

INFORMATION NOTE 10
CLIMATE CHANGE

South West Regional Assembly
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SOUTH WEST REGIONAL ASSEMBLY

INFORMATION NOTE 10

CLIMATE CHANGE

1. Introduction

- 1.1. There is now wide ranging scientific consensus¹ that our climate is already changing as a result of man-made greenhouse gas emissions, with the extent of future change after about 2040 dependent on the level of emissions in the coming decades. The United Kingdom Climate Impacts Programme (UKCIP)² is the key source for up-to-date information on climate change and climate impact scenarios in the UK. Increasingly, scientists are warning that carbon dioxide concentrations need to be kept below 450 parts per million (ppm) or even 400ppm as opposed to the 550 ppm modelled by the Royal Commission on Environmental Pollution³ in 2000 and used to set existing targets. Climate change science is rapidly changing and moving up the political agenda and as further evidence becomes available this may mean that additional and tougher carbon reduction targets are required in the short – medium term. Climate change policy is also fluid at present, for example, the Government has recently established an Office for Climate Change to pursue actions in a more coordinated manner and the proposed Climate Change Bill may require year on year carbon reductions as a response to increasing pressure.
- 1.2. A draft Climate Change Planning Policy Statement (PPS26) is due to be released in December 2006 and in the meantime the Government seeks to address climate change through a number of policy initiatives. Tackling climate change is identified as a priority in PPS 1: Delivering Sustainable Development; with further reference in PPS 7: Sustainable Development in Rural Areas; PPS 9: Biodiversity and Geological Conservation; PPS 11: Regional Spatial Strategies; PPS 22: Renewable Energy; PPS 23: Planning and Pollution Control; and forthcoming PPS 25: Development and Flood Risk. PPS 1 in particular makes it clear that ‘Regional Planning Bodies and local planning authorities should ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change’ (paragraph 13 ii). PPS1 also states that, ‘Development plans should ensure that sustainable development is pursued in an integrated manner, in line with the principles for sustainable development set out in the UK [Sustainable Development] strategy.’ Securing the Future⁴ includes climate change as one of the four priorities for action and refers to it as “the greatest threat”, echoing the sentiments of Sir David King, the Government’s chief scientific adviser.

¹ Intergovernmental Panel on Climate Change (IPCC) <http://www.ipcc.ch/>

² www.ukcip.org.uk

³ Royal Commission on Environmental Pollution 2000, Energy – the Changing Climate
<http://www.rcep.org.uk/newenergy.htm>

⁴ http://www.sustainable-development.gov.uk/publications/pdf/strategy/SecFut_complete.pdf

- 1.3. In the 2003 Energy White Paper, the Government set out its goal of moving to a low carbon economy and reducing carbon dioxide emissions by some 60 per cent by 2050, with real progress to be shown by 2020, as recommended by the Royal Commission. The 2006 Energy Review⁵: The Energy Challenge restates the need to tackle climate change by reducing carbon dioxide emissions and indicates a commitment to zero carbon development, in particular by aiming to establish the Thames Gateway development as an exemplar of carbon neutrality. The Climate Change and Sustainable Energy Act 2006⁶ aims to reduce emissions of greenhouse gases and promote the use of microgeneration technologies and heat produced from renewable sources.
- 1.4. Internationally, the UK has a target under the Kyoto Protocol to reduce greenhouse gas emissions by 12.5 per cent below 1990 (base year) levels by 2008-12, and a more ambitious national goal of reducing carbon dioxide emissions by 20 per cent below 1990 levels by 2010. The Climate Change Programme 2006⁷ sets out policies and measures to help achieve these goals at a national level.
- 1.5. The Planning Response to Climate Change: Advice on Better Practice⁸, (ODPM 2004) states that there is a real urgency to put in place regional and local planning policies on adaptation to climate change, and to strengthen policies that will mitigate and reduce greenhouse gas emissions. This document gives advice on how Regional Planning Bodies should consider climate change implications across a range of topics from coasts to infrastructure and it sets the scene for the two-pronged approach in the draft RSS of dealing with both mitigation and adaptation.
- 1.6. The purpose of this briefing note is to provide an overview of the approach taken to embedding the issue of climate change in the draft South West RSS. It summarises:
 - the issues in the region
 - the baseline evidence used
 - the process followed
 - how climate change is incorporated in the draft RSS

2. State of the Region

- 2.1. The South West Observatory report- State of the South West⁹ provides a useful summary of regional issues and intelligence, including a summary chapter on climate change. The South West Observatory Environment Module¹⁰ concludes that in the South West, 8 of the 10 warmest years have occurred since 1990, with the 1990s being the warmest decade on record. There is also evidence that UK

⁵ <http://www.dti.gov.uk/files/file31890.pdf>

⁶ http://www.opsi.gov.uk/ACTS/acts2006/ukpga_20060019_en.pdf

⁷ Climate Change: The UK Programme (HM Government 2006).

<http://www.defra.gov.uk/ENVIRONMENT/climatechange/uk/ukccp/pdf/ukccp06-all.pdf>

⁸ http://www.communities.gov.uk/pub/498/ThePlanningResponsetoClimateChangeAdviceonBetterPractice_id1144498.pdf

⁹ <http://www.swo.org.uk/sosw/index.asp>

¹⁰ http://www.swenvo.org.uk/environment/climate_change.asp

rainfall patterns are changing. Although there are no long-term trends in total annual precipitation, there is a trend in seasonality. According to the UK Climate Impacts Programme (UKCIP) in 2002, over the last 30 years winters have been getting warmer and summers drier. During this period the contribution of the most intense rainstorms to total winter precipitation has also increased.

- 2.2. The UKCIP in 2002 identified that sea-surface temperatures of UK waters have shown an increase in annual average of approximately 0.6°C over the last 70 to 100 years. This is consistent with the warming observed over land. During the twentieth century global sea level rose by about 1.5 mm per year, due to a number of factors including thermal expansion and melting of land glaciers. Latest estimates from UKCIP suggest that net sea level rise in the south West could be between 20 and 80 cms by the 2080s, depending on the future rate of greenhouse gas emissions, which could potentially have major impacts for the region's coast, low lying areas, infrastructure and major coastal settlements.
- 2.3. The South West Climate Change Impacts Partnership (SWCCIP) has produced a regional Scoping Study called Warming to the Idea (2003)¹¹, which details the likely impacts (both challenges and opportunities) of climate change on a range of sectors, from health to agriculture. This study concludes that people will need to learn how to live with unavoidable changes in the climate, through adaptation measures as well as ensuring future developments reduce their contribution to climate change by mitigation measures.

Predicted seasonal climate in the South West

<i>Seasonal climate (the range of figures indicates Low and High emissions scenario results)</i>		
<i>Season</i>	<i>2050s</i>	<i>2080s</i>
<i>Summer</i>	Warmer by 1.5 to 3.5°C Drier by 15 to 30%	Warmer by 2.0 to 5.5°C Drier by 25 to 55%
<i>Winter</i>	Milder by 1.0 to 2.0°C Wetter by 5 to 15%	Milder by 1.5 to 3.5°C Wetter by 10 to 30% Snowfall will decrease by 70% to 90%

Source: UK Climate Impacts Programme, 2002

Summary of climate changes for the South West by the 2050s

<i>Likely change (the range of figures indicates Low and High emissions scenario results)</i>	
<i>Temperature</i>	Annual warming of 1.0 to 2.5°C (annual warming of 1.5 to 4.5°C in the 2080s) Greater warming in summer and autumn than in winter and spring Greater night-time than day-time warming in winter Greater day-time than night-time warming in summer

¹¹ <http://www.oursouthwest.com/climate/>

	Years as warm as 1999 (+1.2°C hotter than average) more common
Precipitation	Winters 5 to 15% wetter (winters 10 to 30% wetter by the 2080s) Summers 15 to 30% drier (summers 25 to 50% drier by the 2080s) Heavy rainfall in winter becomes more common Greater contrast between summer (drier) and winter (wetter) seasons Summers as dry as 1995 (37% drier than average) become more common Winter and spring precipitation becomes more variable Snowfall totals decrease significantly
Cloud cover	Reduction in summer and autumn cloud and increase in radiation Small increase in winter cloud cover
Humidity	Specific humidity increases throughout the year Relative humidity decreases in summer
Soil moisture	Decreases in summer Slight increase in winter soil moisture
Storm tracks	Winter depressions become more frequent including deepest ones
North Atlantic Oscillation	North Atlantic Oscillation may become more positive in the future, bringing more wet, windy and mild winters

Source: UK Climate Impacts Programme, 2002

2.4. In the South West recent DEFRA research¹² suggests that transport is responsible for 28% of the region's carbon dioxide emissions, with 33% coming from homes and 36% resulting from industry and commerce. This illustrates the priority areas that can be addressed by RSS policies – for example through reducing the need to travel and ensuring that all new development results in very low levels of greenhouse gas emissions.

2.5. The Integrated Regional Strategy, Just Connect!¹³ is also a useful starting point as it recognises that crunch objectives for the region include “to adapt to unavoidable climate change impacts and minimise any further impacts on a growing region” and “promoting sustainable construction and good design”.

2.6. Stepping Forward - the South West Ecological Footprint¹⁴ report gives further information about carbon dioxide emissions in the region and concludes that it would require three planets to support the world's consumption if everyone used as many of the Earth's available resources (“bio-capacity”) as the average South West resident. This finding supports the call for a ‘One Planet Economy’ – an economic system of production and consumption which respects environmental

¹² <http://www.defra.gov.uk/environment/statistics/globalatmos/galocalghg.htm>

¹³ http://www.southwest-ra.gov.uk/media/SWRA/IRS/Just_Connect.pdf

¹⁴ <http://www.stepsforward.org.uk/ef/swfootprints.htm>

limits while being financially and socially sustainable and is the rationale for the high level sustainability policies SD1-4 in the draft RSS.

3. Issues

- 3.1. Warming to the idea¹¹ and the Planning Response to Climate Change⁸ were both useful documents in terms of identifying the extent of the issue in the South West. Many topics can be viewed from a climate change perspective, whether it be in terms of contributing to reduced greenhouse gas emissions (mitigation) or needing to adapt to potential future impacts (adaptation). The cross-cutting nature of climate change challenges and opportunities meant that the issue had to be considered by draft RSS in a holistic way. This was the primary purpose of conducting the scoping and proofing exercises as detailed in section 4 below. These exercises detail the climate change implications of a wide range of topics, for example flooding, coastal erosion, water resources, health, tourism, leisure, energy and economic development. As a result, draft RSS commits the region to a range of measures around both adaptation and mitigation in order to respond fully to climate change.
- 3.2. As RSS sets the framework for future regional growth and development it was especially important to consider the implications for both transport and buildings. For example, Development Policy G on sustainable construction (section 3, page 45 of draft RSS) requires that all larger scale developments (residential and commercial/industrial) are built to meet the top level 5 of the emerging Code for Sustainable Homes, including carbon neutrality, as the additional research commissioned in 4vii below suggested that this could save an estimated 11% of regional carbon dioxide emissions. The feasibility of applying this policy is now being tested by further work²³ which also examines the requirements for integrated renewables and implications for the regional economy and skills sector. Coupled with this policy, SD2 states that the region will need to improve the resilience and reliability of existing infrastructure and that development will need to be future-proofed to adapt to climate change and will need to incorporate measures in design and construction to reduce the effects of flooding. Further work is also ongoing with regards to a Regional Flood Risk Assessment and in conjunction with transport operators to assess the extent that transport infrastructure may be affected and how it can adapt to changing conditions.

4. Process

- 4.1. In terms of the sequential process followed to produce the draft RSS climate change policies and cross-cutting approach this included :-
- 4.2. *Scoping checklist*¹⁵. Completed in March 2005, this used the headline topics identified in the Planning Response to Climate Change⁸ as a basis for internal discussion of potential issues and how these should be addressed by RSS. A draft

¹⁵ P:\Regional Assembly\RSS\Thematic Studies\Climate Change\climate change scoping checklist with EA-EN-Met office comments_June05_.doc

document was circulated to stakeholders such as SWCCIP, Environment Agency, the Met office and Network Rail for additional input and comments.

- 4.3. *Review of climate change policies in other regions' RSSs*¹⁶. As part of an exercise to review positive planning policies from other English regions¹⁷ which help to deliver different aspects of sustainable development an assessment was completed of the coverage of climate change by other Regional Spatial Strategies. This resulted in a paper summarising the approach taken elsewhere in order to identify any existing good practice.
- 4.4. *Establishing a sub group of SWCCIP*¹⁸ to advise on policy drafting. The SWCCIP invited its members to form a small sub group with the aim of agreeing an approach to climate change in RSS. Via a series of meetings and subsequent emails two initial draft policies and supporting text were agreed in June 2005.¹⁹
- 4.5. *Reporting of draft policies to all SWCCIP Forum members*. Initial draft policies and the supporting text were reported to the SWCCIP Forum meeting of 7th September 2005. SWCCIP members were kept informed as changes to the policies were suggested and were invited to comment on subsequent iterations.
- 4.6. *Amendment of policies in light of SSA recommendations*. Our independent SSA consultants highlighted that climate change was perhaps the most pressing challenge facing the region and as such made a number of recommendations, which were actioned throughout the drafting process, particularly in order to reduce regional greenhouse gas emissions.
- 4.7. *Climate proofing of draft RSS*²⁰, resulting in a schedule of changes²¹. A climate change proofing exercise was undertaken in August 2005 and updated in February 2006, which resulted in recommendations for additional changes to policy wording. Resulting amendments and those resulted from the step above are documented in a short report, which was considered and approved by the Assembly's Regional Spatial Planning and Transport Group (RSPTG) on 22nd February 2006.
- 4.8. *Commissioning of additional research*²². This was done in order to provide supporting evidence for the approach to reduce regional greenhouse gas emissions and to consider the impacts of different potential policy choices in the draft RSS. The resulting report was completed in March 2006 - 'Carbon emissions from the South West, and implications for the Regional Spatial Strategy' (Levett-Therivel Sustainability Consultants) although RSPTG were informed of initial findings in February 2006. This made a number of

¹⁶ P:\Regional Assembly\RSS\Thematic Studies\Climate Change\Climate change_OTHER REGIONS POLICIES.doc

¹⁷ P:\Regional Assembly\RSS\DRAFT RSS Versions\RSS STRUCTURE AND DRAFT POLICIES\POSITIVE PLANNING POLICIES_summary paper.doc

¹⁸ P:\Regional Assembly\Sustainable Development\Climate Change\RSS Work\Developing the case for Climate change policies in the RSS.doc

¹⁹ P:\Regional Assembly\RSS\Thematic Studies\Climate Change\Draft policies\SW proposed RSS Climate change section 090605.doc

²⁰ P:\Regional Assembly\Sustainable Development\Climate Change\RSS Work\Climate change proofing of RSS_Feb06.doc

²¹ P:\Regional Assembly\RSS\Thematic Studies\Climate Change\Climate change proofing the RSS_amendments Feb06.doc

²² P:\Regional Assembly\RSS\Thematic Studies\Climate Change\Additional research\final report from RL 150306.doc

recommendations across the RSS and led to further strengthening of policies from a climate change perspective.

5. Coverage in the RSS

- 5.1. Climate change is approached by the draft RSS as a common thread which runs throughout many policies in the document. This cross cutting approach resulted from the programme of work detailed in section 4 above and was given further support by the recommendations of the independent SSA consultancy team. In addition to the cross cutting approach SD2 acts as the standalone headline or high level policy on climate change which covers both reducing the region's greenhouse gas emissions (mitigation) and adapting to the potential impacts (adaptation).
- 5.2. The additional research referred to at vii above identified a wide range of policies with implications for carbon dioxide emissions, ranging from core spatial policy to transport policies and policies on sustainable construction. As a result of the recommendations of this piece of work many relevant policies in the draft RSS were further tightened with the aim of ensuring that the South West plays its part in helping to contribute towards national CO₂ reduction targets.
- 5.3. The submission draft RSS has been acknowledged as 'pushing at the boundaries' with regards to what it can do to help reduce regional CO₂ emissions and ongoing research into carbon neutrality (Faber Maunsell and Peter Capener)²³ refers to the sustainable construction policy in particular as 'leading the way' nationally by taking an innovative approach.
- 5.4. The draft RSS does, however, recognise that there are still some remaining tensions, which are difficult to resolve in the light of either existing national policy, for example around aviation and airport expansion or external trends, such as increases in traffic volume. These existing tensions were summarised in a letter²⁴ to Ruth Kelly which accompanied the submission draft RSS. In this letter the Assembly (SWRA) requested that the Government consider whether the national strategy of providing for increased air travel is sustainable in the long term and whether the resourcing of public transport in the South West is adequate. SWRA also called for the Government to set a much higher national mandatory standard than 2006 part L for energy performance in new housing and for this to be extended to all other building types and major renovation in order to achieve the highest practicable energy standards and at least 50% improvement in energy efficiency.

6. Evidence base

- Anderson, K., Shackley, S., Mander, S and Bows, A. (2005). *Decarbonising the UK: Energy for a climate conscious future*. The Tyndall Centre for Climate Change Research. Technical Report Number 33

²³ Supporting and Delivering Carbon Neutrality in the South West : Overview of the Context for a Planning Policy on Carbon Neutrality in the South West (draft report Dec 2006) Faber Maunsell and Peter Capener

²⁴ <http://www.southwest-ra.gov.uk/media/SWRA/RSS%20Documents/Final%20Draft/Submissionletter.pdf>

- Boardman, B, Darby S, Killip,G, Hinnells, M, Jardine, C, Palmer, J and Sinden G (2005) *40% House*, Oxford: Environmental Change Unit
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- **04.11** Centre For Sustainable Energy, Peter Capener, Wardell Armstrong International (2005) *Revision 2020:South West Renewable Electricity, Heat And On Site Generation Targets For 2020*
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- DTI (2006). *Our energy challenge: securing clean, affordable energy for the long term*.
- DTLR (2001) Planning Policy Guidance Note 25: *Development and Flood Risk*
- **04.10** Environment Agency (SW Region 2006) *Future Flood Risk : Supporting Notes*
- **04.04** Environment Agency (2006) *Housing Growth and Water Supply in the South West of England 2005 to 2030 :Supplementary Report 1*
- HM Government (2006) : *Climate Change- The UK Programme 2006*
- HM Treasury 2006 : *Stern Review on the economics of climate change*
- **00.05** Levett-Therivel Sustainability Consultants (for the South West Regional Assembly 2006) *Carbon emissions from the South West and implications for the Regional Spatial Strategy*
- ODPM (2005) Planning Policy Statement 1: *Delivering Sustainable Development*
- ODPM (2004) Planning Policy Statement 22 (PPS22): *Renewable Energy*
- ODPM (2004) : *The Planning Response to Climate Change – Advice on Better Practice*
- South East Regional Assembly (2006) : *Climate Change Mitigation and Adaptation Implementation Plan* (Collingwood Environmental Planning and Land Use Consultants)
- **08.05** South West Climate Change Impacts Partnership (2003) : *Warming to the idea – meeting the challenge of Climate Change in the South West*.
- Three Regions Climate Change Group (2005) :*Adapting to climate change: a checklist for development*
- UKCIP (2006) : *Updates to regional net sea-level change estimates for Great Britain*

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