



Tees Valley  
Climate Change Strategy

2010 - 2020



# Contents

	Pages
Foreword .....	3
Statements of Support .....	4 - 5
Background .....	6 - 8
The Tees Valley Climate Change Partnership .....	9 - 10
Climate Change in the Tees Valley .....	11 - 15
The Tees Valley Emissions Baseline .....	16 - 19
Opportunities .....	20 - 21
Business .....	22 - 28
Housing .....	29 - 36
Transport .....	37 - 44
Our Local Environment .....	45 - 56
Communication and Behaviour Change .....	57 - 64
Endnotes .....	65 - 68
Glossary .....	69 - 70
Useful Information .....	71 - 72
Tees Valley Climate Change Partnership Contacts .....	73 - 75
Notes Page .....	76



## Foreword

"I am delighted to present the Tees Valley Climate Change Strategy. The Coalition Government has made it very clear that it believes climate change is one of the gravest threats we face, and that urgent action to reduce carbon emissions is needed. The Tees Valley Local Authorities and partners have long since recognised this threat and continue to implement a series of measures to address it.

Tees Valley represents a unique blend of industrial, urban and rural areas and climate change represents a real threat, especially to our carbon emitting industries, however the assets, skills and experience we have also mean that we are well placed to maximise the opportunities presented by the transition to a Low Carbon economy. This transition will safeguard the industries and jobs we have, attract new inward investment and support the creation of new green jobs and technologies leading to a stronger and more diverse economy.

This strategy represents the "coming together" of the five Tees Valley local authorities and their partners with a single aim and vision. Climate change does not respect administrative boundaries and only by working together within the Tees Valley and with the new government can we overcome the threats and make the most of the opportunities.

Moving forwards, this strategy provides a sound base to embed the Low Carbon transition within the economic regeneration of the Tees Valley and the overall economic recovery of the country."

**John Barton**

Project Director, Renew@CPI and Chair of the Tees Valley Climate Change Partnership

## Statements Of Support

*"Climate change is a big issue for society and although there is as yet no certainty over the causal effects or the outcomes, it is likely to arise from both natural and human processes. Analysis of potential causes and planning for the future is essential so that large scale interventions are possible. To have a positive impact it may mean that small improvement activities by the many, for example changes we make in all our homes and modes of transport, will be needed, alongside large scale investments such as renewable fuels, renewable heat and power and renewable chemicals. Clearly climate change can only be tackled by a concerted effort by us all and this strategy shows we have the partnership approach in the Tees Valley that can play its full part."*

**Dr Stan Higgins, CEO, NEPIC**

*"I welcome the initiative taken by the Tees Valley Climate Change Partnership in producing this climate change strategy and applaud the ambitions to reduce carbon emissions from Tees Valley, work towards a low carbon economy and to plan for the impacts of climate change. The Environment Agency looks forward to playing its part in helping to achieve these aims through its work in regulating emissions from industry, supporting the development of low carbon technologies and managing flood risk"*

**Mark Scott, Area Manager - Environment Agency North East Area**

*NHS Tees is delighted to be part of the Tees Valley Climate Change Partnership. Our business is improving the health of local people, but we also carefully consider the impact of all that we do on the global community. We are committed to taking action on climate change. NHS Tees has established a strong sustainable development strategy to ensure that we take seriously our responsibilities as a local partner, meet our national NHS commitments to carbon reduction and encourage and support our staff to make positive changes at work and at home to help deliver our collective vision for healthy, low carbon lifestyles.*

**NHS Tees**

*"Darlington Borough Council recognises that climate change is occurring and is committed to securing local action in tackling this important issue. Working in partnership with other key organizations within the Tees Valley will ensure a co-ordinated and effective approach to both mitigating and adapting to the effects of climate change. This strategy represents an innovative approach to joint working across the Tees Valley and is a clear statement of the commitment to combating climate change."*

**Councillor Nick Wallis, Cabinet Member for Sustainable Environment and Climate Change, Darlington Borough Council**

*"Climate change is happening now, and poses a major threat to our future, both locally and globally. Hartlepool Borough Council fully supports the Tees Valley Climate Change Strategy, and is committed to tackling the causes of climate change by taking action to reduce CO<sub>2</sub> emissions across the borough. We all have a responsibility to reduce our CO<sub>2</sub> emissions and to ensure we are prepared for the inevitable effects of climate change, and the Council is working to ensure that these effects are considered and addressed in all aspects of its services. The Hartlepool Climate Change Working Group, which has representation from major stakeholders within the town, has produced a local Implementation Plan for action on climate change within the borough. This document will be further developed and reviewed by the Working Group to ensure that Hartlepool's response to climate change is comprehensive and wide reaching and engages all areas of the community. By working together, the people of Hartlepool can rise to the challenges laid down by climate change, and I urge every person to do their bit at home, at work and at leisure"*

**Stuart Drummond, Mayor of Hartlepool**

Middlesbrough launched its first Climate Change Community Action Plan in 2004 to provide an agreed framework to reduce carbon dioxide emissions and plan how the local community will adapt to the inevitable changes in the weather brought about by climate change. The Action Plan was the foundation behind Middlesbrough Council's Beacon Council status for 'Tackling Climate Change' which I was pleased to see was a partnership bid involving Tees Valley Councils. Leaders around the world are increasingly signing up to far reaching cuts in carbon emissions but it is widely accepted that the challenge must be led at the local level if progress is to be made. Middlesbrough Council is committed to working with the local community to make Middlesbrough a more sustainable town and meet our commitments under the Covenant of Mayors. Our branding for sustainability is called 'One Planet Living' and working towards zero carbon and zero waste is a long term goal. Everyone has to play a part in working towards a low carbon future. This document shows how the Tees Valley has come together, not just in leading the way in reducing greenhouse gas emissions, but in being at the forefront in creating new green jobs.

**Ray Mallon, Mayor of Middlesbrough**

"Redcar and Cleveland Borough Council acknowledges the threat posed by climate change and the response that needs to be taken by the Council, its partners and citizens of the borough. As a coastal borough, we take the threat seriously and recognise the importance of mitigation through reducing our emissions but equally of the need to adapt to the changes that will take place. We fully support this collaborative and comprehensive Tees Valley Climate Change Strategy and wholeheartedly endorse its aims. As a signatory of the European Covenant of Mayors Initiative, climate change is one of the key priority areas within 'Our Plan', the Councils corporate plan, and the boroughs Sustainable Community Strategy. We are committed to working with our partners across the sub region to ensure we deliver on this important agenda including meeting the challenging targets we set ourselves.

**Councillor George Dunning, Leader of Redcar and Cleveland Borough Council**

"Stockton Borough Council has taken a pro-active approach to tackling the issues of climate change, and we take seriously the threats posed to our industry, homes and environment by a changing climate. We have publically pledged to reduce our emissions and make adapting to the challenges of climate change one of our top priorities. We also recognise the importance of strengthening our efforts by working together across the Tees Valley. We fully endorse the Tees Valley Climate Change Strategy and the opportunities it presents to the communities of the Tees Valley in its approach to tackling climate change."

**Councillor Jennie Beaumont, Cabinet Member for the Environment, Stockton on Tees Borough Council**

"Creating prosperous and resilient communities  
in a low-carbon economy"

## Background

The Tees Valley is a unique economic and cultural area of the North East of England that includes the five unitary boroughs of Darlington, Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton-on-Tees. The Tees Valley economy includes the largest integrated heavy industrial complex in the United Kingdom. Climate change creates unparalleled opportunities as well as risks for the Tees Valley. Developing renewable energy and low carbon industry, upgrading public transport systems and low carbon, resilient housing developments are clear priorities for the economic development of the Tees Valley.

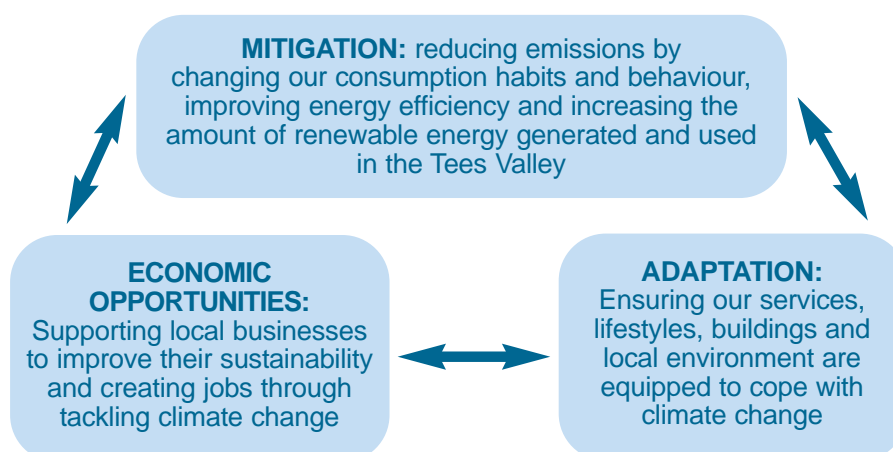
A coherent and targeted approach is needed to engage and support the range of people and organisations that impact, and are impacted by climate change in the Tees Valley.

This includes identifying opportunities to reduce the carbon emissions associated with existing heavy industry, for example, using low grade waste heat from industry to provide heating for new housing developments.

The North East was designated as a Low Carbon Economic Area to develop ultra low carbon vehicles in 2009, and the North South Tees Industrial Development Framework for the Tees Valley has been developed to support the range of low carbon sectors that currently plan to invest in the area. Climate change is central to the Tees Valley Unlimited Economic & Regeneration Statement of Ambition as it is essential that the economic regeneration of the Tees Valley does not 'lock in' to a high carbon infrastructure. We need to ensure that emissions reductions in one sector are not dwarfed by rising emissions in other sectors.

The economic downturn has created significant risks and challenges for businesses and the public sector. Widespread restructuring is occurring throughout all sectors. Climate change impacts and longer term rising energy prices increase the vulnerability of many organisations, unless a proactive response ensures that risks are minimised and opportunities are exploited to the full. For example, rising energy costs, and costs of carbon emissions through market mechanisms may reduce profit margins, but action to improve energy efficiency can reduce these costs, as well as reducing emissions.

Similarly, if climate risks are embedded into contingency planning, recovery from extreme events such as floods is likely to be much quicker. In line with the Climate Change Action Plan for the North East, our approach to tackling climate change focuses on mitigation, adaptation, and economic opportunities.



A key challenge in investing in climate change during a recession is that people may view climate change as a 'feel good' issue that is less important than economic development. It is therefore crucial to point out that action on climate change is more about 'insuring' than 'taxing' economic development. In 2006 the Stern Review concluded the costs of dealing with climate change in the future far outweigh the costs of tackling climate change now.

*"The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Our actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes..."*

*...Action on climate change will also create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly...*

*...The world does not need to choose between averting climate change and promoting growth and development. Changes in energy technologies and in the structure of economies have created opportunities to decouple growth from greenhouse gas emissions. Indeed, ignoring climate change will eventually damage economic growth.<sup>1</sup>"*

Climate change is something that we cannot afford to ignore. The impacts and implications of climate change will be a positive driver of economic growth in the Tees Valley, and a proactive response to the challenges of climate change now will increase our ability to cope with negative impacts in the longer term.

Similarly, the urgent need to reduce emissions associated with lifestyles offers a huge opportunity to support people in making healthy and prudent behaviour changes for the better.

It is vital to properly support people to make healthier and more sustainable choices, to allow us to 'lock in' to healthy low carbon lifestyles, for example by providing suitable incentives such as safe cycle routes and supervised school cycle clubs or walking buses. This will make people more active, and less reliant on high carbon lifestyles.



Tackling the commercial and the lifestyle aspects of climate change will allow us to realise our vision of creating prosperous and resilient communities in a low carbon economy. Tackling climate change means reducing fuel poverty, reducing the impacts of flooding and high energy prices, promoting healthy and active lifestyles, and taking advantage of the economic and employment opportunities associated with renewable energy and low carbon businesses.

This vision is fully aligned with the priorities contained in the Tees Valley Statement of Ambition and Multi Area Agreement, as well as the Sustainable Community Strategies of the Tees Valley Authorities and Local Strategic Partnerships. We are committed to ensuring that the opportunities as well as the risks associated with climate change are recognised and acted upon together.



## The Tees Valley Climate Change Partnership

The Tees Valley Authorities have a long history of working together and are recognised as leaders in tackling climate change. The Tees Valley Climate Change Partnership was formally established in 2005 and includes the five Tees Valley Local Authorities, the Environment Agency, Renew@CPI, Tees and Durham Energy Advice Centre (TADEA) and the Energy Savings Trust. The Clean Environment Management Centre (CLEMANCE) of Teesside University, and the Tees Valley Primary Care Trusts joined the partnership in 2009.

The key achievements of the partnership to date include:

- Developing a Tees Valley greenhouse gas inventory and emissions protocol to monitor emissions throughout the sub-region.
- Publishing a Tees Valley climate change strategy in 2007 that set an emissions baseline and outlined actions to achieve emission reductions, adapt to climate change and raise awareness; and
- Adopting Tees Valley wide targets for emissions reductions the Tees Valley Local Authorities committed to reducing emissions by at least 8.75% by 2012.
- Middlesbrough Council was awarded Beacon Status by the Government in 2008, therefore the Tees Valley Climate Change Partnership were Beacon Partners.

The current Tees Valley baseline and targets have been revised to take account of Local Area Agreement targets, and we are committed to working towards emissions reductions in line with the UK carbon budgets and Covenant of Mayors Commitments.

All of the Local Authorities in the North East have signed up to the Covenant of Mayors initiative, which commits them to reduce emissions in their local area by at least 20% by 2020.

Actions and measures to meet Local Strategic Partnership targets will deliver our short term priorities and are based on existing Local Authority Climate Change Action plans and Local Area Agreements. Medium term objectives up to 2020 will be achieved by making climate change central to the economic regeneration priorities contained in the Tees Valley Unlimited Statement of Ambition, for example developing low carbon infrastructure.

There is a legal obligation for the UK to reduce carbon emissions by 80% by 2050, so this will guide our medium to long term plans. At the moment, our economy and our lifestyles directly and indirectly rely upon the availability of fossil fuels, so meeting long term targets and our vision will demand substantial changes to our economy and way of life. We still have the opportunity to ensure this is a positive transition.



# International drivers

United National Framework Convention on Climate Change set legally binding international emission reduction targets through the Kyoto Protocol until 2012. The Copenhagen Accord is a political agreement for international emissions reductions.

## National drivers

The European Union has targets and legislation that affect action on climate change at national and local level in the UK, e.g. 20% of energy to be produced by renewables by 2020.

Globalisation and international competitiveness and the cost of carbon (EU ETS) affect industrial and commercial operations in the Tees Valley.

The UK has legal targets to produce 15% of all energy from renewable sources by 2020

Climate Change Act 2008 legally obliges 80% reduction in carbon dioxide emissions by 2050 and have an adaptation programme in place to reduce the risk of climate change.

Carbon budgets legally oblige at least a 34% reduction in emissions by 2022

**TEESSIDE UNIVERSITY (CLEMANCE)** support the development of clean technologies to improve industrial competitiveness and benefit people and the environment

**ENVIRONMENT AGENCY** protects and improves the environment through planning and regulation

**PRIMARY CARE TRUSTS** provide community health services and commission health services

## The Tees Valley Climate Change Partnership

coordinates and communicates best practice in achieving emissions reductions, reducing the risks of climate change, and developing the opportunities associated with tackling climate change.

**OTHER REGIONAL PARTNERS**  
e.g. Government Office North East, Climate North East, Regional Improvement and Efficiency Partnership

**TADEA** developing the market for insulation and renewable energy across the North East

**ENERGY SAVINGS TRUST** provides independent advice to the public and organisations on saving energy and reducing carbon dioxide emissions

**LOCAL AUTHORITIES** deliver essential services and promote economic, social and environmental well-being of their area

**RENEW @ CPI** facilitates and delivers commercial energy and environmental technology projects across the North East

## Climate Change in the Tees Valley

The North East Adaptation Study identified future climate change impacts in the Tees Valley that relate mainly to industry, urban areas, transport and services. The low-lying nature of much of the Tees Valley means we are susceptible to direct climate change impacts such as rising sea levels and flooding, which will impact homes, businesses and the coastal and wetland habitats of the Teesmouth and North Tees Valley marshes.

The Tees Valley chemical process industry, and Hartlepool Nuclear Power Station, is located around the banks of the River Tees estuary. These are prone to overtopping and flooding unless adequate flood defence structures and bunds are developed and maintained. Rising sea levels will increase the risk of flooding to key industrial sites. The Environment Agency has developed a Tees Tidal flood risk management strategy to address flood risk issues between the mouth of the Tees and the A66 road crossing, an area of approximately 65 km<sup>2</sup>. Most of this area is heavily industrialised, though some of the Tees Tidal area is designated under European legislation because of its importance to birdlife.

One of the key recommendations of the Pitt Review "Learning Lessons from the 2007 Floods" is that local authorities take on the leadership role in flood risk management. This includes:

- Coordinating mapping of local surface flood risk.
- Managing surface water flooding and drainage at local level.
- Stronger planning and building controls.
- Reviewing reserves and insurance to ensure they are able to bear the cost of recovery in future emergencies.

Since 2006 all public bodies and local authorities have a duty to conserve biodiversity.

Identifying potential risks enables us to plan to reduce the risks and increase the opportunities associated with a changing climate. Durham County Council is currently developing a methodology to produce vulnerability maps as a UK CIP pilot. Tees Valley may be able to use this methodology for cross boundary adaptation planning.

Understanding our existing vulnerability is a useful starting point to consider the future impacts of climate change for the Tees Valley, for example the Transporter Bridge, the largest working bridge of its kind in the world, is closed to vehicles during high wind speeds, intense rainfall events or heavy fog. The A19 flyover is closed to high sided vehicles during heavy wind. By 2050 the transport network will become increasingly affected by weather-related impacts causing disruption and delays in road, rail and air traffic. Increased winter flooding and, road tarmac melt during rising summer temperatures will increase disruption.

Opportunities to start building resilience to climate change impacts are identified in the strategic priority sections, drawing on the North East Adaptation Study and other best practice.

## Adapting to climate change

Adaptation to climate change means reducing the risks and taking advantage of the opportunities associated with a changing climate.

The climate change impacts that we can expect in the North East by 2050 include:

- Increased flooding from rivers, streams, the sea and drainage systems.
- Increased health and welfare effects during warmer summers, such as excess deaths due to heat waves, increases in infectious diseases in humans and livestock, and increasing injury to children playing out.
- Increased numbers of pests.
- Increased damage to the structure of buildings and transport networks.
- Loss of business/service productivity or continuity.
- Increased pressure on emergency services and disruption to services e.g. meals on wheels, particularly during floods.
- Increased erosion of the coastline and sea level rise.
- Changing residential settlement patterns and migration.

During the 2003 heat wave, there were 35,000 extra deaths across Europe because we were not prepared for high temperatures and had not effectively planned how we could deal with them. The UK floods in 2007 cost the lives of 13 people, and over £3 billion in insurance with around 48,000 homes and 7,000 businesses flooded. The impacts of climate change will become more severe over time, and it is important that we adapt our lifestyles, businesses and infrastructure to cope with these impacts today and build in resilience to climate impacts for the future.

## Climate Change policy context

Action on climate change is governed by international and national laws and policies. The policy context for action on climate change is outlined on [www.teesvalleyunlimited.gov.uk](http://www.teesvalleyunlimited.gov.uk). UK action on climate change falls under the Climate Change Act 2008.

This Act means that the UK is the first country in the world to introduce a legally binding framework to cut greenhouse gas emissions.

The Act created the Committee on Climate Change - an independent expert body to advise the government on how to achieve carbon savings. The Committee on Climate Change has an Adaptation Sub-Committee to provide advice and scrutinise government work on adaptation. The Committee on Climate Change published their first report in December 2008, which supported the UK Government's target to reduce emissions of greenhouse gases by 80% by 2050 as a fair contribution to global action on climate change. The Government has a duty to meet this target through setting 5 year carbon budgets which require emissions reductions of at least 34% by 2020 from a 1990 baseline.

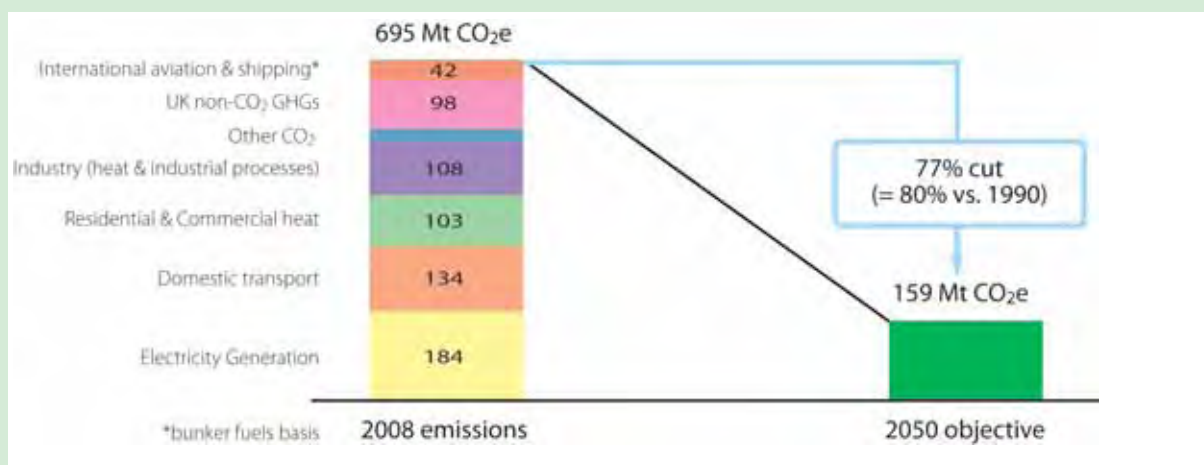


## Climate change mitigation

Climate change mitigation means reducing the amount of greenhouse gases that are released into the atmosphere to reduce their role in warming the global climate. Greenhouse gases are released when fossil fuels such as coal, oil, and gas are used to generate heat and electricity, and when oil is used to power transport engines. Tropical deforestation is another major cause of greenhouse gas emissions, because of huge releases of carbon dioxide resulting from land use changes. Mitigation also includes increasing the amount of greenhouse gases that are absorbed naturally by vegetation, soils and water.

Carbon dioxide CO<sub>2</sub> is the most significant greenhouse gas in the UK and the measurement of greenhouse gases are often described in relation to their carbon dioxide equivalent CO<sub>2</sub>e. In this strategy we have used the term 'carbon emissions' as shorthand for 'carbon dioxide emissions'.

### The scale of the challenge



(2008, *Committee on Climate Change*)

The emissions reductions the UK has legally committed to reflect our historical responsibility for climate change and our capacity to put things right.

The Government has to report every 5 years on the risks posed by climate change to the UK, and publish a programme of adaptation to address these risks.

The Committee on Climate Change has prioritised options for reducing carbon emissions in the UK. The key areas where reductions are most easily achieved are energy efficiency improvements in buildings and industry, and reducing the use of fossil fuels in power generation, transport, and industry. In line with the Stern Report (2006), the Committee on Climate Change concluded that the costs of achieving these reductions are much less than the costs and consequences of inaction.

The Coalition Programme for Government published in May 2010 states that the Government will:

- Continue public sector investment in carbon capture and storage (CCS) technology for four coal-fired power stations. They have also stated that they will establish an emissions performance standard that will prevent coal-fired power stations being built unless they are equipped with sufficient carbon capture and

storage to meet the emissions performance standard, that a floor price for carbon will be introduced, and that they will make efforts to persuade the EU to move to full auctioning of EU ETS<sup>2</sup> permits.

- Create a green investment bank, and as part of the creation of a green investment bank, create green financial products to provide individuals with opportunities to invest in the infrastructure needed to support the new green economy.
- Establish a smart grid and roll out smart meters.
- Establish a full system of feed-in tariffs in electricity - as well as the maintenance of banded Renewables Obligation Certificates.
- Introduce measures to promote a huge increase in energy from waste through anaerobic digestion and introduce measures to encourage marine energy.
- Through a 'Green Deal', encourage home energy efficiency improvements paid for by savings from energy bills. There will also be measures to improve energy efficiency in businesses and public sector buildings. The government have also made a commitment to reduce central government carbon emissions by 10% within 12 months.
- Deliver an offshore electricity grid in order to support the development of a new generation of offshore wind power.
- Encourage community-owned renewable energy schemes where local people benefit from the power produced. The Government will also allow communities that host renewable energy projects to keep the additional business rates they generate.
- Work towards an ambitious global climate deal that will limit emissions and explore the creation of new international sources of funding for the purpose of climate change adaptation and mitigation.

This national policy framework supports the Tees Valley Statement of Ambition to drive the transition to a high value low carbon economy. Within the Statement of Ambition, the North South Tees Industrial Framework details significant investment projects that currently exist, barriers that need to be overcome, and the actions required to deliver a low carbon economy in the Tees Valley. The principle sectors and technologies targeted include:

- Decarbonising industry
- Low carbon energy using biomass, waste and industrial by-products
- Resource recovery that recovers value from 'waste' resources
- Biofuels and biotechnology to produce low carbon fuels and feedstock for the chemicals sector
- Advanced engineering and manufacturing

In addition to the Tees Valley Statement of Ambition, every local authority in the North East has signed up to the Covenant of Mayors, making the North East the first region in Europe to do so. The Covenant of Mayors and Leaders is an ambitious European initiative that seeks to bring together the Mayors of some of Europe's pioneering cities in a permanent network to exchange and apply good practices to improve their energy efficiency and promote low-carbon business and economic development.

The Covenant of Mayors is a commitment by Mayors to go beyond the carbon reduction targets set by the EU for 2020 by reducing CO<sub>2</sub> emissions in local territories by at least 20%. The Covenant also requires that each signatory submits a Sustainable Energy Action Plan (SEAP), including a baseline emission inventory, to outline how carbon reduction objectives will be reached, within one year of signing up to the initiative.

The Tees Valley climate change strategy prioritises actions where immediate, substantial and measurable emissions reductions can be achieved alongside the North South Tees Industrial Development Framework and the Covenant of Mayors initiative. These actions support the vision of the Tees Valley Climate Change Partnership, the strategic priorities of the Multi Area Agreement and the Local Area Agreements that direct the Tees Valley Local Strategic Partnerships. The strategy is based on existing best practice in tackling climate change across the city region and will be used to ensure climate change remains central to the programmes developed to implement the Tees Valley Statement of Ambition.



## The Tees Valley Emissions Baseline

Since 2008, National Performance indicators have governed local authority action on climate change; specifically NI 185 that covers the emissions from local authority operations, NI 186 that covers emissions in the local area, and NI 188 that covers adapting to climate change. The aim of NI 186 is to measure and provide a framework to reduce CO<sub>2</sub> emissions that originate from business and public sector, domestic housing, and road transport in the local area. This indicator uses national statistics, and the percentage change in CO<sub>2</sub> emissions per capita is reported annually by the Department for Energy and Climate Change (DECC).

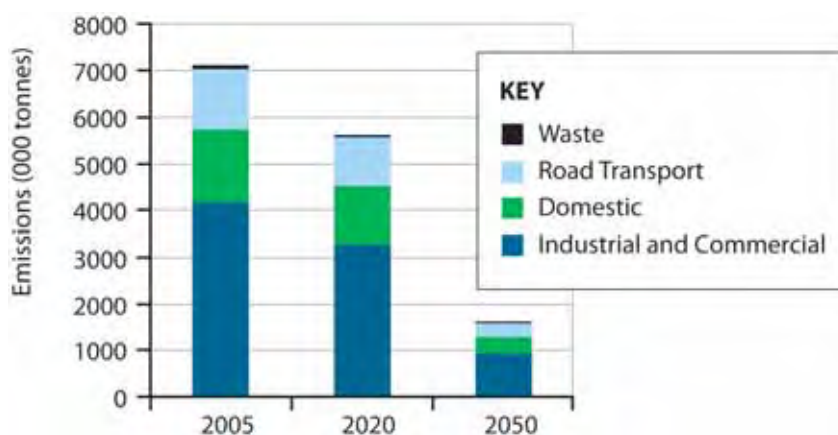
The Tees Valley Climate Change Partnership revised the existing emissions protocol to use NI 186 data as a baseline for emissions reduction, though we will also continue to include and monitor the emissions associated with municipal waste disposal. This is because the emissions from waste directly relate to lifestyles in the Tees Valley, and robust and nationally comparable data exist for all local authorities. We will also develop and report on additional key climate change indicators.

A significant proportion of emissions from Tees Valley are not included in reporting under NI 186 because they are regulated by the European Union Emissions Trading Scheme (EU ETS), and NI 186 also does not include emissions from aviation or shipping. The Tees Valley Multi Area Agreement (MAA) includes an indicator called M7 that measures the carbon intensity of production from the emissions that are not included in the NI 186 data. This means that the carbon emissions per unit of production are reported, rather than the actual total emissions from each company. This will show whether companies are improving their efficiency. Currently the M7 indicator includes the major emitters that are regulated under the EU ETS, and will be expanded to cover energy production, biofuels, aviation, shipping, and retail. We will include the M7 indicator as part of our reporting on key climate change indicators for the Tees Valley. In addition to the M7 indicator, the North South Tees Industrial Development Framework will reduce emissions that are not reported under NI 186.

The scope of NI 186 does not cover most of the emissions that are associated with general consumption patterns, for example, the emissions generated in producing and transporting the things that we buy every day. These 'hidden' emissions are significant. Stockton-on-Tees Borough Council commissioned a study to work out their total carbon footprint<sup>3</sup>. The study concluded that direct emissions relating to energy used to heat Council buildings and transport fuel accounted for 29% of emissions, but the majority, 71%, are indirect emissions as a result of electricity use and procurement of goods and services. We have used data from the Stockholm Environment Institute Resource and Energy Analysis Programme to highlight emissions associated with consumption patterns within the Tees Valley.



## The Tees Valley 2005 Baseline (000 tonnes of CO<sub>2</sub>e)



DECC, 2007

## The scale of the challenge

The Tees Valley baseline for 2005 was 7125 kT CO<sub>2</sub>e, including emissions from waste, but excluding emissions regulated under the EU Emissions Trading Scheme.

By 2007, the total emissions had reduced to 6815 kT CO<sub>2</sub>e. This reflects a 5% (217 kT) reduction in commercial, industrial and public sector emissions, an almost 4% (58 kT) reduction in domestic energy emissions, a reduction in road transport emissions of around 1.5% (17kT) and waste emissions rose by 34% (19 kT), and a reduction in emissions from waste disposal of around 28% (17 kT) due to increasing recycling.

However, because the closure of industrial plants results in huge emissions savings, there is a danger that this will disguise other trends such as increasing road transport emissions. We have therefore chosen to use sector targets - rather than an overall reduction target - for emissions reductions in order to clearly demonstrate where we are making progress on tackling climate change.

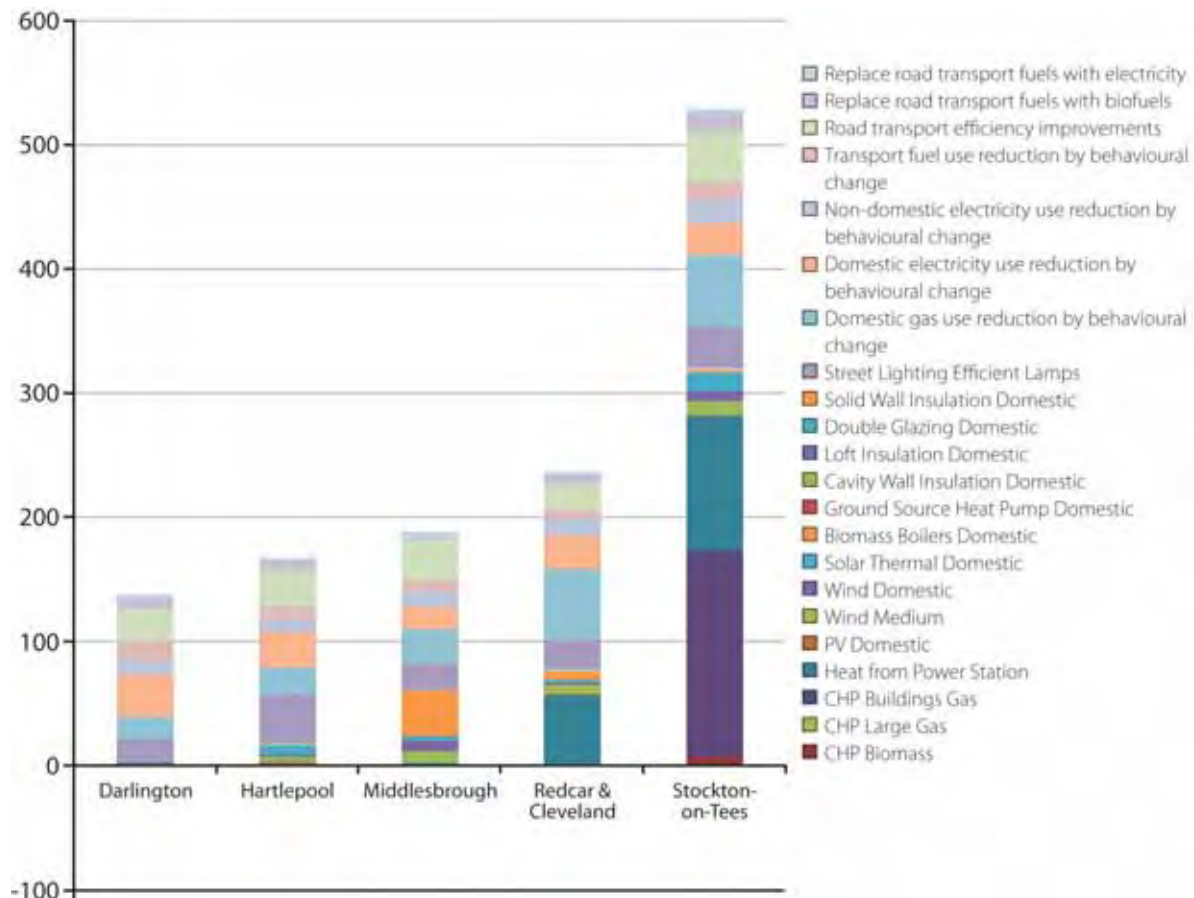
The total Tees Valley emissions are much higher than our baseline shows. Including emissions regulated under the EU ETS, aviation, shipping, land use, land use changes and forestry (LULUCF) brings the total Tees Valley emissions to just over 20,000 kT CO<sub>2</sub>e in 2005. This figure may have to reduce below 4,000 kT CO<sub>2</sub>e by 2050 to comply with the UK target of a reduction of 80% from 1990 levels (this equates to 77% reduction from 2005 levels).

The North East Greenhouse Gas Emissions Study (2008) concluded that CO<sub>2</sub>e emissions from industry are by far the biggest source of regional emissions, now and in the future. This is especially true for the Tees Valley city region. The report also points out that despite significant reductions in domestic emissions, there is likely to be an increase by 2050 due to population growth, and projected growth in transport emissions.

**The North East Greenhouse Gas Emissions Study concluded that a 'business as usual' approach to reducing carbon emissions will not deliver anywhere near the savings needed to meet local and national targets.**

In this case, 'Business as Usual' means that if we carry on tackling climate change the way we are now, then we will not achieve the huge reductions that are needed to meet our targets. We need to achieve reductions that take into account the rising emissions due to population growth and transport trends.

### Tees Valley projected target reductions by 2020



A software tool called Vantage Point has been used by all the North East Local Authorities to model the emissions reductions necessary to meet their commitments under the Covenant of Mayors - to reduce emissions by at least 20% by 2020. This graph shows the initial reduction figures generated by Vantage Point for 28 measures that could reduce carbon emissions in the Tees Valley. The final Sustainable Energy Action Plans, to be submitted in October 2010 will further refine these figures, and the Vantage Point tool will be refined to disaggregate specific actions such as boiler replacements (which are currently included in 'behavioural change' figures).

There is a clear opportunity to coordinate these major schemes across the Tees Valley to achieve maximum benefit for the city region.

Carbon dioxide emissions reduced by almost 10% between 2008-2009 in the UK due mainly to the recession, as the downscaling and closure of businesses led to substantial emissions reductions<sup>4</sup>.

However, these emissions 'reductions' do not reflect the long term position, and the first report of the Committee on Climate Change has warned that emissions will rise once economic growth begins. The North South Tees Industrial Development Framework will exploit existing opportunities to develop a truly low carbon infrastructure now, in order to effectively 'lock in' a transition to a sustainable Tees Valley economy with far lower emissions. This is at the heart of creating prosperous and resilient communities in a low carbon economy.



## Opportunities

Over £4 billion in low carbon investments are already planned for the city region, and the Tees Valley Statement of Ambition identifies further opportunities based on the existing assets of the area. Developing a range of low carbon technologies in the Tees Valley will create at least 2,000 highly skilled jobs, 11,500 construction jobs, and 4,000 indirect jobs in the medium term. This will enable the export of skills and technologies worldwide, and help to shape a global transition to a low carbon and sustainable future.

The principal low carbon opportunities in the Tees Valley include carbon capture and storage, decarbonising energy production, improving resource efficiency, biotechnology and biofuels, and advanced engineering and manufacturing. There are also real opportunities to regenerate housing and improve public transport. These opportunities are all key priorities for emissions reduction identified by the Committee on Climate Change.

The Eston Grange proposals for coal fired electricity generation with carbon capture and storage, together with increases in biomass and offshore wind power generation mean the Tees Valley could produce well over 5000MW of low carbon energy. Producing low carbon energy in the Tees Valley will support heavy industry to invest in the area, reduce the cost burden of EU Emissions Trading Scheme and provide low carbon electricity to be exported to the national grid. Public transport investment proposals support a transition to low carbon economy and promoting active travel has major health benefits. Specific opportunities within each of the strategic priority areas have been identified below.

## Strategic priorities

Improving the economic performance of the Tees Valley is based on two core ambitions:

- Driving the transition to a high value low carbon economy and;
- Creating a more diversified and inclusive economy.

The Tees Valley Climate Change Partnership vision of 'creating prosperous and resilient communities in a low-carbon economy' is fully coherent with these ambitions. Making climate change central to the economic regeneration of the Tees Valley is a pre-requisite for sustainable economic growth and improving the competitiveness and liveability of the city region.

This strategy outlines the climate change implications associated with the economic regeneration of the Tees Valley by building upon the framework for climate change action planning developed by the Northumberland Strategic Partnership<sup>5</sup>.

The key climate change considerations for the economic regeneration of the Tees Valley have been considered in the following strategic priorities:



- Business
- Housing
- Transport
- Our local environment
- Communication and awareness raising

Opportunities to link to employment and skills are outlined in the strategic priority areas and contained in more detail in the North South Tees Industrial Development Framework and the Tees Valley Statement of Ambition.



## Business

### Where we need to be

All organisations in the Tees Valley have access to low carbon energy, operate with improved resource efficiency, are resilient to, or protected from, climate change impacts, and have taken full advantage of the economic opportunities associated with climate change.

### Background

The energy, resources, chemicals and process industries are vital to the Tees Valley economy. The North South Tees Industrial Development Framework for the Tees Valley demonstrates how the city region can exploit the range of opportunities associated with developing sustainable low carbon industries. For example, the Eston Grange proposal to build an 850 MW coal fired power station that uses pre-combustion carbon capture and storage; developing more resources based industries, and improving integration between businesses and communities all offer significant economic benefit as well as major emissions reductions.

The UK's largest biomass fed power station and wood recycling facility is located in Redcar and Cleveland and there are plans to develop several major biomass plants in the city region. The North East Process Industries Cluster (NEPIC) support Northeast Biofuels to supply the local and global market and attract major international investment in sustainable biofuels in the area.

A number of organisations in the Tees Valley actively support the development of low carbon industry. NEPIC is a member owned company that represents the process industry in the North East and has a reputation for delivering projects that enhance the sustainability of the process industry sector. The award-winning Centre for Process Innovation promotes the development of near-market-ready technologies and processes, and has recently expanded their National Industrial Biotechnology Facility. Renew@CPI delivers near-to market industrial/commercial projects in sustainable energy and environmental technologies that will contribute to the North East economy and increase our national and international reputation.

Teesside University plays a major role in business support through knowledge transfer partnerships, and in delivering consultancy and training to employers. CLEMANCE is the environmental research centre for Teesside University and provides clean technology solutions to local business and industry. CLEMANCE also provides the technical support for the Green Business Network and is the regional lead on the National Industrial Symbiosis Programme (NISP). Industrial symbiosis works on the principle that waste from one organisation becomes feedstock for another. This saves operational costs while diverting material from landfill and reducing carbon emissions. A local example of this is the Billingham based John Baarda company who grow all year round tomatoes in greenhouses that use waste heat and carbon dioxide from local industry<sup>6</sup>.



The South Tees Eco-Park (STEP) will be a cluster of businesses operating to industrial symbiosis principles - interdependent links between raw materials, water use, waste and energy requirements of the firms based there. On the North Tees, there is a world-class hazardous waste treatment facility, including soil washing that contributes to the remediation of formerly industrial land in the area. In addition to heavy industry, the Tees Valley Climate Change Partnership will support and work with the wide range of organisations in the city region to address the challenges faced and the opportunities presented by climate change.

## Vulnerabilities

The North East Adaptation study concluded that in the North East, businesses have difficulty identifying their vulnerability to climate change, particularly in understanding the difference between adapting to climate change and mitigating - reducing their emissions.

*"Barriers to change exist because climate change signals are difficult to recognise and will often require responses that run differently to established routines, timeframes, company culture and customer expectations. Where planning horizons are short responsive strategies can work well, but lack of long term perspective leads to sub-optimal decisions in the long term, creeping costs and missed opportunities.<sup>7</sup>"*

The study points out that not all climate impacts are direct, and that organisations need to think about indirect impacts, for instance almost all businesses affected by the summer floods of 2007 suffered direct losses to stock and equipment, but in addition staff were unable to operate normally either due to failure of transport systems, loss of power, or communications. Indirect impacts can result in lost orders and enquiries, and the loss or damage of paperwork can result in problems with insurance claims, lost orders and filling in tax returns. Extended indirect impacts have disproportionate effects on smaller businesses as many businesses underestimate how long it will take to recover from a major flood event and many don't have business continuity insurance.

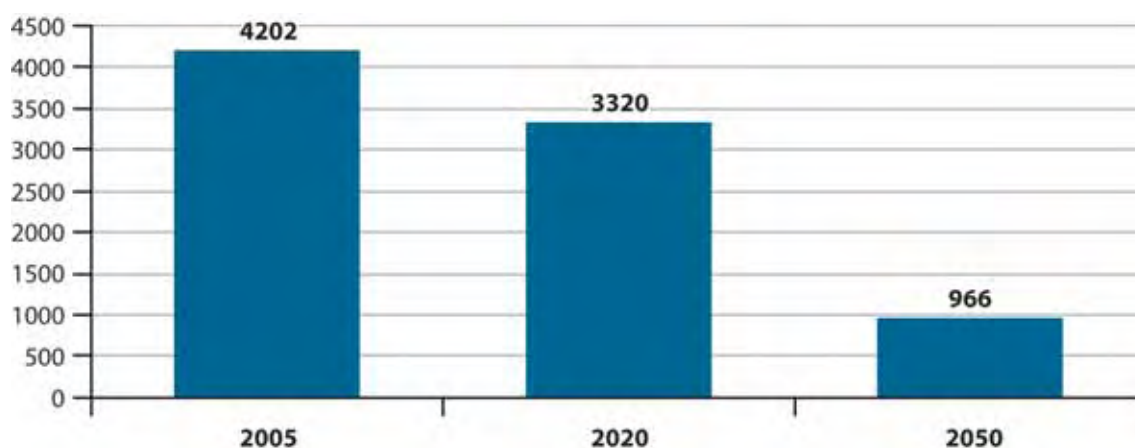
Much of the heavy industry in the Tees Valley is subject to the increasing costs associated with regulating greenhouse gas emissions through the EU ETS. There is a delicate balance between reducing the carbon emissions from an organisation and in encouraging heavy industry to remain in the UK. It is true that emissions will reduce in the Tees Valley if the existing industry closes down or relocates to a different country. However, this is not a 'true' reduction in emissions, because once the recession is over, we anticipate production will increase again, and if a company has relocated its production to a different country, then there may be a net increase in global emissions since the UK's regulation is amongst the most stringent in the world. Therefore it is vital to support the Tees Valley industry to manage climate change to prevent the 'export' of emissions. Developing carbon capture and storage infrastructure, increasing the availability of low carbon energy for heavy industry, improving industrial symbiosis and developing non-fossil fuel based feedstock and fuels are all vital to support the existing industry as well as encourage investments. The World Trade Organisation and the United Nations Environment Programme have reviewed how trade and climate change policies interact and how they can be mutually supportive<sup>8</sup>.

Organisational culture may be a key issue for businesses in the Tees Valley. It is important that all employees are engaged and given responsibility for 'dealing with' climate change, otherwise it is likely that behaviour and attitudes will undermine action. Even the best schemes can fail if employees don't see the point of measures developed to minimise climate change impact.

## Emissions protocol and targets

The commercial and industrial emissions from the Tees Valley in 2005 were 4202 kT CO<sub>2</sub>e. Commercial and industrial emissions under NI 186 include public sector buildings and exclude the emissions regulated by the EU ETS. The chart below shows the 21% emissions reduction target for the industrial and commercial sector (which includes public sector buildings) by 2020<sup>9</sup>.

Industrial and Commercial Emissions (000 tonnes) of CO<sub>2</sub>e



In line with the UK carbon budgets and the recommendations of the Committee on Climate Change, we have agreed to work towards an emissions reduction target of 34% from 1990 levels. This implies a 21% reduction from 2005 levels, so that by 2020, commercial and industrial emissions in the Tees Valley should not exceed 3320 kT CO<sub>2</sub>e. This target also supports the commitment made by all the Tees Valley Local Authorities to go beyond the European commitment to reduce emissions by at least 20% through signing the Covenant of Mayors. Ultimately, commercial and industrial emissions may have to reduce to 966 kT CO<sub>2</sub>e by 2050 in line with the UK target reduction of 80% from 1990 levels (which equates to 77% from 2005 levels).

We have excluded the emissions regulated by the EU ETS in our target for two reasons. Firstly, they are included in the M7 indicator for the Tees Valley Multi Area Agreement and targets to improve the carbon intensity of production will be developed through this indicator. Secondly, the North South Tees Industrial Development Framework explicitly focuses on supporting major industry to exploit low carbon opportunities.

We will review and revise our targets to reflect level of reductions to be made by different regions and sectors when further guidance is provided by the Government and the Committee on Climate Change.

## The carbon footprint of commercial and industrial organisations in the Tees Valley

The emissions associated with wider consumption patterns are included in the carbon footprint, based on data provided by the Resource and Energy Analysis Programme (REAP) developed by the Stockholm Environment Institute. The small footprint shows what proportion of commercial and industrial emissions are currently included in the Tees Valley emissions baseline. These account for only 65% of total commercial and industrial emissions. The big footprint also includes the 'hidden' emissions, for example the emissions regulated by the EU ETS, services such as water and sewage and the emissions arising from the manufacture of office equipment.



### Mitigation

The Committee on Climate

Change estimate emissions from energy use in non-residential buildings and industry in the UK could be reduced by around 47 Million tonnes of CO<sub>2</sub> (MtCO<sub>2</sub>), of which 11 MtCO<sub>2</sub> will not cost anything or will actually save money in the long term. In addition, up to 2 MtCO<sub>2</sub> can be saved by using renewable heat and micro generation.

Information Communication Technology (ICT) data centres account for 2-3% of UK emissions - which is comparable to the UK's emissions from aviation. However, ICT can also be used to increase energy efficiency and reduce emissions in other sectors, such as transport, logistics, and manufacturing - for example using video conferencing rather than flying staff around the world for meetings. It is also possible to reduce the emissions associated with ICT through technology improvements and behaviour - such as turning off equipment when it is not in use<sup>10</sup>.

Climate change will influence the way in which all businesses operate in the Tees Valley. The Tees Valley Green Business Network communicates the schemes and initiatives available to support businesses and the public sector in a straightforward and coherent way.

The Green Business Network Award Scheme recognises the work being done by local businesses to improve their resource efficiency, and provides them with the opportunity to develop and monitor improvements in their sustainability.

The UK is one of the few countries likely to exceed its Kyoto Protocol commitment, mainly as a result of changes in the energy market, fuel switching away from coal, and reduced demand from a shrinking industrial sector<sup>11</sup>. This basically means that we have 'exported' our emissions from manufacturing to other countries and now we import these products, rather than actually reducing our emissions in absolute terms<sup>12</sup>.

Currently, approximately 18 organisations in the Tees Valley are subject to the EU ETS. We are fully committed to supporting industry to remain in the sub-region, and will work closely with partners to support maximum resource efficiency and sustainability within the business community.

North East Biofuels are developing and improving the value chain for sustainable biofuels in the Tees Valley, supported by NEPIC and Renew@CPI. Up to 35% of locally grown wheat could be used for biofuel production. By products from biofuel production (Dried Distillers Grain Solubles - DDGS) can be used for either biomass power production, or animal feed. If the DDGS is used for animal feed, then it displaces the import of equivalent quantities of soya products for both biofuel production and the soya imported for animal feeds. Sustainable biofuel production can reduce the emissions associated with peat land degradation, deforestation and transportation of soy products to the UK, as well as reducing the emissions associated with the UK's fuel consumption. Locally produced and consumed biofuels have a key role to play in mitigating climate change.

## Opportunities

The Tees Valley is a potential carbon capture and storage demonstration site. Creation of a CO<sub>2</sub> capture utility for the Tees Valley will also dramatically reduce our emissions, because of the opportunities to capture carbon from a large number of industrial point sources in the area.

One of the key areas for economic growth in the Tees Valley lies in better resources management and in extracting the value from 'waste'. There are huge opportunities to develop low carbon industries that recover value from 'waste' and improve symbiosis between existing Tees Valley industries and technologies. There are also significant opportunities in the manufacturing and services associated with renewable energy, biofuels and biotechnology sectors.

Beyond the North South Tees Industrial Development Framework, there is a need to engage with and support all businesses, including small and medium sized enterprises to improve their resource efficiency, and help them to take advantage of the opportunities associated with climate change.







































































































We recognise that this strategy has been published in a rapidly changing political environment. Our commitment and priorities haven't changed, but the way we deliver the strategy will be subject to continual review to ensure that it is fit for purpose.



# *Tees Valley* *unlimited*



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