

Theme 3: Climate Change

A Sustainable Future
for the South West



The Regional Sustainable Development Framework
for the South West of England



Theme 3: Climate Change

Headline Indicator:

Regional Renewable Energy target (greenhouse gas emissions - when available).

Setting the Scene

Climate change represents a fundamental threat to our quality of life. Whilst our planet's climate has been constantly changing since its beginning, human activity now threatens to force climate change faster than our ability to adapt.

The greenhouse effect is a natural process that keeps the earth's atmosphere at a temperature that supports life. However the concentration of greenhouse gases that create this effect has been rising since the beginning of the industrial revolution. The most important of these gases is carbon dioxide, with 80% of the increased carbon in the atmosphere due to burning fossil fuels. Scientists predict that global temperatures will increase in response to the continuing use of fossil fuels and the destruction of forests and degradation of wetlands and soils.

The UK Government is committed to a 12.5% reduction in the emissions of a basket of 6 greenhouse gasses and a 20% reduction of carbon dioxide emissions by 2010 from 1990 levels and generating 10% of electricity from renewable sources by 2010. The Royal Commission on Environmental Pollution has called for a reduction of 60% in carbon dioxide emissions by 2050.

In the South West, a major regional study on Climate Change projected the following scenario for 2050:

- hot dry summers as experienced in 1995 will be the norm
- growing season up to 20 days longer
- frost an extreme rarity
- winter snowfall very unusual
- wetter, more stormy winters; and drier summers, with drought stress on soils and water resources
- more intense peaks of winter rain, leading to soil erosion, pollution and inland flooding
- higher storm surges on the coast, leading to coastal erosion and flooding
- sea level rise of up to 0.8 metre, affecting sea defences, harbours, railways and roads, maritime heritage and biodiversity.

"The Climatic Challenge for the South West" 1999

There is a lot of uncertainty in predicting the future impact of climate change. The recent flooding events in the region and across the country are one indication that we are already experiencing changes to our climate. Even if targets for reducing greenhouse gases are met, the impact of past emissions will still have significant implications for how we plan our development and land use, manage our natural resources such as water, and enable wildlife and natural habitats to adapt.

What are the opportunities for improving sustainability?

Setting targets based on understanding

The basis for addressing climate change and promoting sustainable development has to be a good understanding and a sound information base.

We need to understand how in the South West we can:

- prevent the causes of climate change i.e. reducing emissions of greenhouse gases and ozone depleting substances
- adapt to the impact of unpreventable climate change, such as sea level rise, mean temperature and rainfall changes and extreme weather events.

This understanding has to be underpinned by an ability to assess the impacts of climate change now and in the future on specific activities in the South West, for example horticulture, tourism, water supplies, biodiversity.

The Government Office of the South West is carrying out an assessment of the potential for renewable energy in the south west. This study has identified the potential to procure between 11 - 15% of the Region's electricity from renewable energy sources by 2010. The Government Office is currently considering targets for the Region from within this range.

From this understanding, there is a need to develop targets that are challenging but achievable and owned by an accountable body, for example local authorities, empowered to implement and review progress.

Preventing the causes of climate change

The South West must play its part in improving energy efficiency and reducing energy demand, deploying renewable energy, improving the efficiency of energy production and reducing car journeys. The region must meet its need for energy services (heat, light, power) whilst reducing significantly its demand for energy: in particular, it must reduce its use of fossil fuels. Energy services must be affordable so people are not left in fuel poverty (see Theme 1: Health and Well-being).

SWEB is carrying out a study into the incidence of fuel poverty in the South West. The study will create a baseline from which progress in addressing fuel poverty within the region could be monitored.

Incentives should encourage people within the South West to consider how they can reduce their energy demand. With reduced energy demand, energy can be more easily generated within the region from renewable sources near to consumers. The benefits of combined heat and power should be actively promoted, encouraged and adopted reducing the need for large scale electricity generation plant.

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Renewable energy needs to be developed massively, with a mix of small scale community developments and larger scale developments in suitable sites. (See Theme 4: Development and Planning).

The land use planning system and all sectors of land use will have to find ways of managing land and infrastructure to reduce global warming and ozone depleting emissions, and to reduce exposure to impacts of climate change. For example, farming can reduce methane emissions from livestock housing and slurries, and can protect soil carbon resources; forestry can provide renewable materials to reduce need for energy-intensive concrete, steel and plastic products and act as a medium to long term carbon store; the construction industry can substitute renewable materials for ozone depleting substances in insulation products and PVC materials.

New development should demonstrate good practice in sustainability. Planning authorities must create a positive environment through the use of supplementary planning guidance and information for developers, that promotes Combined Heat and Power, energy efficiency, low energy design and renewable energy.

Debate needs to highlight and address the potential conflicts between addressing climate change and the particular landscape issues inherent within the South West. (See Theme 12: Culture & Heritage). The development of sustainability appraisal criteria for renewable technologies is urgently required. Technological advances should reduce the capital costs of technologies such as solar photovoltaics and solar thermal, wave/tidal current as well as offshore wind. The development of alternative fuels and engine technologies should reduce our dependence on the petrol/diesel engine and thus minimise greenhouse gas emissions (see Theme 9: Transport).

Forest of Dean District Council has adopted a residential design guide which promotes the principles of sustainable development and local distinctiveness. The guide includes a requirement for housing developers of 6 or more houses to balance transport and building carbon dioxide emissions by obliging new housing on isolated sites to adopt very stringent energy efficiency principles. Once the aims of the guide are reflected within the local plan, it will have significant influence on the development process.

The South West has the potential to develop its profile as a centre of excellence in sustainable development business, creating jobs and economic development in industries such as renewable energy, energy efficiency, sustainable construction, mass transport systems among others. This will require investment and planning. (See Theme 11: Business & Work).

Adapting to unpreventable climate change
The likelihood of wetter, stormier winters with more intense peaks of winter rain, and sea level rise, mean that the risk of flooding will increase. Local authorities need to undertake flood risk assessments to help ensure that development does not take place in areas of risk such as floodplains, coastal zones, soil slippage areas or ground subsidence areas. (See Theme 4: Development & Planning).

In the context of sea level rise and coastal changes arising from climate change, integration of all sectors with an interest in the coast will be essential - coastal zone management will be a crucial planning tool. (See Theme 15: Coast and the Maritime Environment). As sea-level rise occurs, coastal habitats could be lost as they are 'squeezed' between the sea and the land defences. Options for managed retreat are being considered, which provide opportunities for habitat creation.

The threat to wildlife from climate change is very real, as changes will occur too rapidly for some species to adapt. Changes in river flows and wetland levels as a result of climate change may have an impact on the plants and animals that rely on the water environment. Changes to agriculture will affect farmland species and habitats. Some species will be better suited to the new conditions, others may find it harder to thrive. Mitigation measures, such as the provision of habitat corridors to ease species migration and the translocation of particularly vulnerable species need to be considered (See Theme 7: Biodiversity).

Climate change will have an effect on agriculture. For the livestock sector, increased winter rainfall will require greater capacity for storage of dirty water and slurries than now. The number of days when muck can be spread to fields is likely to be fewer, both in winter (due to waterlogged ground) and in drier seasons (due to cracked soils). Outdoor stock will be curtailed, as feeding and physical compaction and poaching cause soil erosion and watercourse pollution. Arable units will be affected by changing soil moisture conditions, with increased winter erosion potential from cultivated ground, new seedbeds and maize, and increased summer soil erosion and oxidation of soil organic matter (See Theme 13: Food and Farming).

The Landcare Partnership of environmental, farming and fishing groups is helping raise awareness among farmers along the River Avon about soil erosion and the damage it can cause. An information pack highlights how control of soil erosion can save money, protect the soil and reduce clean-up costs.



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What are the objectives for improving sustainability in the South West?

Objective	Examples of how it might be achieved	Links to potential partners and processes
Promote efficient use of affordable energy whilst reducing energy demand	<ol style="list-style-type: none"> 1 Set appropriate locally owned and monitored targets for energy demand and fuel poverty for the region 2 Promote higher standards of energy efficiency in new housing and renovation and appliances 3 Provide high quality information and advice on energy efficiency improvements within the domestic, commercial and industrial sectors 4 Co-ordinate the delivery of energy efficiency programmes within the South West differentiating different target audiences 5 Encourage broad community involvement in delivery of energy efficiency improvements 	GOSW; RDA; Regional Assembly; SSW; CBI; businesses; local authorities; energy suppliers; Private and social landlords; construction industry; appliance manufactures and retailers, DIY stores Energy Efficiency Advice Centre network; Centre for Sustainable Energy; community organisations/groups; non governmental organisations; government agencies e.g. Energy Saving Trust, Carbon Trust; regional groups e.g. the Western Partnership for Sustainable Development; the Energy Efficiency Partnership for Homes; Energy Action Grants Agency; insulation and heating contractors; schools, colleges & universities; media Regional Planning Guidance; structure/local plans; Home Energy Conservation Act, affordable warmth & Local Agenda 21 strategies; best value/community planning, Social Action Plan; Energy Efficiency Commitment, Home Energy Efficiency Scheme, Climate Change Levy; building regulations.
Increase role of renewable energy and Combined Heat and Power (CHP) whilst reducing the adverse environmental impacts of all forms of energy production	<ol style="list-style-type: none"> 1 Set appropriate locally owned and monitored quantifiable targets for renewable energy and CHP for the region 2 Encourage locally based sustainability appraisals for renewable energy and CHP in order to identify favourable sites 3 Set planning policy to encourage the development of renewable energy and CHP in favourable sites 4 Create constructive partnerships between financiers, developers, suppliers, land owners, consumers, local community and environmental interests in order to support implementation of renewable energy and CHP developments 5 Collate information on emissions from combustion plant in the area in order to monitor trends and assess performance in line with the European directive on Large Combustion Plant 	GOSW; RDA; Regional Assembly; SSW; CBI; businesses; local authorities; large energy users; construction industry; land owners; renewable energy/CHP associations, developers, consultants and manufacturers; energy suppliers; Western Power Distribution; conservation groups; community organisations/groups; non governmental organisations; government agencies e.g. Environment Agency, Carbon Trust; schools, colleges & universities; media Regional Planning Guidance; structure/local plans; Local Agenda 21 strategies; supplier obligation, New Electricity Trading Arrangements, Climate Change Levy
Reduce risk to society and the environment from climate change and sea level rise	<ol style="list-style-type: none"> 1 Set land use planning policies in RPG and Unitary/District Plans to avoid new developments in flood and coastal erosion risk areas; and encourage migration of housing and industries away from risk areas. 2 Managed retreat, habitat corridors, translocation 3 Advice to farmers on soil erosion control, promotion of alternative farming systems such as Integrated Crop Management and Integrated Farming Systems 	Local authorities, developers, business, landowners, insurance sector. Conservation groups eg English Nature, RSPB, National Trust, Wildlife Trusts; National Parks; Heritage Coast/AONB Committees; MAFF; FWAG; NFU; Environment Agency. Development control, Section106 Agreements, compensation arrangements, management agreements. Links to AONB Plans, Shoreline Management Plans, LEAPs, land acquisition programmes of the conservation organisations, river restoration projects. HLF funding schemes.



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