freshwater, coastal and marine species, forests and agriculture.
- Increases in the range, quantities and consequences of pests, pathogens and invasive species, negatively affecting terrestrial, freshwater and marine priority habitats species, forestry and agriculture.
- Impacts on infrastructure services, including energy, transport, water and information and communication technologies, as a result of various factors such as more frequent flooding, extreme temperatures, high winds and lightning.
- A scarcity of water resulting in interruptions to public water supplies.
- Impacts of high temperatures on people's health and wellbeing.
- Changes in household energy demand due to seasonal temperature changes.
- Businesses and communities at risk from an increase in the severity and frequency of flooding of homes, communities and businesses.

[28] UK Climate Change Committee (2021) *Evidence for the third UK Climate Change Risk Assessment (CCRA3)* https://www.ukclimaterisk.org/

[29] UK Climate Change Committee is an independent, statutory body established under the Climate Change Act 2008. It advises government on emissions targets and reports to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change: https://www.ukclimaterisk.org/independent-assessment-ccra3/national-summaries/#summary-for-england

- Disruption to the delivery of health and social care services due to a greater frequency of extreme weather.
- Damage to cultural heritage assets as a result of changes to weather, groundwater and landscape.
- International impacts which may affect the UK, such as risks to food availability.

Existing inequalities mean that certain groups are more exposed to climate hazards (for example, coastal communities exposed to sea level rise) and/or more vulnerable to those hazards (for example, low income households with limited financial savings). Thus climate change can have a disproportionate impact on some populations over others and may exacerbate these existing inequalities.

The *National Adaptation Programme 2018-23*[30] highlights the role local authorities should play in leading and supporting "local places to become more resilient to a range of future risks and to be prepared for the opportunities from a changing climate". The report goes on to say: "there is a need for, and statutory obligations on, councils to prepare for and minimise the longer-term impacts of climate change", and this will require partnership working with wide range of infrastructure and other local delivery partners to put in place measures which "protect communities and businesses and safeguard growth from risks posed by severe weather events and a changing climate".

### *Local context*

Climate change will continue to affect our local weather patterns with an increased likelihood of extreme weather impacting on communities, businesses, infrastructure, the environment and services. In recent years the Borough has experienced some severe flooding from rivers, as occurred in 2012 when an estimated 150 properties and businesses were affected by a flood event along Lustrum Beck in Stockton. Some areas are also at risk from tidal flooding, as exemplified by the major incident around the Tees estuary in 2013 when flood defences were overtopped and a significant breach occurred in the flood defence at Greatham Creek. The flood had a serious impact on communities (at the peak of the event approximately 250 residents were evacuated from Port Clarence), industry, the road network and other infrastructure around the Tees estuary[31].

In response to such flood events a number of projects have been implemented in recent years - to reduce the risk of flooding at the present time and to help adapt to a changing climate. For example, a combination of measures have been taken to reduce flood risk along Lustrum Beck, including the replacement of Londonderry Bridge and the debris screen at Primrose Hill (to prevent flood water backing up), as well as the installation of new flood walls (to reduce the likelihood of flood water encroaching into residential areas). In addition the project included natural flood management measures, notably the construction of three large water storage areas a few miles upstream at Coatham Wood. On a smaller scale the

Recent schemes have also been implemented to reduce the risk of tidal flooding around the Tees estuary. This has included the Environment Agency's Greatham South Flood Alleviation scheme completed in 2019 which has helped to protect 350 homes and 32 businesses by realigning and improving the flood embankments, at the same time creating an extensive area of valuable intertidal habitat. This and other projects take account of the future rise in sea level that we expect to see as a consequence of climate change.
The Council and its partners also have an Operational Flood Plan in place to ensure an effective response to flooding incidents. For example, this provides comprehensive information on equipment, diversionary routes, flood barrier installation, key contact information and staffing.

[30] https://www.gov.uk/government/publications/climate-change-second-national-adaptation-programme-2018-to-2023
[31] https://www.stockton.gov.uk/media/5526/tees-tidal-part-1.pdf

We must be aware of the changing nature of risks posed by climate change, and continue to review and update the measures that are required to protect people (particularly our most vulnerable groups), property, public infrastructure, businesses and environmental assets, and to minimise disruption to key services. In addition to flooding we need to be able to adapt to other extreme weather events, such as periods of high temperatures and droughts.

## Objectives

### 4a. Ensure essential services and operations are resilient to the likely future impacts of climate change

*This should include:*

- Ensuring service and operational plans take account of the increasing likelihood of extreme weather events

### 4b. Increase the preparedness and resilience of local communities and businesses

*This should include:*

- Working with partners to ensure people can access the information they require to assess the risks posed by flooding, heat waves or other extreme weather events
- Working with vulnerable communities in particular to develop their resilience to flooding, heatwaves and other extreme weather events
- Working with partners to ensure that as far as practicable arrangements are in place to provide advance warning to residents and businesses of potential flooding incidents
- Maintaining an Operational Flood Plan and other related plans to ensure a coordinated approach when isolated and larger weather related problems occur

### 4c. Plan and adapt the built and natural environment to withstand the impacts of climate change

*This should include:*

- On-going partnership working partnership with the Environment Agency and others to develop and deliver schemes to reduce flood risk, utilsing both engineered and natural solutions.
- Improving or creating green infrastructure to reduce the negative impacts of a changing climate (e.g. restoring natural features in river corridors and on the coast to help divert high water flows away from urban areas, and increasing tree cover to provide urban shade)
- Helping to ensure new developments are located and designed in ways that will enable people, homes and infrastructure to cope with the likely impacts of climate change, including extreme weather events and the predicted rise in sea level
- Developing sustainable drainage systems to store surface water run-off and reduce flood risk - both in relation to existing and planned infrastructure, housing and other developments
- Taking into consideration the impacts of a changing climate when planning for the future management and maintenance of built and natural assets

# 3. Key areas of activity

In order to address our aims objectives we will need to work across some or all of the following areas of activity:

| | *Strategic aims to be addressed* | | | |
|---|---|---|---|---|
| | **Net zero** | **Natural Environment** | **Resources & waste** | **Adaptation to climate change** |
| **Transport & travel** | | | | |
| Seek to decarbonise all or part of the Council's transport fleet | ✓ | ✓ | | |
| Work to reduce emissions from business mileage and staff travel to work | ✓ | ✓ | | |
| Seek to further reduce the environmental impact of highway infrastructure and operations, taking into account the potential impacts of climate change | ✓ | ✓ | ✓ | ✓ |
| Support the development of Borough-wide network of electric vehicle charging points | ✓ | ✓ | | |
| Further develop the Borough's walking and cycling network, reducing dependence on private transport | ✓ | ✓ | | |
| Work in partnership with TVCA and bus operators to support delivery of a high-quality, low emission public transport system, reducing dependence on private transport | ✓ | ✓ | | |
| Work in partnership with taxi and other private hire vehicle operators to reduce emissions where possible | ✓ | ✓ | | |
| Promote sustainable and active travel in order to improve air quality and reduce carbon | ✓ | ✓ | | |
| **Housing** | | | | |
| Deliver and support programmes to improve the energy efficiency of privately-owned and rented housing stock across the Borough to increase energy efficiency | ✓ | ✓ | ✓ | |
| Work with partners to ensure new housing developments are built in accordance with sustainable design principles | ✓ | ✓ | ✓ | ✓ |
| **Council buildings & infrastructure / Council-led development** | | | | |
| Minimise our carbon footprint through modifications, maintenance and changes to energy usage | ✓ | ✓ | ✓ | |
| Work to incorporate measures to minimise the carbon footprint of new developments in the town centres and deliver wider environmental benefits | ✓ | ✓ | ✓ | |
| Through a strong partnership deliver environmental enhancements and measures to reduce the carbon footprint of strategic employment sites | ✓ | ✓ | | |
| Seek to embed sustainable design principles into Council-led projects and developments | ✓ | ✓ | ✓ | ✓ |
| Maximise opportunities to generate sustainable energy through the Council's own estate | ✓ | | ✓ | |
| Develop ideas and business cases to deliver sustainable energy projects within the Borough such as solar, battery storage and efficient energy distribution | ✓ | | | |
| **Countryside, green space & biodiversity** | | | | |
| Work to minimise the environmental footprint of horticultural / greenspace operations | ✓ | ✓ | ✓ | |
| Increase the total area of Council land managed primarily for biodiversity and ensure effective long-term maintenance, protection and sustainable management for species and habitats | ✓ | ✓ | | ✓ |
| Increase tree canopy cover across the Council's land assets and ensure effective long-term maintenance, protection and sustainable management of trees and woodlands | ✓ | ✓ | | ✓ |
| Initiate and support measures to extend and connect natural habitats across the Borough, protecting priority species and habitats and ensuring effective biosecurity | ✓ | ✓ | | ✓ |

| | | | | |
|---|---|---|---|---|
| Increase awareness and understanding of the natural environment and encourage community participation | ✓ | ✓ | ✓ | ✓ |
| **Water environment / resources** | | | | |
| Implement and support measures which help to improve the water environment | ✓ | ✓ | ✓ | |
| Implement and support measures to reduce water consumption | ✓ | ✓ | ✓ | ✓ |
| **Flood risk management** | | | | |
| Work with partners to reduce the risk of future flooding impacting on communities, businesses and infrastructure, including use of natural flood management solutions | | ✓ | ✓ | ✓ |
| Ensure those residents and businesses most at risk of flooding are ready to act – minimising impacts on people and property | | | ✓ | ✓ |
| **Air quality** | | | | |
| Monitor air quality and implement measures to tackle air pollution | ✓ | ✓ | | |
| **Re-use & recycling of resources / waste management** | | | | |
| Improve the Council's internal recycling facilities and develop other measures to encourage high levels of re-use and recycling | ✓ | | ✓ | |
| Investigate measures to increase levels of household recycling | ✓ | | ✓ | |
| Investigate weekly food waste collections | ✓ | | ✓ | |
| Review the frequency of household waste collections linked to measures to increase levels of recycling | ✓ | | ✓ | |
| Deliver initiatives through education and engagement with the aim to minimise consumption and waste whilst promoting recycling and re-use of resources | ✓ | | ✓ | |
| **Litter & waste crime** | | | | |
| Maintain high levels of cleanliness on roads, footways, green spaces and other areas of public realm | | ✓ | ✓ | |
| Continue to implement measures to reduce fly-tipping and other waste crime | | ✓ | ✓ | |
| **Food & catering** | | | | |
| Minimise the environmental impact of catering services in schools, parks and other Council properties | ✓ | ✓ | ✓ | |
| Support and enable local communities to grow food and undertake associated projects to promote and distribute local food | | ✓ | ✓ | |
| **Events & museums** | | | | |
| Minimise the carbon and environmental footprint of Council-led events and seek opportunities to utilise events to promote environmental responsibility | ✓ | ✓ | ✓ | |
| Minimise the carbon and environmental footprint of Preston Park Museum & Grounds and utilise the site as a whole to demonstrate environmental sustainability | ✓ | ✓ | ✓ | ✓ |
| **Procurement of goods & services** | | | | |
| Wherever possible achieve improved environmental outcomes through the sustainable procurement and purchasing of goods and services | ✓ | ✓ | ✓ | |
| **Information & communication technology (ICT)** | | | | |
| Reduce our carbon footprint through the migration of workloads to the cloud, device refresh and power management configuration | ✓ | ✓ | ✓ | |

# 4. Implementing the strategy

## Action plans

This 10 year Strategy will be accompanied by a series of action plans, setting out details of how we will deliver against our aims and objectives. These will constitute a 3 to 5 year rolling programme of work, led by the Council but to be implemented with the support of partner organisations where appropriate.

The associated technical report should be used to inform the development of these action plans.

Clear targets and milestones should be set in relation specific actions wherever possible, and in some cases these may need to relate to national or international targets. In some areas of work it will be necessary to establish a current baseline position and to understand the likely cumulative impact of different interventions. The action plans would be subject to on-going monitoring and reviewed on an annual basis.

## Engagement & partnerships

We want to work in partnership with those who are already taking action for the environment, as well as encouraging and enabling more people to get involved. We can do this by:

- Raising awareness and promoting understanding of climate change and other environmental issues
- Facilitating local action by providing advice and support to individuals and organisations
- Developing the skills and knowledge needed to facilitate the transition to a low-carbon economy
- Supporting the partnerships and networks necessary to achieve change – both at a neighbourhood level and at the Borough-scale.

This will involve engaging with the following:

- Voluntary, community & social enterprise sector - facilitating action at a community level
- Education and training sector - improving understanding and developing the specific skills and knowledge required to meet future job needs
- Businesses - recognising the vital role the private sector is playing in developing the services and technologies needed to underpin a low carbon economy, and the other ways in which businesses can support delivery of this strategy
- Public sector – working with organisations as diverse as the NHS and small Town and Parish Councils, some of which are already identified as key partners
- Stockton Borough Council elected members and officers – many of whom have helped to shape this strategy and will be instrumental in turning it into action on the ground.

In addition to our work with those individual sectors and groups we should consider the potential to establish an overarching, multi-sectoral partnership to address the overarching aims identified in this strategy: a ‘coalition for change’ to deliver ‘net zero’ and create the best possible environment for the next generation.

# Resources & delivery mechanisms

The action plans will identify any possible funding and delivery mechanisms required to deliver specific activities, or to facilitate the implementation of the strategy as a whole. In some cases we may utilise existing budgets and/or require the realignment of resources to address the strategic aims set out in the strategy. It will also be necessary to secure external funding to support delivery of many aspects of the plan, including any new innovative approaches to attracting investment in the environment and climate change mitigation.

Additional internal staffing resource is likely to be required for the detailed development of the action plan, and to coordinate and monitor its implementation.

# Governance and reporting

An officer steering group will oversee the development and implementation of the action plans, and ensure effective processes are in place to monitor progress. The steering group would also ensure effective, on-going liaison with cabinet members and ward councillors, and put in place arrangements for formal reporting on strategy implementation.

# Strategy review

It is proposed that the strategy should be reviewed and updated after three and six years (i.e. 2025 and 2028). This will ensure it takes account of changes in government policy and legislation, and reflects current priorities and emerging opportunities.