

# Local Development Framework Briefing Paper Climate Change



## **Devon County Council's advice to Local Planning Authorities.**

*This is one of a series of briefing papers prepared by Devon County Council to assist the preparation of Local Development Documents.*

*To view this, and other briefing papers, see <http://www.devon.gov.uk/ldf-briefing-papers>*

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**Local Planning Authorities are requested to take the following matters into account in preparing their Local Development Frameworks and other documents:**

- 1. Acknowledgement of the process of Climate Change - and the necessity of mitigation and adaptation measures. As climate change is an overarching issue affecting the direction and scope of a number of policies, its importance should be recognised in an overarching policy that provides a reference for more detailed, non strategic and development control policies at an early stage in the development of the principles and aims of the plan. (see: Section 1. Principles and Issues to be addressed)**
- 2. Promote Sustainable Energy, Renewable Energy and CHP - through demand reduction, energy efficiency and the use of renewable and consider opportunities for and benefits of Combined Heat and Power. (see: Section 2. Energy)**
- 3. Promote Sustainable Transport - choices for people and for moving freight, and reduce the need to travel, especially by car though the integration of land use with walking and cycling opportunities; the location of major travel generators close to public transport interchanges; the use of travel planning; innovative and efficient technologies; car clubs; parking policy; and cross boundary coordination can all be used to facilitate multi purpose journeys and more sustainable modes of travel. (see: Section 3. Sustainable Transport)**
- 4. Recognise increasing pressure on Water Resource Management and the need to promote sustainable provision of water resources by; demand reduction; efficient use of water and conservation of water through use of recycled grey water and harvesting of rainwater in developments. (see: Section 4. Water Resource Management)**
- 5. Flood Risk Management - Adopt a risk based approach to management of flooding from river, sea and other sources, by risk identification and assessment, risk reduction - with development of policies to avoid/reduce risk of flooding to people and places. Promoting the use of Sustainable Urban Drainage Systems [SUDs] can help prevent/reduce the impact of surface water run-off. (see: Section 5. Flood Risk Management)**
- 6. Recognise pressures on Biodiversity, Land and Landscape and consider the way the distribution of locally significant species, habitats and landscapes may alter with climate change. Opportunities should be taken to exploit opportunities for new habitats, buffer zones and corridors and to enhance climate adaptable biodiversity. Planting and landscaping schemes for major developments should recognise the need to use appropriate species and planting regimes. (see: Section 6 Biodiversity, land and landscape)**

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7. **Recognise the long term sustainability of the Coast and Coastal Zone by addressing both short term protection and long term adaptation.**  
(see: Section 7. The Coast and Coastal Zone)
8. **Recognise the need of Sustainable Waste Management to minimise greenhouse gas emissions through sustainable waste management by restricting landfill, identify sites for new facilities that provide alternatives to landfill, energy recovery, increasing the amount of recycling through provision of recycling facilities and encouraging the use of recycled materials in development.** (see: Section 8. Sustainable Waste Management)
9. **Promote Sustainable Built Environment and New Developments to reduce greenhouse gas emissions resulting from the construction of new development [embodied energy] and the future operation of the infrastructure [projected energy use over the lifetime of the development]; identify policies and guidance aimed at reducing the vulnerability of developments to climate change and severe weather events; and identify policies and guidance aimed at incorporating “climate headroom” into refurbishment projects.**  
(see: Section 9. Sustainable Built Environment and New Developments)

# Local Development Framework Briefing Paper

## Climate Change

### A. Introduction

Climate change is recognised by Devon County Council as one of the key drivers of change within our community this century and a range of actions to tackle climate change are identified in the Devon County Council Climate Change Strategy<sup>1</sup>.

This Briefing Paper sets out the climate change matters that Devon County Council requests should be taken into account by Local Planning Authorities in preparing their Local Development Frameworks. The purpose of the advice is to ensure that Local Development Frameworks include necessary guidance to reflect the interests of the County Council to:

- a) Mitigate climate change – to reduce greenhouse gas emissions from energy, transport, waste, the built environment and new developments
- b) Adapt to the potential impacts of climate change - in terms of water management, flood risk, biodiversity and landscape management, the coastal zone, the built environment and new developments.

Policies which have a particular climate change dimension concern: efficiency energy use and generation; sustainable transport; water resources and water quality; flooding; biodiversity, land and landscape; waste; and built environment.

### B. DCC Policy Guidance for Climate Change LDF

The LDFs should address the following issues which impact on climate change.

#### **1. Principles and Issues to be addressed**

In preparing local development documents Core Strategy, Local Planning Authorities policies and proposals should:

Context - Contribute to global sustainability by taking account of national and regional climate change, energy, environment and sustainable development strategies in addressing both the causes and impacts of climate change [mitigation and adaptation]

Precautionary Approach - Adopt a precautionary approach to reduce emissions and prepare for the impacts

Uncertainty - Take account of the uncertainties inherent in projections of the impacts of climate change and be prepared to revise strategies in the light of developing information on climate change

Timing - Consider long term time horizons beyond the end of the development plan period for climate change impacts

Integration - Understand and integrate the climate risk into plans

Adaptation - Identify vulnerable locations, communities, infrastructure and ecosystems, and consider options to adapt to the unavoidable impacts of climate change

Mitigation - Identify measures to reduce greenhouse gas emissions in line with the national targets for a 12.5% reduction in greenhouse gas emissions below 1990 levels by 2008-12 and a 20% reduction [from 1990 levels] in carbon dioxide emissions by 2010 rising to 60% by 2050.

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<sup>1</sup> Devon County Council Climate Change Strategy ( see <http://www.devon.gov.uk/index/environment/climatechange/climate-strategy.htm> ).

## **2. Energy**

a) Sustainable Energy: The promotion of sustainable energy use through policies and measures that cover:

- o Demand Reduction;
- o Energy Efficiency and
- o Renewable Energy

b) Renewable Energy: Based on an examination of resources available, promote policies, set criteria and optimise the potential for development of renewable energy projects by:

- o Supporting and contribution to regional targets,
- o Providing a sensitive exploitation of renewable energy which minimises the impact on sensitive environmental assets, and
- o Integrate renewable energy technology into building design through setting on site targets for generation.

c) Combined Heat and Power: Consider the opportunities for, and benefits of, CHP and community heating.

Relevant Structure Plan Policies regarding the above include;

- Policy ST1 – Sustainable Development and
- Policy CO11 – Conserving Energy Resources
- Policy CO12 – Renewable Energy Developments

## **3 Sustainable Transport**

Promote sustainable transport choices for people and for moving freight, and reduce the need to travel, especially by car though:

- o The integration of land use with walking and cycling opportunities;
- o the location of major travel generators close to public transport interchanges;
- o the use of travel planning; innovative and efficient technologies;
- o car clubs;
- o parking policy; and
- o cross boundary coordination can all be used to facilitate multi purpose journeys and
- o more sustainable modes of travel.

*More detail advice on these matters will be covered Briefing Papers about the Local Transport Plan*

Relevant Structure Plan Policies regarding the above include;

- Policy ST1 – Sustainable Development and
- Policy TR1 – Devon Travel Strategy
- Policy TR2 – Co-ordinating Land Use / Travel Planning
- Policy TR3 – Managing Travel Demand
- Policy TR5 – Hierarchy of Modes

## **4. Water Resource Management**

There is a need to recognise the increasing pressure on water resources and the need to promote sustainable provision of water resources by: .

- o demand reduction;
- o efficient use of water and
- o conservation of water through use of recycled grey water and harvesting of rainwater in developments.

Relevant Structure Plan Policies regarding the above include;  
Policy ST1 – Sustainable Development and  
Policy CO13 – Protection of Water Resources and Flood Defence

## **5. Flood Risk Management**

Policies should adopt a risk based approach to management of flooding from river, sea and other sources by:

- Risk identification
- Risk Assessment,
- Risk Reduction - with development of policies to avoid/reduce risk of flooding to people and places.
- Promoting the use of Sustainable Urban Drainage Systems [SUDs] can help prevent/reduce the impact of surface water run-off.

Relevant Structure Plan Policies regarding the above include;  
Policy CO13 – Protection of Water Resources and Flood Defence

## **6. Biodiversity, Land and Landscape:**

Policies should recognise the existing pressure on biodiversity and landscape and consider the way the distribution of locally significant species, habitats and landscapes may alter with climate change.

Opportunities should be taken to exploit opportunities for new habitats, buffer zones and corridors and to enhance climate adaptable biodiversity.

Planting and landscaping schemes for major developments should recognise the need to use appropriate species and planting regimes.

Relevant Structure Plan Policies regarding the above include;  
Policy CO9 – Biodiversity and Earth Science Diversity

## **7. The Coast and Coastal Zone:**

Policies should provide for the long term sustainability of coastal areas by addressing both short term protection and long term adaptation; through:

- Identifying areas likely to be at risk from flooding or sea erosion;
- Identifying appropriate sites for development that must have a coastal location [eg offshore renewable energy landfall];
- Planning for dynamic coastal processes
- Utilising resort and other assets which may benefit from warmer summers
- Liaising with statutory flood defence agencies and maritime, conservation and landscape interests.

## **8. Sustainable Waste Management**

Policies should aim to minimise greenhouse gas emissions through sustainable waste management, particularly in Minerals and Waste LDF, by:

- restricting landfill,
- identify sites for new facilities that provide alternatives to landfill
- energy recovery
- increasing the amount of recycling through provision of recycling facilities and encouraging the use of recycled materials in development.

## 9. Sustainable Built Environment and New Developments

In preparing for development plans local planning authorities should:

- Identify policies and guidance aimed reducing greenhouse gas emissions resulting from the construction of new development [embodied energy] and the future operation of the infrastructure [projected energy use over the lifetime of the development];
- identify policies and guidance aimed at reducing the vulnerability of developments to climate change and severe weather events; and
- identify policies and guidance aimed at incorporating “climate headroom” into refurbishment projects.

More detailed advice regarding mitigation and adaptation measures in the siting, construction and design of new development is available on request.

### Appendix: Devon Statistics

#### Climate Change in Devon

**Temperature.** On an annual basis the rise in average temperature is likely to be less than 1°C by the 2020s regardless of scenario. About half of this increase has already been realised since 1990. The temperature rise by the 2050s may be between 1.4 and 2.3°C accelerating thereafter to up to 4.0°C by the 2080s. Seasonally, there may be greater warming in summer than winter. Spatially, there may be more warming in the north and east of the county than in the south and west reflecting the moderating influence of the sea around the coast and a marginal increase in continentality further inland.

**Rainfall.** On an annual basis the precipitation total shows a marginal decrease by the 2020s reducing further by up to 8% by the 2080s. All of these changes are within the current annual variability of  $\pm 30\%$ . Seasonally, winters may become up to 30% wetter in coastal regions by the 2080s. In the same time frame summers may become up to 55% drier; the epicentre of this drying is the Exmouth/Teignmouth/Newton Abbot area. There is already evidence that this trend is established.

**Extreme Weather Events.** From the preceding analysis increases in the frequency and intensity of winter storms and heavier winter precipitation events are the most likely extremes. Whilst one might also conclude that progressively higher maximum temperatures will be experienced, there is evidence that cooling sea breezes provide a limit (currently about 32°C) to the extremes experienced in the coastal margins. However, rising sea temperatures may contribute some further warming to these maxima with the 90°F (33°C) barrier being broken in the 2020 timeframe and the 100°F (38°C) by the end of the century.

**Sea Level Rise.** Modelling shows that there is a difference in the increase in height of extreme sea levels between the north and south coasts of Devon. For the north coast of Devon which already has a very large tidal range the increase may be up to 7mm per year. On the south coast of Devon the rise may be up to 4 mm per year. For Start Bay a current 1 in 200 year extreme storm surge event will become a 1 in 20 year probability by the end of the century. However for Ilfracombe the same event may have a return period of 1 in 12 years.

## The Greenhouse Gas Emissions Profile of Devon

Defra has recently issued local and regional estimates of carbon emissions for 2003. This data is reproduced at Table 1 and shows that Devon's emissions of carbon dioxide (CO<sub>2</sub>) amount to about 8.5 million tonnes annually. This total is almost equally divided between domestic, commercial/industrial and road transport sources. In terms of fuel source there is a four way split between electricity, gas, other fuel sources for domestic and industrial heating (e.g. coal and oil) and motor spirit. These details are shown below.

| Council         | Domestic       | Commercial & Industrial | Road Transport | Land Use Change | Total          |
|-----------------|----------------|-------------------------|----------------|-----------------|----------------|
| East Devon      | 381.8          | 238.3                   | 391.8          | 54.5            | 1,066.4        |
| Exeter          | 235.3          | 290.6                   | 113.9          | 1.7             | 641.5          |
| Mid Devon       | 190.7          | 222.8                   | 329.5          | 56.2            | 799.2          |
| North Devon     | 232.6          | 306.2                   | 222.4          | 39.3            | 800.5          |
| South Hams      | 288.6          | 314.5                   | 254.1          | 49.4            | 906.5          |
| Teignbridge     | 314.0          | 266.9                   | 423.9          | 28.7            | 1,033.6        |
| Torridge        | 162.5          | 139.2                   | 146.6          | 54.4            | 502.8          |
| West Devon      | 150.2          | 163.1                   | 196.1          | 53.4            | 562.8          |
| <b>Devon CC</b> | <b>1,955.7</b> | <b>1,941.6</b>          | <b>2,078.2</b> | <b>337.6</b>    | <b>6,313.2</b> |
| Plymouth        | 531.4          | 672.2                   | 245.5          | 1.3             | 1,450.4        |
| Torbay          | 308.4          | 309.3                   | 125.5          | 2.1             | 745.3          |
| <b>Devon</b>    | <b>2,795.5</b> | <b>2,923.2</b>          | <b>2,449.2</b> | <b>341.1</b>    | <b>8,509.0</b> |
| <b>Devon %</b>  | <b>33%</b>     | <b>34%</b>              | <b>29%</b>     | <b>4%</b>       |                |

Table 1. Devon's carbon dioxide emissions (in kilotonnes) by source - 2003

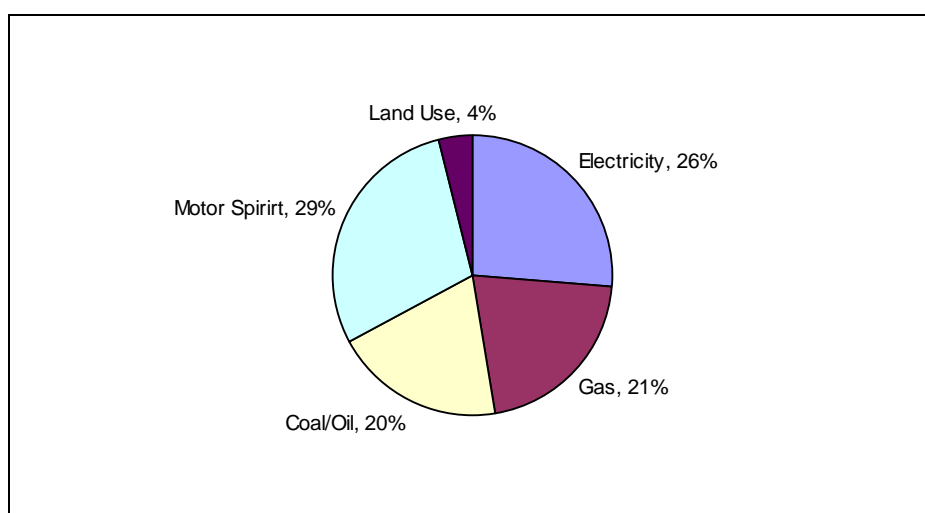


Figure 1. Devon's carbon dioxide emission by fuel source (%)

Given that in a national context about 83% of greenhouse gas emissions are CO<sub>2</sub>, the total emissions from human activity in Devon may be in excess of 10 million tonnes of CO<sub>2</sub> equivalent annually. This represents about 1.5% of the UK total.

## **Further Reading**

ACC - Adapting to climate change: a checklist for development - Guidance on designing developments in a changing climate.

CCP - CLIMATE CHANGE – THE UK PROGRAMME

Community Leadership and Climate Change: Guidance for Local Authorities

THE ENERGY WHITE PAPER 2003 Our energy future - creating a low carbon economy

Leading the Way: how local authorities can meet the challenge of climate change

THE PLANNING RESPONSE TO CLIMATE CHANGE Advice on Better Practice

SECURING THE FUTURE Delivering the UK sustainable development strategy

THE TRANSPORT WHITE PAPER 2004 The Future of Transport - a network for 2030

LDF Briefing Paper – Climate Change – Prepared by Ian Bateman

LDF Policy Guidance for Climate Change – Prepared by Ian Bateman