Topic Paper 1

SALISBURY DISTRICT LDF
Creating Sustainable Communities

Climate change





June 2007

SALISBURY
District Council

Sustainable Design and Construction

INTRODUCTION

Climate change is the most urgent and potentially catastrophic challenge of our time. Doing nothing is not an option. We must act now to prevent the worst. This means effecting a real change in the way we plan our communities. The planning system has a crucial role to play to prevent further damage through setting out ambitious but realistic targets for on-site renewable energy production and requiring development proposals to incorporate sustainable design and construction measures including reduced and other energy consumption reduction measures.

This background paper provides the focus and justification for Salisbury District Council's commitment to sustainable design and construction in the development of the Local Development Framework (LDF). The paper sets out relevant facts and figures concerning the targets for renewable energy generation for Salisbury district and the Wiltshire, current performance against and the characteristics of Salisbury district in terms of sustainable design and construction. This paper aims to demonstrate how this preliminary evidence has been used to (i) identify preliminary issues and options requiring consideration in the Core Strategy and, (ii) the formulation of proposals and policies as part of the Council's Core Strategy preferred options.

NATIONAL, REGIONAL AND LOCAL CONTEXT

Planning policies for the district need to be framed in the context of national, regional and strategic policies. These will include national policies on matters such as sustainable development and the various Planning Policy Guidance Notes (PPG's) and Statements (PPS's) issued by the Government. The government has also issued regional guidance in the form of Regional Planning Guidance for the South West (RPG10) published in September 2001. The Wiltshire and Swindon Structure Plan 2006-2016 currently provides a high-level development framework for the county of Wiltshire. The new Southwest Regional Spatial Strategy (SWRSS) which is currently undergoing an 'Examination in Public' following a period of consultation will eventually replace the RPG10 and the Structure Plan as the strategic planning framework. The draft version of the plan is therefore an important consideration in the preparation of the Council's Core Strategy Document.

National Planning Policy, Guidance and Advice

- *PPS 1: Delivering Sustainable Development*
- *PPS 3: Housing*
- *PPS 22: Renewable Energy*
- *Companion guide to PPS22: Planning for Renewable Energy*
- *PPS 23: Planning and Pollution Control*
- *The Planning Response to Climate Change: Advice on Better Practice*
- *Planning Policy Statement: Planning and Climate Change (consultation draft)*
- *Building a Greener Future: Towards Zero Carbon Development*
- *Code for Sustainable Homes*

PPS 1: Delivering Sustainable Development

Planning Policy Statement 1: Delivering Sustainable Development places sustainable development as the core principle underpinning planning. The guidance requires planning authorities to ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change through policies which reduce energy use, reduce emissions, promote the development of renewable energy resources and take climate change impacts into account in the location and design of development.[1]

Reference to the prudent use of natural resources involves using them wisely and efficiently in a way that respects the needs of future generations. Development plan policies should seek to minimise the need to consume new resources over the lifetime of the development by making more efficient use or reuse of existing resources and should seek to promote and encourage (rather than restrict) the use of the use of renewable resources (such as the development of energy).

PPS 3: Housing

This planning policy statement advises local authorities to encourage applicants to bring forward sustainable and environmentally friendly new housing developments which reflect the approach set out in a forthcoming planning policy statement on climate change and the Code for Sustainable Homes[2]. More specifically, it states that the extent to which a development facilitates the efficient use of resources, during construction and in use, and seeks to adapt to and reduce the impact of, and on, climate change is an important indicator of design quality.

PPS 22: Renewable Energy

PPS 22 promotes the increased development of renewable energy sources. It requires that LDD's (Local Development Documents) contain policies designed to promote and encourage, rather than restrict, the development of renewable energy sources. Local Planning Authorities (LPA's) should recognise the full range of renewable energy sources, their differing characteristics, locational requirements and potential for exploiting them subject to appropriate environmental safeguards.[3]

It states that LPA's should set out the criteria that will be applied in assessing applications for planning permission of renewable energy projects. Policies that rule out or place constraints of all or specific types of renewable energy technologies should be not be included without sufficient reasoned justification.

Policies should provide guidance in relation to both standalone renewable energy schemes and the integration of renewable energy into new development. It is recommended that an overarching policy in the Core Strategy clarifies the importance of these policy areas to the addressing of sustainability objectives established by the LPA.

[1] 1 PPS 1 Para 13 (ii)
[2] The Code is an environmental assessment method for new homes based upon BRE's 'Ecohomes' and contains mandatory performance levels in 6 key areas.
[3] PPS 22 Para 1 (ii)

PPS 22 (Paragraph 8)

'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. Such policies:

(i) ***should ensure that requirement to generate on-site renewable energy is only applied to developments where the installation of renewable energy generation equipment is viable given the type of development proposed, its location, and design;***

(ii) ***should not be framed in such a way as to place an undue burden on developers, for example, by specifying that all energy to be used in a development should come from on-site renewable generation.'***

Policies relating to on-site generation should encourage developers to consider a range of renewable energy technologies on their sites and should be flexible as not all technologies are appropriate on all sites and location constraints should be borne in mind. Policies should not place undue burdens on developers and LPA's should be mindful of the level of development pressure in their area in setting generation targets.

Companion guide to PPS 22: Planning for Renewable Energy

This guidance suggests that LPA's may wish to prepare policies relating to both standalone renewables schemes and to the integration of renewable energy within the built environment, where applicable, and to back up these policies with supplementary planning documents on a range of related issues.

PPS 23: Planning and Pollution Control

Annex 1 of PPS 23 provides comment on the issue of climate change. It refers to the UK's Climate Change Programme and the fact that under the Kyoto Protocol, the UK has an international, legally binding target to reduce its greenhouse gas emissions by 12.5% below base year levels (1990 for carbon dioxide, methane and nitrous oxide and 1995 for the fluorine gases). The statement advises that promoters of major developments can be asked by the LPA for an energy statement and data on expected CO2 emissions generated by the new emissions. Additionally it advises that LPA's should take account of climate change considerations in their development plans both in terms of mitigating the local contributions to climate change and adapting to the effects of climate change.

The Planning Response to Climate Change: Advice on Better Practice[4]

This publication 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 Regional Spatial Strategy for the South West (SWRSS) of dealing with both mitigation and adaptation.

[4] (ODPM, 2004)

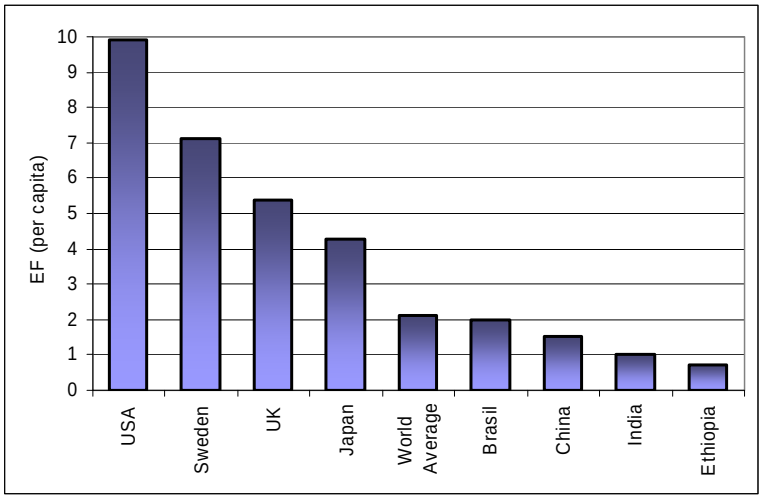


Figure 1: Ecological Footprint of Selected Countries (2001)[5]

Planning Policy Statement: Planning and Climate Change (consultation draft)
This draft PPS was published in December 2006 to be read as a supplement to PPS 1 (Delivering Sustainable Development). In short, it goes further than PPS 22, and requires that local planning authorities, in the absence of more detailed evidence, should set minimum targets of 10% of total emissions to be saved from on-site renewables.

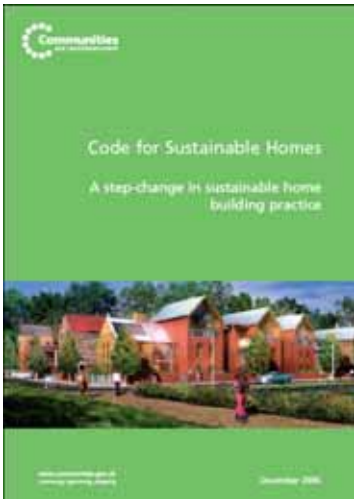
Building a Greener Future: Towards Zero Carbon Development[6]
This document outlines the government's proposal to make assessment under the Code for Sustainable Homes mandatory in the future, and that the energy standards of the Code become mandatory. It also sets out the following timetable for achieving zero carbon development by 2016.

Date	2010	2013	2016
Energy/carbon improvement as compared to Part L (Building Regulations 2006)	25%	44%	Zero Carbon[7]
Equivalent energy/carbon standard in the Code	**Code Level 3**	**Code Level 4**	**Code Level 6**

Costs of reaching the standards up to Level 4 are expected to be reasonable, while strong evidence suggests that meeting Code levels 5 and 6 will be costly until low and zero carbon technologies become more widespread.

[5] From the *Living Planet* Report (WWF, 2004) (http://www.wwf.org.uk/filelibrary/pdf/lpr2004.pdf)
[6] A consultation document published by the DCLG on 13 December 2006.
[7] Includes both regulated and unregulated emissions, refer to glossary at the end of this paper.

Code for Sustainable Homes



The Code is the national standard for the sustainable design and construction of new homes. It is a voluntary star rating system that shows the sustainability of a new home as a complete package. It is closely linked to Building Regulations, which are the minimum building standards required by law. Minimum standards for Code compliance have been set above current Building Regulations requirements. The Code is a flexible framework that enables developers to demonstrate the sustainability of new homes. For consumers the Code is a mark of quality, giving them information they can trust. The Code sets minimum standards for energy and water use at each level and, within England, replaces the EcoHomes scheme, developed by the Building Research Establishment (BRE).

The launch of the Code coincided with the overarching consultation: *Building A Greener Future* on the shift to zero carbon; and the consultation on the draft of a new Planning Policy Statement: *Planning and Climate Change*.

Code for Sustainable Homes – Minimum Standards					
	Energy		Water		
Code Level	**Standard (percentage better than Part L[1] 2006)**	**Points Awarded**	**Standard (litres per person per day)**	**Points awarded**	**Other points[4] required**
1 (★)	10	1.2	120	1.5	33.3
2 (★★)	18	3.5	120	1.5	43.0
3 (★★★)	25	5.8	105	4.5	46.7
4 (★★★★)	44	9.4	105	4.5	54.1
5 (★★★★★)	100[2]	16.4	80	7.5	60.1
6 (★★★★★★)	A zero carbon home[3]	17.6	80	7.5	64.9

Notes

1. Building Regulations: Approved Document L (2006) – 'Conservation of Fuel and Power.'
2. Zero emissions in relation to Building Regulations issues (i.e. zero emissions from heating, hot water, ventilation and lighting)
3. A completely zero carbon home (i.e. zero net emissions of carbon dioxide (CO2) from **all** energy use in the home).
4. All points in the Code are rounded to one decimal place.

Regional Planning Policy, Guidance and Advice

- *RPG 10: Regional Planning Guidance for the South West*
- *The Regional Spatial Strategy for the South West (SWRSS)*
- *The South West Renewable Energy Strategy*
- *REvision 2010*
- *REvision 2020*
- *Supporting And Delivering Zero Carbon Development in the South West*

RPG 10: Regional Planning Guidance for the South West
Section 9 of RPG 10 is entitled 'Infrastructure and Natural Resources' and includes a policy on energy generation and use. Policy RE6 calls on local authorities to help the region meet national targets of a 12.5% reduction in greenhouse gas emissions below 1990 levels by 2008-2012, a 20% reduction (from 1990 levels) in carbon dioxide emissions by 2010 and a minimum of 11-15% of electricity production (597MW) to be from renewable energy sources by 2010. This policy is also supported by others relating to the prudent use of water resources, waste minimisation and flooding. Local authorities are also advised to encourage and promote the greater use of renewable energy sources in tandem with energy conservation measures but cautions that renewable energy schemes should be compatible with other environmental objectives for the region.

The Regional Spatial Strategy for the South West (SWRSS)
The South West RSS was prepared by the South West Regional Assembly and draws on national policy to provide a broad development strategy for the region up to the year 2026. Together with local development frameworks (LDFs) they will constitute the statutory Development Plan.

Development Policy G: Sustainable Construction
States that local authorities must ensure that their policies and strategies achieve best practice in sustainable construction by:

- Following the principles contained within *'Future Foundations'* (the South West's sustainable construction charter)
- Requiring all new and refurbished buildings to meet at least level 3 of the Code for Sustainable Homes
- Requiring that all larger scale developments are designed and constructed to meet at least the top Level 5 of the Code for Sustainable Homes.
- Requiring the use of sustainability statements for larger residential or mixed-use developments
- Minimising the environmental impact of new and refurbished buildings
- Requiring the use of sustainable drainage systems to minimise flood risk associated with new developments
- Designing homes which are safe and adaptable, for example by following Lifetime Homes standards, Secure by Design principles and including live/work space.
- Taking action to improve the energy efficiency of existing buildings, and ensuring that all refurbished buildings achieve the best current standards of energy efficiency

Policy SD1: The Ecological Footprint
The following specific elements of the above policy are particularly relevant to sustainable design and construction:

- Building a sustainable, low carbon and low resource consuming economy
- Requiring sustainable construction and design as the norm in all future development and when opportunities arise, improving the region's existing building stock in line with current best practice
- Meeting national and regional targets relating to renewable energy, resource consumption/extraction and waste production/recycling

Policy SD2: Climate Change
Insists that all local authority development plan documents must demonstrate how they intend to contribute towards the required 60% cut in CO2 emissions by 2050 and how they intend to identify and respond to the potential impacts of climate change in their area. Local authorities will also need to work toward helping the South West to reduce greenhouse gas emissions by at least 30% by 2026 (compared to 1990 levels) in line with current national targets.

Policy RE5: Renewable Energy and New Development (10% Policy)
Requires 'larger-scale developments' to provide sufficient on-site renewable energy to reduce CO2 emissions from energy use by users of the buildings constructed on site by at least 10%. The policy also permits local planning authorities to adopt lower thresholds for what constitutes a 'larger-scale development' and set higher percentages for on-site generation, taking into account the impact on initial and lifetime affordability of homes. The justification for the policy is set out in detail in the *REvision2020* report. However, that work was undertaken prior to the acceptance that wider carbon and energy reduction requirements could be included in Regional Spatial Strategies.

The South West Renewable Energy Strategy
This strategy has set the target of 545 MW, equivalent to 11-15% of electricity production, from renewable energy sources by 2010. This is also included in Regional Planning Guidance for the South West (RPG10). Development of this regional strategy began with a regional renewable energy resource study, carried out on behalf of Government Office South West. The regional Renewable Energy Strategy was then developed by a broad-based regional partnership, including representatives of the public, private and voluntary sectors. RegenSW has been established as a regional renewable energy agency to co-ordinate delivery of the strategy.

REvision 2010
This project worked with authorities and partners within sub-regions of the South West. Its purpose was to facilitate the identification and then adoption of sub-regional renewable electricity targets for 2010 that were in line with the needs of the sub-region and the South West as a whole. These sub-regional targets were incorporated into county structure plans or renewable energy strategies in each sub-region. The targets are:

- Former Avon - 35-52 MW (Megawatts)
- Cornwall - 93-108 MW
- Devon - 151 MW
- Dorset - 64-84 MW
- Gloucestershire - 40-50 MW
- Somerset - 61-81 MW
- **Wiltshire - 65-85 MW**

It developed scenarios that indicate that wind is likely to deliver about half of the region's target. It was informed by a stakeholder survey questionnaire. Responses to two of the survey's questions have particular significance for Salisbury district's approach to renewable energy in the forthcoming Local Development Framework;

*Q11. Do you think district-level targets would be **appropriate**? [Yes/No]*

67% of respondents with a particular interest in Wiltshire (6 out of 9 people) considered that district-level renewable energy targets would be appropriate. This compares with 58% of the survey's total respondents (68 out of 115 people) who also supported the idea of district-level targets.

Q12. Do you think district-level targets would be **achievable**? [Yes/No]

Again, 67% of respondents with a particular interest in Wiltshire (6 out of 9 people) considered that district-level renewable energy targets would be achievable. This view was shared by just over half of the survey's total respondents (60 out of 115 people).

REvision2020

This project was funded by the Government Office for the South West (GOSW) in partnership with the South West Regional Assembly (SWRA). It takes forward the REvision 2010 target-setting report for renewable electricity published in 2004. REvision 2020 extends the existing body of work by looking to establish targets for renewable electricity to 2020 and adding targets for renewable heat for 2010 and 2020 and a target for on-site generation within new development. The outcomes of REvision 2020 will be considered for incorporation within the Regional Spatial Strategy (RSS). The project therefore also proposes a range of planning policies to support the implementation of these targets.

Supporting And Delivering Zero Carbon Development in the South West[8]

At the time of writing, the South West Regional Assembly is pushing for a policy to cut carbon emissions from new homes faster than government targets. A study by Faber Maunsell and independent consultant Peter Capener concluded that developments of 10 or more homes could be 44% more energy efficient than current building regulations requirements (the equivalent of level 4 of the Code for Sustainable Homes) by 2008.

They believe a 100% reduction in regulated emissions is achievable on large developments by 2011. This compares to the government's proposal that developers should aim for a 44% energy efficient improvement by 2013 and for homes to be carbon neutral by 2016.

The proposals could deliver 8% of the regional target to for a 30% reduction in emissions by 2020. The region could also save £20 million to £30 million a year in energy bills if the proposals are implemented.

The policy is very much supported by members of the assembly, who want the region to be seen as the national leader in dealing with climate change. The amended policy is under review at the regional spatial strategy examination-in-public (EiP), which began in April.

The study's headline findings are as follows:

[8] Final Policy Report prepared for: South West Regional Assembly, South West Regional Development Agency (SWERDA) and Government Office for the South West (GOSW), Faber Maunsell and Peter Capener, January 2007

- Zero carbon development is technically feasible now, but not for all scales or sectors of development (specifically 'zero carbon' development [level 6 of the *Code for Sustainable Homes*] is not yet viable for small scale developments of less than 50 dwellings).
- The bulk of the carbon savings are within the residential sector and are delivered by micro renewable technologies.
- Delivering zero carbon development within the residential sector will require an increase in build costs that ranges from 7 to 17% now to 6 to 7% in 2020 depending on the technology options and scale of development.

Date	**Scale of Development**	**Code for Sustainable Homes Level**	**Of Which, Minimum Requirements for On-Site CO_2 Reduction Required Beyond Part L BR 2006**
2008-2010	Residential, 10 or more dwellings	Level 4	44% regulated emissions (44% of 2006 TER)
2011-2015	Residential, 10 or more dwellings	Level 5	100% regulated emissions (100% of 2006 TER)
2016 on	Residential: 10 to 2016 50 dwellings	Level 5	100% regulated emissions (100% of 2006 TER)
	Residential: > 50 dwellings	Level 6	100% total emissions

Figure 2: RSS - Development Policy G: Achievable minimum standards for residential development[9]

A draft report by Levett-Therivel and Land Use Consultants[10] questioned whether policies which require a certain Ecohomes standard to be achieved and/or a particular level of the Code for Sustainable Homes would guarantee any carbon reductions, since it claimed it is possible for housing to qualify for intermediate levels in both Eco-homes and the Code (ODPM 2005) by piling up 'points' for a range of qualities many of which have nothing to do with climate change. However, following persistent lobbying the final version of the Code published on 13th December 2006 does include mandatory minimum standards for energy conservation/reduced CO_2 emissions at all levels.

Strategic (County-level) Planning Policy, Guidance and Advice

The Wiltshire and Swindon Structure Plan 2006-2016

This strategic plan was adopted in 2006 and forms part of the development plan for Wiltshire for a period of three years or until it is replaced by the new Regional Spatial Strategy for the South West. Policy RE1 states that renewable energy schemes will be supported in appropriate locations. It advises that when assessing proposals, regard should be paid to their impact on the environment and to the potentially cumulative effects of similar development in the locality.

[9] Faber Maunsell/Capener, Jan. 2007

[10] Carbon emissions from the South West, and implications for the Regional Spatial Strategy, March 2006

The Wiltshire (and Swindon) Renewable Energy Action Plan[11]

This plan, published in Autumn 2005, was informed by the *South West Renewable Energy Strategy* mentioned above and is endorsed by Salisbury District Council. It explains in Chapter 9 (Renewable Energy) that the target range of 65-85MW of renewable electricity generation by 2010 for Wiltshire was proposed by the REvision 2010 project following the development of the South West Renewable Energy Strategy. The Action Plan promotes the development of renewable energy projects within the county and outlines the actions required to achieve the target. It says that there is a need to develop successful, high profile local exemplar projects to demonstrate the viability of renewable energy technologies at a local level.

Specifically, the Action Plan;

- endorses a two-pronged approach involving the promotion of renewable energy together with higher standards of energy efficiency generally.
- endorses the delivery of the renewable energy target for Wiltshire and Swindon of 65-85MW of electricity by 2010
- identifies potential for delivering exemplar renewable energy projects at schools (existing and new), incorporating renewable energy technologies in new housing developments, community-led renewable energy schemes
- identifies Wind energy, energy crops and forest residue, energy from waste and landfill gas as the sources with the most potential within the county.

Local (District-level) Planning Policy, Guidance and Advice

Salisbury District Local Plan 2003

Addressing the issue of climate change within mainstream planning policy is a new and fast growing area of policy development. The current local plan does contain a policy on renewable energy but because it pre-dates the publication of PPS 22 it does not set specific targets for either carbon emissions or on-site renewable energy generation to offset the predicted energy requirements from new developments. Rather its concern is limited to proposals for specific renewable energy projects.

Salisbury District Local Plan - PS8, Renewable Energy

'Proposals for renewable energy projects will be permitted provided that;

(i) within the New Forest, the Stonehenge World Heritage Site, the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty, Sites of Special Scientific Interest and other designated areas of nature conservation or archaeological importance, such development will only be permitted where there will be no unacceptable adverse impact on these designated areas;

(ii) the development will not result in an unacceptable intrusion on the landscape; and

(iii) there is no unacceptable adverse effect on the amenities of local residents from noise, electrical disturbance or other environmental effects arising from the development.'

[11] The Action Plan was co-ordinated by Wiltshire Wildlife Trust and Severn Wye Energy Agency in partnership with the Wiltshire and Swindon Renewable Energy Forum. Funding was provided by the Government Office for the South West.

However, it can be argued that, as sustainable development is at the core of local planning, many of the existing policies already seek to mitigate, albeit indirectly, the causes of climate change. For instance, by directing new development to sustainable locations with good links to public transport and by promoting the use of local materials with low embodied-energy. Notwithstanding this however, the publication of PPS 1, PPS 22 and the draft Regional Spatial Strategy for the South West demands that the LDF for Salisbury includes an ambitious but locally responsive strategy and positive planning policies in order to facilitate renewable energy technologies and therefore fully contribute towards national, regional and sub-regional (county) targets for tackling climate change.

In short, given the targets which have been set, the weight of expectation on delivering them, the rate of technological advancement in renewables and their current general availability of existing technology, the existing local plan policy on renewable energy appears inadequate. It is suggested that more detail is required in order to set out exactly where and what types of renewable energy are viable projects in the district.

At the time of writing it could be argued that the above policy does little to actively encourage the development of renewable energy but rather is somewhat vague, negatively worded and adds little value. Certainly, in view of the plethora of methods and schemes for generating renewable energy the policy does not provide much guidance or certainty to developers, planning officers or Members on requirements

Community Strategy (for Salisbury and South Wiltshire 2005-2009)

The South Wiltshire Strategic Alliance is the Local Strategic Partnership for Salisbury District and has drawn together the community strategy for the area. Four strategic priorities for the district for 2004 – 2009 were identified by examining the results of community consultation (bottom-up priorities) and matching them with countywide priorities (top-down priorities).

'Leading By Example' was identified as one of four key issues to grapple with. Within this identified issue further areas for action under the sub-heading 'Sustainable Organisations' included the need for;

A. More and more effective sustainable procurement
B. Improved energy efficiency
C. Improved waste minimisation and recycling
D. Improved water efficiency
E. More use of green fuels and green travel plans
F. More consideration of wildlife in the management of open space, parks, forestry
G. Adoption of environmental management systems

The Vision for Salisbury

A central tenet of this long-term vision to secure the urban renaissance of Salisbury city is that the city should be eco-friendly and minimise the impact of future development upon climate change. At the time of writing the final document is due to be considered by the Council's cabinet on July 11th with a recommendation to approve it for public consultation.

The Vision makes clear that,

'……solar design, water recycling and the potential of earth and wind harnessing is now an important part of city and place making. South-facing buildings, natural lighting, sustainable water management, natural heating systems, alternative energy sources and minimising waste are all elements that have been implemented within urban places to prevent further environmental degradation. The detailed design of buildings in later stages of development of the 4 key sites will provide an opportunity to include many of the above elements.'

CURRENT CHARACTERISTICS AND FUTURE TRENDS

Climate Change in the South West

Although the UK is on line for meeting targets set by the Kyoto agreement by 2008–2012 (12.5% below 1990 levels), it is currently unlikely that it will meet its own domestically set target of 20% below 1990 levels by 2010. Despite making carbon dioxide cuts we still need to adapt to the changes in the climate system that are unavoidable, due to past emissions.

During the 20th century average annual temperature increased by about 0.8°C - 0.9°C in the region. Met Office records for Exmouth exist back to 1855, which show that the last decade was the warmest on record.

The impacts of a warming climate are already having an impact on habitats and wildlife. Chiffchaffs, for example, are appearing significantly earlier in the year as average March temperatures are rising - these birds were first seen on the 28th February in 2005 when the average March temperature was 7.2°C a full 16 days earlier than in 1916 when the average temperature was 3.3°C. Similar changes have also been noted in the first spawning dates of frogs (UK Phenology Network, 2005).

Many species will not be able to adapt quickly enough and native species of flora and fauna could be under real threat. In some cases, even a 1°C rise in temperature can be too great for some species to adapt. Those species at the southern breeding limit of their range are probably most at risk of loss from the region. For example, the Golden Plover is no longer breeding in the South West due to milder winter temperatures. Many habitats in the South West are fragmented and are in effect islands surrounded by farmland, through which many native plant and animal species will be unable to migrate as conditions change. Natural assets such as valued landscapes, archaeological remains, beaches, wetlands, mudflats, salt marshes and dunes may be lost, together with their flora and fauna.

Cases of malignant melanoma, the most aggressive of skin cancers, is a particular problem in the region with high mortality rates compared to England and Wales. Incidences of this cancer are high in all local authority areas in the region (with the exception of South Gloucestershire, Gloucester and the Forest of Dean), and have increased by 3-7% since the 1960s (NHS, 2003).

New data shows that sea-level rise in the South West region could be the highest in Great Britain, with a rise between 20-80cm by the 2080s, depending on emissions scenarios (UKCIP, 2005). Mean sea level at Newlyn (Cornwall) has risen by approximately 15cm since 1915 and by 8cm at Devonport (Proudman Oceanographic Laboratory, 2003). Mean wave height from trough to crest has also increased, from 1.8m in 1962 to 2.3m today. Such changes may adversely affect sea defences, harbours, homes, businesses, infrastructure, maritime heritage as well as natural assets and biodiversity. Sea level rise and climate change will increase the scale and pace of coastal erosion. Research has shown that 779km of National Trust owned land in the region is at risk from coastal erosion over the next 100 years and 852 hectares at risk of increased flooding. Trust owned land in the South West is the most at risk of coastal erosion in England and Wales and is second only to the East in terms of increased flooding (National Trust, 2005).

The *South West Observatory report - State of the South West*[12] also provides a useful summary of regional issues and intelligence, including a summary chapter on climate change. The South West Observatory Environment Module[13] 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 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.

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.

[12] http://www.swo.org.uk/sosw/index.asp
[13] http://www.swenvo.org.uk/environment/climate_change.asp

The South West Climate Change Impacts Partnership (SWCCIP) has produced a regional Scoping Study called Warming to the Idea (2003), 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.

The *Integrated Regional Strategy, Just Connect*![14] is also a useful starting point as it recognises that critical objectives for the region include the need to "adapt to unavoidable climate change impacts and minimise any further impacts on a growing region" and "promoting sustainable construction and good design".

Predicted seasonal climate in the South West

Seasonal climate (the range of figures indicates Low and High emissions scenario results)		
Season	***2050s***	***2080s***
Summer	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%
Winter	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

Likely change (the range of figures indicates Low and High emissions scenario results)	
Temperature	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 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

[14] http://www.southwest-ra.gov.uk/media/SWRA/IRS/Just_Connect.pdf

	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

Carbon emissions: the current situation

In the South West recent DEFRA research[15] 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. The table below is based on this research and shows indicative estimates of CO_2 emissions for Salisbury and compares these to the average figure for the South West. From these figures it is evident that Salisbury emits more CO_2 per person than the average for the South West and therefore must do more to counteract this unsustainable trend.

Indicative estimates of carbon emissions by Local Authority Area for 2004 (kt CO_2)		
Sector	**Salisbury (District)**	**South West (Average)**
Industry and Commercial	316	367.8
Domestic	331	294.1
Road Transport	365	292.0
Domestic per capita CO_2 (tonnes)	2.9	2.7

Stepping Forward - the South West Ecological Footprint[16] 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 much of the earth's available resources 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 limits while being financially and socially sustainable. This is the rationale for the high level sustainability policies SD1-4 in the draft Regional Spatial Strategy. Another study in 2006 calculated Salisbury's ecological footprint as 5.34 global hectares per person (see footnote 17).

[15] 'Local and Regional CO_2 Emissions Estimates for 2004', produced by AEA Energy & Environment for DEFRA http://www.defra.gov.uk/environment/statistics/globatmos/galocalghg.htm
[16] http://www.steppingforward.org.uk/ef/swfootprints.htm

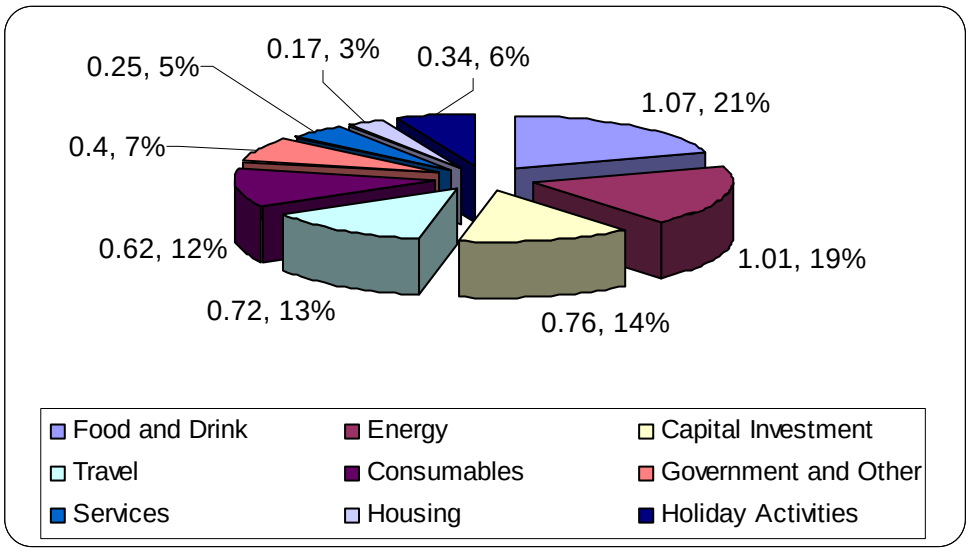


Figure 3: Components of Salisbury's Ecological Footprint (values shown in global hectares[17] per person and as a percentage of total footprint)

Estimated carbon emissions for selected Local Authorities in the South West ranked from most to least polluting (45 LPAs in total)		
Rank Order	**Local Authority Area**	**(Kg C02/per dwelling)**
1.	Kennet	6,902
2.	Cotswold	6,736
3.	Forest of Dean	6,370
4.	South Hams	6,346
5.	West Devon	6,184
6.	Purbeck	6,143
7.	West Wiltshire	6,075
8.	South Somerset	6,056
9.	Stroud	6,043
10.	West Dorset	6,002
11.	North Wiltshire	5,932
12.	**Salisbury**	**5,879**
43.	Torbay	4,463
44.	Plymouth	4,447
45.	Weymouth and Portland	4,138
South West Average		**5,396**

What are any other authorities doing to reduce carbon emissions?

'Merton Rule' survey by the Town and Country Planning Association

In July 2006 the TCPA carried out a survey of all local authority planning departments in England to find out how many of them had adopted or were planning to adopt 'Merton Rule' style policies (i.e., policies requiring a percentage of a development's predicted energy requirements to be met from on-site renewable

[17] A global hectare is one hectare of biologically productive space with world-average productivity.

energy sources). The survey revealed the following picture of local authorities in the South West region which is summarised in the table below.[18]

KEY:	Adopted	Policy in draft form	Policy in prospect	No Policy

Local Planning Authority	Policy Name	On-site target	Threshold	Notes
BRISTOL CITY (UC)				Adopted in 1997.
E. DEVON (DC)		> 10% renewable energy production.	10+ residences, 1000sqm+ commercial.	Adopted in July 2006. Merton- a policy developing.
ISLES OF SCILLY	Policy 2, Isles of Scilly Design Guide (SPD)			Adopted November 2005
N. DEVON (DC)		> 15% Renewable energy production.	50+ residences, 1000sqm+ commercial.	Adopted 31 May 2006.
PENWITH (DC)				Adopted in February 2004.
S. GLOUCESTERSHIRE (UC)				Adopted in January 2006.
SOUTH SOMERSET (DC)	Local Plan, Policy EU1 & Policy EU2.			Adopted on 27th April 2006.
W. DEVON (BC)	Local Plan, 2005, Core Strategy 2006.	10% renewable energy production.		Adopted May 2006.
WILTSHIRE COUNTY COUNCIL	Waste management + energy generation.			Adopted March 2005.
CARRICK (DC)		15% renewable energy production.	None.	Currently preferred options stage.
GLOUCESTER CITY COUNCIL	BNE 16.	> 10% renewable energy production.	10+ residences, 1000sqm+ other developments.	Proposed adoption February 2008.
N. CORNWALL (DC)		10% renewable energy production.	10+ residences, 1000sqm+ commercial.	Initial draft stage, current targets provisional.
NORTH SOMERSET (UC)		15% renewable energy production.	All new residential units, 1000sqm+ commercial.	Post-Inspector's report.
CORNWALL COUNTY COUNCIL				No policy. Merton-considering feasibility.
EXETER CITY COUNCIL				No response. Merton-considering feasibility.
N. WILTSHIRE (DC)		Potentially 10% renewable energy.	All prospective development.	Local Plan and Core Strategy under consideration.
POOLE (BC)				Core Strategy under development.
PURBECK (DC)				No policy as yet.
SOUTH HAMS (DC)				A policy exists.
SOMERSET COUNTY COUNCIL				No policy. Merton-considering feasibility.
CHRISTCHURCH (BC)				No policy.
KENNET (DC)				No policy.
N. DORSET (DC)				No policy.
STROUD (DC)				No policy.
SWINDON (UC)				No policy.
WEYM'TH & P'LAND (BC)				No policy.

[18] A significant number of Councils including Caradon DC, Cheltenham BC, Bournemouth BC, Cotswold DC, Devon CC, Dorset CC, Bath & N. E. Somerset UC, E. Dorset DC, Forest of Dean DC, Gloucestershire CC, Kerrier DC, Mendip DC, Mid-Devon DC, Plymouth CC, Restormel BC, **Salisbury DC**, Teignbridge DC, Tewksbury DC, Torbay BC, Torridge DC, W. Dorset DC, W. Somerset DC and W. Wiltshire DC did not respond to the survey.

Research by the Department for Communities and Local Government

In March 2006 the ODPM (now the Department for Communities and Local Government) examined 121 emerging development plans that had been referred to Government Offices in accordance with statutory requirements. The purpose of the review is referred to in Hansard as, '*to determine whether there is a problem with emerging plans that do not fully incorporate PPS 22 guidance.'*[19]

This undertaking was given by the Government on 9 February 2006 during the Committee Stage of the Climate Change and Sustainable Energy Private Members Bill. The particular issue was whether emerging plans contained a policy that reflected paragraph 8 of PPS22 (see page 3 above).

The research found the following:

- Since PPS22 was published 121 emerging development plans have come forward in England.
- 29 of these were new style plans where a policy reflecting paragraph 8 of PPS22 could reasonably be expected. 26 out of 29 (or 90%) of these new-style plans did include a paragraph 8 policy.
- A further 13 old-style plans also included paragraph 8 policies.
- Of the 121 plans 69 of them considered it reasonable to expect a paragraph 8 policy to be included.
- 39 out of the 69 plans did contain policies that reflected paragraph 8.
- Of the 39 policies reflecting paragraph 8 of PPS22, 26 were new-style, which represented 90% of the 29 plans where such a policy could reasonably have been expected.

Overall 56% of the plans referred to Government Offices between August 2004 and February 2006 that could reasonably have been expected to contain such a PPS22 policy did so[20].

What has Wiltshire provided to date?

Wiltshire has 12.31 MW of installed renewable electricity capacity, making up 9% of the region's total installed capacity. The county's renewable electricity schemes generate enough power for the equivalent electricity needs of 10,775 homes. North Wiltshire has the highest installed renewable electricity capacity of any local authority area in Wiltshire with 7.54 MW of installed capacity. It also has the highest number of renewable electricity projects in the county with nine schemes installed. Some 7.4 MW of this capacity is from landfill gas schemes. The County also has 17 renewable heat projects producing 0.78 MW of electricity.

What has Salisbury provided to date?

Salisbury District Council has achieved the highest installed heat capacity of any Wiltshire Authority at 0.35 MW with two sewage gas CHP sites, two GSHP schemes and a biomass boiler.[21]

[19] (Hansard 9 February, Column 84)

[20] The exercise only considered emerging plans referred to Government Offices after August 2004. Therefore, it would not have captured those plans adopted or which had already been referred for the final time before that date. Some such excluded plans (eg Merton and Croydon) did contain such policies.

[21] The statistics quoted above for Salisbury and Wiltshire are estimates and do not include domestic renewable energy projects.

Local authority district	Number of grid-connected renewable electricity projects	Installed capacity renewable electricity (MW)
North Wiltshire District	9	7.54
Swindon Borough	6	3.55
Salisbury District	**2**	**1.12**
West Wiltshire District	1	0.09
Kennett District	1	0.006
TOTALS	19	12.31

Figure 4: Installed renewable electricity capacity by local authority area[22]

Local authority district	Number of renewable heat projects	Installed capacity renewable heat (MW)
Salisbury District	**5**	**0.35**
West Wiltshire District	4	0.16
North Wiltshire District	3	0.15
Swindon Borough	2	0.1
Kennett District	3	0.02
TOTALS	17	0.78

Figure 5: Installed renewable heat capacity by local authority area

The most recent annual survey carried out by RegenSW suggests that despite having made some progress in the last year all South West counties are in danger of missing their 2010 renewable electricity targets. These targets were agreed by county councils in 2005, and many are incorporated into county structure plans. The survey shows that no county is close to meeting its 2010 target and that installed renewable electricity capacity has not changed significantly over the last year in any of the counties. The report says that gaining planning permission is still the biggest stumbling block for renewable energy schemes.

The following table summarises specific renewable energy projects which, as of April 2007, have already been installed in either Salisbury District or the rest of Wiltshire. The energy generating capacity, type and location of each project is also included. The vast majority of the energy generated from renewable sources are from non-domestic or bespoke renewable projects (often associated with service infrastructure. e.g., solid and liquid waste treatment) rather than smaller-scale domestic installations.

[22] Figures are from the RegenSW survey of renewable electricity and heat projects in South West England April 2007.
http://www.surveys.energysw.com/PDF/RSW%20Annual%20Projects%20Survey2.pdf

Renewable Energy Type	Salisbury District	Rest of Wiltshire
Air-source heat pump	No installations	No installations
Bio-gas	No installations	No installations
Biomass thermal	Gasper Mill, Stourton, Wood Energy Limited, Installed capacity: MW (thermal) 0.05	Urchfont Community Shop, Devizes. Installed capacity: MW (thermal) 0.005 New Museum of Science and Industry, Swindon Installed capacity: MW (thermal) 0.06 Eastcourt House, Eastcourt Estate, Corston, Malmesbury Installed capacity: MW (thermal) 0.11
Sewage gas CHP	South West Water, Kilmington STW, Installed capacity: 0.105 MW (electricity) Wessex Water, Salisbury STW, Installed capacity: 0.085 MW (electricity)	Thames Water, Swindon STW, Installed capacity: 0.450 MW (electricity) Wessex Water, Trowbridge STW, Installed capacity: 0.085 MW (electricity)
Energy from waste	No installations	No installations
Ground-source heat pump	Ebblesway Courtyard, Broadchalke (Barn conversion, March 2000) Installed capacity: MW (thermal) 0.008 (And a.n.other)	Melksham Community Nursery, Melksham Installed capacity: MW (thermal) 0.021 St Michaels Pre-school, Melksham Installed capacity: MW (thermal) 0.021 Withybeds, Social Housing Installed capacity: MW (thermal) 0.03
Landfill Gas	Whiteparish, Biffa Waste Services Ltd. Installed capacity: 1.03 MW (electricity)	Westbury Power Plant, Landfill Viridor Ltd. Installed capacity: 1.189 MW (electricity) Calne Landfill, Viridor Ltd. Installed capacity: 2 MW (electricity) Chapel Farm Landfill, SITA Ltd. Installed capacity: 3.009 MW (electricity) Westbury Phase II, Viridor Ltd. Installed capacity: 2.1 MW (electricity) Compton Bassett Landfill, Hills Minerals & Waste. Installed capacity: 2.125 MW (electricity)
Wind (onshore)	No installations	Swindon - Motorola Building Installed capacity: 0.0025 MW (electricity) Devizes - Metabolics Ltd Installed capacity: 0.006 MW (electricity)
Mini-hydro	No installations	The Old Mill, Lacock Installed capacity Installed capacity: 0.075 MW (electricity)
Solar thermal	No installations	No installations
Solar photovoltaic (electricity)		BP Garage, Hungerdown Lane, Installed capacity - 0.016 MW Motorola Building, Swindon, Installed capacity - 0.00128 MW Commercial Building, ESD Electric Vehicle Garage, Neston. Installed capacity - 0.0001 MW Westlea Housing Association, Corsham, Installed capacity - 0.03 MW Bower Mapson Ltd., Oxford Gardens, Bath Road, Swindon Installed capacity - 0.009 MW Residential Building, Installed capacity - 0.00196 MW Heelis Building, National Trust HQ, Swindon, Installed capacity - 0.083 MW
Water source heat pump	No installations	No installations

Figure 6: Installed renewable energy projects in Salisbury and the rest of Wiltshire up to April 2007 (mainly non-domestic installations)

The potential for further renewable energy in Salisbury District

The main source of guidance on the challenges facing the delivery of renewable energy in the district is the Wiltshire Renewable Energy Action Plan (WREAP). It explains that the vast majority of existing installed renewable energy capacity in Wiltshire and Swindon is derived from landfill and sewage gas and that the County target of 65-85MW by 2010 is approximately 12-16% of the 545MW regional target.

The table below shows the potential contribution from various renewable technologies by 2010. These potential capacities take account of each technology's current economic viability and maturity. The methodology excluded key designated areas (e.g. AONBs, National Parks) from consideration and took account of other constraints such as buffer zones, inter-visibility limits and distance from major roads, i.e., B-class and above.

Technology	Potential contribution based on resource assessment (MW)[23]
Wind	61
Biomass (wood-fuel, energy crops, straw)	7
Landfill Gas	5
Waste (th)	5
Poultry Litter (Agricultural Digestion)	3
Anaerobic Digestion	3
Small scale hydro	0.3
Photovoltaics	0.1

Figure 7: Renewable energy in Wiltshire and Swindon - Accessible Economic Resource (after landscape character assessment) by 2010.

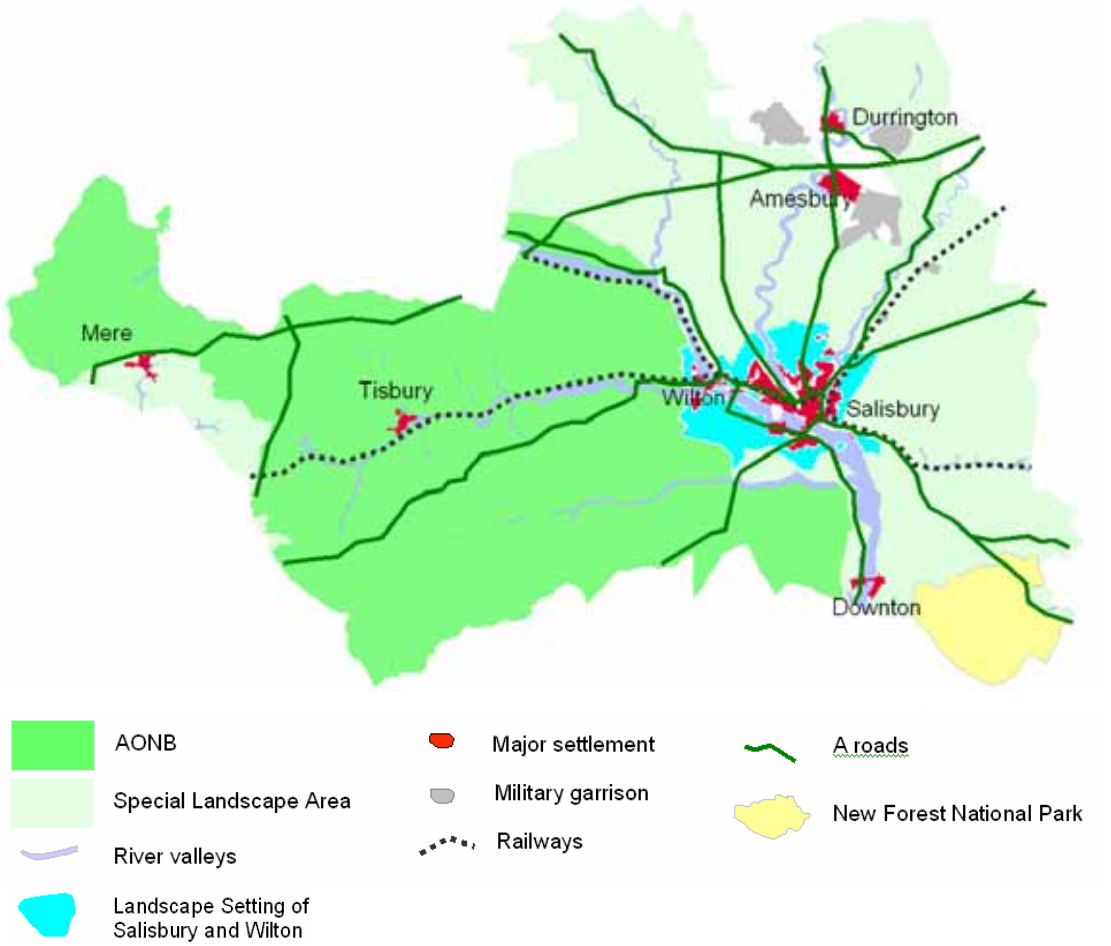
It is clear that wind energy offers by far the greatest generating capacity of all the available technologies. However, of all renewable technologies, wind turbines are likely to have the greatest visual and landscape effects. While the nature of the district, i.e., a large geographical area and one predominantly rural in character, would suggest that it is capable of accommodating a number of wind energy installations, the extent and significance of designated areas within the district is likely to severely restrict the location, height and extent of any proposed projects. National designations with the highest profile in the district are arguably the New Forest National Park, the Cranborne Chase and West Wiltshire Downs AONB, and the landscape setting of the Stonehenge World Heritage site. Other important nationally designated areas include Sites of Special Scientific Interest (SSSI's) and Conservation Areas. While the size of individual conservation areas are not significant when compared to say the size of the district or the AONB, given that there are seventy of them in total their combined cumulative area is likely to have a significant impact upon the district's renewable energy profile, i.e., the mix of technologies installed and their range in terms of numbers, scale and geographical extent. While renewable energy should be encouraged in conservation areas schemes must avoid causing harmful impacts on their special character.

PPS 22 advises that '….local planning authorities should not create "buffer zones"

[23] These figures are not technology specific targets but are indications of the potential for development of renewable energy, by 2010, under current economic conditions. This takes into account landscape character assessment.

around international or nationally designated areas (National Parks, AONB's, Conservations Areas, SSSIs, etc) or apply policies to these zones that would prevent the development of renewable energy projects.'

In addition, almost all of the remainder of the district is designated as a Special Landscape Area and within it, the setting of Salisbury and Wilton has also been demarcated as a separate designated landscape area in its own right. In areas such as these PPS 22 advises that local landscape and local nature conservation designations should not be used in themselves to refuse planning permission for renewable energy developments but that applications for renewable energy schemes in such areas should be assessed against criteria based policies set out in local development documents, including any criteria that are specific to the type of area concerned.'



This suggests that renewable energy schemes/installations should, in principle, be possible anywhere in the district provided that the objectives of designation of the area concerned would not be compromised by the development, and where it can be demonstrated that any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the wider environmental, social and economic benefits.

The objectives of nationally and locally designated areas will therefore undoubtedly inform the criteria of any renewable energy policy/s in the LDF. Additionally however, the LDF may need to provide further guidance to developers and local communities about what types of technology and the scales of renewable development that would

be most appropriate in certain locations and could, for example, clarify what the Council understands to be small-scale and larger-scale developments as referred to by PPS 22.

Whatever their final form, it is clear that policies should be positively worded to encourage rather than restrict small-scale renewable energy developments[24]. This should also reflect the strong local support for the vision of a community led, locally owned renewables sector which WREAP identified. Government guidance also advises that policies should quote any relevant identified regional or sub-regional targets.

A quick look at the existing installations in the district reveals that most are associated with the treatment of liquid or solid waste and as such have been initiated by the particular utility companies who are responsible for these services, for example, Wessex Water, Biffa Waste Services Ltd., etc.

The area where the LDF could make the biggest impact is integrating renewable energy into new buildings, particularly new dwellings. Micro-generation of renewable energy for individual homes is becoming increasingly common. It can involve using solar heating panels (generating hot water), photovoltaics (solar electricity), micro-turbines (wind), micro-combined heat and power plants, and tapping into geothermal power using heat pumps. However, it must be remembered that buildings must be designed to reduce the need to use energy in the first place and that generating renewable energy is just one part of the solution.

The building stock which currently exists will still form a significant percentage of the district's housing total in 20 years time. It is therefore also essential that the local authority enables the integration of energy efficient measures and renewables into existing buildings to improve their individual performance and further contribute towards carbon reduction targets.

		Housing Type			
		High Density Urban	**Low Density Urban**	**Distributed Suburban**	**Rural**
Technology	Solar water heating	Sometimes	Very Good	Very Good	Very Good
	PV	Usually	Usually	Usually	Very Good
	Wind	Inappropriate	Sometimes	Sometimes	Very Good
	Wood fuelled boilers	Sometimes	Usually	Usually	Very Good
	Ground source heat pumps	Inappropriate	Sometimes	Usually	Very Good

Figure 8: A guide to the appropriateness of different renewable technologies by housing type[25]

Energy Efficiency

It is acknowledged that not all sites will offer the same potential to exploit the generation of energy from on-site renewable sources. Therefore, the policy must be

[24] PPS 22, para. 18

[25] Source: Energy Saving Trust: *Energy Efficiency, the guide.* http://www.energysavingtrust.org.uk/uploads/documents/housingbuildings/09_Integrating_renewable_energy_technology_enw1.pdf

flexible enough to incorporate the most effective design solution. It should require that CO_2 emissions arising from new development are minimised in the first instance by maximising energy efficiency through the design, orientation and layout of new development and meeting specific building performance improvements and then off-setting a proportion of the remaining CO_2 emissions by the generation of a certain amount of energy from on-site renewable sources. This approach will lead to both the reduction of carbon dioxide emissions and the installation of renewable energy generation.

A further effective means of ensuring that high levels of energy efficiency are included as part of development proposals is to require that the Code for Sustainable Homes (CSH or Code for short) and BREEAM standards are met as part of individual development proposals. This is an approach advocated by both RPG10 and the draft South West Regional Spatial Strategy. The advantage of using the Code and BREEAM standards is that other areas of sustainable design, in addition to energy efficiency and renewable energy, are covered. These include proximity of the development to services and facilities, minimising pollution, the use of materials, the use of water, land use and ecology and health and well-being. The requirement for new development to meet specified Code and BREEAM standards provides a straight-forward, understandable, but nonetheless, flexible system for assessing sustainability and should greatly assist in the provision of development which goes beyond current statutory minimum standards, such as the building regulations.

It is suggested that the BREEAM and Code for Sustainable Homes standards should provide the basis for the assessment as they provide a readily available standard with appropriate infrastructure in place to certify designs and calculations and the standards to be met. Using any other methodology would introduce unnecessary complications and risks for delivery as planning officers do not have the necessary knowledge or training to allow them to determine the acceptability of proposals. In terms of a policy requiring major development proposals to off-set at least 20% of the predicted carbon dioxide emissions through the incorporation of on-site renewable energy, the Council's Building Control Officers are suitably qualified and capable of providing advice on such issues.

One of the principal barriers to the wider adoption of more sustainable design and construction solutions is the perception that they incur substantial additional costs. However, it has been demonstrated by the Building Research Establishment (BRE) that major performance improvements can be achieved cheaply. Reaching the highest standards of current practice does incur some cost premium, but careful design and consideration at an early design stage can minimise these cost premiums compared to a more ad hoc approach. The additional capital costs of four typical developments to achieve an EcoHomes or BREEAM rating of 'Very Good' or 'Excellent' are detailed below[26].

[26] The Code for Sustainable Homes was developed using the Building Research Establishment's (BRE) EcoHomes system. However, the Code builds upon the Ecohomes system by introducing minimum standards for energy and water efficiency at every level, and new areas of sustainability design including Lifetime Homes and inclusion of composting facilities. It method of awarding points for each level is also generally simpler.

House:	Additional capital cost:
EcoHomes 'Very Good' rating	1.3% to 3.1%
EcoHomes 'Excellent' rating	4.2% to 6.9%
Naturally ventilated office:	**Additional capital cost:**
BREEAM 'Very Good' rating	(cost saving of 0.4%) to 2.0%
BREEAM 'Excellent' rating	2.5% to 3.4%
Air conditioned office:	**Additional capital cost:**
BREEAM 'Very Good' rating	0.1% to 5.7%
BREEAM 'Excellent' rating	3.3% to 7.0%
PFI procured health centre:	**Additional capital cost:**
BREEAM 'Very Good' rating	No additional cost
BREEAM 'Excellent' rating	0.6% to 1.9%

Source: BRE – Putting a Price on Sustainability (2005)

It should be noted that the above figures represent typical projects within the UK and are not representative of the additional costs associated with developments within Salisbury. The current Code and BREEAM standards award extra points where developments are located in urban areas using previously developed land that are close to services and amenities and public transport routes. The predominantly rural nature of the district and relative scarcity of brownfield sites may mean that the cost of achieving a 'Very Good' or 'Excellent Rating' is higher for some developments (compared to the national average). On the other hand, developments on greenfield sites and/or in less accessible locations aiming to achieve a particular level of the Code or BREEAM standards will have to incorporate greater levels of energy efficiency in their design and construction than those seeking to meet the same level on previously developed sites which are also close to services and amenities and public transport routes

Capital cost will play a major role in decision-making on which renewable technologies to include in development proposals. It is difficult to reliably predict the costs of integrating renewables as these depend on many design, site and commercial factors. Costs are also likely to change over time, as will the availability of government and other grant funding.

The costs associated with the provision of the on-site generation of renewable energy also requires careful consideration. Extensive research and modelling exercises produced by Faber Maunsell and detailed within the London Renewables Toolkit for planners, developers and consultants[27] and modelling exercises undertaken by Woking Borough Council[28] demonstrates that the provision of on-site renewable energy equipment to off-set at least 20% of predicted carbon emissions will typically increase the build costs of a development by anything between 1.5% and 5%. The wide range in these costs is reflected in the fact that some technologies are more cost effective than others. For example, the use of Biomass heating is a very cost effective form of renewable energy generation, with carbon savings in excess of 45% being achieved for an increase in capital cost of 1.5% to 2%. In contrast the use of photovoltaic technology is a more expensive means of producing renewable energy.

[27] London Renewables, Integrating renewable energy into new developments: Toolkit for planners, developers and consultants, Faber Maunsell (2004)
[28] Woking Borough Council, Renewable Energy and Energy Efficiency Targets – Modeling Exercise (Nov 2006)

ENERGY EFFICIENCY OPTIONS				
Option No.	**1**	**2**	**3**	**4**
Nature of the Option	**No reference to energy efficiency of new development in the LDF**	**Energy efficiency recognised as a factor in new development but no wording to encourage exceeding building regs**	**LDF encourages high energy efficiency standards (beyond building regs) in new development (no targets)**	**LDF sets targets for additional energy performance in new development (beyond building regulations) based on the Code for Sustainable Homes and BREEAM**
Key Drivers	Lack of local political leadership to garner support for a more ambitious approach	Lack of local political leadership to garner support for a more ambitious approach	Complacency and/or a zero-risk approach Lack of local political support for a more ambitious approach	Recognition of the urgent need to reduce the district's unsustainable levels of carbon emissions and do as much as possible to mitigate climate change.
Positive Impacts	NONE – No additional contribution to the achievement of any sustainability objectives	NONE – No additional contribution to the achievement of any sustainability objectives	Some sustainability objectives likely to be achieved – but actual performance against criteria would be poorer	Would positively addresses a range of sustainability objectives
Negative Impacts	Lack of real added value to the planning process. Levels of energy efficiency would not be controllable and would depend on the ambition, willingness of each developer. More new developments that just meet Part L would have to be permitted. No incentive to the energy market to encourage more efficient consumption. More emissions would be released per person, energy bills for residents would be higher, homes would be less affordable, less people could afford to own/rent a home in the district. No impetus to create exemplar developments	Lack of real added value to the planning process. Levels of energy efficiency would not be controllable and would depend on the ambition, willingness of each developer. More new developments that just meet Part L would have to be permitted. No incentive to the energy market to encourage more efficient consumption. More emissions would be released per person, energy bills for residents would be higher, homes would be less affordable, less people could afford to own/rent a home in the district. No impetus to create exemplar developments	Lack of real added value to the planning process. Levels of energy efficiency would not be controllable and would depend on the ambition, willingness of each developer. More new developments that just meet Part L would have to be permitted. No incentive to the energy market to encourage more efficient consumption. More emissions would be released per person, energy bills for residents would be higher, homes would be less affordable, less people could afford to own/rent a home in the district. No impetus to create exemplar developments	None identified
Viability of proceeding with the option?	Very Low - Could be in conflict with policies in the RSS	Low - Could be in conflict with elements of RSS policy	Medium	High
How will success be measured	Sustainability Appraisal Annual Monitoring Report No. of developments meeting BREEAM and CSH standards, and specific levels within these standards. Residents surveys No. of applications refused and appeals upheld on energy efficiency grounds Continuing development of community strategies	Sustainability Appraisal Annual Monitoring Report No. of developments meeting BREEAM and CSH standards, and specific levels within these standards. Residents surveys No. of applications refused and appeals upheld on energy efficiency grounds Continuing development of community strategies	Sustainability Appraisal Annual Monitoring Report No. of developments meeting BREEAM and CSH standards, and specific levels within these standards. Residents surveys No. of applications refused and appeals upheld on energy efficiency grounds Continuing development of community strategies	Sustainability Appraisal Annual Monitoring Report No. of developments meeting BREEAM and CSH standards, and specific levels within these standards. Residents surveys No. of applications refused and appeals upheld on energy efficiency grounds Continuing development of community strategies
Where is the option best pursued?	Core Strategy	Core Strategy	Core Strategy	Core Strategy

RENEWABLE ENERGY OPTIONS				
Option No.	**1**	**2**	**3**	**4**
Nature of the Option	**No policy – no requirement for renewable energy**	**Business as Usual -** **Continued use of policies in the Salisbury Local Plan; the Wiltshire Structure Plan; RPG10 and the Regional Spatial Strategy (when adopted).**	**Adopt a policy that just encourages (not requires) new developments of a certain size to off-set their predicted energy use by generating renewable energy on-site and does not set a percentage target for energy from renewable sources.**	**Adopt a policy that requires new developments of a certain size to off-set their predicted energy use by generating renewable energy on-site and sets a specific target for the proportion of predicted energy use that should come from on-site renewable sources and encourages certain specific renewable energy projects, e.g. Community Heating Projects**
Key Drivers	Lack of local political leadership to garner support for a more ambitious approach	Lack of local political leadership to garner support for a more ambitious approach	Complacency and/or a zero-risk approach Lack of local political support for a more ambitious approach	Recognition of the contribution of renewable energy sources to reducing the district's unsustainable levels of carbon emissions and combating climate change.
Positive Impacts	NONE – No additional contribution to the achievement of any sustainability objectives	NONE – No additional contribution to the achievement of any sustainability objectives	Some sustainability objectives likely to be achieved – but actual performance against criteria would be poorer	Would positively addresses a range of sustainability objectives This policy approach would help to incentivise the local market for renewables, gradually leading to a reduction in cost of the various technologies, and more innovation leading to more efficient installations.
Negative Impacts	No incentive for the renewable energy market in the district. Installations may remain more expensive and therefore be less viable as an option. Higher CO_2 emissions due to more energy required from conventional fossil fuel technology. Larger ecological footprint. More large power stations and nuclear reactors may need to be built than would have otherwise been the case. Less energy security as more reliance on imported energy, e.g., gas from Europe and Russia. No guarantee of renewable energy coming from on-site sources rather than opaque 'green tariffs'.	No incentive for the renewable energy market in the district. Installations may remain more expensive and therefore be less viable as an option. Higher CO_2 emissions due to more energy required from conventional fossil fuel technology. Larger ecological footprint. More large power stations and nuclear reactors may need to be built than would have otherwise been the case. Less energy security as more reliance on imported energy, e.g., gas from Europe and Russia. No guarantee of renewable energy coming from on-site sources rather than opaque 'green tariffs'.	No incentive for the renewable energy market in the district. Installations may remain more expensive and therefore be less viable as an option. Higher CO_2 emissions due to more energy required from conventional fossil fuel technology. Larger ecological footprint. More large power stations and nuclear reactors may need to be built than would have otherwise been the case. Less energy security as more reliance on imported energy, e.g., gas from Europe and Russia. No guarantee of renewable energy coming from on-site sources rather than opaque 'green tariffs'.	Some forms of renewable energy technology have identified negative aspects, e.g., wind turbines can have a negative visual impact on the landscape, can create noise pollution and may affect the habitat of important local species. However, these are only potential negative impacts and can be avoided or mitigated by establishing more detailed criteria for particular technologies and their most appropriate locations. This may require more detailed development control policies and supplementary planning guidance.

	More likelihood of RSS and government targets not being met. District could get reputation as un-progressive, being part of the problem rather than the solution and unsincere in its aims. No impetus to create exemplar developments	More likelihood of RSS and government targets not being met. District could get reputation as un-progressive, being part of the problem rather than the solution and unsincere in its aims. No impetus to create exemplar developments	More likelihood of RSS and government targets not being met. District could get reputation as un-progressive, being part of the problem rather than the solution and unsincere in its aims. No impetus to create exemplar developments	
Viability of proceeding with the option?	Very Low – Likely to conflict with the RSS and PPS 22	Low - Could be in conflict with elements of RSS policy and PPS 22	Low - Could be in conflict with elements of RSS policy and PPS 22	High – likely to show a locally specific and ambitious response in accordance with PPS22 and associated national guidance and current best practice.
How will success be measured	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects. Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity Continuing development of community strategies Statistics from RegenSW	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects. Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity Continuing development of community strategies Statistics from RegenSW	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects. Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity Continuing development of community strategies Statistics from RegenSW	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity Continuing development of community strategies Statistics from RegenSW
Where is the option best pursued?	Core Strategy	Core Strategy	Core Strategy	Core Strategy

SUSTAINABLE DESIGN AND CONSTRUCTION (incorporating advice on renewable energy and energy efficient design) SPD OPTIONS		
Option No.	**1**	**2**
Nature of the Option	**No SPD**	**SPD**
Key Drivers	A failure to recognise the importance of this issue and the need to address it at the local level combined with insufficient time and resources. A lack of political leadership in this area.	The need to provide further local guidance and advice on the types of renewable energy best suited to the district (and particular locations within it) and the issues that need to be considered. The need to raise awareness and promote opportunities for increased energy efficiency in new development. The need to explain in more detail how applications will be assessed against the relevant planning policies in the LDF.
Positive Impacts	NONE – No additional contribution to the achievement of any sustainability objectives	Would raise the profile of the issue. Would be an example of best practice in planning for others to learn from and follow Would provide useful advice to architects and developers and therefore assist in the ultimate aim of providing more low carbon buildings and contributing towards the region's and the county's renewable energy targets.
Negative Impacts	Implementation of policies would be harder with negative consequences for the district's carbon footprint. Much more uncertainty for developers and planners. Time wasted on unnecessary appeals. Poor image for the Council in terms of its attitude to climate change and lack of local leadership Less incentive for the renewable energy market in the district.	None identified
Viability of proceeding with the option?	Medium – no legal obligation to produce one, not automatically required by the LDF but still recommended in government guidance as best practice	High – likely to show a locally specific and ambitious response in accordance with PPS22 and associated national guidance and current best practice.
How will success be measured	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects. Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity. No. of appeals contested on the basis of renewables. Continuing development of community strategies Statistics from RegenSW – renewable generating capacity	Sustainability Appraisal Annual Monitoring Report No. of developments generating renewable energy on-site for on-site use. No. of other renewable energy projects Residents surveys No. of applications refused and appeals upheld for lack of renewable technology or insufficient onsite generating capacity. No. of appeals contested on the basis of renewables. Continuing development of community strategies Statistics from RegenSW – renewable generating capacity
Where is the option best pursued?	N/A – (Supplementary Planning Document)	N/A

Glossary:

For the sake of clarity and to aid the understanding of those less familiar with energy use in buildings and the Building Regulations, some less common technical terms are defined below.

Biomass	Biomass is produced from organic materials, either directly from plants or indirectly from industrial, commercial, domestic or agricultural products. It is often called 'bioenergy' or 'biofuels'. It doesn't include fossil fuels, which have taken millions of years to be created. Biomass fall into two main categories: woody (forest products, untreated wood products, energy crops and short rotation coppice (SRC), which are quick-growing trees like willow) and non-woody (animal waste, industrial and biodegradable municipal products from food processing and high energy crops. Examples are rape, sugar cane, maize) For small-scale domestic applications of biomass the fuel usually takes the form of wood pellets, wood chips or wood logs.
BREEAM	Building Research Establishment Energy Assessment Methodology
Dwelling Emissions Rate (DER), and Building Emissions Rate (BER)	The DER is the actual emissions rate calculated for a dwelling and must be equal to or less than the TER in order to comply with Building Regulations. BER is the equivalent term for non-residential buildings.
Geothermal energy / Ground source heat pumps	Ground source heat pumps use a buried ground loop which transfers heat from the ground into a building to provide space heating and, in some cases, to pre-heat domestic hot water. As well as ground source heat pumps, air source and water source heat pumps are also available. The system does not require any external fuel and is designed to heat a whole building.
Hydroelectricity (small-scale)	Hydro power systems use running water turning a turbine to produce electricity. A micro hydro plant is one that generates less than 100kW. Improvements in small turbine and generator technology mean that micro hydro schemes are an attractive means of producing electricity. Useful power may be produced from even a small stream.
Low and Zero Carbon energy sources (LZCs)	This is the standard term used in the Building Regulations to cover both renewable energy technologies, such as solar panels, as well as low carbon energy sources such as micro-CHP, absorption cooling, ground cooling and heat pumps. It does not include energy efficiency measures. It is often used interchangeably with “renewable energy” but strictly speaking, as explained above, it also covers low carbon technologies.

On-site renewable energy generation	The definition of what counts as "on-site" generation allows for a site to connect up to an existing or proposed energy network off site, e.g. to a district heating or cooling network. It also allows for on-site electricity generation where electricity is supplied directly into the grid, and does not require there to be a private wire distribution network on site. It does not include the purchase of electricity on a "green tariff" generated at a facility which would not be considered a part of the wider development.
Regulated emissions	This refers to the carbon emissions resulting from energy used to meet those services in a building that are regulated under the Building Regulations. Currently, these services are: space heating, water heating, fixed internal lighting, cooling and ventilation pumps and fans.
Solar Electricity	Solar PV (photovoltaic) uses energy from the sun to create electricity to run appliances and lighting. PV requires only daylight, not direct sunlight to generate electricity and so can still generate some power on a cloudy day.
Solar Water Heating	Solar water heating systems use heat from the sun to work alongside your conventional water heater. The technology is well developed with a large choice of equipment to suit many applications.
Target Emissions Rate (TER)	TER means the Target carbon dioxide Emissions Rate measured in kilograms of carbon dioxide per square metre of floor area per year. This is the target for the maximum regulated emissions that any building is allowed to produce in order to comply with Part L1A of the Building Regulations, for housing, and Part L2A for non-residential buildings.
Total emissions	This is the total carbon emissions from energy used in a building or on a site and is the sum of both regulated and unregulated emissions.
Unregulated emissions	This refers to the carbon emissions resulting from energy used to meet those services in a building, or on a site, that are not currently regulated under the Building Regulations. Currently, these include: cooking, appliances, small power, communal lighting for flats, lifts, external lighting, IT equipment, etc.
Wind (small-scale)	Wind turbines use the wind's lift forces to rotate aerodynamic blades that turn a rotor which creates electricity. In the UK we have 40% of Europe's total wind energy. But it's still largely untapped and only 0.5% of our electricity requirements are currently generated by wind power.

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