

Sedgefield Borough Council's Climate Change Strategy and 5-Year Action Plan

2007 – 2012

DRAFT



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CHAPTER 1: Introduction

‘Our actions over the coming decades could create risks of major disruption to economic and social activity, later in this century, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century.’

HM TREASURY (2006), The Stern Review: The Economics of Climate Change, Cambridge University Press

1.1 A Statement of Intent

Climate change is likely to be one of the most challenging issues for Sedgfield Borough Council over the next 5 years and beyond. This document aims to provide the Council and its partners with the framework to respond to the immediate threat of climate change within a timescale of 5 years, from 2007 – 2012.

The strategy is reflective of the Council’s desire to make climate change a central theme in all future policies, strategies and activities. The strategy aims to meet the aspirations of local residents and other stakeholders, be cost effective and achieve targets. It also seeks to address the following key questions:

- How are SBC contributing to climate change and by how much?
- How can we reduce our contribution to climate change?
- What impact will climate change have on our environment and services?
- Do our current policies, strategies and plans take into account climate change?

1.2 Mitigation and Adaptation

The strategy undertakes a two-pronged approach to help tackle the issues surrounding climate change by attending to:

Mitigation – Action to reduce greenhouse gas emissions from Council services and activities. This is required to help limit the most severe impacts of climate change.

Adaptation – Action to minimise the adverse impacts of climate change and to take advantage of the opportunities that it might present.

1.3 Background

Climate change has the potential to cause human suffering on an unparalleled scale. If left unchecked, climate change is predicted to disrupt food supplies, cause conflict over energy and water and devastate efforts to eradicate world poverty. Recent flooding in parts of the UK and the heat wave in central Europe in 2003, which killed an estimated 27,000 people¹, demonstrates how vulnerable we are to extreme weather events.

Some changes to the climate are now inevitable. This strategy sets out how we can adapt to these changes and details measures to reduce the Council’s own impacts.

The case for action is extremely pressing. We are at a tipping point¹. The majority of scientists agree that if emissions are not substantially reduced immediately, many more billions of tonnes of greenhouse gasses could be released into the atmosphere from permafrost, rainforests and the world’s oceans, greatly accelerating the rate of global warming. Many identify this level as a 2°C rise in average world temperatures.

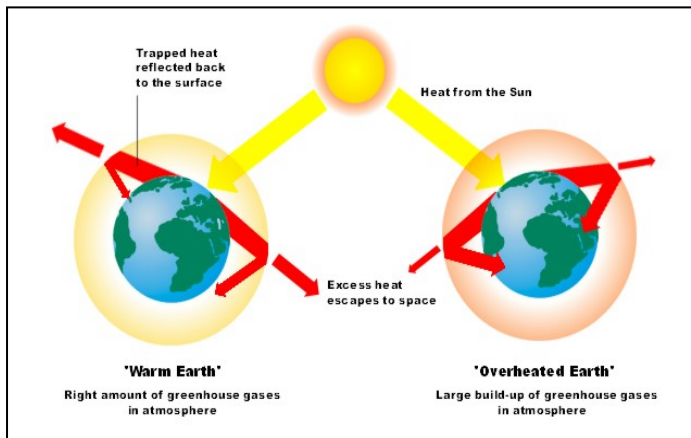
¹ A delicate threshold where a slight rise in the Earth’s temperature can cause a dramatic change in the environment that itself triggers a far greater increase in global temperatures. Many identify this as 450ppm of CO₂ or a 2°C rise in temperatures.

CHAPTER 2: The Current Situation

2.1 What is Climate Change?

Our planet is surrounded by a blanket of gasses, which keeps the surface of the earth warm and able to sustain life (the greenhouse effect). When we heat our homes, switch on the TV or drive to work, these activities release carbon dioxide (CO₂), which increases the thickness of this natural blanket (see figure 1). This in turn, retains more of the sun's heat, causing our climate to warm.

Figure 1: The Greenhouse Effect



2.2 The Causes

There will always be a certain amount of uncertainty in understanding a system as complex as the world's climate. There is now, however, undisputable evidence and scientific consensus that global warming is occurring and that the main cause can be attributed to human activities.

At present, about 6.5 billion tonnes of CO₂ are emitted globally each year mostly through burning coal, oil and gas for energy.

Methane is the second most significant greenhouse gas in the UK. It is produced by landfill waste, agriculture, natural gas distribution and coal mining and accounts for about 8% of the UK's greenhouse gas emissions.

A third source of greenhouse gasses comes from 'carbon sinks'. These are vast stores of carbon dioxide and methane stored within the world's oceans, permafrost and plants. Plants or more importantly trees absorb CO₂. Therefore fewer trees lead to changes in the balance of greenhouse gasses in the atmosphere. Permafrost around the Arctic Circle has started to thaw for the first time since its formation 11,000 years ago. If this continues, billions of tonnes of methane and CO₂ will be released into the atmosphere greatly accelerating the rate of global warming.

Natural causes of greenhouse gases include variations in the Earth's orbit around the sun, changes in the sun's energy output and volcanic activity. These have been relatively stable since the last ice age.

In 2007, the United Nations backed Intergovernmental Panel on Climate Change ([IPCC](#)), in their Fourth Assessment Report concluded that:

"most of the warming observed over the last 50 years is very likely to be attributable to human activities."

IPCC (2007), Climate Change 2007: Page 8

2.3 Current Implications

. Observed changes to the climate include:

- Carbon Dioxide (CO₂) levels are higher than they have been in 800,000 years²;
- The Earth has warmed by about 0.7°C since the beginning of the last century. The ten warmest years on record (since 1861) have occurred since 1994, with 1998 & 2005 being the hottest³;
- The Earth is warming faster than at any time in the past 10,000 years⁴;
- The summer of 2003 was Europe's hottest for 500 years. The heat wave caused over 27,000 premature deaths across the continent⁵.

Figures 2a & b overleaf, show variations in the earth's temperature for the past 140 years using actual thermometer readings and the past 1000 years using data from temperatures recorded from ice cores and tree rings. It can be seen that the earth is warming at an unprecedented rate, faster now than at any time in the past 10,000 years.

Observed impacts on the Earth include:

- 150,000 people already die every year due to the impacts of global warming, according to the World Health Organisation⁶;
- The growing season for plants in Britain is now a month longer than it was in 1900⁷;
- Economic costs of global warming are doubling every decade (United Nations Environment Programme)⁸
- The golden toad of Costa Rica is regarded by many scientists as being the first species to become extinct due to the impacts of global warming affecting its habitat⁹;
- Biodiversity around the world is being affected with many plant and animal species, unable to cope with the dramatic changes in the climate¹⁰;
- The whole western Siberian sub-Arctic region has started to thaw (IPCC)¹¹;
- North Pole sea-ice has thinned by 40% in recent decades (IPCC)¹²;
- Global snow cover has shrunk by 10% since the 1960s and mountain glaciers have also retreated, (IPCC)¹³;
- Between 1900 and 2000 the North Shields tide gauge showed a recorded increase of 20cm (SUSTAIN 2004)¹⁴.

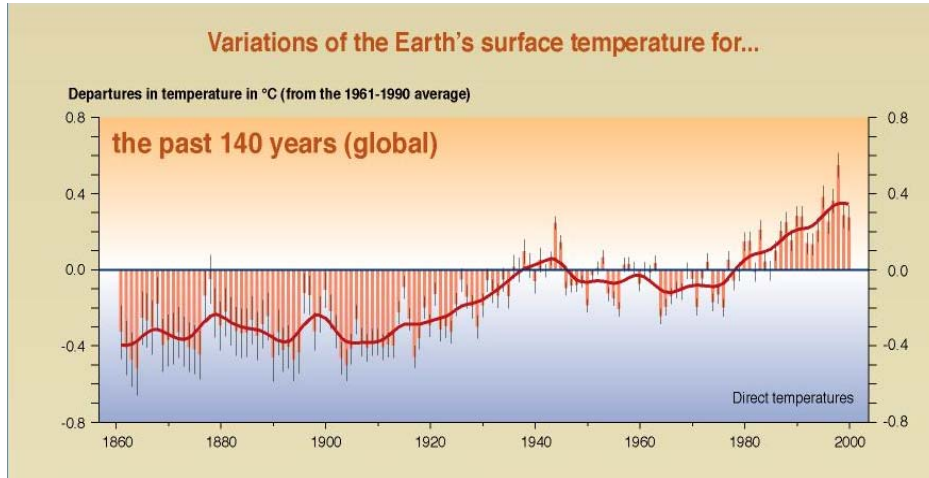


Figure 2a: Global Temperature Change, 1861 – 2000
IPCC (2001), Climate Change – Synthesis Report, Paris, IPCC

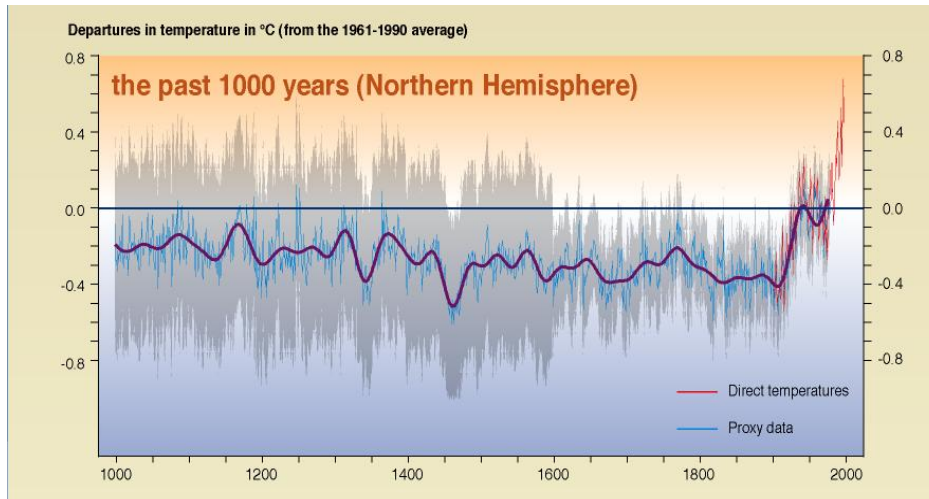


Figure 2b: Global Temperature Change, 1000-2000
IPCC (2001), Climate Change – Synthesis Report, Paris, IPCC

2.4 Future Impacts

Climate Change will affect everyone, no matter where they live. People living in countries such as Bangladesh, Australia and Spain may be more severely affected by issues such as drought and rising sea levels but Sedgefield Borough will not escape certain impacts.

Many scientists predict that the world could be as much as 6°C warmer by the end of this century. To put this into context, during the last ice age (10,000 years ago), the temperature was only 6-8°C colder than now. Try to imagine what a 6°C temperature rise could do, if a 6°C temperature decrease was enough to put the world into an ice age.

The UK Climate Impacts Programme ([UKCIP](#)) in 2003 developed a series of scenarios, based upon varying future levels of CO₂ emissions ([Appendix 1](#)). The main predictions that came out of the report were that by 2050 in the UK:

- Average temperatures could increase by 2.5°C;
- Winter rainfall could increase by 16%;
- Summer rainfall could be down by 27%;
- Sea levels could be 50cm higher;
- There will be more extreme weather events overall.

Based on the above research the likely impacts facing Sedgefield Borough Council services within the next 80 years include:

Planning Services

- Higher risk of flooding/erosion of developments in floodplains;
- Increased risk of severe weather events causing disruption;
- Higher risk of subsidence as soils shrink in hotter drier summers;
- Changing design parameters, in response to new climatic conditions.

Management of Public Buildings / Housing

- Temperature increases will affect thermal comfort of buildings;
- Increase in air conditioning costs;
- Extreme weather events causing damage to building infrastructure;
- Wetter winters causing damp, condensation and mould problems;
- Higher average temperatures will reduce the need for space heating.

Health and Social Services

- Increase in excess summer deaths, decrease in excess winter deaths;
- Higher risk of skin cancer / sun burn;
- Increase in heat stress cases, especially amongst vulnerable people;
- Higher levels of dust in the air leading to an increase in respiratory problems;
- Greater potential for outdoor activities may improve the health and fitness of residents.

Environmental Health

- Higher temperatures could increase the cases of food poisoning;
- More frequent flooding from foul and surface water drainage systems;

Green Space Management

- Increase in grass growth rate leading to year round maintenance;
- Loss of native plant and animal species;
- Increased rainfall intensity causing local flooding;
- Increased risk of grassland and forest fires.

Waste Management

- Rubbish will decay more rapidly in higher summer temperatures.

Business Support

- Increased potential for tourism as the region warms;
- Greater potential for businesses to relocate from the south of the Country as water resources become scarce.
- Increase in insurance claims and premiums due to extreme weather events.

2.5 Policy Context

To aid local authorities in developing climate change programmes, a number of policies and agreements have been developed at an international, national and local level ([Appendix 3](#)). These policies and strategies have one main aim:

- To reduce emissions of greenhouse gasses.

The main context for this is the Government's 'Energy White Paper' published in 2003 and updated in 2007, which states that a cut of 60% in CO₂ emissions, by 2050 (using 1990 as the baseline) should be enough to avoid 'catastrophic' climate change (involving a temperature change of above 2°C).

2.6 The Role of Local Authorities

The majority of Council services are influenced by climate and weather patterns. Planning for change now will avoid unnecessary costs and damage in the future. Local Authorities have a responsibility to 'lead the way' in terms of reducing emissions and planning for adaptation. We need to ensure that buildings and infrastructure are sustainable in a changing climate, that services can continue to be provided at reasonable costs and that communities are able to adapt to change.

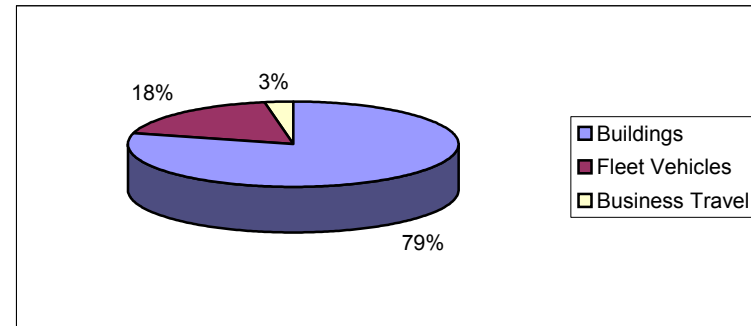
In 2006, the Local Government White Paper detailed the urgent need for local Authorities to act on reducing greenhouse gas emissions and drive local action through strong visible leadership.

In August 2007, SBC joined over 200 other local authorities to sign the Nottingham Declaration, a voluntary pledge to help reduce greenhouse gas emissions ([Appendix 2](#)).

2.7 Where Are We Now?

In 2003, Sedgefield Borough, as a whole produced 928,113 tonnes of CO₂e². Sedgefield Borough Council contributed 7115 tonnes of CO₂e to this total ([Appendix 4](#)). The vast majority of emissions come from the energy used in Council buildings through heating and electricity usage. This accounts for 79% of the Council's CO₂e emissions.

Figure 3: CO₂e Emissions from SBC Activities



2.8 Where Do We Want To Be?

As mentioned above the most widely quoted and accepted CO₂ reduction target is in line with the Government's 2003, 'Energy White Paper' target of a 60% cut in CO₂ emissions by 2050.

Most reports highlight the significance of short-term large-scale cuts. The Energy White Paper highlights the need for '*significant progress by 2020*'. To this end Sedgefield Borough Council are targeting an annual 3% reduction in CO₂e using 2003 as the baseline.

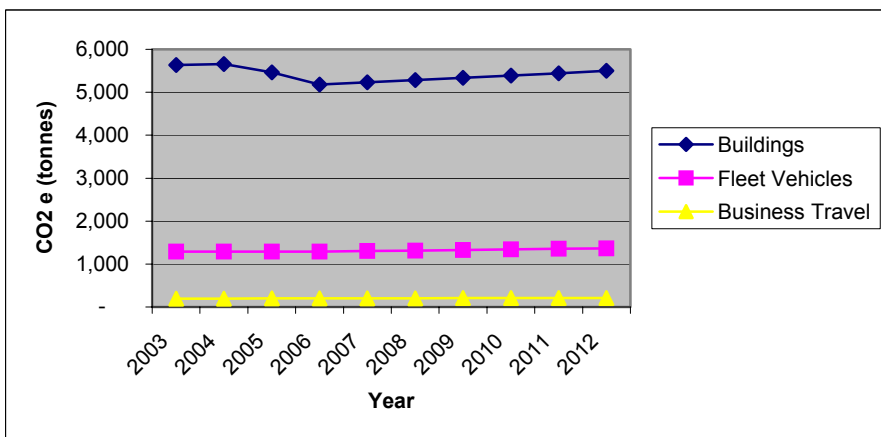
² CO₂ (e): Carbon dioxide equivalent. A total amount of greenhouse gas emissions, including methane, measured in carbon dioxide.

This strategy considers two forecasts, for two specific scenarios, a 'business as usual scenario' and a '15% reduction scenario'.

• Business As Usual (BAU)

This is based on the annual energy consumption of the Council from 2003 – 2006. Figure 4 below shows a decrease in emissions to 2006. This is mainly due to ongoing boiler replacements in the leisure centres. The predicted increase in emissions from buildings from 2006, is based on increasing levels of electricity usage since 2003 (appendix 4). It is predicted that carbon emissions will rise by 1% per annum, if no further energy efficiency work is carried out other than annual maintenance of equipment.

Figure 4: Projected CO₂e emissions 2003 – 2012 (BAU)

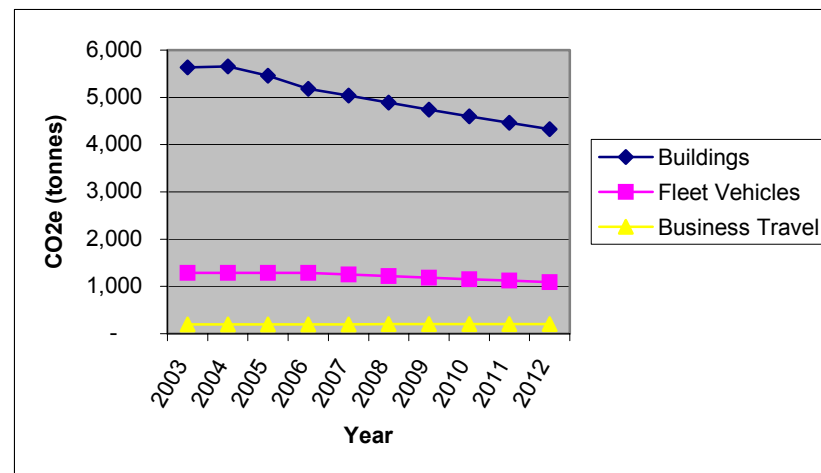


• Projection with Mitigation Measures

The emission projections in figure 5 are based upon the achievement of an annual 3% decrease in energy consumption, leading to a 15% reduction in CO₂e emissions by 2012. This projection is based on the achievement of the action plan detailed in

Chapter 3 of this document and the proposals set out in the Council's 'Sustainable Energy and Water Policy'.¹⁵

Figure 5: Projected CO₂e emissions 2003-2012 (with mitigation measures)



2.9 Financial Implications

The October 2006 Stern Review, 'The Economics of Climate Change', stated that the consequences of extreme weather was predicted to reduce global gross domestic product (GDP) by up to 1% per year. The report concluded:

'The earlier effective action is taken, the less costly it will be.'

The report also warned that the cost of inaction to the world's economy could be as much as £3.86 trillion.

The Borough Council acknowledge that ignoring climate change will damage not only the environment and public health but also economic growth and financial security.

The financial implications associated with the scenarios above, stem from energy use within public buildings and Council transport. The BAU scenario assumes a 1% annual increase in carbon emissions that will also lead to a greater burden on the financial resources of the Authority. The 15% reduction scenario will lead to a long-term reduction in both carbon emissions and financial cost. This will only be achieved through better energy management and investment in low carbon and renewable technologies.

The costs associated with energy consumption are only one financial area where the Authority must adapt. Future climate scenarios show us the type of weather that we can expect in 2020 and beyond and the impact that this may have on our services in terms of weather related damage, as detailed in section 2.4. Our services must therefore be designed to adapt to these potential impacts. This will require short-term investment for long-term gain.

The potential risks to the environment and economy of Sedgefield Borough are such that we have decided to take considered responsive action now. Planning for the potential impacts of climate change now will hopefully ensure we reduce unnecessary costs and damage in the future.

2.10 Current Actions

Between January 2003 and January 2007 Sedgefield Borough Council managed to decrease energy consumption by 15% and CO₂e emissions by 9% in our main buildings. We have also managed to help reduce energy consumption across all domestic properties by nearly 15% since 1996. Current initiatives include:

- Working with 'The Energy Saving Trust' and 'Warm Front' to improve energy efficiency within domestic properties (31,655 tonnes CO₂ has been saved since 1996);
- A programme providing insulation grants for solid walled homes;

- Promotion of renewable energy. Sedgefield Borough has over 45 MW of installed renewable electricity generation;
- The installation of pool covers at the leisure centres saving over £10,000 per year in energy costs;
- Ongoing training and awareness raising for all staff on energy efficiency;
- In 2005 SBC commissioned consultants to carry out a Strategic Flood Risk Assessment for the Borough¹⁶. This helps the Authority to ensure that all future development is sited away from vulnerable flood risk areas ([Appendix 5](#));
- All future plans and strategies will be subject to a sustainability appraisal, to determine how they are achieving sustainable development³;
- The adoption of a new 2007 SBC Sustainable Energy and Water Policy, which aims to cut energy consumption by 3% annually;
- The introduction of an annual energy management plan, which details actions to reduce energy consumption;
- Partnership working with the Carbon Trust to identify carbon savings across our property portfolio;
- In 2006/07 the Council spent over £2 ½ million on energy efficiency improvements to its housing stock, installing nearly 1500 high efficiency boilers;
- An ongoing programme of waste minimisation awareness raising to residents, which has helped deliver a 25% recycling rate, 5% above national targets;
- The promotion of biodiversity, good practice and sustainable construction within the planning framework.

³ "The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations" –UK Government SD Strategy (2005)

CHAPTER 3: The Action Plan

Although climate change is often presented as a global problem, most of the actions that cause greenhouse gas emissions, take place at the local level. The solutions to climate change lie principally in changing the behaviour and consumption choices of individual households, local communities and local businesses.

Energy efficiency should be the key objective. Wasted energy, through inefficiency, lack of insulation and appliances left on stand-by, emit thousands of tonnes of CO₂ every day. By reducing the demand for energy in homes, businesses and in public buildings and by using more energy that comes from renewable sources, we can help to reach the Government's CO₂ reduction target of 60% by 2050.

3.1 Aim

In light of the above, Sedgefield Borough Council aims to:

“Reduce greenhouse gas emissions by 15% by 2012, meeting yearly 3% reduction targets, to ensure that dependence on finite fossil fuels is reduced. The Council also aims to fully prepare services and communities for the potential impacts of climate change.”

3.2 Objectives

In order to meet this aim the Council will work to ensure that the following objectives are met:

- 1) **Development and Planning** - To reduce the impact of development on climate change and to ensure new developments are ‘climate proofed’;
- 2) **Public Buildings & Consumption of Natural Resources** - To substantially reduce the consumption of energy by 3% annually;
- 3) **Housing** - To improve the energy rating of domestic properties to achieve an average SAP rating of 62 across the Borough;
- 4) **Green Space and Biodiversity** - To manage green spaces to take account of changes to the climate;
- 5) **Transport** - To reduce fuel consumption from all vehicles operated by the Council by 5% by 2012;
- 6) **Procurement** - To reduce greenhouse gas emissions through sustainable procurement solutions;
- 7) **Awareness Raising** - To ensure employees, businesses and residents have a clear understanding of the potential impacts of climate change, how they can adapt to these impacts and contribute positively towards reducing emission.

3.3 Key Themes and Actions

Presented overleaf is the action plan detailing how Sedgefield Borough Council will meet the above aim and objectives by 2012. It states the department responsible for delivering the action and the timescale by which that action should be achieved. The action plan is also fully reflected in the Council's Corporate Plan.

DEVELOPMENT AND PLANNING

Key Objective 1:

To reduce the impact of development on climate change and to ensure new developments are 'climate proofed'

The way in which developments are planned and built in the future must be re-evaluated to reduce CO₂ emissions and take into account the future impacts of a changing climate.

Developments must be sustainable. Planning policy is the ideal tool, to ensure developments incorporate sustainability principles. Sedgefield Borough Council is currently producing a Local Development Framework (LDF), which provides guidelines in relation to land use and the built environment. It proposes five key actions, which aim to reduce the impact of development on climate change ([Appendix 3](#))

ACTIONS TO BE INSERTED

PUBLIC BUILDINGS & CONSUMPTION OF NATURAL RESOURCES

Key Objective 2:

To substantially reduce the consumption of energy by 3% annually

The Council's public buildings portfolio emitted 7115 tonnes of CO₂ in 2003, and although this was less than 1% of the total CO₂ emitted within the Borough, we are aiming to reduce this even further. There are many low and no cost actions that can be taken immediately, reducing energy consumption and wastage by more than 10%. However this must be combined with a longer-term capital programme to invest in energy saving technologies, including renewable energy. The Sustainable Energy and Water Policy (2007)¹⁷ and associated Energy Management Plan details further actions designed to reduce energy and water consumption in public buildings owned by the Borough Council by 3% annually.

ACTIONS TO BE INSERTED

HOUSING

Key Objective 3:

To improve the energy rating of all domestic properties in order to achieve an average SAP rating of 62 across the Borough by 2012

There are currently over 40,000 homes within Sedgefield Borough accounting for 23% of all CO₂ emissions locally, compared to 27% for the UK nationally¹⁸. Although Climate Change is often seen as a global problem, most of the actions that cause greenhouse gas emissions, take place at a domestic level.

The Council owns nearly 9000 homes within the Borough. We are striving to not only improve the energy efficiency of our housing stock but to advise all residents on the potential impacts of climate change and ways in which emissions and energy costs can be reduced.

ACTIONS TO BE INSERTED

GREEN SPACE AND BIODIVERSITY

Key Objective 4:

To manage green spaces to take account of changes to the climate

Long-term changes in climate could have severe effects for local plant and animal life. The management of green space including nature reserves, waterways, woodlands and grasslands will need to be carefully reviewed in order to deal with potential impacts. A UK study published in 2006¹⁹ monitoring over 300 animal species, concluded that since 1981, 80% of species have moved north, by an average shift of 30-60km. Careful and responsible green space management is therefore required in order to ensure the safe migration of species. Sedgefield Borough Council are currently producing a Green Space Strategy and a Woodland Strategy, which seek to address such issues.

ACTIONS TO BE INSERTED

TRANSPORT

Key Objective 5: To reduce fuel consumption from all vehicles operated by the Council by 5% by 2012

Although road traffic in Britain is set to increase by up to 50% by the year 2025, emissions after 2010 are predicted to decline. This is due to higher vehicle efficiency standards. Slower traffic growth and continued fuel efficiency improvements are expected to produce a fall in road traffic CO₂ emissions of around 5% between

2010 and 2015, with further falls thereafter²⁰. However we must not be complacent, CO₂ emissions from transport accounts for 24% of all emissions from within Sedgefield Borough.

ACTIONS TO BE INSERTED

SUSTAINABLE PROCUREMENT

Key Objective 6: To reduce greenhouse gas emissions through sustainable procurement solutions

Sustainable procurement is a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money, whilst minimising damage to the environment and reducing CO₂ emissions.

Sustainability must be embedded in procurement policy as directed in the Government's National Action Plan: 'Procuring the Future'²¹. The National Procurement Action Plan gives a clear direction on how to make real progress towards improved, more sustainable procurement, which will in turn allow us to move forward on achieving sustainable development.

ACTIONS TO BE INSERTED

AWARENESS RAISING

Key Objective 7:

To ensure employees, businesses and residents have a clear understanding of the potential impacts of climate change, how they can adapt to these impacts and contribute positively towards reducing emissions

Everyone has a crucial role to play in tackling climate change. Sedgefield Borough's greenhouse gas emissions are the cumulative result of Government policy, businesses, organisations both large and small and individuals. To make any real progress in relation to reducing greenhouse gas emissions, awareness raising should be an integral part of any campaign. By creating a wide knowledge and understanding of the links between energy use, greenhouse gas emissions and climatic impacts, the easier it will be to persuade people to adopt a more sustainable lifestyle at home and at work.

ACTIONS TO BE INSERTED

CHAPTER 4: Implementation

4.1 Delivery and Responsibilities

It is the responsibility of all Council departments to incorporate the action plan into their departmental business plans. To ensure delivery and responsibility is embedded within SBC's core activities, each department will be asked to report upon their responsible key actions as defined in chapter 3. This will be co-ordinated by the Director of Neighbourhood Services in bi-yearly meetings and annual progress reports.

To aid departments on the integration of actions into their delivery plans, the Sustainable Communities team will issue guidance on the type of actions needed to meet the above key actions

4.2 Monitoring and Reporting

The Director of Neighbourhood Services will compile annual reports on the progress made towards the targets. The monitoring process will work to ensure:

- That the overall programme and actions within the strategy are being implemented effectively;
- Each key action is improved and maximised where appropriate;
- Data and information is made available to enable accurate reporting;
- That individual actions are meeting strategic objectives and moving Sedgefield Borough Council towards strategy aim.

Part of this annual report will include progress tracked against the Carbon Trust's 'Carbon Management Matrix²²' tool.

Designed to appraise the Authority's current actions towards carbon management, the matrix provides a useful tool to help guide, develop and identify further carbon saving opportunities. The matrix will also help to monitor the progress against the work of other local authorities ([Appendix 6](#)). Progress on targets will be reported to the Overview and Scrutiny Committee 3 on an annual basis, after publication of the annual report.

4.3 Conclusion

Climate change is likely to be one of the most challenging issues for Sedgefield Borough Council over the next 5 years and beyond.

The strategy and action plan aim reduce our emissions of greenhouse gasses while providing a framework to respond to the immediate threats of climate change.

Our action plan does not restrict economic growth, but recognises that through responsive local action we can reduce emissions and lead by example. Implementation of the strategy will help ensure that Sedgefield Borough is a healthy, prosperous and attractive borough with strong communities.

Glossary of Terms and Abbreviations

Term	Definition
Climate Change / Global Warming	The term 'climate change' refers to the changes in our climate over a period of time (typically 30 years). Another term for 'climate change' is 'global warming'. This more accurately represents the pattern of temperature rise across the earth seen over the last century.
Carbon Neutral	A term used to reflect how a particular service or activity has little or no effect on the Earth's climate. This is achieved through 'offsetting' the CO ₂ emissions associated with the delivery of an activity. This could include the planting of trees, paying for renewable energy schemes, or working on sustainable projects.
CO2 (e)	Carbon dioxide equivalent – measurement of a total amount of greenhouse gas emissions, including methane.
Emissions	The term used to describe the amount of gases (in this case carbon dioxide and methane) given off through burning fossil fuels such as coal, oil and gas through processes such as, electricity generation or transportation.
Fossil Fuels	Coal, oil and gas were formed from the remains of plants and marine organisms that lived millions of years ago. By burning these fuels we release the carbon stored in the fuel back into the atmosphere as carbon dioxide.

Emissions Baseline	The amount of greenhouse gases emitted by Sedgefield Borough as a whole in 2003. Used as a baseline to measure future emissions reduction.
Projections	An estimation of the future levels of greenhouse gas emissions based on current and future energy consumption levels.
Feedback Mechanism	Changes to the environment that occur as a result of global warming, which in turn makes climate change happen more or less quickly. For example, heating the Earth could make the white Arctic ice melt, which could mean that less of the Sun's light is reflected back into space, which could, in turn cause the Earth's temperature to rise even faster.
Carbon Offset	Individuals and businesses can offset their CO ₂ emissions by funding for example, renewable energy projects or tree planting schemes.
HECA	Home Energy Conservation Act 1996
UKCIP	United Kingdom Climate Impacts Programme
LSP	Local Strategic Partnership
GONE	Government Office North East
RSS	Regional Spatial Strategy
LDF	Local Development Framework

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Contacts

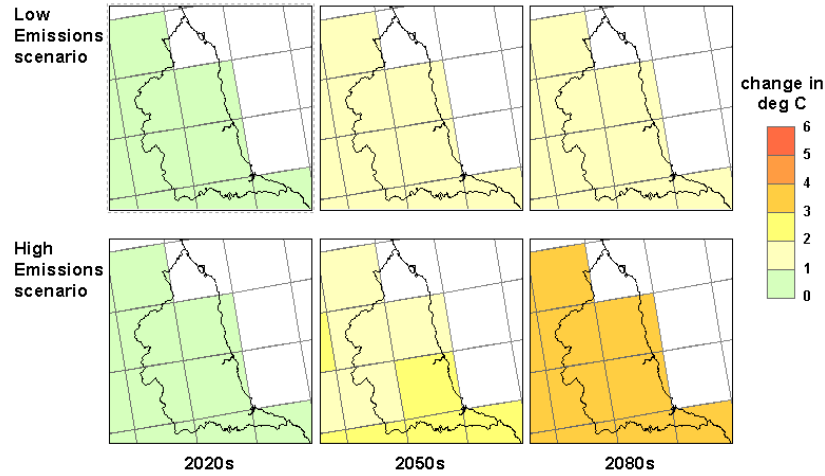
The table below provides useful contact information to help you conserve energy and save money now.

Area	Organisation & Contact Details	Service Provided
Climate Change	www.climatechallenge.gov.uk www.ukcip.org.uk www.tyndall.ac.uk	Climate change news and information from around the world.
Flooding	Environment Agency <i>Floodline</i> : 0845 9881188 www.environment-agency.gov.uk	Flooding Information – Is your home or business at risk of flooding?
Home Energy Efficiency	Energy Saving Trust Advice Centre: 0800 512 012 www.est.org.uk/northeast	Grants and home energy efficiency advice.
Business Energy Efficiency	The Carbon Trust: 0800 58 57 94 www.thecarbontrust.org.uk	Advice, Energy Audits, Grants for businesses.
Renewable Energy	Department of Trade and Industry (dti) www.dti.gov.uk/energy/sources/renewables/ Energy Saving Trust Advice Centre: 0800 512 012 www.est.org.uk/housingbuildings/funding/lowcarbonbuildings/	Advice and government policy and legislation on renewable energy. Advice on grants and technologies for households, community groups and businesses.
Transport	Energy Saving Trust Advice Centre: 0800 512 012 www.est.org.uk/ www.transport2000.org.uk	Advice on transport issues.
Waste and Recycling	Sedgefield Borough Council: 01388 816166 www.sedgefield.gov.uk www.recyclenow.com	Advice and information about waste and recycling issues, from re-usable nappies, mobile phones and composting.
Food	www.organicfood.co.uk www.localfoodworks.org	Advice and information on buying organic and locally sourced food.
Young People	www.n-ergise.net www.bbc.co.uk/climate/	Activities and advice on energy efficiency and climate change for young people.
Carbon Offsetting	www.co2balance.com www.carbonneutral.com	Carbon offsetting service, enabling individuals or businesses to declare their service or activities from air miles to weddings carbon neutral.
Carbon Footprints	www.wwf.org.uk/oneplanet/	Measure your carbon footprint and see how small changes to your lifestyle can make a big difference.
Other	www.uswitch.com www.energynortheast.net	Independent website dedicated to finding you the best prices for your gas and electricity. Portal with information, resources and links relating to the energy sector in North East England.

Appendix 1: Climate Change Scenarios

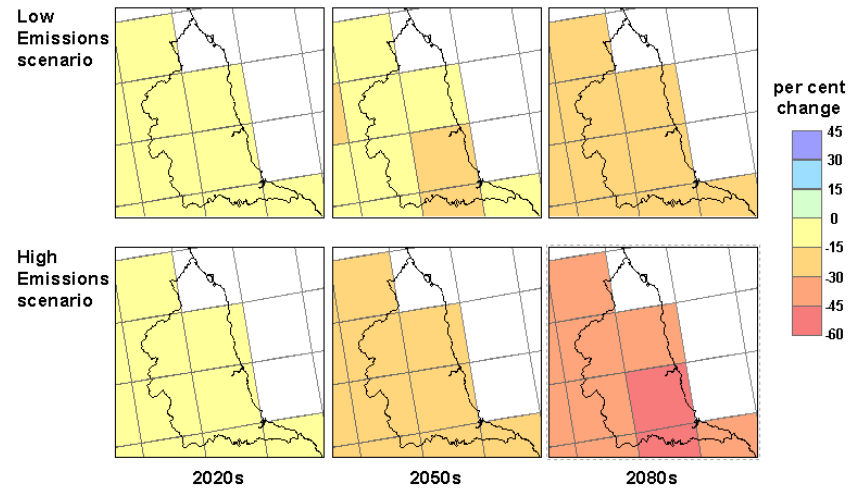
North East Change in annual average daily temperature

Source: UKCIP02 Climate Change Scenarios (funded by Defra, produced by Tyndall and Hadley Centres for UKCIP)



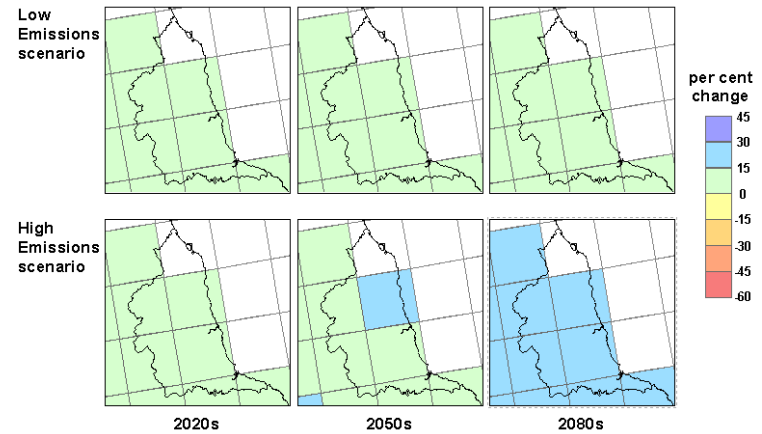
North East England Percentage change in summer precipitation

Source: UKCIP02 Climate Change Scenarios (funded by Defra, produced by Tyndall and Hadley Centres for UKCIP)



North East England Percentage change in winter precipitation

Source: UKCIP02 Climate Change Scenarios (funded by Defra, produced by Tyndall and Hadley Centres for UKCIP)



Appendix 2: The Nottingham Declaration

The Nottingham Declaration on Climate Change

We acknowledge that

- Evidence shows that climate change is occurring.
- Climate change will continue to have far reaching effects on the UK's people and places, economy, society and environment.

We welcome the

- Social, economic and environmental benefits which come from combating climate change.
- Emissions targets agreed by central government and the programme for delivering change, as set out in the UK Climate Change Programme.
- Opportunity for local government to lead the response at a local level, encouraging and helping local residents, local businesses and other organisations - to reduce their energy costs, to reduce congestion, to adapt to the impacts of climate change, to improve the local environment and to deal with fuel poverty in our communities.
- Endorsement of this declaration by central government.

We commit our Council from this date 29th June 2007 to


- Work with central government to contribute, at a local level, to the delivery of the UK Climate Change Programme, the Kyoto Protocol and the target for carbon dioxide reduction by 2010.
- Participate in local and regional networks for support.
- Within the next two years develop plans with our partners and local communities to progressively address the causes and the impacts of climate change, according to our local priorities, securing maximum benefit for our communities.
- Publicly declare, within appropriate plans and strategies, the commitment to achieve a significant reduction of greenhouse gas emissions from our own authority's operations, especially energy sourcing and use, travel and transport, waste production and disposal and the purchasing of goods and services.
- Assess the risk associated with climate change and the implications for our services and our communities of climate change impacts and adapt accordingly.
- Encourage all sectors in our local community to take the opportunity to adapt to the impacts of climate change, to reduce their own greenhouse gas emissions and to make public their commitment to action.
- Monitor the progress of our plans against the actions needed and publish the result.

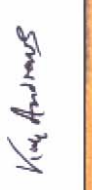
Seadgfield Borough

_____ Council
acknowledges the increasing impact that climate change will have on our community during the 21st century and commits to tackling the causes and effects of a changing climate on our city/county/borough/district.


Leader of the Council


Chief Executive


Ian Pearson, Minister of State for Climate Change and the Environment, DEFRA


Baroness Andrews
OBE - Parliamentary Under Secretary of State, DCLG

NDCC Revised Version 3.0/2006

Appendix 3: Policy Context

Climate change is now an organising principle in decision making at all levels. The section below catalogues international, national, regional and local plans and strategies that seek to reduce greenhouse gas emissions and plan adaptation.

International Policy Kyoto Protocol²³

This is an international agreement to reduce greenhouse gas emissions. The UK has committed to a 12.5% reduction by 2012.

EU Energy Performance of Buildings Directive (EPBD)²⁴

Due to become policy in April 2008, the EPBD will require all public buildings over 1000m² to display energy performance certification. The aim is to give building owners and occupiers the incentive to improve energy performance.

National Policy

Securing the Future: UK Sustainable Development Strategy²⁵

Published in March 2005, the strategy set out five principles for sustainable development with a focus on environmental limits. It also identifies four priority areas: sustainable consumption and production, climate change, natural resource protection and sustainable communities.

Our Energy Future: Creating a Low Carbon Economy²⁶

This 2003 policy sets the government's objective to cut CO₂ emissions by 60% by 2050 with real progress by 2020. It also sets 130 commitments within 10 work streams, including a target to generate 10% of the UK's energy needs by renewable technologies.

Carbon Reduction Commitment (CRC)

The proposed CRC will create a mandatory emissions cap on large organisations which are not covered by the EU Emissions Trading Scheme or Climate Change Agreements. The effects of the scheme will be to require, beginning with a trial phase from 2009:

- Accurate monitoring and reporting of energy consumption.
- Companies to hold (or buy) allowances to cover their emissions.

Climate Change – The UK Programme²⁷

Sets out the Government's commitments in meeting the challenge of climate change with both emissions reduction programmes and adaptation strategies.

Climate Change and Sustainable Energy Act, 2006²⁸

An Act to make provision about the:

- Reduction of emissions of greenhouse gases;
- Alleviation of fuel poverty;
- Promotion of microgeneration and the use of heat produced from renewable sources;
- Compliance with building regulations relating to emissions of greenhouse gases;
- Renewables obligation relating to the generation and supply of electricity.

Regional Policy

Integrated Regional Framework

Objectives 7 of the Framework is "to reduce the causes and impacts of climate change."

Regional Spatial Strategy (RSS)²⁹

The Submission Draft North East Regional Spatial Strategy (RSS) sets out a long-term strategy for the spatial development of the North East. The overall vision, strategy and general policies are intended to guide development over a long timescale. Together with

the Local Development Framework (LDF) they constitute the statutory Development Plan.

The RSS panel report in June 2006³⁰, recommended a range of policies be considered for inclusion in the final RSS policy due to be published in Spring 2007. These include 3 policies that aim to reduce CO2 emissions and adapt to the impacts of climate change:

POLICY 2 – SUSTAINABLE DEVELOPMENT
POLICY 39 – SUSTAINABLE ENERGY USE
POLICY 40 – RENEWABLE ENERGY GENERATION

Each policy works towards reducing CO₂ emissions through a range of environmental, social and economic objectives.

County Durham Climate Change Action Plan

Published in 2006 after consultation with local authorities and key partners, the document set out priorities and key areas for action for mitigation and adaptation, including:

- Improved education and awareness of climate change issues across all sectors;
- Increase sustainable transport measures;
- Reduce volume of biodegradable waste going to landfill;
- Carry out detailed research into the likely impact of climate change in Co Durham;
- Ensure new developments are designed and located to minimise climate risks;
- Encourage organisations to carry out climate risk assessments and introduce appropriate adaptation measures.

Local Policy

Sedgefield Borough Community Strategy 2004-2014

The community strategy has adopted a vision that by 2014 Sedgefield Borough is a place where:

- People can live healthy, active and fulfilling lives as part of vibrant and strong communities;
- High quality businesses can prosper and local people have the confidence and skills to access the jobs that they offer;
- The natural and built environment is valued conserved and enhanced;
- People can access the housing they want in attractive and safe neighbourhoods.

Sedgefield Borough Council Corporate Plan

This document is a key business planning tool, setting out the Council's ambitions and priorities for the future. The Climate Change Strategy will contribute directly to the following key community outcomes:

- Ensuring a cleaner greener environment;
- Reducing waste and managing natural resources;
- Improving towns, villages and the countryside;
- Promoting business and employment opportunities.

Local Development Framework

Sedgefield Borough Council is currently working to amend the Local Development Framework (LDF), the guidelines which determine what can be built and where, in order to incorporate sustainable development within planning guidelines. The framework will not be published until 2008, however the provisional aims are listed below:

AIM 1: To enhance social inclusion and well being

AIM 2: To improve the quality of where people live

AIM 3: To reduce the impact of development on climate change

AIM 4: To protect and enhance natural resources

AIM 5: To encourage and support a competitive and diverse economy

Appendix 4: Calculating Emissions

The data used to calculate emissions was developed using the South East Climate Change Partnership's, Government approved, greenhouse gas calculator. This represents the 'current best working model' for calculating emissions using real data, rather than data modelled from assumptions of energy use. This is simplified in the table below and shows the energy consumed and CO₂ e emissions in our buildings and through transport use.

Energy Consumption	2003		2004		2005		2006	
		CO ₂ e		CO ₂ e		CO ₂ e		CO ₂ e
Gas Consumption (kWh)	16,796,934	3191	16,076,160	3054	15,034,355	2857	13,472,423	2559
Electricity Consumption (kWh)	5,681,261	2443	6,053,640	2603	6,055,956	2604	6,091,958	2620
Car Mileage (miles)	674,000*	195*	678000*	197*	682439	198	682439	199
Fleet Vehicles (litres of fuel)	489,000	1286	490,000*	1,288*	490,000*	1,288*	490,000*	1,288*
TOTAL		7115		7142	15,034,355	6947		6666

*Estimation due to incomplete data

Greenhouse Gas Emission Factors for Energy Consumption and Fuel Use (2003)

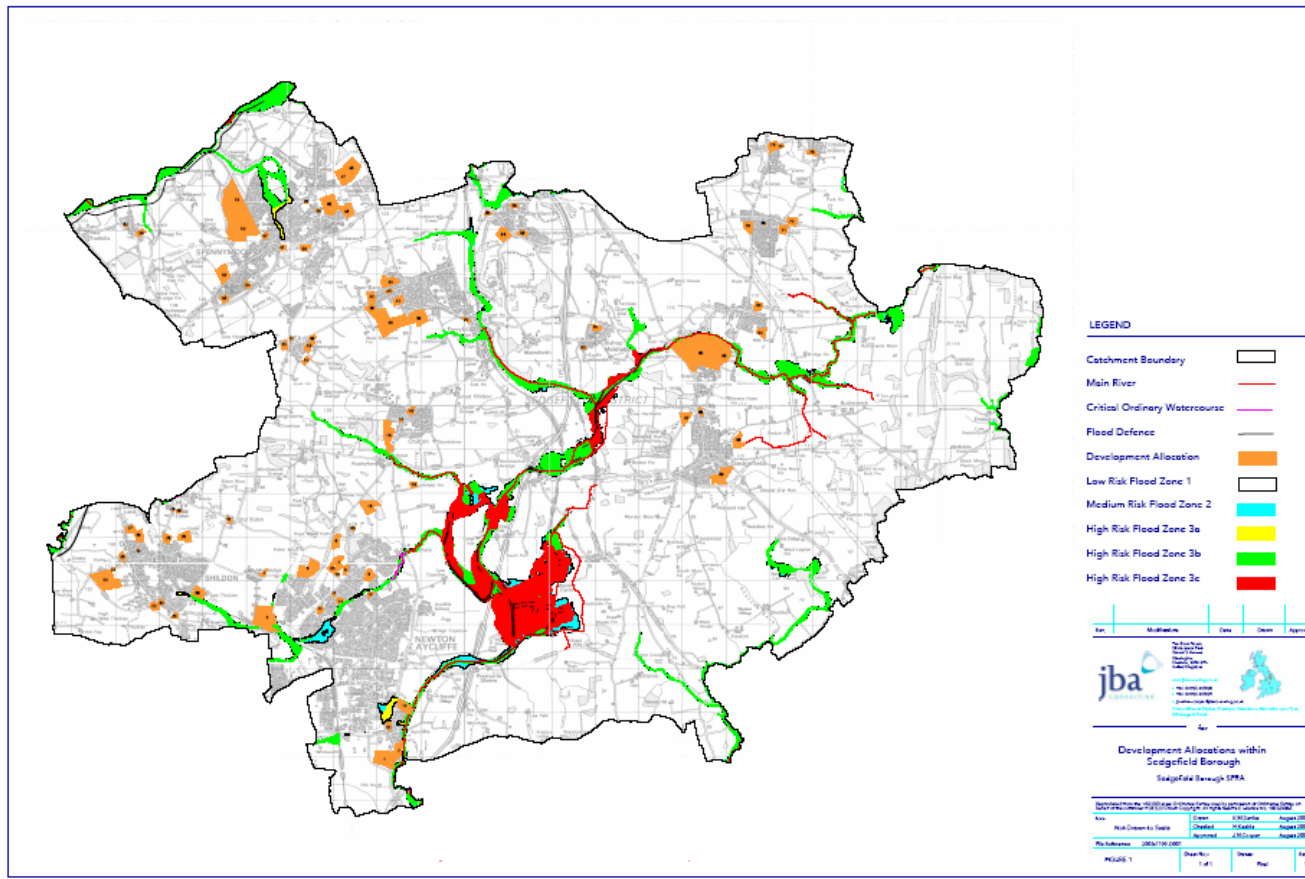
Measure	Unit	Emission Factor	Factor	Total Used	CO ₂ e (tonnes)
<i>Diesel</i>	<i>Litre</i>	2.63	0.00263	489,000	1286
<i>Petrol Car (Average)</i>	<i>mile</i>	0.29	0.00029	674000	195
<i>Normal Mains Electricity (Brown)</i>	<i>kWh</i>	0.43	0.00043	5,681,261	2,442
<i>Certified 100% Green Electricity</i>	<i>kWh</i>	0	0	4,545,009*	0
<i>Mains Gas</i>	<i>kWh</i>	0.19	0.00019	16,796,934	3,191
TOTAL					7115

*The inclusion of green electricity could reduce emissions by 1,954 tonnes of CO₂ (e). However to gauge an accurate trend of emissions it has been discounted in this instance.

Emission factors are taken from DEFRA approved 'Guidelines for Company Reporting on Greenhouse Gas Emissions' (July 2005) www.defra.gov.uk/environment/business/envrp/gas/envrpgas-annexes.pdf

Appendix 5: Strategic Flood Risk Assessment (SFRA)

In 2005 SBC commissioned consultants to carry out a strategic flood risk assessment for the Borough³¹. The SFRA is a planning tool that SBC uses to select development sites away from vulnerable flood risk areas. The assessment focuses on the existing development sites within the borough but also sets out the procedure to be followed when assessing additional sites for development in the future. The map below identifies the areas within Sedgefield Borough that are at risk of flooding. Therefore using this SFRA we can select development sites away from those vulnerable flood risk areas and manage the flood risk of existing sites in a sustainable and cost effective manner.



Appendix 6: Carbon Management Matrix: The green shading highlights the current SBC position

	POLICY	ORGANISATION	INFORMATION AND DATA	COMMUNICATION AND TRAINING	FINANCE	MONITORING & EVALUATION
Excellent	Specific climate change policy with targets signed off and implemented + Action plan with clear goals and regular reviews to confirm actions undertaken and targets achieved/being progressed	As 4: + Climate change responsibilities integrated into responsibilities of senior managers in different departments + Political support from the highest level in the council.	CO ₂ emissions compiled for all main LA sources for a baseline year and regular collation of annual emissions data + Data externally verified	As 4: +Communication on carbon and energy related matters with the community and other key business partners	Well defined and effective internal financing mechanisms for carbon/energy saving projects + Extensive use of external finance sources as appropriate + Good internal resources for management/coordination tasks	Management Review of carbon management process by senior management. + Regular reviews by core team on progress with carbon management
Very Good	Specific climate change policy with targets developed and signed off, but not implemented	Climate change/carbon management is a full-time responsibility of an individual + Climate change responsibilities integrated into responsibilities of senior managers in different departments	CO ₂ emissions compiled for all main LA sources for a baseline year (i.e. buildings, streetlighting, transport (fleet and commuting) and waste if relevant) + Data internally reviewed	Formalised communication and training plan for all staff on carbon and energy related matters, including integration in induction and other normal training processes	Internal & external funding on a regular basis for carbon/energy saving projects + Sufficient internal resources for management/coordination tasks	Regular reviews by core team on progress with carbon management (e.g. review of actions, check against emissions profile and targets, addition of new opportunities etc.)
Good	Climate change included in wider policy documents.	As 2: + Climate change responsibilities integrated into responsibilities of people in different departments	CO ₂ emissions data compiled for some sources for a baseline year (e.g. buildings and streetlighting) and source data available for other sources (e.g. transport)	Ad hoc communication and training delivered to all staff on carbon and energy related matters	Internal & external funding on an ad hoc basis for carbon/energy saving projects + Limited internal resources for management/co-ordination tasks	Ad hoc assessment of all aspects of carbon/energy policies/strategies, targets and action plans
Fair	Climate change as an aspiration in non-policy documents	Climate change/carbon management is a part-time responsibility of an individual	No CO ₂ emissions data compiled for any sources but energy data compiled on a regular basis	Communication and training to specific groups in the Council (e.g. energy team) on carbon or energy related matters	Some internal financing on an ad hoc basis for carbon and/or energy efficiency related projects + Limited internal resources for management/coordination tasks	Ad hoc reviews of specific aspects of carbon/energy policies/strategies, targets and action plans
Poor	No climate change policy or strategy and no mention of climate change in policy/strategy documents	No individual with responsibility for climate change issues	No CO ₂ emissions data compiled for any sources and energy data not compiled on a regular basis	No communication or training to staff on carbon or energy related matters	No internal financing or funding for carbon and/or energy efficiency related projects	No monitoring of carbon/energy policies/strategies, targets and action plans

Appendix 7: How you can help

Sedgefield Borough Council supports the Energy Saving Trust's 'Save Your 20%' campaign, which aims to help and encourage people to save 20% of the energy they use everyday. If everyone saved 20% of their energy consumption we could help to avoid dangerous climate change. For further information

8.1 At Home

The energy we use to heat, light and power our homes accounts for 23% of the total CO₂ (e) emissions within Sedgefield Borough. By following these simple hints and tips you can save up to £250 per year on energy bills:

- Turning your thermostat down by 1°C could cut your heating bills by up to 10% and save you around £30 per year;
- Is your water too hot? Your cylinder thermostat shouldn't need to be set higher than 60°C/140°F;
- Close your curtains at dusk to reduce the amount of heat escaping through the windows;
- Always turn off the lights when you leave a room;
- Don't leave appliances on standby and remember not to leave appliances on charge unnecessarily;
- If you're not filling up the washing machine, tumble dryer or dishwasher, use the half-load or economy programme;
- Only boil as much water as you need (but remember to cover the elements if you're using an electric kettle);
- In just one day, a dripping hot water tap wastes enough water to fill a bath. Make sure they're turned off;
- Replace your light bulbs with energy saving recommended ones: just one can reduce your lighting costs by up to £78 over the lifetime of the bulb;
- Do a home energy check and find out how you can cut up to £250 a year on your household energy bills;
- Contact the Energy Saving Trust on 0800 512 012 for more information.

8.2 At Work

Most businesses and public sector organisations could quickly cut their heating, lighting and power bills by 10% or more without any capital investment. With a little investment, savings of 20% are realistic and some companies have even cut their energy costs in half, becoming more profitable and competitive as a result.

- Turn off lights in empty rooms and corridors - especially at the end of the day. This can save up to 15% of your lighting bill;
- Lights too bright in corridors? Remove or switch to alternate fittings;
- Use daylight, It's free - so keep windows and skylights clean and clear;
- Clean light fittings annually. Dirt reduces lighting efficiency, encouraging people to switch more lights on;
- Too hot? Set the thermostat at 19°C - costs rise by 8% for every 1°C increase;
- Don't heat unused space such as storerooms and corridors;
- Reduce heating during holidays and weekends;
- Don't block radiators with furniture - it reduces efficiency and output;
- Check that thermostats are sited out of draughts and away from either cold or hot spots;
- Keep windows closed in cold weather. If staff are too warm, turn the heating down instead;
- Check regularly on your consumption of electricity, gas and oil, and check that your bills relate to what you actually use, rather than an estimate;
- Contact the Carbon Trust on 08000 852005 for more information.

ENDNOTES

- ¹ BBC (June 2005), Temperatures soar across Britain
- ² European Project for Ice Coring in Antarctica (Epica) www.esf.org/esf_article.php?activity=1&article=85&domain=3
- ³ HM GOVERNMENT (2006), *Climate Change The UK Programme*
- ⁴ www.ipcc.ch
- ⁵ <http://news.bbc.co.uk/1/hi/world/europe/3139694.stm>
- ⁶ www.who.int/topics/climate/en/
- ⁷ www.climatechallenge.gov.uk/understand/uk_climate_change.html
- ⁸ www.unep.org/
- ⁹ <http://news.bbc.co.uk/1/hi/sci/tech/328776.stm>
- ¹⁰ SUSTAINED (2003), And the weather today is....
- ¹¹ www.ipcc.ch/
- ¹² www.ipcc.ch/
- ¹³ www.ipcc.ch/
- ¹⁴ SUSTAINED (2003), And the weather today is....
- ¹⁵ SEDGFIELD BOROUGH COUNCIL (2007), Sustainable Energy & Water Policy
- ¹⁶ SEDGFIELD BOROUGH COUNCIL (August 2005), Sedgefield Strategic Flood Risk Assessment
- ¹⁷ SEDGFIELD BOROUGH COUNCIL (2007), Sustainable Energy & Water Policy
- ¹⁸ HM GOVERNMENT (2006), *Climate Change the UK Programme*
- ¹⁹ [BBC NEWS | Science/Nature | British species migrate northward](http://www.bbc.co.uk/news/science_nature/2006/06/060623_bbc_nature_northward.shtml)
- ²⁰ DEPARTMENT OF TRANSPORT (DfT) (2004), *The Future of Transport, White Paper*
- ²¹ DEFRA (2006), *Procuring the Future, Sustainable Procurement National Action Plan:*
- ²² www.thecarbontrust.co.uk
- ²³ www.unep.org
- ²⁴ www.diag.org.uk
- ²⁵ www.sustainable-development.gov.uk
- ²⁶ www.dti.gov.uk/energy/whitepaper
- ²⁷ www.defra.gov.uk/environment/climatechange/uk/ukccp/index.htm
- ²⁸ www.publications.parliament.uk/pa/cm200506/cmbills/017/2006017.htm
- ²⁹ www.viewnortheast.com
- ³⁰ www.go-ne.gov.uk/gone/ourregion/regional_strategies/rss_panel_report/
- ³¹ SEDGFIELD BOROUGH COUNCIL (August 2005), Sedgefield Strategic Flood Risk Assessment

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