

Core Strategy Background Paper

No. 8

Climate Change

(February 2010)



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Section A - Why are we including Climate Change Polices in the Selby District Core Strategy?

1. Introduction

- 1.1 There is an overwhelming body of scientific evidence that indicates that climate change¹ is a serious and urgent issue. And whilst there are some remaining uncertainties about eventual impacts, the evidence is now sufficient that the Government is giving clear and strong guidance to policy makers about the pressing need for action.
- 1.2 Government legislation and regulation requires Local Authorities to include policies on climate change in their development plans. Section 2 below provides more details of the District Council's response to this challenge.
- 1.3 The particular characteristics of the District and existing policies and strategies further justify the need to incorporate policies to address this issue in the Core Strategy.
- 1.4 This Background Paper seeks to establish the justification and evidence for the climate change policies proposed, by:
 - Identifying what the climate change issues are for Selby District;
 - Establishing the policy background;
 - Incorporating the views of local people and other stakeholders gathered from consultations already undertaken; and
 - Explaining what we're not including and why.

Impacts of Climate Change

Resource Protection

- 1.5 Climate change will put pressure on water resources and could impact on water quality due to the reduced ability of surface and ground water sources to dilute pollution. Climate change will lead to drier summers and wetter winters with a longer growing season. This will put increased pressure on related infrastructure and water resources. There is therefore a need to protect existing resources and encourage water conservation measures and encourage water efficiency to help the District adapt to climate change and ensure sufficient water resources to meet its needs. In the Yorkshire and Humber Region, the water resource is already over-committed along the Sherwood Sandstone aquifer, which covers a large area from Selby to Doncaster and into the East Midlands Region, in summer².

¹ Climate change represents a change in long-term weather patterns. These can become warmer or colder. Annual amounts of rainfall or snowfall can increase or decrease. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.

² The Yorkshire and Humber Plan, May 2008

Flood Risk Management

- 1.6 The risk of flooding is a longstanding issue due to the low-lying nature of the District and the presence of main rivers such as the Aire, Derwent, Wharfe and the tidal Ouse. As highlighted above, the situation is only likely to worsen due to the effects of climate change with drier summers and wetter winters and therefore the increased flood risk in winter as well as flash-flooding in the summer. Further, the pressure for development in the District occurs in the main town of Selby, where there are areas at high risk of flooding.

Biodiversity

- 1.7 Whilst climate change is one of the main reasons for loss of or changing habitats, biodiversity can, in turn, contribute to climate change mitigation and adaptation.

Tackling Climate Change

Reducing Carbon Emissions

- 1.8 Reducing the need to travel, especially by private car and achieving the most efficient use of land are key to reducing the production of 'greenhouse gases'³. Because the District is required to accommodate a significant amount of development over the next 15 years or so with new homes and employment opportunities, this is a key issue for the Core Strategy.
- 1.9 As well as ensuring that the spatial distribution of new development helps towards meeting the challenge of reducing carbon emissions, particular attention will be paid to ensuring that, development schemes utilise sustainable construction techniques and, that the design and layout of developments maximises passive solar gains and incorporates energy efficient measures.
- 1.10 In addition to reducing the amount of energy used, further contributions can be made by ensuring that the energy we do use comes from alternative low-carbon sources⁴ of energy supply and de-centralised⁵ or renewable⁶ sources (these are discussed in more detail below).

Energy Security by Diversification of Sources

- 1.11 Energy security is also an important challenge. Many of the measures to cut carbon emissions also contribute to creating a healthy diversity of energy supply. Whilst Selby District is a major electricity generator with two large coal-fired power stations, at Drax and Eggborough, fuel supply isn't necessarily from local coal production so the District, and the UK as a whole is reliant on

³ Greenhouse gases are any gas that absorbs infra-red radiation in the atmosphere and include water vapour, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), halogenated fluorocarbons (HCFCs), ozone (O₃), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).

The greenhouse effect is the rise in temperature that the Earth experiences because these gases in the atmosphere trap energy from the sun.

⁴ Low carbon energy is from the generation of heat and power with lower emissions than conventional means, by using more efficient technologies, fuels with lower carbon content or capturing and storing emissions.

⁵ Decentralised energy is community or smaller scale generation of heat and power close to the point of use.

⁶ Renewable energy is energy that occurs naturally and continuously in the environment, such as energy from the sun, wind, waves or tides.

oil, gas and coal from other countries. Therefore the potential risk for these to be interrupted, for whatever reason, means it would be prudent to develop indigenous energy sources to ensure we have enough energy for our needs in the longer term.

- 1.12 Further, reliance on centralised energy supplies, from traditional large scale power stations connected to the national grid network may be unsustainable in the long term, so it is sensible to plan for an alternative approach through local, decentralised supplies in the future.

Fuel Poverty

- 1.13 As well as ensuring a diverse range of sources of supply for energy security purposes, this also gives the opportunity to provide energy at affordable costs, and thus tackling fuel poverty⁷. Improving energy efficiency of homes is one way of tackling fuel poverty.

2. National Context

- 2.1 The need for action to offset climate change is firmly embedded in national planning policy.
- 2.2 Amongst other Government policies, PPS22 (Renewable Energy) and its Companion Guide, as well as PPS1 (Delivering Sustainable Development) and the PPS1 Climate Change Supplement establish the requirement to address causes and potential impacts of climate change; reduce energy use; promote water efficiency; reduce emissions, promote renewable energy use and increase development of renewable energy.
- 2.3 More recently, The 2009 UK Renewable Energy Strategy and The UK Low Carbon Transition Plan 2009 are explicit that the planning system must support: carbon reduction; actions to combat climate change; and deployment of renewable energy.
- 2.4 The Government is also considering how to encourage clusters of Carbon Capture and Storage (CCS) infrastructure and expertise, in key areas, such as Yorkshire and Humber with its existing coal fired power stations. A new Office of CCS is to be established with the Department for Energy and Climate Change.
- 2.5 Whilst building standards for insulation and efficiency are not directly within the remit of the planning system, (Government has proposals to progressively improve energy/carbon performance set in Building Regulations to achieve zero-carbon targets), national guidance promotes policies encouraging the need to utilise energy efficient designs for aspects including layout (for example orientation and passive solar energy) and sustainable construction techniques.
- 2.6 The Government has also announced that all new homes will be zero carbon⁸ from 2016 (PPS1 Supplement on Climate Change (2007) seeks to support the

⁷ Fuel poverty results from a combination of unaffordable energy costs, low household income and inadequate thermal insulation and inefficient and uneconomic heating systems.

⁸ See Appendix 2 for further explanation about the Government's definition of 'zero carbon'

achievement of zero carbon homes through the planning system) and has ambitions that all new non-domestic buildings should be zero carbon from 2019. It is gradually introducing mandatory and more demanding requirements for new homes to meet the Code for Sustainable Homes⁹ standards and is encouraging the development of standards such as BREEAM¹⁰ ratings for commercial buildings.

- 2.7 The England Biodiversity Strategy¹¹ seeks to ensure biodiversity considerations become embedded in all main sectors of public policy. Some adaptation principles are fundamental to conserving biodiversity in a time of rapid climate change, including taking practical action now, maintaining and increasing ecological resilience and accommodating change.
- 2.8 Whilst the national picture provides the policy context for climate change issues, which itself is evidence based, it also provides baseline data and monitoring information. For example, the UK Climate Projections (DEFRA)¹², provides access to data, on how the climate could change, for future emissions scenarios. Alongside the projections, there is the Government's Climate Change Adaptation Programme¹³.
- 2.9 Appendix 1 provides more details of the main national policy drivers, which establish the scope of what Local Planning Authorities should include within their development plans.

3. Regional Context

Summary of Regional Spatial Strategy (RSS)

- 3.1 The Regional Spatial Strategy (RSS)¹⁴ contains a number of key policies which are all relevant to climate change issues, namely; Policy YH2 (Climate Change and Resource Use); Policy ENV1 (Development and Flood Risk); Policy ENV2 (Water Resources); Policy ENV3 (Water Quality); and Policy ENV5 (Energy), Refer to RSS (see Appendix for reference) for full information; the policies are only briefly outlined below.
- 3.2 The purpose of Policy ENV1 is to inform development on the basis of strategic flood risk assessments and ensure flood management reflects regional spatial and economic priorities as well as environmental objectives. Climate change will increase sea level rise and flood risk, with marked effects on the east coast and the Humber Estuary, and on inland areas due to more extreme weather. There is a need therefore for a strategic, integrated and pro-active approach to catchment characterisation, planning and management. Whilst

⁹ See Appendix 2 for further information on the 'Code for Sustainable Homes'

¹⁰ See Appendix 2 for further information on BREEAM (Building Research Establishment Environmental Assessment Method)

¹¹ England Biodiversity Strategy, Climate Change Adaptation Principles, Conserving biodiversity in a changing climate, DEFRA 2008

¹² The UK Climate Projections (UKCP09), June 2009, DEFRA (Department for the Environment, Food and Rural Affairs)

¹³ Adapting to Climate Change in England: a framework for action, July 2008 (Defra)

¹⁴ The Yorkshire and Humber Plan, May 2008

- development should avoid flood risk areas, where possible, there is a need to project the Region as a place to live, work, travel and invest in.
- 3.3 The purpose of ENV2 is to safeguard water resources in the Region and encourage water efficiency. This will help the Region to adapt to climate change and ensure sufficient water resources to meet its needs. It states that developers should consider development in terms of water resource availability; provide adequate design and mitigation measures (e.g. water efficiency, rainwater harvesting) as appropriate, especially in water-sensitive areas, in line with best practice (e.g. BREEAM, Sustainable Drainage Systems, Code for Sustainable Homes).
- 3.4 Climate change will put pressure on water resources, and could impact on water quality, due to the reduced ability of surface and ground water sources to dilute pollution. The purpose of ENV3 is to maintain high water quality standards by ensuring an adequate sewage and waste treatment system in line with the Water Framework Directive¹⁵.
- 3.5 The over-arching climate change Policy (YH2) refers to plans helping to meet targets for reductions in greenhouse gas emissions and encouraging better energy, resource and water efficient buildings; as well as minimising energy demands from new development. Plans, strategies, investment decisions and programmes should increase renewable energy capacity and carbon capture.
- 3.6 RSS outlines that the Region has a history of providing power. Its plentiful mineral and water resources have contributed to the development of industry and have also led to the establishment of several major coal-fired power stations in the Selby area. These power stations currently provide 17% of the UK's total electricity needs. In 2007, installed renewable energy capacity in the region totalled approximately 168 MW¹⁶ but it has the potential to generate far more.
- 3.7 The Sub Regional Renewable Energy Assessment and Targets Study (2004)¹⁷ identified potential renewable energy targets at a regional, sub regional and Local Authority level to 2010 and 2021. The study suggested that most of this renewable energy might come from wind turbines and biomass for co-firing in the power stations to 2010, and that other technologies such as photovoltaics would be increasingly significant thereafter, and help deliver more renewable energy to 2021.
- 3.8 This study undertaken at sub-regional level reviewed technical constraints and opportunities for renewable energy developments and undertook some landscape sensitivity assessment and was used as the basis for Policy ENV5 of the adopted Regional Spatial Strategy, including the sub-regional and local level targets contained in Table 10.2 of RSS.

¹⁵ Revised standards arising from new legislation (Water Framework Directive, Freshwater Fisheries, Habitats Directive, Urban Wastewater Directive) will necessitate upgrading and possibly increasing treatment infrastructure, potentially with major cost implications. In particular, the Water Framework Directive requires surface waters and groundwater sources to meet 'good' ecological status by 2015.

¹⁶ A megawatt (MW) is a million watts, or the equivalent of 1,000 kilowatts. The kilowatt (kW) is the standard metric measure of electrical power and is equivalent to 1,000 watts. A megawatt could power over a thousand homes. Source: <http://www.hi-energy.org.uk/electricitydemystified.html>.

¹⁷ Sub Regional Renewable Energy Assessment and Targets Study, 2004 (SREATS).

- 3.9 The purpose of Policy ENV5 is to increase energy efficiency through passive design, better use of existing power sources and other measures, and to increase installed renewable energy capacity in the Region. If the targets set out in policy ENV5 are met then renewable energy could provide 9.4% of the Region's electricity consumption by 2010 and 22.5% by 2021. These targets include current installed renewable energy capacity. Individual Local Authority figures help to inform the delivery of the sub regional targets and provide suitable spatial dimension for those targets. The delivery of these targets will lead to wider economic and environmental benefits, reduced greenhouse gas emissions, provision of a secure and diverse energy supply for businesses and residents and reduced instances of fuel poverty.
- 3.10 The RSS target for installed grid-connected renewable energy within Selby District is 14 megawatts (MW) by 2010, and 32 megawatts by 2021.
- 3.11 The renewable energy targets set out in Policy ENV5 and Table 10.2 take into account the fact that wind energy developments within internationally important biodiversity sites are very unlikely to be acceptable. Renewable energy development elsewhere will need to avoid having an adverse effect on the integrity of internationally important biodiversity sites, which could arise for example by affecting bird movements or affecting water quality.
- 3.12 Renewable energy policies in Development Plan Documents, and development proposals, may need to be subject to Appropriate Assessment to quantify on and off-site implications. Further research will be carried out into these implications and this will inform revisions to the renewable energy targets to be included in the emerging Integrated Regional Strategy which will replace RSS.
- 3.13 The Policy requires planning permissions and developments to be monitored and assessed against the indicative local authority targets for 2010 and 2021 set out in Table 10.2. Local Authorities are required to take action to ensure the regional and sub-regional targets are exceeded.
- 3.14 Policy ENV5 seeks to maximise renewable energy capacity by promoting and securing greater use of decentralised¹⁸ and renewable¹⁹ or low-carbon²⁰ energy in new development. In advance of local targets being set in DPDs, new developments of more than 10 dwellings or 1000m² of non-residential floorspace should secure at least 10% of their energy from decentralised and renewable or low-carbon sources, unless, having regard to the type of development involved and its design, this is not feasible or viable. Development Plan Documents (DPDs) should set ambitious but viable proportions of the energy supply for new development to be required to come from such sources.

¹⁸ Decentralised energy is community or smaller scale generation of heat and power close to the point of use.

¹⁹ Renewable energy is energy that occurs naturally and continuously in the environment, such as energy from the sun, wind, waves or tides.

²⁰ Low carbon energy is from the generation of heat and power with lower emissions than conventional means, by using more efficient technologies, fuels with lower carbon content or capturing and storing emissions.

- 3.15 The RSS also focuses on maximizing the use of combined heat and power²¹, particularly for developments with energy demands over 2 MW, and ensuring that development takes advantage of community heating²² opportunities wherever they arise in the region, including near Selby.
- 3.16 There is an additional North Yorkshire target in the RSS for “Co-firing” of 75 MW to 2010 and 67 MW to 2021. Assuming that opportunities for co-firing are limited to existing power stations, then this requirement falls to Selby District to attain on behalf of North Yorkshire as a whole.

Other Relevant Regional Strategies

- 3.17 'Your Climate' (2005)²³ action plan aimed to help build the capacity within Yorkshire and The Humber to reduce emissions and to adapt to the impacts of a changing climate.
- 3.18 The Yorkshire & Humber Climate Change Plan (2009-2014) is aimed at regional and local leaders, and for decision makers in all sectors, and provides principles that will help the region adapt to climate change, and to reduce our contribution to its causes. Its framework for action is divided into seven key priority areas with a further three cross cutting themes.
- 3.19 Priorities include strategy and monitoring, the built environment, transport and land management; whilst cross cutting themes highlight energy, waste and water. These are all key issues for both the RSS and the Core Strategy.
- 3.20 The Regional Adaptation Study²⁴ is a key part of the evidence base for our Core Strategy as it provides information on:
- baseline information;
 - the projected climate changes that the region will face by the 2050s;
 - how these climate changes will impact on the region's society, buildings, infrastructure, biodiversity, public services, businesses and key economic assets;
 - what needs to be done by organisations now to adapt to these predicted impacts and make the region more robust to the projected climate changes; and
 - a Local Area Report of Selby District (see also below in 'Local Context').

²¹ See Appendix 2 for further information on CHP.

²² See Appendix 2 for more information on Community Heating Schemes

²³ 'Your Climate-A Climate Change Action Plan for Yorkshire and The Humber' was launched at a conference on 9 December 2005.

²⁴ Yorkshire and Humber Climate Change Regional Adaptation Study (2009)

4. Local Context

- 4.1 The reasons why climate change is an important issue for the Core Strategy to deal with are highlighted in Section 1 above. Sections 2 and 3 set out the Government legislation and guidance requirements, and the regional drivers relevant to our District. This section now outlines the local policies and strategies which set the framework for what we need to include in the emerging development plan. It also provides more details on the specific local issues which provide the justification for the need to tackle climate change through the LDF.

a) Local Strategies

i) Selby Sustainable Community Strategy

- 4.2 Two of the five themes embodied in the Sustainable Community Strategy are particularly relevant to climate change issues:

- No. 3 Developing sustainable communities
- No. 4 Climate Change and the Environment

- 4.3 Specific aims relating to these themes, relevant to climate change issues for the Core Strategy include:

Natural environment

- To protect and improve the special character and wildlife habitats of the Selby district.
- To protect the countryside for its landscape, wildlife, recreation and natural resources.
- To improve and protect the quality of air, land and water in the district for local benefit, and to help reduce the negative effect of climate change.

Built environment

- To protect the built heritage, including important buildings, open spaces and historical sites.
- To promote high-quality design for new developments.

- 4.4 Within the Strategy, the Local Strategic Partnership acknowledges the priority central government and regional government gives to the issue of climate change; and its partners are taking this issue into account when developing their own strategies. These will focus on:

- upgrading flood defences; by developing solutions to reduce the risk, and militate against the impact of flooding.
- use non physical flood defence systems as opportunities to enhance habitats and biodiversity.
- preparing catchment management plans for main rivers;
- new developments carrying out risk assessments;
- promoting energy conservation and domestic sources of renewable fuels;

- encouraging local power stations in the responsible use of renewable fuels; and
- contributing to the regional targets for renewable energy.

ii) SDC Climate Change Strategy (Including SDC Nottingham Declaration)

- 4.5 The Council is a signatory to the Nottingham Declaration on Climate Change, which commits the Council to contributing to the delivery of the national climate change programme, preparing a plan with the local community to address the causes and effects of climate change, reducing its own emissions, encouraging all sectors of the local community to reduce their own emissions, working with key providers to adapt to changes, and providing opportunities for renewable energy generation within the area.
- 4.6 The Strategy seeks to achieve a number of aims and includes a number of detailed targets in an Action Plan (the present document offers a plan of action for the District Council through to 2013). The Policies and Procedures state the following:

Location of New Development

The District exhibits high levels of car ownership and has the highest percentage of out-commuting (nearly 50%²⁵) of all Local Authorities in the Region. One of the key objectives of our emerging Local Development Framework (LDF) will be to create new job opportunities and attract investment in order to make the three market towns and other settlements more self sufficient. The LDF will reduce the demand for travel by carbon fuelled vehicles by concentrating future growth in Selby the principal town, by locating development near to public transport services, and by supporting regeneration initiatives in preference to green field development.

Sustainable Design of Development

We will positively encourage developers to use more sustainable construction methods and standards through the development control process.

Energy efficiencies may be achieved by influencing the layout of schemes and the design of individual buildings, for example through orientation of buildings and positioning of windows to take advantage of solar gain. Attention will also be paid to the mix of housing development since terraced housing and flat developments are more environmentally sustainable than detached properties through reduced heat loss. Landscaping around development, particularly tree and hedge planting can also reduce energy consumption by providing shelter from prevailing winds (to counter heat loss) and casting shade in summer (to provide natural cooling).

²⁵ Data from the 2009 Strategic Housing Market Assessment for Selby District suggests that this figure is now 59%

We will continue to reinforce these principles through future policy development, planning briefs, concept plans and master plans.

Renewable Energy

The Regional Spatial Strategy (RSS) establishes sub regional targets for installed grid-connected renewable energy sources, and we will ensure that the indicative local targets of included in the GOYH published changes to RSS (October 2007) are exceeded in Selby District by adopting a positive approach to wind turbine, hydro-electric and biomass proposals, provided there are no unacceptable impacts on local amenity or natural/historic assets.

We will develop policies through our LDF to promote renewable energy including targets to ensure large scale developments provide sufficient on-site renewable energy to reduce CO₂ emissions.

We will work with developers and partners to support and promote the provision of micro generation schemes in new developments, including turbines and photovoltaic cells (solar panels).

Flood Risk

We will ensure that the District Council is consulted and provide comments on draft policies published by the Environment Agency (e.g. River Catchment Management Plans).

We will ensure that new development is resilient to climate change by carrying out (and maintaining) a strategic flood risk assessment of the District, and using the information to inform planning decisions on the location of new development, including continuing to resist development in the functional floodplain.

Through our emerging LDF we will aim to locate development in places with the lowest risk of flooding. In locations where land at lower risk of flooding is unavailable the justification for development and the associated flood risks will be balanced with regeneration and other objectives.

We will promote the use of Sustainable Drainage Systems (SUDS) in new developments in order to minimize the risk of flooding. SUDS involve a range of infiltration techniques (eg using permeable surfaces such as gravel, landscaped areas,) and attenuation techniques (eg ponds, flood storage reservoirs) to reduce the rate and volume of rainwater entering traditional piped drainage systems and watercourses.

We will encourage new housing and business developments that have sustainable drainage systems allowing for storm water storage, grey water systems and developer contributions to the development of the surface water and foul drainage systems in the district.

b) Evidence

- 4.7 In the absence of specific local evidence (with the exception of a Strategic Flood Risk Assessment), the Core Strategy response to climate change relies on the existing secondary data available and other research and studies undertaken for the purpose of national and regional policy.
- 4.8 These studies provide baseline data and projections relevant to Selby District. Some of this has already informed local strategies and action plans (e.g. Selby District's Sustainable Community Strategy and Climate Change Strategy) which in turn inform the Core Strategy. Additional District-level data is available from:
- Regional Spatial Strategy for Yorkshire and Humber, Annual Monitoring Report 2008 (February 2009)
 - Selby District LDF Annual Monitoring Report (2009)
 - UK Climate Projections (2009)
 - The Yorkshire and Humber Climate Change Adaptation Study, Local Area Report Selby District (2009)
 - The Yorkshire and Humber Plan (2008)
 - Delivering Sustainable Energy In North Yorkshire: Recommended Planning Guidance (2005)
 - The Sub Regional Renewable Energy Assessment and Targets Study (SREATS 2004)
 - Regional Greenhouse Gas Emissions Monitoring and Modelling Study, Cambridge Econometrics (2002), and Regional Greenhouse Gas Emissions Monitoring and Modelling Study, Update of Baseline Data, Cambridge Econometrics (2003)
- 4.9 Other local evidence is available through monitoring of planning applications (permissions and completions) for example to identify local pressures (types, level and location) for new renewable energy development.

c) Local Issues

Water Resource Protection and Risk of flooding

- 4.10 Specific threats to the District from climate change include increased flood risk, increased pressure on urban water supply and drainage systems, and increased risk of depletion of the Sherwood Sandstone aquifer (source Regional Spatial Strategy). The District relies on significant groundwater supplies within the Sherwood Sandstone aquifer, and its importance is recognised through the protection policy in Regional Spatial Strategy Policy ENV2.

- 4.11 Risk of flooding is a major issue for Selby District. The Council has commissioned a Strategic Flood Risk Assessment (SFRA) in order to identify the extent of the problem. The SFRA has been undertaken in two stages, as recommended by national guidance.
- 4.12 The Level 1 Assessment shows that significant flood risks exist across relatively large areas of the District, which primarily affects Selby town, and a number of villages.
- 4.13 As a significant number of potential development sites in Selby and other sustainable locations are likely to fall within higher flood risk areas, a PPS25 'Sequential Test' and a Level 2 Flood Risk Assessment have also been undertaken. The Sequential Test reveals that Sherburn in Elmet, Tadcaster and a number of the larger villages are relatively unconstrained in flood risk terms and can absorb the amount of new development required on low flood risk land. Selby is however relatively constrained and the selection of strategic development sites and sites selected for development will need to demonstrate that the impacts of potential flooding can be satisfactorily minimised and mitigated.

Energy Generation

- 4.14 Studies by Cambridge Econometrics²⁶ identify current greenhouse gas emissions produced in the Region by source. It shows how power generation from the power stations (Drax, Eggborough, Ferrybridge) account for at least half of the Region's emissions, and also shows projected estimates by source. It shows how power generation will still account for most of the Region's greenhouse gas emissions, and that, at present, the Region itself is unlikely to meet its reduction targets. This necessitates a greater prioritisation on reducing greenhouse gas emissions²⁷.
- 4.15 Selby is particularly well placed for biomass, energy from waste and combined heat and power, as well as potential for carbon capture and coal bed methane, in the light of known planned schemes, and the existence of local coal mines and traditional coal fired power stations.
- 4.16 Both Eggborough Power Station and Drax Power Station produce energy from co-firing biomass. Drax Power has applied to the Department of Energy and Climate Change for permission to build a dedicated biomass-fired renewable energy plant on land adjacent to Drax power station capable of producing nearly 300 MW of grid-connected electricity.
- 4.17 The Council has already granted planning permission for renewable energy schemes amounting to 30 MW²⁸ of grid-connected renewable energy capacity.

²⁶ Regional Greenhouse Gas Emissions Monitoring and Modelling Study, Cambridge Econometrics (2002), and Regional Greenhouse Gas Emissions Monitoring and Modelling Study, Update of Baseline Data, Cambridge Econometrics (2003)

²⁷ Yorkshire and Humber Plan 2008

²⁸ Selby Renewable Energy Park contributes towards this total. The existing effluent treatment plant on the former Tate and Lyle site, has a 2 MW capacity and an additional energy from waste plant will add a further 4 MW of capacity by Autumn 2010.

There are currently planning applications for wind turbines amounting to a further 65 MW grid-connected capacity, pending consideration²⁹.

- 4.18 Although Selby District would exceed its RSS 2010 target³⁰ even if only the Rusholme Wind Farm planning permission were fully implemented³¹ (24 MW), this does not mean that further applications can be rejected on the grounds that the Council has satisfied its 'quota', as national and regional policy dictates that regional targets should be viewed as minimum targets.

Biodiversity

- 4.19 The Y&H Climate Change Adaptation Study³² suggested that lowland habitats in Selby District are likely to be increasingly under threat from saline contamination associated with sea-level rise and coastal flooding. This could move species across a fairly wide area to the east. Selby is relatively flat and low-lying and water stress³³ could therefore be enhanced with associated impacts on species.
- 4.20 The Study also considers that there are likely to be changes to water and wetland habitats as a result of hotter drier summers and increased rainfall in winter. Water levels are likely to decline in summer drought with water becoming warmer and more enriched leading to the increasing disconnection of aquatic habitats.
- 4.21 It is clear then that climate change could affect important protected areas including 'Natura 2000' sites and local Sites of Importance for Nature Conservation (SINCs). Noteworthy are the international wildlife sites at Fairburn Ings, Derwent Ings and Skipwith Common.
- 4.22 The Selby Biodiversity Action Plan (BAP, August 2004) aims to safeguard and enhance these rare habitats and their wildlife. Although all species of wildlife are important, the BAP concentrate on priority habitats and species selected by the steering group and an individual action plan has been prepared for each. These are referred to as Habitat Action Plans (HAP) and Species Action Plans (SAP). This gives the opportunity for a series of targets to be set. Most of the targets seek to increase, or at the very least maintain, the biological resource. They positively seek gains such as 'increase the area of...'; 'increase the breeding distribution of ...' and 'improve the condition of ... for wildlife.

²⁹ As at October 2009

³⁰ The targets are for installed grid connected capacity, so planning permissions must be implemented to count.

³¹ The 12-turbine Rusholme development is currently under construction (February 2010), with delivery of the turbine components expected mid-2010.

³² Y&H Climate Change Adaptation Study, Local Area Report, Selby District, 2009.

³³ Water stress occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use. Water stress causes deterioration of fresh water resources in terms of quantity (aquifer over-exploitation, dry rivers, etc.) and quality (organic matter pollution, saline intrusion, etc.) - *Source of definition Glossary from United Nations Environment Programme*

Agriculture

4.23 The “Warming up the Region” Study³⁴ evaluated the potential impacts of climate change on changing flood risks, water resources, agriculture, forestry, the service sector, industry and commerce and transport. The following impacts for agriculture in Selby District have been deduced from the findings³⁵:

- Increase in very dry summers leading to higher irrigation demand
- Higher temperatures may benefit crop production
- Potential for new crops to be grown
- Increase in pests and pathogens
- Weather damage to crops
- Flooding will affect high quality agricultural land

5. Public Consultation responses

5.1 Consultation on the Further Options Report (published in 2008) produced the following response in relation to climate change policy:

- There is widespread support for an over-arching climate change policy.
- There is need for a policy to reduce predicted CO2 emissions in new development and how we will achieve national and regional targets.
- Requirements to reduce energy wasted and encourage higher energy efficiency and developments should be properly carbon neutral.
- How will we meet energy efficiency targets outlined in the Housing Green paper (July 2007) (Code for Sustainable Homes and zero carbon homes by 2016) and the government aspiration for all non-domestic buildings to be zero carbon from 2019?
- The policies should promote use of sustainable construction and design techniques - water heating storage, grey water recycling, higher thermal insulations in buildings, green roofs, SUDS.
- Encouragement of specific technologies such as Combined Heat and Power (CHP).
- Broad locations where renewable energy development would be planned for and set out criteria to reflect local circumstances - reflecting PPS1 supplement and PPS22.

³⁴ Warming up the region: The impacts of climate change in the Yorkshire and Humber region. WS Atkins, Stockholm Environment Institute-York (SEI-Y), The Met Office. June 2002

³⁵ Selby District Climate Change Strategy 2008-2013

- Need to promote Coal Bed Methane extraction and Carbon Capture and Storage technologies, especially associated with the disused mine sites within Selby District.
- 5.2 The consultation on Further Options also indicated reasonable support for the 10% targets for decentralised, low-carbon and renewable energy. Most respondents considered this should be based on sound evidence and have flexibility in any requirements where viability might be threatened or where special restrictions would apply. Others stated that the Core Strategy should make reference to RSS targets for installed grid connected renewable energy capacity.
- 5.3 Concern over the potential for increased flooding events was expressed by a number of respondents as part of the Core Strategy consultation.

Section B - Local Development Framework

6. LDF Response

- 6.1 Section 2 (in Section A) above outlines the government guidance that sets out what climate change and carbon reduction measures should be included within development plans, in the light of local evidence.
- 6.2 This section seeks to establish, which elements are appropriate locally in Selby:
- to include in the Core Strategy (and in what format); and
 - for consideration in future DPDs.
- 6.3 As also highlighted above, the District Council has not undertaken any specific research or commissioned further studies directly in response to climate change issues. Instead, as a small rural Local Authority, the proposed policies contained in the Selby District Draft Core Strategy have been formulated in direct response to evidence sourced, from existing evidence available from government reports, regional and sub-regional work, local commitments in existing strategies and taking account of local circumstances, including public consultation responses.
- 6.4 In summary, based on the evidence available, it is considered that the Core Strategy can contribute to the objectives of tackling climate change in a number of ways and these are cross cutting though all the Core Strategy policies, namely:
- Reducing the need to travel and minimising traffic growth, for example by locating new development in the most sustainable locations and supporting Principal Towns and Local Service Centres as hubs for rural economies, community and social infrastructure. Improving access to alternative modes such as walking and cycling is a complimentary objective.
 - Protecting valuable and scarce resources, and improving resource efficiency, by encouraging better energy and water efficient buildings and minimising resource demand from development.
 - Increasing renewable energy capacity, by supporting stand alone schemes from all 'green' technologies, to meet established targets, but especially from biomass and energy from waste which are being promoted locally
 - Supporting micro-generation schemes for renewable energy
 - Encouraging local combined heat and power and community heating projects
 - Reducing reliance on energy from fossil fuel by requiring some of the energy needs from new developments to be from de-centralised and renewable or low-carbon sources.

- Encouraging sustainable design and construction techniques as part of expectations for high quality design
- Supporting clean coal bed methane extraction and carbon capture and storage technologies where appropriate
- Planning for mitigation and adaptation to the predicted impacts of climate change such as managing the effects of increasing flood risk, habitat management and warmer urban environments

Reducing the Need to Travel by Private Car

- 6.5 Reducing the need to travel, minimising traffic growth, and improving access to alternative modes such as walking and cycling is a theme running through a substantial number of proposed policies in the Core Strategy. Policy CP1 (spatial development strategy), ensures the majority of new development to the towns and more sustainable locations. Policy CP2 (scale and distribution of housing) provides that the majority of new housing development is concentrated in and around the main town of Selby, with additional homes being provided to meet local needs in the local service centres and designated service villages.
- 6.6 The following policies promote similar outcomes, namely:
- Policy CP4 (housing mix) seeks to ensure the correct types and sizes of homes are provided in the right locations.
 - Policies CP5 and CP6 aim to reduce the need to travel by providing affordable homes in areas of local need.
 - Policy CP8 (access to services, community facilities and infrastructure) requires essential needs in connection with new development to be provided in phase with development, without which, expanding communities may need to travel to gain access to services and facilities elsewhere.
 - Policy CP9 (economic growth) seeks to ensure enough land for new jobs is provided in sustainable locations within the District to help reduce the need for the resident population to travel to adjacent areas for work; whilst Policy CP10 aims to provide essential rural diversification opportunities appropriate in the rural area.
 - Policy CP11 (town centres and local services) aims to protect and enhance existing centres in order to serve the needs of the catchments of the relevant centres. The policy requires proposals improve the accessibility to the main centres particularly through public transport and provide a safe environment for pedestrians.
- 6.7 In response flood risk issues and the anticipated increasing impact of climate change, Policy CP1 seeks to direct development, to locations where the impact of flooding can be managed and mitigated, such as the proposed urban extensions to Selby at Cross Hills Lane and Olympia Park, in accordance with PPS25 Sequential Test and Level 2 SFRA (Selby Strategic Flood Risk Assessment).

- 6.8 Policy CP15 (protecting and enhancing the environment) tackles the bio-diversity issues of protection, mitigation and adaptation to climate change.
- 6.9 Policy CP16 (design quality) requires new development to incorporate sustainable construction principles.

Over-arching Climate Change Policy

- 6.10 The over-arching climate change Policy, CP12 provides the local context that reinforces the Council's commitment to tackling climate change through the Core Strategy. The considerations included within this policy are regarded as a comprehensive list of general points relating to development and climate change and set the overall strategic direction for the District on climate change issues.

Improving Resource Efficiency

- 6.11 As referred to in paragraphs 1.8 – 1.10 above, there is a recognised requirement to manage development in order to reduce the use of scarce water and energy resources. It is equally important to ensure that the energy we do use comes from decentralised, renewable or low-carbon sources.
- 6.12 Evidence developed from national and regional sources as outlined in Sections 2 and 3 above indicates that Selby District is well placed to accommodate specific solutions in the light of the high level of development proposed during the Core Strategy period.
- 6.13 The Core Strategy therefore includes a policy (CP13) to improve resource efficiency in new build developments as a contribution to tackling climate change at the local level.
- 6.14 The policy requires a 10% contribution through decentralised, renewable or low-carbon sources of energy, from schemes meeting the prescribed threshold in line with RSS Policy ENV5. Policy CP13 does not seek a higher proportion due to lack of local evidence on viability at the present time. It does however indicate that schemes will need to meet revised targets, which may be introduced in the future in accordance with higher level plans and guidance or following local research.
- 6.15 The specific reference in the policy to local biomass technologies, energy from waste, combined heat and power and community heating projects is considered to be justified as these technologies are promoted through national guidance and RSS, and there are local examples of such technologies (see paragraphs 4.16 – 4.17 above). The relative close proximity between local existing and known planned schemes for both energy from waste and biomass technologies, and planned large scale development in the District, make it reasonable for the Core Strategy policy to link specific new development with known sustainable energy sources. The Core Strategy does not attempt to identify site size thresholds for development schemes in view of the absence of local evidence on viability at the present time.
- 6.16 Wherever possible, developments will be encouraged to meet national standards and best practice schemes, which seek to improve environmental

- standards, moving towards the Governments target of zero carbon development (Code for Sustainable Homes and BREEAM), subject to viability.
- 6.17 The PPS1 Climate Change Supplement states that local planning authorities should 'specify the requirement in terms of achievement of nationally described buildings standards, for examples in the case of housing by expecting identified housing proposals to be delivered at a specific level of the Code for Sustainable Homes.'
- 6.18 The Code for Sustainable Homes and BREEAM standards are planning tools which seek to improve environmental standards, moving towards the Governments target of zero carbon development³⁶.
- 6.19 Consideration has been given as to whether it is appropriate to include specific requirements for a proportion or all developments to meet the Code for Sustainable Homes and BREEAM standards within a particular timescale. However there is no robust local evidence on which such requirements can be based and unlikely to be available prior to the imminent introduction of Government mandatory requirements.
- 6.20 Building Regulations provide mandatory requirements including water conservation measures, insulation efficiency standards for example relating to carbon performance. Government will be tightening Building Regulations energy efficiency standards for all homes in any case as follows:
- Code Level 3 by 2010 (25% energy efficiency improvement compared to 2006)
 - Code Level 4 by 2013 (44% energy efficiency improvement compared to 2006)
 - Code Level 6 by 2016 (zero carbon)

Renewable Energy

- 6.21 The PPS22 Companion Guide states that planning policy at the local level needs to provide guidance in relation to both standalone renewable energy schemes and the integration of renewable energy into new development. The Core Strategy should clarify the importance of addressing sustainability objectives within an over-arching policy, whilst specific policies on renewable energy will be provided in a Development Plan Document. The policies could be supported by Supplementary Planning Documents covering specific aspects on the full range of issues on renewable energy.
- 6.22 The Core Strategy policy should:
- encourage developers to consider a range of RE technologies on their site
 - be flexible as not all technologies are appropriate for all sites and locational constraints should be borne in mind
 - not place undue burden on developers

³⁶ See Appendix 2 for further information

- 6.23 Bearing in mind this advice and the evidence set out previously in Section A, it is proposed to include a specific renewable energy policy (CP14) in the Core Strategy.
- 6.24 RSS sets targets for grid-installed renewable energy capacity. It is considered appropriate to adopt the RSS renewable energy targets locally through the Core Strategy and have regard to any revised targets (which may be developed at higher level of locally through further work on future DPDs).
- 6.25 In the light of the significant progress already made in granting planning permission for renewable energy projects in the District, consideration has been given to adopting higher local targets than Regional Spatial Strategy for installed grid connected Renewable Energy. National and regional policy indicates that these targets should be regarded as a starting point and not a ceiling. However, there are considerable difficulties in finding robust evidence to justify higher targets specifically for Selby District for the Plan Period.
- 6.26 As the Regional Spatial Strategy targets are minimum requirements, the Council will continue to encourage all renewable energy schemes to realise further potential, unless their adverse impacts on the District are considered not to justify the energy gains achievable.
- 6.27 It is also appropriate to support micro-generation schemes subject to normal development management considerations.
- 6.28 PPS22 suggests that Local Authorities may wish to identify those broad areas suitable for particular types of renewable energy projects. This issue was also raised in the previous consultation stage.
- 6.29 There are no specific national or locally designated areas that would automatically preclude renewable energy developments in Selby District. However where renewable energy proposals would conflict with the openness of the Green Belt (and are therefore inappropriate within the PPG2 definition) developers will need to demonstrate very special circumstances that clearly outweigh any harm to the Green Belt. This could include for example the wider environmental benefits associated with increased production of energy from renewable sources. Each application will be considered on its individual merits subject to national, regional and local policies with careful consideration of cumulative impacts where a number of proposals come forward.
- 6.30 In general terms it is considered that the whole District is suitable for all types of renewable energy technologies, as evidenced from sub-regional studies³⁷ (which mapped constraints, landscape sensitivity and opportunities for a range of technologies) and a local landscape assessment³⁸, subject, to considering each case on its own merits.
- 6.31 Because it is difficult to make any strong distinctions across the District, based on existing evidence, and it is considered any such definitions would be

³⁷ Delivering Sustainable Energy In North Yorkshire: Recommended Planning Guidance Prepared For A Partnership Of Local Authorities In North Yorkshire By Land Use Consultants And National Energy Foundation, October 2005 and Sub Regional Renewable Energy Assessment and Targets Study, 2004 (SREATS)

³⁸ Selby District Landscape Assessment, Woolerton Dodwell for Selby District Council, 1999

artificial and of limited value, there is no justification for including areas of search at this stage.

- 6.32 Clean coal bed methane³⁹ extraction and carbon capture and storage⁴⁰ technologies are two areas which are worthy of consideration. They are referred to in national policy (most recently in The UK Low Carbon Transition Plan 2009 and The UK Renewable Energy Strategy 2009) and particularly by respondents in the previous consultation on the Further Options for the Core Strategy. Given the potential contribution to the climate change debate (although not necessarily strictly ‘renewable energy’) it is appropriate to refer to these elements as a part of the overall climate change response in the Core Strategy. However, due to the relative infancy of these technologies, potential adverse impacts on amenity of such schemes, and the lack of evidence nationally and locally to underpin a more detailed policy at this stage, it is considered appropriate to only refer to the potential of utilising these where appropriate.

7. Conclusions

General Planning Considerations and Future LDF Documents

- 6.33 It is considered that the proposed Core Strategy policies provide a sound strategic direction on a range of climate change issues appropriately formulated at this level in the light of the evidence available.
- 6.34 Submitting good quality information with planning applications on energy demand and savings is a means of demonstrating that development proposals meet policy objectives. The Council will expect developers to submit such energy statements and any necessary viability assessments in order to assess compliance with the Core Strategy policies.
- 6.35 It is envisaged that future DPDs, SPDs and guidance will tackle detailed issues on for example stand alone renewable energy schemes such as siting and design, landscape and cumulative visual impact, noise/odour, habitat or species disturbance, listed buildings, conservation areas. Future evidence base work will help determine whether additional policies are required through a Development Management DPD and/or an Allocations DPD or other area action plan work.

³⁹ See Appendix 2 for further information on ‘CBM’

⁴⁰ See Appendix 2 for further information on ‘CCS’

Appendix 1 Summary of National Policy Drivers

Planning and Compulsory Purchase Act 2004 as amended by Planning Act 2008

Development plan documents must (taken as a whole) include policies designed to secure that the development and use of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change."

Planning and Energy Act 2008

An Act to enable local planning authorities to set requirements for energy use and energy efficiency in local plans. A local planning authority may in their development plan documents, include policies imposing reasonable requirements for:

- (a) a proportion of energy used in development in their area to be energy from renewable sources in the locality of the development;
- (b) a proportion of energy used in development in their area to be low carbon energy from sources in the locality of the development;
- (c) development in their area to comply with energy efficiency standards that exceed the energy requirements of building regulations.

Climate Change Act 2008

The UK has passed legislation which introduces the world's first long-term legally binding framework to tackle the dangers of climate change. The Climate Change Act creates a new approach to managing and responding to climate change in the UK, by:

- setting ambitious, legally binding targets
- taking powers to help meet those targets
- strengthening the institutional framework
- enhancing the UK's ability to adapt to the impact of climate change
- establishing clear and regular accountability to the UK Parliament and to the devolved legislatures

The UK Low Carbon Transition Plan 2009

This is the national strategy for climate and energy. This White Paper sets out the UK's first ever comprehensive low carbon transition plan to 2020. This plan aims to deliver emission cuts of 18% on 2008 levels by 2020 (and over a one third reduction on 1990 levels).

The UK Renewable Energy Strategy 2009

Sets out the path for delivering legally-binding targets to ensure 15% of UK's energy comes from renewable energy sources by 2020.

PPS1 Delivering Sustainable Development 2005

Includes aspirations to address the causes and potential impacts of climate change; reduce energy use; promote water efficiency; reduce emissions; promote renewable energy use; secure appropriate location and design of development; and promote sustainable and inclusive patterns of urban and rural development.

PPS1 Climate Change Supplement 2007

The Planning Policy Statement (PPS) on Climate Change was published on 17 December 2007, making clear that tackling climate change is central to what is expected of good planning. Planning authorities should 'specify the requirement in terms of achievement of nationally described buildings standards, for examples in the case of housing by expecting identified housing proposals to be delivered at a specific level of the Code for Sustainable Homes.'

The Supplement requires LPAs to have an evidence-based understanding of the local feasibility and potential for renewable and low-carbon technologies, and to undertake their own assessments. LPAs should set out target percentages where it is viable, set out the type and size of development to which the target will be applied and ensure there is a clear rationale for the target and it is properly tested. Such policies should be set out in a DPD not an SPD.

Government has proposals to progressively improve energy/carbon performance set out in Building Regulations to achieve zero-carbon⁴¹ housing by 2016 and zero-carbon non-domestic buildings by 2019. The PPS1 Supplement on Climate Change (2007) seeks to support the achievement of zero carbon homes through the planning system. Other relevant Government targets are a cut in GHG (green house gases) by 20% in CO₂ below 1990 levels by 2010, and 60% cut by 2050.

Renewable Energy 'Areas of Search'

Guidance contained in PPS1 Supplement and PPS22 (Renewable Energy) highlights that Local Authorities should set out criteria to reflect local circumstances and identify where renewable energy development may be considered appropriate.

PPS3 Housing (2006) – Advocates making best use of land and encouraging new building technologies to deliver sustainable development.

PPS4: Planning for Sustainable Economic Growth, 2009 – Outlines the Government's objectives for planning to help achieve sustainable economic growth including:

- Growth that can be sustained and is within environmental limits, but also enhances environmental and social welfare and avoids greater extremes in future economic cycles.
- Deliver more sustainable patterns of development, reduce the need to travel, especially by car and respond to climate change

⁴¹ See also Appendix 2

PPS7 Sustainable Development in Rural Areas 2004 – Supports sensitive exploitation of renewable energy sources.

PPS9 Biodiversity and Geological Conservation 2005 - Account for climate change on distribution of habitats and species, and geomorphologic processes and features and developing and protecting habitat networks

England Biodiversity Strategy 2008 (Climate Change Adaptation Principles, Conserving biodiversity in a changing climate, DEFRA) - seeks to ensure biodiversity considerations become embedded in all main sectors of public policy and has just published Climate Change Adaptation Principles – Conserving biodiversity in a changing climate

PPG13 Transport 2001 – Focuses on reducing the need for travel, especially by car, by influencing the location of development, fostering development, which encourages walking, cycling or public transport.

PPS22 Renewable Energy 2004 – Promotes increased development of renewable energy (and Companion Guide)

PPS22 Companion Guide 2004 - States that planning policy at the local level needs to provide guidance in relation to both standalone renewable energy schemes and the integration of renewable energy into new development. The Core Strategy should clarify the importance of addressing sustainability objectives established by the LPA within an over-arching policy, whilst specific policies on RE will be provided in a DPD.

PPS23 Planning and Pollution Control 2004 – Suggests that planning should reduce greenhouse gas emissions and take account of potential effects of climate change where possible.

PPS25 Development and Flood Risk 2006 - Planning policies and decisions should reflect the increased risk of coastal and river flooding as a result of climate change.

Appendix 2 Further Information

Zero Carbon Development

In July 2007 the Government's *Building a Greener Future: Policy Statement* announced that all new homes will be zero carbon from 2016.

“The policy statement *Building a Greener Future* in 2007 set out a target for all new homes to be zero carbon from 2016 with interim steps along the way in 2010 and 2013 through Part L of the Building Regulations. Since then, this aim has been further developed and defined, and we have consulted on the next regulatory step of a 25 per cent improvement against 2006 standards in 2010.

In July 2009, following a public consultation on the detailed definition of zero carbon homes⁷ a three step approach to reaching the zero carbon homes standard was confirmed by the Housing Minister, based on:

1. a high level of energy efficiency in the fabric and design of the dwelling
2. ‘carbon compliance’ – a minimum level of carbon reduction to be achieved from on-site technologies (including directly connected heat networks) and
3. ‘allowable solutions’ – a range of measures available for achieving zero carbon beyond the minimum carbon compliance requirements.

The July 2009 statement also confirmed other aspects of the zero carbon definition. It clarified that it would require a 70 per cent reduction in carbon emissions against 2006 standards through a combination of energy efficiency, on-site low and zero carbon energy supply and/or connections to low carbon heat networks (‘carbon compliance’). The remaining emissions, including a calculated amount to cover the use of appliances, would be addressed through a system of ‘allowable solutions’ (including achieving further reductions on-site and a range of off-site measures).”

Source: Sustainable New Homes: The Road to Zero Carbon: Consultation on the Code for Sustainable Homes and the Energy Efficiency standard for Zero Carbon Homes, DCLG, 16 December 2009.

Code for Sustainable Homes

Source: "Sustainable New Homes: The Road to Zero Carbon: Consultation on the Code for Sustainable Homes and the Energy Efficiency standard for Zero Carbon Homes", DCLG, 16 December 2009

The Code for Sustainable Homes (the Code) was introduced in England in April 2007 following extensive consultation with environmental groups and the home building and wider construction industries.

The Code is a voluntary standard and complements the system of Energy Performance Certificates for new homes, which was introduced in April 2008 under the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007.

The Code measures the sustainability of a home against nine design categories, rating the 'whole home' as a complete package. The design categories are:

- Energy and CO2 Emissions
- Water
- Materials
- Surface Water Run-off
- Waste
- Pollution
- Health and Wellbeing
- Management
- Ecology

Each category includes a number of issues which have a potential impact on the environment. The issues can be assessed against a performance target and awarded one or more credits. They represent good or best practice, are technically feasible, and can be delivered by the building industry.

The sustainability rating system

The Code uses a sustainability rating system – indicated by 'stars', to communicate the overall sustainability performance of a home. A home can achieve a sustainability rating from one to six stars depending on the extent to which it has achieved Code standards. One star is the entry level – mostly above the level of the Building Regulations; and six stars is the highest level – reflecting exemplar development in sustainability terms. The sustainability rating that a home achieves represents its overall performance across the nine Code design categories.

Minimum standards exist for a number of categories – these must be achieved to gain a one star sustainability rating. Energy efficiency and water efficiency categories also have minimum standards that must be achieved at every level of the Code, recognising their importance to the sustainability of any home.

Apart from these minimum requirements the Code is completely flexible; developers can choose which and how many standards they implement to obtain 'credits' under the Code in order to achieve a higher sustainability rating.

Provision of sustainability certificates in the Home Information Packs

Since May 2008, all new homes in England need to be rated against the Code. This mandatory requirement came into effect for all developments where a local authority received the building notice, initial notice or full plans application after 1 May 2008. Developments where a local authority had received these stages on or before 30 April 2008 are exempt. Where Building Regulations apply, compliance is necessary at all times. Homes built to the Code standards achieve a rating of one star through to six stars – a truly sustainable home. Homes that have not been assessed and are built to the standards set out in Building Regulations receive a nil rating.

When does the Code become mandatory?

The Code is a voluntary standard and there are no plans to change that. As mentioned above, it is used as a condition of funding for the Homes and Communities Agency National Affordable Housing Programme, on other Government programmes or land and by local authorities when they want to set sustainability-based planning conditions on housing developments in their area.

The timetable for introducing higher standards of energy efficiency through Part L of the Building Regulations is a 25 per cent improvement on current (2006) standards in 2010 and 44 per cent improvement in 2013, with all homes being net zero carbon from 2016.

BREEAM

(Building Research Establishment Environmental Assessment Method)

<http://www.breeam.org/index.jsp>

BREEAM is the world's most widely used environmental assessment method for buildings and sets the standard for best practice in sustainable design. It describes a building's environmental performance assessed against a set criteria to provide an overall score which will fall within a band providing either a; Pass, Good, Very Good, Excellent or Outstanding rating.

Combined Heat and Power (CHP)

Source: Combined Heat and Power Association

http://www.chpa.co.uk/about_chp/chp_faq.shtml

Combined Heat and Power (CHP) is the simultaneous generation of usable heat and power (usually electricity) in a single process. CHP is a highly efficient way to use both fossil and renewable fuels and can therefore make a significant contribution to the UK's sustainable energy goals, bringing environmental, economic, social and energy security benefits.

CHP systems can be employed over a wide range of sizes, applications, fuels and technologies. In its simplest form, it employs a gas turbine, an engine or a steam turbine to drive an alternator, and the resulting electricity can be used either wholly or partially on-site. The heat produced during power generation is recovered, usually in a heat recovery boiler and can be used to raise steam for a number of industrial processes, to provide hot water for space heating, or, as mentioned above with appropriate equipment installed, cooling.

Because CHP systems make extensive use of the heat produced during the electricity generation process, they can achieve overall efficiencies in excess of 70% at the point of use. In contrast, the efficiency of conventional coal-fired and gas-fired power stations, which discard this heat, is typically around 38% and 48% respectively, at the power station. Efficiency at the point of use is lower still because of the losses that occur during transmission and distribution.

CHP is a form of a decentralised energy technology. CHP systems are typically installed onsite, supplying customers with heat and power directly at the point of use, therefore helping avoid the significant losses (which occur in transmitting electricity from large centralised plant to customer).

Community Heating

Source: <http://www.community-heating.co.uk/> - The dedicated information portal for Community Heating and CHP in the UK

Community Heating provides heat for homes, commercial and public buildings. Linking community heating with a high efficiency Combined Heat and Power (CHP) system means that electricity can also be produced and used locally.

Community heating systems replace individual heating systems within homes with locally-based heating plant, often based on CHP. Hot water from the CHP unit and other heat sources is pumped to homes and other buildings using a network of highly insulated pipes. Heat is then transferred using a small heat exchanger, to radiators and water heating cylinders just as in conventional heating systems.

The versatility of Community Heating enables it to be used on projects of any size, whether they cover a wide area such as a city or a concentrated location such as a town centre, university campus or hospital.

The cities of Sheffield, Nottingham and Southampton all have successful, large-scale community heating schemes operated by private/public sector energy services companies. Many other urban authorities, including most London Boroughs, Bristol, Mansfield, Doncaster, Wakefield and Manchester, operate smaller schemes typically serving individual housing estates.

Coal Bed Methane (CBM)

Most coal seams buried at depth will contain significant quantities of methane trapped within pores. The industry is still in its infancy. Coalbed methane is obtained by drilling into a coal seam, lowering the local pressure and collecting the gas that is released as a result. Methane can be extracted from coal seams that would be unsuitable or uneconomic to mine. Alternatively, it can be used to remove gas before mining, helping to reduce methane hazards associated with coal mining. Unlike underground coal mining, extraction of the gas does not cause subsidence of the land surface.

Coalbed methane wells take some 6-12 months to build up to full production. The production of commercial volumes of gas requires networks of boreholes with associated pipelines. The usual spacing is one borehole every 500-1000 metres.

The principal environmental considerations associated with the extraction of coalbed methane are the impacts associated with the exploration, development, operation and closure of a well field. A further significant environmental issue is the impact of water produced during well stimulation. The main type of water pollution during the extraction of coalbed methane is a high concentration of dissolved salts, causing high salinity. The scope for dilution into groundwater and watercourses and the sensitivity of aquatic organisms will determine the viability of surface discharge options and the degree of pre-treatment necessary. The Environment Agency can provide expert advice in this area.

Source: Nottinghamshire Minerals Local Plan

<http://www.nottinghamshire.gov.uk/home/environment/planningmatters/mineralsandwastep/anning/localdevframework/oe-planningmatters-mineralslocalplan/mineralslocalplan/revisedminlp/remin-chapterthirteen.htm>

Carbon Capture and Storage (CCS)

Fossil fuels will continue to play a significant role in the energy mix for the foreseeable future – both in the UK and internationally. If we are to tackle climate change, we need to find ways to reduce emissions from fossil fuels substantially.

Carbon Capture and Storage (CCS) has the potential to reduce CO₂ emitted from fossil fuel power stations by up to 90 percent. CCS is a three-step process which includes:

1. capturing the CO₂ from power plants and other industrial sources
2. transporting it, usually via pipelines, to storage points
3. storing it safely in geological sites such as deep saline formations or depleted oil and gas fields.

There are currently three types of capture technology: post-combustion, pre-combustion and oxyfuel CCS.

The individual processes involved in CCS are not novel, but the full chain of technologies (capture, transport, and storage) has yet to be demonstrated together at commercial scale on a power station.

Source: Department of Energy and Climate Change

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/ccs/ccs.aspx

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