

Energy Efficiency and Flooding

Reasoned Justification

27.1 Energy generation and consumption is the main source of increasing levels of carbon dioxide emissions, which has a major impact on climate change. In order to reduce our carbon dioxide emissions and adapt to the effects of climate change it is crucial that this Development Plan supports appropriate renewable energy schemes and promotes energy efficiency in buildings.

27.2 There are a range of technologies that can be incorporated into the design of buildings which will secure high levels of energy efficiency that benefit both the occupier and the environment. National guidance including the '[Code for Sustainable Homes](#)' and [British Research Establishment Environmental Assessment Method](#) promotes energy efficiency and renewable technology, which lead to reduced carbon dioxide emissions, promote energy efficiency and increase the use of renewable energy in all types of development through a criteria-based scoring system. This is currently delivered and enforced in practice through Part L of the Building Regulations (2010 edition), where achieving the equivalent of Code Level 3 for energy efficiency of the Code for Sustainable Homes is a minimum requirement.

27.3 There is strong support for renewable energy generation at a European, national, and local level with targets for a reduction in carbon dioxide emissions. The 2008 Planning Act along with the 2008 Climate Change Act and the 2010 Energy Act are important towards securing long-term prosperity, quality of life for all and a low carbon economy.

Loft Insulation



27.4 A key provision of the Climate Change Act 2008 is the legally binding target of at least an 80% cut in greenhouse gas emissions by 2050 and a reduction in emissions of at least 34% by 2020. Both these targets are fixed against a 1990 baseline. This is reiterated in the Renewable Energy Strategy (2009) and the European Union Renewable Energy Directive which sets a UK target of 15% of energy from renewables by 2020.

27.5 Low carbon energy technologies are only part of the solution in helping to reduce carbon emissions. With a large proportion of our existing homes still likely to be occupied in 2050, energy saving from current housing stock has emerged as an important factor towards achieving the United Kingdom's climate change commitments ([The Community Green Deal](#)).

27.6 Nationally, Planning Policy Statement 22 (Renewable Energy) encourages renewable energy developments in locations where the environmental, economic and social impacts can be satisfactorily addressed. The government supports a realistic approach to considering renewable energy schemes, and recognises the importance of a robust local framework to assist in delivering appropriate schemes. Local Planning Authorities are encouraged to "set out a target percentage of the energy to be used in new development to come from decentralised and renewable or low carbon energy sources"., The proposed urban extensions provide the best opportunity and economy of scales to identify innovative ways of providing energy from on-site renewable sources.

27.7 Worcestershire County Council's technical research paper, Planning for Renewable Energy in Worcestershire (January 2009) and the West Midlands Renewable Energy Capacity Study (March 2011), provides the most detailed evidence of the types of renewable energy that can potentially be exploited within South Worcestershire. Locally the County Council's research document suggests:

- Watercourses within the area could be exploited to provide hydroelectric power.
- There are potential sites throughout South Worcestershire where there is sufficient average wind speeds to generate energy from wind turbines.
- Significant potential for Biomass energy from existing woodland and from energy crops.
- There is sufficient solar radiation to encourage greater use of solar panels in new and existing developments to provide electricity and hot water.
- Latent heat contained within the ground, air and water could be used to contribute toward heating energy needs by using modern techniques.

27.8 However, it is recognised that a comprehensive resource assessment of the county's capacity for renewable energy, would provide a better-informed picture of the technologies and areas that may be most suitable for development. It is anticipated that a mix of larger scale commercial schemes with a range of smaller domestic sized schemes will deliver the most effective results in reducing carbon dioxide emissions.

27.9 By avoiding an over reliance on one type of technology this will also help to alleviate concerns over environmental impacts. There is potential to exploit renewable energy further within South Worcestershire, however, evidence from the County Council and guidance nationally all support the view that improving and promoting energy conservation and efficiency should be the principal course of action. This should then be supported by the requirement of a percentage of a development's energy needs to be met by on-site renewables. This ensures that energy efficiency is given greater consideration, as the target for on site energy generation could decrease in line with the efficiency of the building.

27.1 SWDP 46: Energy Efficiency and Renewable Energy

SWDP 46: Energy Efficiency and Renewable Energy

South Worcestershire will adopt an approach that combines a reduction in the level of energy consumption in households and businesses throughout the area by encouraging energy efficiency measures, as well as by encouraging and increasing the use of renewable energy sources.

The Development Plan will help reduce carbon emissions, promote sustainable energy solutions and respond to existing and anticipated climate change in ways that protect the environment of South Worcestershire.

In order to achieve this, the use of renewable energy sources and the integration of energy efficiency techniques will be required in all new developments within South Worcestershire, irrespective of use.

All planning proposals will be required to provide an energy and sustainability statement. The implementation of the Code for Sustainable Homes will be supported in line with the national timescale⁽¹⁾. Where it is economically viable developers are encouraged to meet a higher Code for Sustainable Homes level, including zero carbon, than is mandatory. Non-residential buildings will be encouraged to achieve a British Research Establishment Environmental Assessment Method rating of 'very good' or higher.

Larger sites will be required to provide at least 20% of the energy used from an on-site renewable source. Proposals which involve the development of new district heat and power schemes should investigate the opportunity to export energy to neighbouring existing developments where appropriate.

All attempts to improve an existing development's environmental performance will be encouraged such as the retrofitting of renewable technologies, energy efficient materials and the development of district heating schemes.

Off-site Renewable Energy Schemes

To promote and encourage the development of renewable energy generation in South Worcestershire to help meet regional and national targets, a range of schemes will be considered from a variety of sources including biomass, combined heat and power, hydropower, solar power, wind turbines and heat pumps where appropriate. Pyrolysis and anaerobic digestion plants can process municipal, industrial and agricultural waste; these plants can provide clean energy unlike the mass burning of waste (incineration) which will not be supported. Each scheme will be considered on its own merits and will only be acceptable if impacts on existing communities, landscape quality and the natural and historic environment can be satisfactorily addressed

1 Code for Sustainable Homes: Technical guide 2010 (Communities and Local Government)

Links to the Objectives

27.10 The Preferred Option policy for Energy, Efficiency and Renewable Energy supports the following objectives:

- Economic success that is shared by all objective 3;
- Meeting the Needs of All Generations objective 2;
- A Better Environment for Today and Tomorrow objectives 1 and 2.

Alternative Options Considered

27.11 Energy from waste. This is not deemed to be a renewable source of energy and instead it will be addressed in the County Councils Waste Core Strategy.

27.12 Setting a higher target for the amount of energy generated from on-site renewable energy sources. Some more urban sites would struggle to incorporate this within the design, and it is likely that some of their target will need to be met from larger off-site schemes.

27.2 SWDP 47: Management of Flood Risk

Reasoned Justification

27.13 Water is a vital resource and its management is fundamental to sustainable development. South Worcestershire has an intricate network of rivers, streams and pools and therefore flooding is a key consideration through all stages of planning. Significant watercourses within South Worcestershire include the River Severn, River Avon, River Salwarpe, River Teme and Barbourne Brook.

27.14 The two main sources of national policy guidance in relation to water and spatial planning are Planning Policy Statement 25: Development and Flood Risk (2006) and the Water Framework Directive (2000). National planning policy requires that flood risk is taken into account at all stages in the planning process in order to avoid inappropriate development in areas at risk of flooding, and wherever possible, to direct development towards areas at least risk of flooding. Flood zones are defined in accordance with Planning Policy Statement 25. The Water Framework Directive is the major driver for achieving sustainable management of water in the United Kingdom and is designed to improve ecological health, promote the sustainable use of water, prevent further deterioration of aquatic ecosystems and associated wetlands, reduce pollution of water and ensure progressive reduction of groundwater pollution.

27.15 In response to the Water Framework Directive the Environment Agency has also produced two important strategic level documents that affect South Worcestershire. The first document the River Severn Catchment Flood Management Plan is a long term flood risk management plan for the River Severn Catchment of which South Worcestershire falls within five out of the nine sub areas. The Second document, the River Basin Management Plan for the River Severn seeks to implement the policies of the Water Framework Directive. This splits the River Severn catchment into 'policy units' and identifies appropriate policies for addressing flood risk within

these units. South Worcestershire falls within four policy units these are, Worcestershire Middle Severn, Warwickshire Avon, Severn Vale and Teme. It is important, therefore, that this Development Plan reflects the principles of these two documents. The South Worcestershire authorities will continue to work in close partnership with the Environment Agency to ensure flood risk and water management is fully addressed.

27.16 The South Worcestershire Strategic Flood Risk Assessment (2010) assesses all forms of flooding across South Worcestershire and enables site allocations to be developed away from the areas of greatest vulnerability to flooding. It gives an overview of the flood risk in the area, and enables the Councils to apply the sequential test (i.e. identifying sites with the least risk of flooding). Site Flood Risk Assessments are required for developments within Flood Zones 2 and 3, and on sites in excess of 1 hectare in zone 1. However, it is recognised that there will be instances where there is evidence that the development of sites below that size could result in a flood risk. In such instances a Flood Risk Assessment will be required.

27.17 The City of Worcester Local Plan contains policies that divide Flood Zone 3 into yellow, blue and red areas as described in Policy SWDP47. These have been monitored and proved to be effective, and therefore the methodology has been updated and extended to Evesham, Droitwich Spa, Tenbury Wells, Pershore and Upton upon Severn.

27.18 However, it is not just fluvial (river) flooding which is of concern within the area as other types of flooding are also prevalent, most notably surface water run off. This type of flooding can lead to problems with foul water drainage and can adversely affect smaller watercourses. In particular where new development is proposed upstream of an area which has surface water drainage problems it is important to ensure that there is no surface water run off down stream. Indeed, where possible any flood risk upstream or downstream of a new development should be reduced. In the case of brownfield sites, minimum surface water run off reduction of 20% will be sought and no increase in the run off from Greenfield Sites. In order to achieve this all developments will be required to incorporate Sustainable Drainage Systems. There are a number of potential options to consider when implementing Sustainable Drainage Systems and developments should use the systems that are considered most appropriate in dealing with surface water in that specific locality.

Emergency flood response



27.19 The multifunctional role of Sustainable Drainage Systems should also be considered in developments. This is because it is recognised that beside flood alleviation, they can provide green corridors and enable wildlife habitat creation. Under the 2006 Natural Environment and Rural Communities Act, Local Authorities and Water Companies now have a legal duty to have regard to Biodiversity in carrying out all of their functions. Therefore the South Worcestershire Authorities will ensure that developers search for opportunities to use open space for both amenity and flood storage uses and seek opportunities to encourage and promote biodiversity.

27.20 With regard to existing watercourses a minimum 8 metre access strip will be required adjacent to the top of both banks to enable maintenance.

SWDP 47: Management of Flood Risk

Management of Flood Risk

In South Worcestershire, the flood zoning principles and sequential approach reflected in national guidance are used to ensure development is not increasing flood risk to direct development away from areas at highest risk and ensure that developments on vulnerable areas of land are of a safe and sustainable nature.

1. Flood plain ["Blue Zone"]

The blue zone shown on the Proposals Map is functional floodplain and development will not normally be permitted here.

2. Flood plain ["Yellow Zone"]

Redevelopment of existing sites within the flood plain in areas not subject to significant flood flows [as defined by the Environment Agency], shown as "yellow zone" on the Proposals Map, will normally be permitted provided:-

- It is for less vulnerable or water compatible use (as defined in Table D2 of Planning Policy Statement 25);
- ground floor levels of all buildings are set above the 1 in 100-year flood level including an allowance for a change in climate, with an appropriate safety margin to be agreed with the Local Planning Authority and Environment Agency, and should be flood free during an extreme flood event;
- safe access is available for the lifetime of the development and is supported by approved flood warning and suitable evacuation plans being in place;
- car parking is designed to have regard to potential flood depths and hazards and mitigation measures are put in place. (No basement car parking shall be permitted);

- there is no detriment to the available flood storage capacity of the floodplain and additional flood storage is created; and
- Unnecessary obstructions to flood flow are removed, restoring flood flow pathways.

3. Flood plain ["Red Zone"]

New development (including extensions) and redevelopment will not normally be permitted in areas of existing or previously existing flood plain flow [as defined by the Environment Agency] shown as "red zone" on the Proposals Map, or within 8 metres of the top of both banks of other watercourses. Where options for managed retreat or land swap exist, developers should explore these with the Local Authority.

Development and Flood Risk

In order to:

- protect flood plains from inappropriate development;
- ensure no increase in flood risk;
- where possible reduce flood risk and;
- ensure development is safe.

All development must adhere to the advice in the current version of the South Worcestershire Strategic Flood Risk Assessment (Level 1 and 2) and the guidance provided on Flood Risk Assessment requirements.

Where evidence has been provided to the satisfaction of the Local Planning Authority that the development of a site of less than 1 hectare in flood zone 1 could cause increased flood risk, then a detailed Flood Risk Assessment shall be carried out by the developer.

Protection and Enhancement of Watercourses

Planning permission for development will only be granted where:

- The natural watercourse system which provides drainage of land is not adversely affected;
- a minimum 8m width access strip is provided adjacent to the top of both banks of any watercourses for maintenance purposes and is appropriately landscaped for open space and biodiversity benefits.

- it would not result in the loss of open water features through draining, culverting or enclosure by other means and culverts are opened up where ever possible;
- surface water drainage is delivered by Sustainable Drainage Systems; and
- the surface water run-off is reduced with any residual risk of flooding from drainage features both on or off site not placing people and property at unacceptable risk.

Links to Objectives

27.21 The Preferred Option policy for Management of Flood Risk supports the following objectives:

- A Better Environment for Today and Tomorrow objectives 1, 2, 4 and 5

Alternative Options

27.22 None. Recent flooding events threatened public water supplies and impacted upon waste/sewage treatment, demonstrating the clear public health implications of poor flood risk management. Flooding also results in significant psychological stresses through isolation and safety fears. Furthermore, national guidance promotes the use of flood risk mitigation and adaption. It is for these reasons that no alternative options have been considered.

27.3 SWDP 48: Water Supply and Treatment

Reasoned Justification

27.23 Water supply throughout the area is the responsibility of the Severn Trent Water Authority, whilst the Environment Agency is responsible for licensing abstractions and the quality of the water environment.

27.24 The South Worcestershire Authorities have carried out a Water Cycle Study to ensure that the proposed growth can be supplied with sufficient water and waste water treatment facilities without detrimentally affecting the natural water cycle.

27.25 The water company is already addressing this issue and intends importing water from other areas in the country and the necessary infrastructure will need to be in place in accordance with the phasing in this Development Plans Implementation Plan if new development is not to be restricted. Improvements in these facilities, the timing of their provision and the funding source will be key to delivering the proposed growth in the South Worcestershire area.

27.26 In order to reduce the quantity of water supply necessary to serve new development, water efficiency measures will need to be introduced in accordance with Policy SWDP 3 on Sustainability.

27.27 New development must ensure that there are no direct or indirect adverse effects on the quality of water supplies. Appropriate mitigation measures need to be put in place to minimise the impact of increased urbanisation on the water environment. Without such measures, there will be significant risk of groundwater pollution and flooding.

Waste Water

27.28 The Water Cycle Study has identified that the Water Treatment Works at Worcester (Bromwich Road), Powick and Droitwich Spa are near capacity and this will need to be addressed for significant developments to take place at and around Worcester and Droitwich Spa.

SWDP 48: Water Supply and Treatment

Major proposals for new development must be able to demonstrate that there are, or will be, adequate water supply and waste-water treatment facilities in place to serve the whole development, or where development is being carried out in phases, the whole of the phase for which approval is being sought.

Schemes that would result in a reduction in the quality or quantity of groundwater resources will not be permitted. The South Worcestershire Authorities will support, in principle, infrastructure proposals designed to increase water supply and waste water treatment capacity subject to there being no significant adverse environmental impacts and the minimisation of those that may remain

Links to the Objectives

27.29 The Preferred Option policy for Water Supply and Treatment supports the following objectives:

- A Better Environment for Today and Tomorrow objectives 1, 2, 4 and 5.

Alternative Options

27.30 None. Recent flooding events threatened public water supplies and impacted waste/ sewage treatment demonstrating the clear public health implications of poor flood risk management. Flooding also results in significant psychological stresses through isolation and safety fears. Furthermore National guidance promotes the use of flood risk mitigation and adaptation. It is for these reasons no alternative options have been considered.