

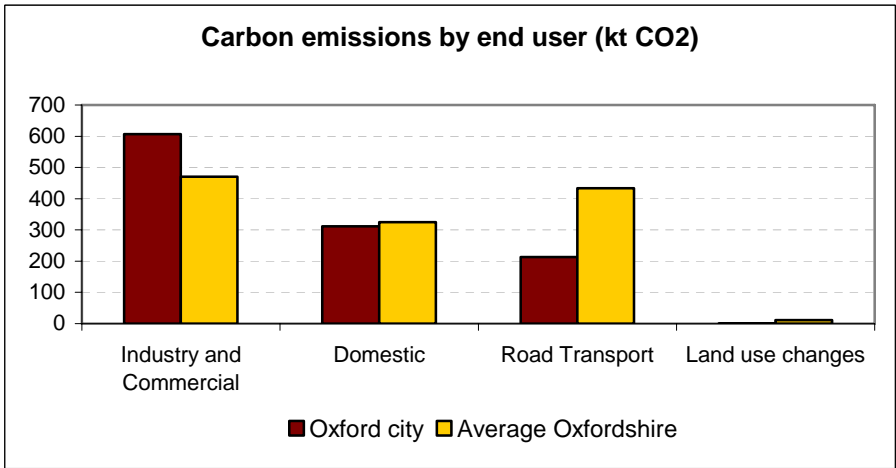
# Background Paper C(i): Responding to Climate Change

## 1 Introduction

- 1.1 The purpose of this background paper is to express the links between the Core Strategy DPD and climate change mitigation and adaptation. Addressing climate change is one of Government's key concerns and it recognises the role spatial planning plays in responding to climate change.
- 1.2 Mitigating and adapting to climate change is intrinsic to the whole of the Core Strategy but particularly policies relating to energy and natural resources (CS11), waste and recycling (CS12), flooding (CS13), biodiversity (CS14), and transport (CS15 and CS16) as well as other policies directing specific development to sustainable locations.

## 2 Background data

- 2.1 According to the UK Climate Impacts Programme's 2002 scenarios, the UK will continue to get warmer, summers will get hotter and drier and winters will be milder and wetter. Extreme weather events are expected to occur more often, including very hot days in summer and heavier winter precipitation.
- 2.2 In terms of carbon emissions DEFRA's 2005 estimates are the most accurate data available by local authority. As shown in the chart below, the most pollutant sector in Oxford is the industry and commercial sector followed by residential developments and transport.



Source: Local and regional carbon emissions estimates, DEFRA 2005

- 2.3 The City Council is currently in the process of collating further data to establish a baseline regarding the Council's own carbon emissions.

### 3 Key documents and initiatives

#### National and regional policy framework

- 3.1 The Planning and Climate Change supplement to PPS1<sup>1</sup> urges the planning system to face the issue of climate change and to act accordingly. The government pledges to tackle climate change on two fronts: to mitigate the causes and, at the same time, to take action to adapt to the future impacts of climate change. Alongside the objectives and principles for tackling climate change, the document sets out guidance on the policy approaches to be adopted by planning authorities at different levels, including:
- Set higher standards through Development Plans (where the opportunity arises and particularly with regard to major developments);
  - Remove restrictions on low carbon and renewable energy projects;
  - Alongside criteria-based policy, consider identifying suitable areas for renewable and low carbon energy sources;
  - Climate change as a material consideration in decisions and planning process.
- 3.2 It also identifies key planning objectives that should be delivered through spatial strategies, including to:
- Deliver the Government's Climate Change Programme and energy policies;
  - Provide for the homes, jobs, services and infrastructure needed by communities, and in renewing and shaping the places where they live and work, secure the highest viable resource and energy efficiency and reduction in emissions;
  - Deliver patterns of urban growth that help secure the fullest possible use of sustainable transport for moving freight, public transport, cycling and walking; and, which overall, reduce the need to travel, especially by car;
  - Secure new development and shape places that minimise vulnerability, and provide resilience, to climate change;
  - Conserve and enhance biodiversity, recognizing that the distribution of habitats and species will be affected by climate change;
  - Reflect the development needs and interests of communities and enable them to contribute effectively to tackling climate change; and
  - Respond to the concerns of business and encourage competitiveness and technological innovation in mitigating and adapting to climate change.
- 3.3 The Code for Sustainable Homes<sup>2</sup> introduces new minimum standards on energy efficiency, carbon emissions and water efficiency. These standards have different levels of performance, from level 1 up to level 6, where the lowest level of the code (level 1) is already above existing Building Regulations<sup>3</sup> standards. For the energy and water efficiency categories there are minimum standards even at the lowest level of the code.

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<sup>1</sup> Planning and Climate Change - supplement to PPS1 (CLG, Dec 2007)

<sup>2</sup> Code for Sustainable Homes: Setting the Sustainability Standards for New Homes (CLG, Feb 2008)

<sup>3</sup> Building Regulations: Approved Document L (2006)

- 3.4 Building a Greener Future<sup>4</sup> sets out the Government's target for zero carbon development. To achieve its target, the Government proposes to take a three-step approach, which gradually builds towards zero carbon housing by 2016. This approach is based on improving the Building Regulations standards by 25% by 2010, 44% by 2013 and finally zero carbon<sup>5</sup> by 2016.
- 3.5 PPS22 sets out the Government's national policies regarding renewable energy and states that "*Local planning authorities may include policies in local development documents that require a percentage of the energy to be used in new residential, commercial or industrial developments to come from on-site renewable energy developments*"<sup>6</sup>.
- 3.6 The draft South East Plan<sup>7</sup> (SEP) regards climate change as one of the plan's cross-cutting policies. Mitigation and adaptation are key aspects of the SEP and are closely linked to policies in the plan in particular Section D5.
- 3.7 The Secretary of State's proposed changes strengthened the draft SEP's policy on renewable energy by stating that DPD's should include locally set targets for decentralised and renewable or low-carbon energy in new developments<sup>8</sup>.

#### **Local policy framework**

- 3.8 The Draft Oxfordshire Sustainable Communities Strategy 'Oxfordshire 2030'<sup>9</sup> sets out the strategy, aspirations and key issues for the future of Oxfordshire. Environment and climate change is one of the four strategic objectives of this plan of which aim is "*Responding to the challenges of climate change, minimising the effects of flooding, looking after our environment, reducing waste and use of energy are all important in improving the quality of life for Oxfordshire's people...*" The Oxfordshire Strategic Partnership, a group of public sector, local businesses and voluntary and community organisations, will implement this strategy.
- 3.9 The draft Oxford Sustainable Communities Strategy 'Oxford: A World Class City'<sup>10</sup> covers the period 2008-12 and identifies climate change as one of the flagship issues for Oxford and sets out ways of responding to it up to 2012. The strategy is delivered by the Oxford Strategic Partnership, which is a group of public sector organisations and local and businesses groups.

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<sup>4</sup> Building a Greener Future: Policy Statement (CLG, July 2007)

<sup>5</sup> Zero carbon home – Over a year, the net carbon emission from all energy use in the home is zero. This includes energy use from cooking, washing and electronic entertainment appliances as well as space heating, cooling, ventilation, lighting and hot water.

<sup>6</sup> Paragraph 8, *Planning Policy Statement 22: Renewable Energy* (Aug 2004) ODPM

<sup>7</sup> *Draft South East Plan* (Jan 2005) SEERA

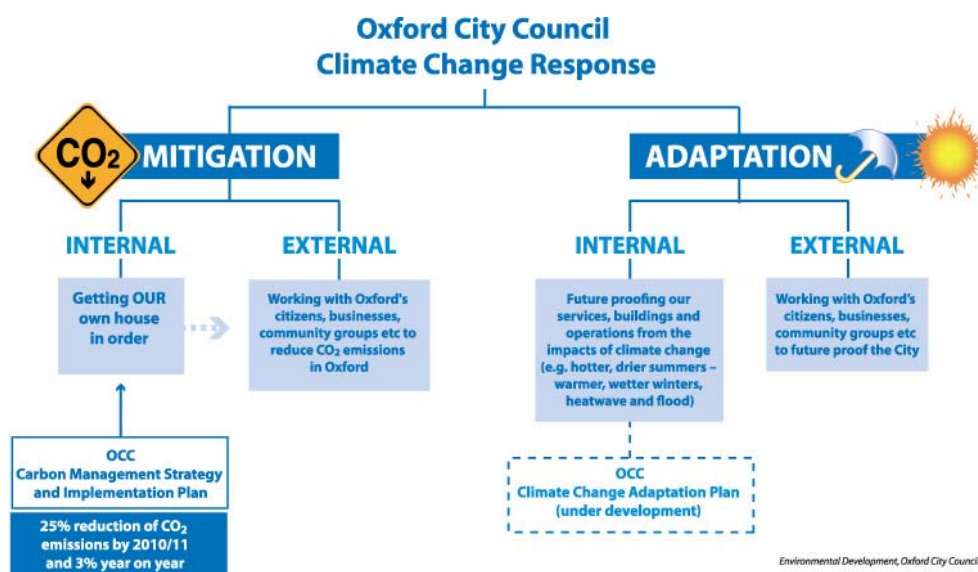
<sup>8</sup> *Secretary of State's Proposed Changes to the Draft South East Plan* (July 2008) CLG

<sup>9</sup> *Draft Sustainable Community Strategy: Oxfordshire 2030* (July 2007) Oxfordshire Strategic Partnership

<sup>10</sup> *Oxford: A World Class City* (Jan 2008) Oxford Strategic Partnership

## Oxford City Council climate change initiatives

- 3.10 The Climate Change Action Forum (CCAF) is a working group constituted by members and officers with the aim of reducing the City's carbon footprint. To achieve this, a Climate Change Implementation Plan was initially prepared to help reduce the Council's emissions internally (own buildings and transport fleet) and externally (planning requirements, Sustainable Buildings Award, raising awareness amongst business and residents). The Council is also undergoing a Carbon Management Programme, which will help to further reduce its carbon emissions, including:
- Reduce Council CO<sub>2</sub> emissions by at least 25% by 2010 (on 2005/6 baseline) [31% by 2012 based on 3% year on year CO<sub>2</sub> reduction pledge going beyond 2010]
  - Determine an accurate and robust CO<sub>2</sub> emissions baseline (2005/6) that can be relied upon year on year (separate baseline determined for social housing stock)
  - Get clarity over resource deployment (financial and people) for 08/09 to achieve effective carbon reduction throughout the Council
  - Raise awareness of climate change amongst staff, members and our public/partners and help to involve them in carbon management actions
- 3.11 To complement these actions, the Council is now preparing an Adaptation Plan to look at the council's services, buildings and operations in terms of adapting to future impacts of climate change. The Climate Change Implementation Plan together with the Adaptation Plan will form the Council's response to Climate Change.



## 4 The Core Strategy and climate change

- 4.1 Climate change and the twin challenges of mitigation and adaptation are central to the Core Strategy policies. Climate change mitigation, through a reduction of greenhouse emissions (mainly carbon dioxide emissions,) will be addressed through an overall better resource efficiency, such as improving the energy efficiency of developments; increasing the up-take and use of renewable and low-energy

technologies; reducing the need to travel and ensuring good accessibility to public transport and other sustainable modes of transport; and protecting green spaces that act as carbon sinks.

- 4.2 Climate change adaptation to future impacts and potential opportunities will be achieved by locating development in areas protected from flooding and by incorporating sustainable drainage measures; protecting habitats and species; ensuring new development is more resilient to future climate impacts; and by requiring higher standards of water efficiency and the use of recycled or reclaimed materials in new developments.

### **The spatial strategy**

- 4.3 Reducing the need to travel particularly by private car is one of the strategy's priorities, which helps in reducing the carbon emissions from transport and consequently the impacts of climate change. To achieve this, a sequential approach is set out to help locate development in Oxford based on a hierarchy of centres. This works on the basis that sites should only be selected further down the hierarchy if no sequentially preferable sites are available, suitable or viable. The hierarchy of centres consists of the city centre, primary district centre, district centres, edge-of-city centre and edge-of-district centre locations and neighbourhood shopping centres. The higher up the hierarchy, the greater number of services and shops with greater non-car accessibility.
- 4.4 The strategy also focuses on maximising the use of previously developed land and full and efficient use of all land. This helps avoid unnecessary use of greenfield land that act as important carbon sinks - a natural mechanism to recycle carbon emissions. Greenfield areas, and particularly green spaces within the city, can also act as areas of natural 'cooling' by helping reduce the air temperature during summer.

### **Energy and natural resources**

- 4.5 Policy CS11 is aligned with the Government's aim of working towards Zero Carbon Developments and covers the issues of energy efficiency, renewable energy, water and choice of materials. This policy is linked to the Natural Resources Impact Analysis SPD<sup>11</sup> (NRIA SPD), which provides policy requirements and further details on these topics. The NRIA SPD will be updated and revised when necessary.
- 4.6 Energy efficiency is making the best or most efficient use of energy so that a certain level of service (e.g. heat, light) requires less energy input. Energy efficiency measures and technologies can help improve the overall efficiency of a building through a range of different solutions, which act as mitigation and adaptation solutions, including improving solar gain, shading, thermal mass of the building, natural ventilation and light, etc. The NRIA SPD establishes specific requirements for new developments (over a threshold) in terms of energy efficiency.

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<sup>11</sup> *Natural Resource Impact Analysis Supplementary Planning Document* (Nov 2006) Oxford City Council

- 4.7 Renewable and low-carbon energy covers energy flows that occur naturally and repeatedly in the environment from the wind, the movement of the oceans, the fall of water, the sun and biomass, and that can be captured or used to generate more energy. Low-carbon technologies are those that can help reduce carbon emissions. Some examples of renewable and/or low-carbon technologies include: CHP/CCHP (and micro-CHP); energy from waste; ground-source heat pumps; hydro; solar thermal and photovoltaic generation; and wind generation.
- 4.8 Choosing the right materials and using, when possible, recycled or reclaimed materials in a scheme helps not only to reduce the amount of energy and resources used to produce and transport new materials but also to reduce the amount of waste going to landfill. When selecting the materials for a scheme, developers should aim for locally sourced materials, low embodied energy of materials (energy used in the extraction, production and transportation of the materials), low environmental impact (re-used and recycled materials), explore potential to re-use/convert existing buildings, etc.
- 4.9 Water is a precious and increasingly scarce natural resource, particularly in the Thames region where the average rainfall per year is the lowest in the UK. Incorporating water-saving devices/technologies, rainwater collection and grey water recycling are some of the ways of reducing water consumption.

### Waste and recycling

- 4.10 Reducing the amount of waste produced is crucial not only to reduce methane emissions from landfill sites that significantly contribute to climate change but also to reduce the use of resources and energy e.g. package preparation.
- 4.11 Policy CS12 takes account of the Oxfordshire Joint Municipal Waste Strategy<sup>12</sup>. This Strategy reflects the European Union's directive requiring all Waste Disposal Authorities to achieve reductions in the amount of biodegradable waste sent to landfill. An underlying 'waste hierarchy' has been adopted as part of the Strategy, forming a guiding principle to the management of waste in Oxfordshire illustrated below.



Source: *The Oxfordshire Joint Municipal Waste Strategy, August 2006*

<sup>12</sup> *Oxfordshire Joint Municipal Waste Management Strategy* (Jan 2007) Oxfordshire Waste Partnership

4.12 Key targets in the Strategy include:

- a reduction in the growth of municipal waste across the County to 0% per person per year by 2012;
- an integrated system of collection and processing of household waste that will achieve as a minimum 40% recycling or composting by 2010; 45% recycling or composting by 2015; 55% recycling or composting by 2020.

4.13 The Core Strategy also takes account of work being carried out on the Minerals and Waste Local Development Framework (MWLDF), for which Oxfordshire County Council is responsible. This will set out the vision, objectives and overall spatial strategy for meeting minerals and waste development requirements in Oxfordshire over the period to 2026.

4.14 As the MWLDF is as yet incomplete, the Oxford Core Strategy draws more on the Joint Waste Strategy, as the most up-to-date local framework, for Policy CS12. The policy makes explicit reference to the Joint Waste Strategy to ensure all new development has regard to this.

### **Flooding**

4.15 Flooding is an important issue in Oxford with certain built-up areas, particularly in South Oxford, West Oxford and Lower Wolvercote, being within flood zone 3. In addition, large parts of the Thames and Cherwell undeveloped flood plains regularly flood.

4.16 Policy CS13 includes requirements for new developments to be located in the appropriate flood zones in accordance with the PPS25 sequential approach and exceptions test. Where appropriate developers must carry out a Flood Risk Assessment to show proposals will not have an adverse impact or increase the risk of flooding. Mitigation measures will be sought and implemented as needed and Sustainable Drainage Systems will be incorporated in new developments when feasible.

4.17 A Strategic Flood Risk Assessment (SFRA) for Oxford city has been produced and the outcomes of this study have been fed into the Core Strategy flooding policy. Further details on the flooding policy and requirements can be found in **Background Paper C(ii): Responding to Flood Risk**.

### **Biodiversity**

4.18 Oxford is rich in wildlife, with many important habitats and species being present. New development provides both opportunities to enhance biodiversity and also potential threats, which in many cases can be overcome by careful design. Climate change might mean that some species and habitats are particularly vulnerable, so it is particularly important that the impact of new development on biodiversity has no negative impacts and as many positive impacts as possible.

4.19 The aim of Policy CS14 is that new developments should maintain, enhance, restore or add to biodiversity and geological conservation interests. To ensure that Oxford's biodiversity is not gradually diminished the City Council will ensure that compensation is

made for any features lost. Further details on the biodiversity policy and requirements can be found in **Background Paper C(iii): Oxford's Biodiversity**.

- 4.20 Carbon emissions from road transport represent one of the main sources of emissions in Oxford. Aligned with the spatial strategy's principles, the Core Strategy transport policies (CS15 and CS16) emphasise the importance of reducing the need to travel by promoting the use of more sustainable modes of transport, such as walking, cycling and public transport.
- 4.21 New developments in Oxford are expected to prioritise access by walking, cycling and public transport and all major developments will need to submit a Transport Assessment and Travel Plan. Resisting an increase in the overall number of public and private parking spaces in the city centre will also help to restrain the number of car journeys into the city.
- 4.22 The strategic locations for development will be planned for and integrated with wider movement networks and existing communities to help the access and movement from and to these areas. There is also a focus on improving major strategic public transport links within the city and making it easier for people to move around using more sustainable modes of transport e.g. promoting greater pedestrian and cycle priority through and to the city centre and district centres.
- 4.23 Further details on the transport policies and requirements can be viewed in **Background Paper D(ii): Transport and Accessibility**.

## 5 Summary

- 5.1 The City Council recognizes the importance of tackling and responding to climate change. The Core Strategy responds to this challenge through promoting efficient and responsible use of energy and natural resources, responsible waste management, a robust approach to flood adaptation and mitigation, and a proactive approach to enhancing and protecting biodiversity and maintaining a high standard of green space in Oxford. The Spatial Strategy seeks to reduce private car use, and to focus development of higher density, or likely to generate significant travel, to City and district centres that have better non-car accessibility and a wide range of local services, thus helping to reduce the carbon footprint of new development. The focus on recycling previously developed land in Oxford also reduce the need to use greenfield land that acts as a natural carbon sink, and maximizes the potential for development to locate in sustainable locations within the City.