

# South Worcestershire **Renewable and Low Carbon Energy Supplementary Planning Document**



Adopted  
**July 2018**



## **The Town and Country Planning (Local Planning) (England) Regulations 2012**

### **ADOPTION STATEMENT for Supplementary Planning Documents**

Notice is hereby given that, in accordance with regulation 14 of the above regulations the south Worcestershire councils (SWC) [Malvern Hills District Council, Worcester City Council, and Wychavon District Council] adopted the following Supplementary Planning Documents (SPD):

- a) On 17th July 2018 Malvern Hills District Council agreed to adopt the South Worcestershire Renewable and Low Carbon Energy SPD, The South Worcestershire Revised Developer Contributions SPD and the South Worcestershire Water Management and Flooding SPD
- b) On 23<sup>rd</sup> July 2018, Worcester City Council agreed to adopt the South Worcestershire Renewable and Low Carbon Energy SPD, The South Worcestershire Revised Developer Contributions SPD and the South Worcestershire Water Management and Flooding SPD
- c) On 25<sup>th</sup> July 2018, Wychavon District Council agreed to adopt the South Worcestershire Renewable and Low Carbon Energy SPD, The South Worcestershire Revised Developer Contributions SPD and the South Worcestershire Water Management and Flooding SPD
- d) That any person with sufficient interest in the decision to adopt any of the SPDs may apply to the High Court for permission to apply for judicial review of that decision.
- e) That any such application must be made promptly and in any event not later than 3 months after 26<sup>th</sup> July 2018

#### **Area Covered:**

The three Supplementary Planning Documents are applicable to Malvern Hills District, Worcester City Council and Wychavon District Council.

#### **Subject Matters:**

##### **1) South Worcestershire Renewable and Low Carbon Energy SPD**

The Renewable and Low carbon Energy SPD sets out guidance on how the requirements in Policy SWDP 27 relating to Renewable and Low Carbon Energy should be applied. It includes guidance on what must be provided in Energy Assessments; Issues that need to be considered when examining the potential for decentralized energy and heat networks in large scale development proposals to comply with SWDP 27B; the various renewable and low carbon energy technologies

and the planning issues associated with each technology that will need to be addressed.

## **2) The South Worcestershire Revised Developer Contributions SPD**

The South Worcestershire Developer Contributions SPD sets out guidance relating to the collection of developer contributions, to be used when determining planning applications.

## **3) South Worcestershire Water Management and Flooding SPD**

This SPD sets out in detail the SWC approach to minimising flood risk, managing surface water and achieving sustainable drainage systems. This applies to both new and existing development whilst ensuring that the reduction, re-use and recycling of water is given priority and water supply and quality is not compromised. It relates to policies SWDP28, SWDP29 and SWDP30 of the adopted SWDP, relating to flood risk, Sustainable Drainage Systems and water supply.

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# 1.Introduction

## Renewable and Low Carbon Energy

- 1.1 Most of the UK's energy currently comes from fossil fuels such as coal, oil and gas which are a finite resource and release greenhouse gases. Renewable Energy covers those energy flows that occur naturally and repeatedly in the environment - from the wind, the fall of water, movement of the oceans, from the sun and deep geothermal heat. Examples of renewable energy include solar power, hydro power and wind turbines. Low carbon technologies are those that can help reduce emissions (compared to conventional use of fossil fuels). Such technologies include biomass, ground source heat pumps as well as combined heat and power (CHP).
- 1.2 Increasing the amount of energy produced from renewable and low carbon technologies in south Worcestershire will reduce the dependence on fossil fuels which are becoming more expensive and difficult to find. It will also help to make sure that south Worcestershire has a secure energy supply and reduce greenhouse gas emissions which will slow down climate change.

## Purpose and scope of this document

- 1.3 Planning plays an important role in the delivery of new renewable and low carbon energy schemes. In accordance with national planning policy, the South Worcestershire Development Plan (SWDP) provides a positive strategy to promote energy from renewable and low carbon sources and includes policies, in particular Policy SWDP 27, which are designed to maximise renewable and low carbon energy development, while ensuring that adverse impacts are addressed satisfactorily. The SWDP was prepared by the three South Worcestershire councils of Malvern Hills District Council, Worcester City Council and Wychavon District Council and adopted in February 2016.
- 1.4 This Supplementary Planning Document (SPD) is one of a suite of SPDs that give additional guidance on the interpretation of different policies within the SWDP. This document should be afforded significant weight as a material consideration in determining planning applications.
- 1.5 The purpose of the SPD is to provide guidance for planning applicants, planning officers and other interested parties on how the requirements in Policy SWDP 27 relating to Renewable and Low Carbon Energy should be applied. The SPD sets out:
  - The information that must be provided in Energy Assessments to demonstrate that the requirements of SWDP 27A will be met;
  - Issues that need to be considered when examining the potential for decentralized energy and heat networks in large scale development proposals to comply with SWDP 27B, and
  - The various renewable and low carbon energy technologies and the planning issues associated with each technology that will need to be addressed as part of any planning application to comply with SWDP 27C.
  - The information that must be provided in the event that compliance with the requirements of SWDP 27 would make a development unviable.

## Timetable

1.6 In accordance with legislation (Town and Country Planning (Local Planning) (England) Regulations 2012), the councils have undertaken public consultation on the draft SPD, under Regulation 13, according to the following timetable

- Commencement of evidence gathering / drafting of SPD - January 2017
- Public consultation (Regulation 13) for 6 weeks Friday 2<sup>nd</sup> February to Friday 16<sup>th</sup> March 2018
- Consideration of responses and redrafting of SPD, April to June 2018
- **Adoption (Regulation 14) on 26<sup>th</sup> July 2018.**

1.7 Policies in the SWDP were subject to Strategic Environmental Assessment (SEA) in accordance with European Union Directive 2001/42/EC, and the subsequent legislation for England produced in 2004. The SWC produced a Joint Screening Statement to consider whether this SPD (and others) are likely to have significant environmental effects, and whether further SEA was required. The screening statement was sent to the statutory consultees - the Environment Agency, Natural England and Historic England - in February 2017 for comment. The conclusions from the screening and consultation were that the SPDs were unlikely to have any significant environmental impacts. The SEA Screening Statement (published in April 2017) can be viewed on the SWDP website here:

<http://www.swdevelopmentplan.org/wp-content/uploads/2017/08/Joint-SEA-Screening-for-SPD-update-FINAL-310317.pdf>

## 2. Policy Context

2.1 The following legislation provides the national and international context for the local policies.

### **a) Climate Change Act**

The Climate Change Act (2008) established a legal requirement for the UK to achieve an 80% cut in CO<sub>2</sub> emissions by 2050, with a 34% cut by 2020.

### **b) EU Renewable Energy Directive**

The EU Renewable Energy Directive (Directive 2009/28/EC) sets an overall target for 20% of the energy consumed in the EU to come from renewable sources by 2020. This overall target is divided by country, with the UK's target being 15% by 2020.

### **c) Planning and Energy Act**

The Planning and Energy Act (2008) allows local planning authorities' policies to impose reasonable requirements for a proportion of energy used in developments to be from renewable and low carbon sources in the locality of the development.

## National Planning Policy Framework (NPPF)

2.2 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England. It is statutory guidance and is a material consideration in plan making and in determining planning applications. **Note that the NPPF was updated on 24<sup>th</sup> July 2018. The Renewable and Low Carbon Energy policy SWDP 27, its examination and this SPD and the related consultations, have taken place in the context of the NPPF 2012.**

2.3 The NPPF makes clear that the transition to a low carbon future and use of renewable resources in a changing climate is a core planning principle of national planning policy. In the NPPF published in 2012, Section 10, "meeting the challenge of climate change", recognises the key role planning plays in supporting the delivery of renewable and low carbon energy. To help increase the use and supply of renewable and low carbon energy, the Framework states (paragraph 97) that local planning authorities should:

- Have a positive strategy to promote energy from renewable and low carbon sources.
- Design policies to maximise renewable and low carbon energy development, while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts.
- Identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

## National Planning Practice Guidance– Renewable and low carbon energy

2.4 In June 2015 the Government updated National Planning Practice Guidance (NPPG) topics and issues related to renewable and low carbon energy. NPPG provides guidance to help local councils in developing policies for renewable and low carbon energy and identifies the planning considerations. Applicants are encouraged to consider this guidance, which is available at:

<https://www.gov.uk/guidance/renewable-and-low-carbon-energy>

## South Worcestershire Development Plan (2006 – 2030)

2.5 The South Worcestershire Development Plan (SWDP) sets out a development strategy and planning policies to ensure that development is appropriately located and designed. The SWDP includes Policy SWDP 27 which relates specifically to the development of Renewable and Low Carbon Energy.

2.6 The SWDP also includes other policies which will be relevant to help ensure that renewable and low carbon energy proposals are appropriately located and designed, including:

- SWDP 1 – Overarching Sustainable Development



- SWDP 6 – Historic Environment
- SWDP12 – Employment in Rural Areas
- SWDP 21 - Design
- SWDP22 – Biodiversity and Geodiversity
- SWDP23 – The Cotswolds and Malvern Hills Areas of Outstanding Natural Beauty (AONB)
- SWDP 24: Management of the Historic Environment
- SWDP25 – Landscape Character
- SWDP28 – Management of Flood Risk
- SWDP 31 – Pollution and Land Instability
- SWDP 38 – Green Space

2.7 In addition to these policies, applicants may also find it helpful to refer to the South Worcestershire Design Guide Supplementary Planning Document,

2.8 These SWDP policies, including SWDP 27: Renewable and Low Carbon Energy can be viewed on the South Worcestershire Development Plan website at: [http://www.swdevelopmentplan.org/?page\\_id=12262](http://www.swdevelopmentplan.org/?page_id=12262)

SWDP 27 is also produced in full in Appendix 1.

### Policy SWDP 27 - Renewable and Low Carbon Energy

2.9 Policy SWDP 27A requires all new developments over 100 square metres gross or one or more dwellings to secure at least 10% of their **predicted energy requirements** from renewable or low carbon sources, unless it has been demonstrated that this would make the development unviable. For the purposes of this policy it should be noted that:

- Predicted energy requirements refers to **total energy** requirements, that is **regulated and unregulated energy**.
- The application of the policy should be considered within the context of an “energy hierarchy” whereby energy demand is reduced through energy efficiency and low energy design before meeting residual energy demand, first from renewable or low carbon sources and then from fossil fuels.
- The 10% requirement applies to the whole development, rather than each building individually, where the development includes more than one building.

2.10 Policy SWDP 27B requires large scale development proposals (residential developments of 100+ dwellings or non-residential developments of more than 10,000 square metres) to examine the potential for a decentralized energy and heating network. If practical and viable, a decentralised energy and heating network should be provided as part of the development.

2.11 Policy SWDP 27C states that proposals for stand-alone renewable and other low carbon energy schemes (with the exception of wind turbines) will be considered favourably having regard to the provisions of other relevant policies in the Plan. Proposals for stand-alone wind turbines will only be considered favourably if the site is identified as suitable for wind energy development in a Neighbourhood Plan, it can be demonstrated that any significant planning impacts identified by the affected local community have been fully addressed and the proposal has the local community’s backing.

**The full SWDP 27 policy is shown in Appendix 1**

## Development thresholds for SWDP 27 and Information required

2.12 Policy SWDP 27 sets out the minimum threshold in terms of new development that the policy applies to. The SWC will apply this policy in terms of the **gross** level of development, as stated in the policy, and so it is the amount of all new development that triggers the threshold, even if demolition is involved. The policy thresholds for different development and brief description of requirements are outlined in Table 1 below.

**Table 1: Development thresholds for SWDP 27 and when information required**

Type of Development	Requirement	
	Outline application	Full or Reserved Matters application
<p><b>Residential Development less than 100 dwellings</b> New developments of one or more dwellings. This includes new build extensions to existing dwellings over 100 Sq m. Conversions, subdivisions and changes of use are excluded unless they involve increasing floorspace over 100 Sq m gross.</p>	Energy Assessment to set out a framework to show how the proposal will achieve the requirements of Policy SWDP 27A. Best estimates of <b>total</b> predicted energy use (regulated and unregulated) at outline application stage will be acceptable, based on a recognised methodology.	Detailed Energy Assessment required.
<p><b>Non-residential Development over 100 square metres up to 10,000 square metres</b> New developments over 100 Sq m gross. Conversions, subdivisions and changes of use are excluded unless they involve increasing floorspace over 100 Sq m gross.</p>	Energy Assessment to set out a framework to show how the proposal will achieve the requirements of Policy SWDP 27. Best estimates of total predicted energy use at outline application stage will be acceptable, based on a recognised methodology	Detailed Energy Assessment required.
<p><b>Residential Development of 100 or more dwellings</b></p>	Energy Assessment to set out a framework to show how the proposal will achieve the requirements of Policy SWDP 27 A and B. Best estimates of total predicted energy use at outline application stage will be acceptable. Statement should include assessment of potential	Detailed Energy Assessment required, including detailed description of proposed technology, estimated energy generation and layout plan showing location of proposed infrastructure including connection to distribution network.

	for decentralised energy and heating network, with description of technology proposed (including fuel type), estimated energy generation and details of proposed connection to distribution network.	
<b>Non-residential Development greater than 10,000 square metres</b>	Energy Assessment to set out a framework to show how the proposal will achieve the requirements of Policy SWDP 27 A and B. Best estimates of energy use at outline application stage will be acceptable. Statement should include assessment of potential for decentralised energy and heating network, with description of technology (including fuel type) proposed, estimated energy generation and details of proposed connection to distribution network.	Detailed Energy Assessment required, including detailed description of proposed technology, estimated energy generation and layout plan showing location of proposed infrastructure including connection to distribution network.
<b>Stand Alone renewable and Low Carbon Energy Schemes (excluding wind turbines)</b>	Would we normally only accept a <b>detailed</b> application for a stand alone renewable energy scheme as environmental and social impacts would be difficult to gauge without a certain level of detailed background work. E.g. a solar farm / river tidal barrage etc.	Energy Assessment to set out a framework to show how the proposal will achieve the requirements of Policy SWDP 27 c. It should include description of technology (including fuel type) proposed, estimated energy generation and details of proposed connection to distribution network. The location and design will need to have regard to other policies in the SWDP, and in particular SWDP 21: Design; SWDP 22 Biodiversity and Geodiversity; SWDP 23: The Cotswolds and Malvern Hills AONB; SWDP 24: Management of the Historic Environment;

		SWDP 25: Landscape Character; SWDP 28: Management of Flood Risk; SWDP 31: Pollution and Land Instability
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NB: The Energy Assessment will be required on all sites of 1 or more dwelling, or over 100 square metres, but it can also be part of a Design and Access Statement where this is also required (for all major development).

### Planning Conditions and Planning Obligations

- 2.13 The reasoned justification at paragraph 10 of policy SWDP 27 explains that the use of on-site sources, off-site sources or a combination of both can be considered in meeting the requirement for 10% of predicted energy requirements. The councils' preference is for renewable or low carbon energy provision to be provided on-site by developers and incorporated into individual developments. Planning conditions will be used to secure the minimum 10% renewable energy requirement, or an alternative agreed target, following consideration of viability issues (see paragraphs 2.19 -2.26).
- 2.14 However, in circumstances, where it is proven to not be appropriate or feasible for renewable or low carbon technologies to be provided on-site, the councils may require an off-site contribution towards renewable / low carbon energy schemes in lieu. This may be in the form of a financial contribution secured through a S106 legal agreement. Reference is made in the Developer Contributions SPD (July 2018) for the possible planning obligations related to SWDP 27- see para. 1.2.4 and 2.7.1 of that document. For example, for developments that involve sensitive landscapes, biodiversity issues, heritage assets or affect the setting of historic buildings, off-site provision or planning obligations in the form of a financial obligation may be more appropriate.
- 2.15 The level of any financial contribution will be calculated on a site by site basis to reflect the characteristics of the proposed development. Developers should follow the approach set out in this SPD to calculating the 10% renewable or low carbon energy requirement. If the developer believes that the 10% requirement cannot be met, the developer will be required to provide financial evidence to the Council, to be used as the basis of any financial contribution.
- 2.16 Planning Obligations for renewable or low carbon energy will only be sought where they are material to a planning decision and comply with the requirements for Planning Obligations as set out within the CIL Regulations 2010 (as amended).
- 2.17 Planning conditions will be placed on permissions to ensure that the renewable and low carbon technology associated with the development is implemented. A model planning condition is put forward below:

## Model Condition:

*Before the commencement of development hereby permitted, details of renewable and/or low carbon energy generation measures shall be submitted to, and approved in writing by, the Local Planning Authority. The measures shall contribute renewable or low carbon energy to at least 10% of the predicted energy requirements of the development. The details to be submitted shall include:*

- the overall predicted energy requirements of the approved development;*
- the predicted energy generation from the proposed renewable/low carbon energy measures;*
- details of the renewable / low carbon energy systems to be installed; and*
- an implementation timetable for the proposed measures.*

*The development shall be carried out in accordance with the approved details.*

Reason: *To ensure the development supports the delivery of renewable / low carbon energy in accordance with policy SWDP 27 of the South Worcestershire Development Plan.*

## **Monitoring**

- 2.18 The assumption is that it is viable for most developments that meet the policy threshold to meet the requirement for renewable and low carbon energy. The viability of the policy was tested at the South Worcestershire Development Plan (SWDP) Examination stage, and not found to be onerous. The councils will monitor this policy to assess how many applications and resultant permissions do not meet the 10% energy generation requirements on the basis of demonstrated viability information, or other exceptions.

## **Financial Viability**

- 2.19 It is recognised that councils must ensure that they do not place undue burdens on the development industry. Renewable and low carbon technologies can result in significantly lower building running costs and some will qualify for payments through the Feed-in Tariff (FiT) or Renewable Heat Incentive (RHI) which are periodically reviewed by the Government. These are factors which will potentially increase the attractiveness of the development to prospective purchasers or tenants, with corresponding increases in resale or rental value.
- 2.20 Nevertheless, the S W C recognise that on some sites e.g. on contaminated land etc., development viability is such the requirements of policy SWDP 27 cannot be delivered. In such circumstances the applicant should set out in an independent financial viability assessment, ideally before submitting a planning application, how meeting the policy requirement renders their proposed scheme unviable.

- 2.21 Where the applicant has identified that a development cannot afford to meet the 10% requirement, or it cannot be delivered for other reasons, they will need to submit a sound and fully justified case for why the policy requirement cannot be met. The councils will expect a full explanation of why the 10% target would render the development unviable or that standards cannot be achieved for technical reasons. This should also include the details of any rejected options.
- 2.22 If there are technical reasons why the 10% requirement cannot be met, (as opposed to financial viability reasons) in certain circumstances a financial contribution to off-site provision elsewhere may be acceptable in lieu. (see para 2.13 above).
- 2.23 Any reduced level of provision that is proposed by an applicant will only be acceptable where it is proven to render a scheme unviable (excluding land purchase costs) if the full level of planning obligations were required in line with the Planning Obligations SPD. The councils' adopted Developer Contributions SPD (2018) can be found here:  
[http://www.swdevelopmentplan.org/?page\\_id=13013](http://www.swdevelopmentplan.org/?page_id=13013)
- 2.24 The local planning authority will seek independent advice to review the evidence within the financial appraisal. The applicant will be required to meet the costs of any such review.
- 2.25 Any financial contributions will be spent on renewable energy or low carbon projects within the vicinity of the application site, including in the relevant ward or parish. This may include financing additional microgeneration systems such as small solar panels or small scale wind turbines on new or existing buildings.
- 2.26 More detailed information on the requirements for testing viability is outlined in Appendix 4.

### 3. The Application of SWDP 27A - Submitting an Energy Assessment

- 3.1 SWDP 27A requires all new developments over 100 square metres gross or one or more dwellings to incorporate the generation of energy from renewable or low carbon sources equivalent to at least 10% of predicted energy requirements, unless it has been demonstrated that this would make the development unviable.
- 3.2 The “predicted energy requirement” is the total energy used in the building - i.e., **both regulated and unregulated energy**. Regulated Energy is covered by the Building Regulations and includes that used for space heating, hot water, lighting, and to run pumps and fans. Unregulated energy is the remaining energy and includes that used to run appliances / equipment and for cooking.
- 3.3 To demonstrate that the requirements of SWDP 27A will be met, all applications for new developments over 100 square metres gross or one or more dwellings are required to include an Energy Assessment.

#### Enplanner Low Carbon Planning Toolkit

- The South Worcestershire Council’s use the online **Enplanner Low Carbon Planning Toolkit** developed by Encraft and the Carbon Trust to help assess submitted energy statements.
  - Enplanner is an online toolkit intended to assist both planning applicants and planning officers to meet local planning requirements for on-site renewable and low carbon energy generation. Enplanner allows the user to assess the energy saving available through the use of various renewable and low carbon technologies and consider which may be most suitable for their development in order to meet the required reduction in energy demand required by planning policy.
  - Enplanner has been specifically commissioned to meet the requirements of local authority planning policy, however applicants may wish to provide evidence from another source that would satisfy the Local Authority requirements.
  - The Enplanner Low Carbon Planning Toolkit can be accessed at <http://enplanner.com/>
  - Sample Energy Assessments which were prepared using the Enplanner Low Carbon Planning Toolkit can be found at <http://enplanner.com/doc/demo-domestic-project-energy-statement.pdf>
- 3.4 The cost (as at October 2017) of preparing an Energy Assessment using the Enplanner Low Carbon Planning Toolkit for single development is £175 + VAT. Encraft offer discounted rates for those intending to use Enplanner for multiple projects. Further details can be found on the Enplanner website

## How Energy Assessments should be undertaken

- 3.5 The Energy Assessment should show the predicted energy consumption for the proposed development and how at least 10% of this consumption will be met from the generation of renewable or low carbon energy (e.g. the installation of solar panels; ground source heat pumps)

The Energy Assessment may be undertaken by one of the following methods:

- a. Energy Statement produced using the Enplanner Low Carbon Planning Toolkit described below. If used it makes the SWC's appraisal of submitted energy statements easier.
- b. The National Calculation Method (NCM) described below, based on SAP/SBEM calculations including both regulated and unregulated energy, or
- c. Professional assessment by suitably qualified persons following a methodology that is demonstrably equivalent to the above options.

## What information must be included in the Energy Assessment?

- 3.6 The Energy Assessment should present technical data whilst remaining easy to read and understand. Although the presentation of data will be a matter of choice for the applicant, to speed up the assessment process Energy Assessments should include the information listed below. Some of the necessary information (eg internal floor space) will not necessarily be available at the outline application stage. At the outline application stage the energy statement should therefore include best estimates of predicted energy requirements based on assumptions on the proposed development (such as the number and type of dwellings, primary heat source). At the full or reserved matters stage the Energy Statement should be based on estimated predicted energy requirements, not "best estimates".

**Table 2: Information requirements in Energy Assessments**

<p>Details of the Proposed Development</p>	<p>Details of the proposed development must include:</p> <ul style="list-style-type: none"> <li>• Location of the development – a valid postcode or grid reference.</li> <li>• Description of the development. Summarise the size and description of the location as well as any other special features. For example, "This is a small city centre development of four retail units with offices above."</li> <li>• Number of buildings</li> <li>• Use of Building (Use Class)</li> <li>• Gross internal floor area (square metres)</li> <li>• Primary and secondary heating. Usually the primary heating fuel is used for the bulk of the heating (space and hot water) in a building. Not all developments will have secondary heating.</li> <li>• Heating split. This is the percentage split (in energy use — kWh/annum) between the two heating fuels. (Only required where more than one heating fuel is to</li> </ul>
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	be used).
Predicted Energy Consumption	<p>Benchmark energy consumption data, all in kWh/m<sup>2</sup>/annum, for the various elements of predicted energy consumption including:</p> <ul style="list-style-type: none"> <li>• Heating (space heating)</li> <li>• Auxiliary (energy to run fans, pumps and controls associated with a building)</li> <li>• Lighting</li> <li>• Hot water</li> <li>• Cooling (i.e. air conditioning)</li> <li>• Appliances and equipment (energy for all other equipment)</li> </ul> <p>These figures should be obtained from calculations using either SAP (the Standard Assessment Procedure for domestic buildings) or SBEM (the Simplified Building Energy Model for non-domestic buildings).</p>
Energy Efficiency Measures (over-and-above the notional building)	<p>If you are planning to install energy efficiency measures on your development (over-and-above the minimum requirements of the current Building Regulations) then details about each measure should be included, including predicted energy savings in kWh/m<sup>2</sup>/annum. Examples could include highly efficient A-rated appliances and equipment, building control systems, design detail (e.g. air tightness), fabric insulation, heating systems, lighting, high performance windows and doors providing they are over and above those specified at building regulations.</p>
10% Target	<p>The target, in kWh per year for renewable or low carbon energy generation that will be required to meet at least 10% of predicted energy consumption.</p>
Renewable and Low Carbon Energy Technologies	<p>For each renewable and low carbon energy technology deemed to be suitable for the site, the following information should be provided:</p> <ul style="list-style-type: none"> <li>• Proposed renewable or low carbon energy technology</li> <li>• Reason for proposing the chosen technology</li> <li>• Proposed system size</li> <li>• Calculated energy generation</li> <li>• Calculated renewable component (some renewable heat technologies produce heat which is only partly renewable)</li> <li>• Site-specific design requirements</li> <li>• Design plan showing where the technology would be installed</li> <li>• Maintenance requirements</li> <li>• Estimated lifecycle</li> </ul> <p>The information that must be provided for different renewable and low carbon energy technologies are listed in Appendix 2.</p> <p>Where it is not considered possible to achieve the renewable</p>

	<p>or low carbon energy requirement, a clear explanation should be provided, together with a feasibility / viability assessment that will be independently reviewed on behalf of the LPA. Where a technology has been ruled out, clear justification outlining the technical and / or viability reasons for this should be provided.</p>
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### How to calculate the requirement for renewable and low carbon energy using the National Calculation Method (NCM)

- 3.7 The National Calculation Method (NCM) calculates the annual energy use for a proposed building by comparing it with the energy use of a comparable “notional” building of a similar type, under similar circumstances. The calculations make use of standard sets of data for different activity areas. They refer to common databases which contain information for energy use in construction and services elements.
- 3.8 For dwellings, the Standard Assessment Procedure (SAP) provides a framework for calculating energy performance.
- 3.9 For non-residential buildings, the Simplified Building Energy Model (SBEM) calculates monthly energy use of a building based on a description of the building, geometry, construction, use, heating, ventilation and air conditioning (HVAC) and lighting equipment.
- 3.10 The National Calculation Method uses SAP for dwellings and SBEM for non-dwellings.
- 3.11 The following methodology describes the procedure for a single dwelling or non-dwelling unit. Where a development consists of more than one unit the predicted energy consumption of each unit, domestic, non-domestic or a mixture, is to be calculated separately as below. The total predicted energy consumption of the development is the sum of all the units. This forms the basis of assessing the required renewable and low carbon energy generation for the proposed development.

#### Step 1 - Notional Building Energy Consumption

- 3.12 The energy consumption of a notional building is the energy consumption of the building just complying with Building Regulations, by using the specification set out in Part L of those regulations, i.e. without use of renewable or low carbon energy. For the purposes of the assessment it shall consist of the sum of regulated and unregulated energy consumption. **Regulated energy uses** are those associated with the building fabric and fixed services (space heating, domestic hot water, fixed internal lighting, fans and pumps) and **unregulated energy uses** are those that are not (e.g. cooking and appliances).
- 3.13 Regulated energy consumption is the sum of the various regulated energy uses of the notional building as specified in the relevant version of the Building Regulations and calculated in SAP for dwellings or SBEM for non-dwellings.
- 3.14 Unregulated energy should be calculated using the following method:

### Unregulated energy for dwellings

Sum of annual energy consumed by:

- Appliances, calculated using equation (L10) in SAP 2012
- Cooking, taken as the wattage using equation (L15) in SAP 2012, multiplied by 8.76 to convert to annual energy consumption

### Unregulated energy for non-dwellings

- Annual energy consumed by equipment per square metre as calculated by SBEM, multiplied by floor area to give annual total for the building

3.15 The predicted energy consumption for each unit should be presented in the following format (Table A below) supported by SAP or SBEM output(s) indicating the sources of figures used.

**Table A :Notional Energy Consumption of Building**

<b>Notional Energy Consumption of Building</b>	<b>Units (kWh/y)</b>
<b>Regulated</b>	
Space Heating	
Hot Water	
Cooling (non-dwellings only)	
Lighting	
Auxiliary: <ul style="list-style-type: none"><li>• SAP: Electricity for pumps, fans and electric keep-hot</li><li>• SBEM: Auxiliary</li></ul>	
<b>Unregulated</b>	
Appliances (dwellings only)	
Cooking (dwellings only)	
Equipment (non-dwellings only)	
<b>Total Notional Building Energy Consumption</b>	

### **Step 2 - Predicted Energy Consumption of Building**

3.16 A calculation using SAP/SBEM should be undertaken using the actual proposed specification for the building. This follows the same process as above and should be set out as in Table B below.

**Table B: Predicted Energy Consumption of Actual Building**

<b>Predicted Energy Consumption of Actual Building</b>	<b>Units (kWh/y)</b>
<b>Regulated</b>	
Space Heating	
Hot Water	
Cooling (non-dwellings only)	
Lighting	
Auxiliary: <ul style="list-style-type: none"><li>• SAP: Electricity for pumps, fans and electric keep-hot</li></ul>	

• SBEM: Auxiliary	
<b>Unregulated</b>	
Appliances (dwellings only)	
Cooking (dwellings only)	
Equipment (non-dwellings only)	
<b>Total Predicted Energy Consumption of Actual Building</b>	

### Step 3 - Energy Efficiency Measures over and above the Notional Building

3.17 Using an **energy hierarchy** approach, demand is reduced through energy efficiency and low energy design before meeting residual energy demand, first from renewable or low carbon sources and then from fossil fuels. Installing energy efficiency measures will mean that predicted energy consumption for the building will decrease. This, in turn, will reduce the level of renewable and low carbon energy generation necessary to meet the 10% requirement. If the intention is to install energy efficiency measures better than the notional building, brief details should be provided. Examples might include u-values that are better than in the concurrent notional building, improved / additional services such as waste water heat recovery etc.

**Table C: Energy Efficiency Measures (over and above the Notional Building)**

<b>Energy Efficiency Measures (over-and-above the notional building)</b>	<b>Units (kWh/y)</b>

3.18 It should be noted that the absence of any additional energy efficiency measures would indicate that the energy efficiency of the building is either less than in the notional building or just meets building regulations without renewable or low carbon energy. Policy SWDP 21 relating to Design strongly encourages energy efficient designs.

### Step 4 - Renewable and Low Carbon Energy Generation

3.19 Policy SWDP 27 requires new developments over 100 square metres gross or one or more dwellings to incorporate the generation of energy from renewable or low carbon sources equivalent to at least 10% of predicted energy requirements, unless it can be demonstrated that this would make the development unviable.

Compliance with Policy SWDP 27 should be demonstrated by completing Table D.

**Table D – Energy Generation from the supply of Renewable and Low Carbon Energy**

<b>Energy Generation from Renewable and Low Carbon Energy</b>	<b>Units (kWh/y)</b>
Combined Heat and Power (overall energy saving, fuel and electricity)	
Photovoltaics	
Solar Hot Water	
Ground Sources Heat Pump (renewable component only)	
Air Source Heat Pump (renewable component only)	
Water Source Heat Pump (renewable component only)	
Biomass	

Wind	
Other	
<b>Total Energy from Renewable and Low Carbon Energy</b>	
<b>Total Predicted Energy Consumption (from Table B)</b>	
<b>Percentage of Predicted Energy Consumption to be supplied by Renewable and Low Carbon Energy sources</b>	This figure must be at least 10% to comply with Policy SWDP 27

## 4. The Application of SWDP 27B – Examining the potential for a decentralised energy and heat network

- 4.1 For residential developments of 100+ dwellings or non-residential developments exceeding 10,000 square metres policy SWDP 27B requires that the development of a decentralised energy and heating network be explored. Applicants should therefore show how they have met this requirement.
- 4.2 To demonstrate that the potential for a decentralised heat network has been examined it will be necessary, as an initial stage, to prepare a heat map or other evidence, providing information on which parts of the development may be suitable for connection to a decentralised energy and heating network. As a general rule, decentralised heat networks may be appropriate if at least one of the following applies:
- Residential development density is around 50 dwellings per hectare or higher
  - Development is large scale and mixed use
  - Close to existing heat network
  - Close to existing heat sources (e.g. industrial processes)
- 4.3 If the initial stage identifies a suitable opportunity, the next step will be to commission a feasibility study. If applicants consider that a decentralised energy and heat network is not financially viable, an independent viability assessment should be submitted to the local planning authority.
- 4.4 If a decentralised energy and heating network is practical and financially viable then details of how it will be planned, installed, operated and funded need to be provided, including details of its maintenance.
- 4.5 An Energy Statement demonstrating how the 10% requirement under policy SWDP 27A is to be met by on-site renewable or low carbon generation in the absence of a decentralised energy and heating network will also be required. It may be that a decentralised network can be one way of achieving the 10% saving required for all development in SWDP 27.

## What is a Decentralised Energy and Heat Network?

- 4.6 Decentralised energy and heat means the generation and distribution of energy closer to the locations where energy is consumed.
- 4.7 Currently, electrical power in the UK is generally supplied from a relatively small number of very large power stations, most of which are in remote locations away from population centres. This approach creates a variety of inefficiencies in the overall energy system, of which the greatest is the inability to use the waste heat from power stations for beneficial purposes.
- 4.8 By locating a generating station close to where the energy is used, a decentralised energy and heat network offers the potential for the waste heat to be captured and distributed to buildings or industrial process which need it.
- 4.9 Although decentralised energy and heat can also refer to local generation of energy through renewable resources such as solar and wind energy, for the purposes of Policy SWDP 27 the term is used solely to refer to heat and power systems connected to a heating network.
- 4.10 It is recognised that every large scale development proposal will present different opportunities and constraints for development of a decentralised energy and heat network, which may have a significant impact on either technical feasibility or financial viability (or both). In order to demonstrate that these opportunities and constraints have been examined (and appropriate conclusions drawn) it will be necessary in the first instance to prepare a heat map or other robust evidence base which will provide information on which parts of the development may be suitable for connection to a decentralised energy and heating network. If the initial stage identifies the opportunity for a decentralised energy and heating network, the next step would be to commission a feasibility study.

## Heat Mapping

- 4.11 A heat map is a spatial plan of existing and planned buildings which shows heat demand and the potential location of and decentralised energy and heat generating equipment.
- 4.12 A heat map can be a live database of information that can be regularly updated to show information on new developments or changes of use that allows all parties, including the local authority, to identify opportunities for developing a decentralised energy and heating network.
- 4.13 It should be a comprehensive source of information that can also be used to consider off-site opportunities for new developments by removing the need for each site to collect information on neighbouring sites when investigating the potential for connection.
- 4.14 An overview of the key issues that need to be considered when preparing a heat map and carrying out a feasibility study are outlined below.

## Key Drivers of Scheme Viability

4.15 Decentralised energy and heat networks have been around for decades, particularly in Europe and North America. The engineering challenges to creating new networks are therefore well understood and technical solutions are readily available in most situations. The real challenge with each opportunity is how to design and deliver a network which is commercially viable. This section highlights some of the key factors which will affect the viability of a scheme:

- Scheme heat density
- Load diversity (e.g. mix of uses)
- Presence of anchor loads
- Scheme development costs
- Revenue potential from electricity and heat sales
- Avoided building energy system costs
- Scheme operating costs

### Scheme Heat Density

4.16 The installation of district heating systems is very expensive, with the capital cost of just the network typically in the range of £1m to £3m per linear kilometre of pipework. Therefore it is costly to connect widely dispersed buildings. Conversely, where buildings are densely concentrated, for example with blocks of flats, district heating is an attractive option.

4.17 The spatial density of buildings and their thermal characteristics combine to define the 'heat density' of the buildings in an area. The indicative commercial viability of district heating systems can be expressed in terms of an area's heat density (e.g. kWh/m<sup>2</sup>/yr). Research undertaken for DECC in 2009 estimated that areas with a heat density of less than around 26 kWh/m<sup>2</sup>/yr were unlikely to support a viable heat network<sup>1</sup>. However, heat density is but one factor which affects scheme viability and it should be taken as no more than a general guide, such as to inform a preliminary district heating opportunity screening assessment.

### Load Diversity

4.18 Different types of building occupiers have varying demands for heat. For example, domestic householders' consumption of heat peaks in the early morning and

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<sup>1</sup> Poyry and Faber Maunsell, 2009. The Potential and Costs of District Heating Networks: A report to the Department of Energy and Climate Change. The Poyry Faber Maunsell report expresses the viable heat density threshold as an average annual power density of 3,000kW/km<sup>2</sup>, and this figure is widely quoted in the literature on district heating.

during the evening, whilst during daytime it tends to be lower. In commercial offices, on the other hand, usage peaks in the morning but then tends to plateau through the rest of the day. Other uses, such as swimming pools, hospitals or prisons tend to have a flatter daily consumption profile.

- 4.19 Combining different types of buildings into a single district heating scheme can help to balance the load to create a more even daily and annual pattern of use. This will tend to increase plant utilisation rates (also expressed as percent on time) and to reduce the amount of peaking plant required. This will tend to improve both the technical feasibility and financial viability of schemes.

### **Presence of Anchor Heat Loads**

- 4.20 Some building users have large demands for heat that are relatively steady over the course of a day and over a year. Often, these users are public sector organisations such as hospitals, universities, prisons and leisure centres with swimming pools. Manufacturing and industrial processes can also provide a steady anchor load to support a heat network, although some industrial uses have special requirements such as high grade (i.e. high temperature) heat which may not be compatible with general heating and hot water requirements.

### **Scheme Development Costs**

- 4.21 Scheme development costs are made up of the following cost elements:

- design, planning and project management;
- commercialisation, procurement and other transaction costs;
- energy centre site development, plant and pipe costs;
- heat network installation, including any diversion or protection of existing utilities or assets affected by the network;
- fuel supply and power infrastructure upgrading (i.e. gas supply and grid connections);
- network connections to buildings;
- financing costs (i.e. the cost of borrowing or other financing mechanisms)
- land costs, including acquisition of rights or easements over land.

- 4.22 Of these costs, the heat network (i.e. the purchase installation of the pipes) often makes up the largest portion of the total cost of the scheme, which emphasises the importance of high heat density to provide sufficient heat consumption to underwrite the capital cost of network installation.

- 4.23 Heat networks are typically laid in the street, in common with other utility infrastructure. However, “hard dig” routes are considerably more costly than “soft dig” options such as along grass verges or canal towpaths. Where a street is already congested with existing utilities, the costs will be even greater.



4.24 The impact of financing costs is the same as for any capital investment: repayments on a loan begin as soon as it is made, but the revenue stream only commences once the network is installed and buildings are connected. Therefore schemes need to ensure a sufficient quantity of demand is connected early in the project life cycle and to consider carefully the opportunity for deferring or phasing the installation of the network and other capital expenditures.

### **Revenue potential from electricity and heat sales**

4.25 An energy and heat network connected to the electricity grid and to a heating network will generate income streams from both the power and the heat. The revenue potential from electricity sales depends on the value of electricity used on site and/or exported from the site.

4.26 In most cases, a scheme operator will not be an electricity licence holder under the Electricity Act 1989 and consequently will be able only to use generated electricity on site or to sell it on to the grid, i.e. to the distribution network operator (DNO). The DNO purchases the exported power at the wholesale price, resulting in a modest revenue stream for the scheme operator from the electricity which is surplus to the on-site requirements at the time it is generated. On the other hand, power from the scheme which is used on-site has the effect of displacing grid electricity which would have been purchased at the much higher retail price.

### **Avoided Building Energy System Costs**

4.27 When a heat network connects to a building it effectively replaces the on-site heating plant, saving both money and space, especially in new buildings. This avoided cost can provide a resource to support the connection cost from the nearest network distribution pipe to the site being connected. In simple terms, if the cost of connection is less than the cost of installing an on-site heating system, then the connection will be viable for the building owner. However whole life costs and costs and risk allocation assumptions should be considered to provide a “true” cost comparison.

### **Scheme Operating Costs**

4.28 The scheme operating costs include:-

- the cost of fuel;
- the cost of levies payable on fuel (any benefits to the scheme through fuel levy exemption should be taken into account as a saving);
- the cost of plant operation and maintenance (O&M);
- the cost of periodic plant replacement;
- the cost of management and administration of the scheme.

4.29 The viability of a scheme will be highly sensitive to the price of fuel, since the price goes directly to the unit sale price of heat. As a rule of thumb operation and

maintenance will generally be more cost effective for large, centralised plant than for plant distributed in multiple locations.

## 5. Guidelines for Stand Alone Renewable and Low Carbon Energy Proposals

5.1 With the exception of wind turbines, Policy SWDP 27C says that proposals for stand-alone renewable and other low carbon energy schemes will be considered favourably having regard to the provisions of other relevant policies in the Plan.

5.2 This section identifies the various renewable and low carbon energy technologies and provides guidance on how planning applications for such schemes will be assessed and what information will be required as part of the planning application.

5.3 Early discussions with the Council's Development Management Team are encouraged for all renewable and low carbon energy schemes prior to submitting a planning application. Open and constructive discussions about schemes before they are formally submitted as a planning application can help steer proposals into a form that are more likely to be acceptable to the Council whilst leading to the reworking or withdrawal of proposals that appear to be fundamentally unacceptable. This can be achieved by entering into pre-application discussions which will help save time and avoid unnecessary expense. There is a charge for this pre-application service which the Council will determine on a case by case basis. Further information on pre-application advice for each of the three South Worcestershire Councils is available at:

- Malvern Hills District Council - <https://www.malvern hills.gov.uk/business-planning-advice>
- Worcester City Council – <https://www.worcester.gov.uk/planning-advice>
- Wychavon District Council - <https://www.wychavon.gov.uk/business-planning-advice>

### A: Solar Power

#### 5.4 Introduction

Light and heat from the sun can be utilised to generate electricity using photovoltaic (PV) systems or to heat water using solar water heating systems.

Photovoltaic (PV) systems convert solar radiation into electricity using semi-conductors within photovoltaic cells. Individual PV cells are most commonly interconnected to form solar panels and can be mounted on roofs or free standing support structures on the ground. PV can also be integrated onto the roof of a building through the use of PV tiles. They are an important and relatively inexpensive source of electrical energy.

Solar water heating systems are designed to capture the heat of the sun and use it to directly heat water. They employ a similar technology to PV systems and use solar panels, called collectors, fitted to a roof. These collect heat from the sun and use it to heat up water which is stored in a hot water cylinder. There are two types of solar water heating panels; evacuated tubes and flat plate collectors, which can be fixed on the roof structure or integrated into the roof.

#### 5.5 Planning application procedure

All proposals for non-domestic solar power systems such as solar farms will need to apply for planning permission. Some domestic systems will also require planning permission, further details are provided below.

## **5.6 Permitted Development**

Most domestic roof mounted PV and solar hot water systems do not require planning permission, as long as the panels do not protrude above the highest part of the roof (excluding the chimney) or more than 200mm beyond the roof or wall on which they are installed. If the system is on a flat roof, planning permission will not be required unless the system is more than 1 metre in height above the highest part of the roof (excluding the chimney).

However, if the building is in a Conservation Area, planning permission will be required if the panels are fitted to a roof slope or wall that fronts a highway. Planning permission will also be required for solar panels if on a Listed Building, on a building within the curtilage of a Listed Building or on a site designated as a Scheduled Ancient Monument.

Domestic free standing systems do not require planning permission unless any of the following apply:

- Any part of the installation is higher than four metres.
- The installation is less than 5m from the boundary of the property.
- The size of the array is more than 9 square metres or 3m wide by 3m deep.
- They are installed within the boundary of a Listed Building or a scheduled monument.
- The property is in a Conservation Area and part of the solar installation is nearer to any highway bounding the house than the part of the house that is nearest to that highway.

Only the first free standing solar installation will be permitted development. Further installations will require planning permission.

## **5.7 Environmental Impact Assessment**

Solar power schemes are not specifically listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require an EIA. However, Section 3a) of Schedule 2 specifies that any industrial energy installation producing electricity, steam and area (SSSI) it may require an EIA even if it is under 0.5 hectares.

Any industrial solar power schemes over 0.5 hectares or within a SSSI may therefore require an EIA. For such schemes the Council must provide a Screening Opinion advising the applicant whether or not an EIA is required. An applicant can also request a Screening Opinion to be provided.

An EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.

Where an EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.

Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the

impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

## **5.8 Planning issues and requirements**

Whilst solar power systems have many environmental, social and economic benefits, they can also have negative impacts on the landscape if they are not sited appropriately, particularly large scale solar farms.

The planning issues associated with solar power systems are set out below and must be addressed in all planning applications to ensure that any potential negative effects are mitigated. These issues relate mainly to non-domestic stand-alone systems and solar farms but may also need to be taken into consideration for smaller scale domestic solar power developments requiring planning permission.

## **5.9 Landscape and visual impact**

The development of a solar power system has the potential to result in significant impacts upon the character and quality of the landscape. All proposals should aim to complement the character of the local landscape.

Solar power systems can also have visual impacts. To avoid the systems becoming a dominant feature within the local landscape and having an adverse visual impact, they should be sited on relatively level ground to reduce their visual profile. Where possible, sites should be screened from view, either by the existing landscape or by planted hedges or mature vegetation.

Solar power developments will need to be adequately secured. Preference should be given to using natural features such as vegetation planting to assist in site security. However, in some cases security fencing will be required. Where required, the fencing should be screened and the height should be minimised and a suitable material used to avoid an unacceptable landscape and visual impact.

A Landscape and Visual Impact Assessment must be submitted with all planning applications for solar power schemes to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

## **5.10 Sites with statutory protection**

In south Worcestershire there are a number of national and local environmental designations. Solar power schemes can have a significant impact on the setting of these designations.

South Worcestershire has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value.

If a proposal for a solar power scheme lies within or is considered to have an impact upon a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not an EIA is required.

There are also sites in South Worcestershire that make a significant

contribution to the natural diversity of the area and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of solar power schemes on these heritage assets. Such assets in south Worcestershire are identified on the SWDP Interactive Map and include:

- Areas of Outstanding Natural Beauty
- Regional and Local Sites of Wildlife Importance
- Conservation Areas
- Listed Buildings
- Scheduled Ancient Monuments
- Historic Parks and Gardens

In addition, there are a number of non-designated heritage assets in the south Worcestershire. These are included on the Worcestershire Historic Environment Record. Consideration needs to be given to the impact of solar power schemes on these non-designated heritage assets. Developers are advised to consult the Record at an early stage in planning a scheme.

The impact of a proposal on ecological networks in south Worcestershire must also be taken into consideration.

If a solar power scheme is proposed within, or affects the setting of, one of the above types of heritage asset (both designated and non-designated), an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated. The level of detail in the assessment should be proportionate to the assets' importance. The impact on the setting of a heritage asset needs to be assessed over a reasonably extensive area, in part but not solely dependent upon the scale of the solar power scheme proposed.

### **5.11 Agricultural Land**

Solar farms often cover large areas of land and are therefore usually developed in rural locations. When selecting suitable locations, preference should be given to previously developed non-agricultural land or land which is of lower agricultural quality in order to safeguard the long term potential of the best and most versatile agricultural land. Even small scale solar energy developments can impact on the agricultural use of the land.

Where possible, the proposal should allow for the continued agricultural use of the land.

### **5.12 Ecology**

Solar power schemes can have implications for habitat loss, fragmentation and displacement of species. The nature of the impact is dependent on the ecological characteristics and features of the site and its sensitivity to the proposed change.

To minimise the ecological impact, hedges should be retained and any fencing to secure the site must allow species such as badgers to continue to access the site. Security lighting can also have an impact on species such as bats. It is advised that lighting is not used unless absolutely necessary. If it is necessary it must be minimised and directed away from hedges and woodland.

Developers should consult with Natural England regarding the presence of important habitats or protected species in and around the proposed development site. Developers may also wish to consult the Worcestershire Wildlife Trust.

An ecological survey must be submitted with all planning applications assessing any potential impacts and identifying appropriate mitigation measures.

### **5.13 Flood risk**

The development of a solar farm does not usually increase flood risk and surface water run-off should not be any greater. However, a change in the composition of the ground surface which affects the way the surface water is channelled, or building solar farms in areas at risk of flooding could increase the risk.

A flood risk assessment must be submitted with all planning applications for solar power unless they are in Flood Zone 1 and are less than 1 hectare.

The flood risk assessment should identify and assess the risk on all forms of flooding to and from the development and demonstrate how these flood risks will be managed or mitigated so that the development remains safe throughout its lifetime.

### **5.14 Light reflection**

Photovoltaic panels are designed to absorb light and not reflect it, and only reflect a small amount of the sunlight that falls on them. These reflections are significantly less than direct sunlight. However, concerns have been expressed about the potential for solar panels to cause glint and glare which could be a nuisance or hazard to residents and drivers. The Ministry of Defence (MoD) also have concerns if there is potential for increased glare hazardous to air traffic procedures and critical stages of the flight process – ie. at take-off and landing.

Glint may be produced as a direct reflection of the sun in the surface of the solar panel. Glare is a continuous source of brightness and is not a direct reflection of the sun, but rather a reflection of the bright sky around the sun. Glint and glare may be more of an issue if tracking panels are proposed, which follow the daily movement of the sun.

All planning applications for solar power systems should be accompanied by a glint and glare assessment that considers the likely reflective capacity of all the materials used in the construction of the scheme and the potential impacts on residents.

Consultation with the MoD is strongly encouraged and evidence of the consultation should be submitted with the planning application along with details of how any concerns have been mitigated.

### **5.15 Unstable land**

There are areas within south Worcestershire defined by the Coal Authority as Development High Risk Areas. These are areas where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. All proposals for solar power schemes in these areas will be required to prepare and submit a Coal Mining Risk Assessment (available on the Coal Authority website) with the planning application.

## B: Hydropower

### 5.16 Introduction

Hydropower is the use of flowing water to generate electricity which is known as hydroelectricity.

In the UK there are three main methods for generating hydroelectricity:

- Storage schemes – where a dam collects water in a reservoir, then releases it to drive turbines, producing electricity.
- Pumped storage schemes – where water is pumped to a higher reservoir, usually during times of low-priced electricity (at night), then released to a lower reservoir, again driving a turbine, usually when the electricity price is higher.
- Run-of-river schemes – where the natural flow of a river or stream is used to drive a turbine.

Hydropower is reliable and predictable and if installed correctly can produce electricity all year round as it is only reliant on water flow. Over time, it is one of the most efficient forms of renewable energy.

The cost of installing a hydropower scheme can be high compared to other renewable and low carbon technologies, however maintenance requirements and costs are usually relatively low.

West Midlands and Worcestershire Renewable Energy capacity studies (see Appendix 5) indicate very limited opportunities for small hydroelectric schemes in south Worcestershire.

### 5.17 Planning application procedure

Planning permission is required for all hydroelectric schemes, including domestic and non-domestic installations. In addition to planning permission, permission is also required from the Environment Agency. Applicants must apply to the Environment Agency for an environmental permit to ensure that the scheme does not harm the environment. This permit will include a variety of licences, approvals or consents.

Before submitting a planning application developers should contact the Environment Agency to discuss the proposed scheme and begin the application for an environmental permit.

For proposals on canals and rivers consultation with the Canal and River Trust is also strongly encouraged early on to establish if there is any potential impact on navigational safety.

### 5.18 Environmental Impact Assessment

Installations for hydroelectric energy production are listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require an EIA if the installation is designed to produce more than 0.5MW. If the proposal lies within a sensitive area (SSSI) it may require an EIA even if it is under 0.5 hectares.

If any of these conditions apply the Council must provide a Screening Opinion advising the applicant whether or not an EIA is required. An applicant can also request a Screening Opinion to be provided.



An EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.

Where an EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.

Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

### **5.19 Planning issues and requirements**

The planning issues associated with hydropower schemes are set out below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

### **5.20 Landscape and Visual Impact**

Small-scale hydropower schemes consist of the installation of a turbine, associated buildings and ancillary equipment. The visual impact of these can be harmful to the landscape if not appropriately sited.

Such schemes should be sensitively sited and designed so that they integrate into the landscape through the careful use of landform, materials, vegetation and tree cover. Where possible, existing buildings should be used to house machinery.

A Landscape and Visual Impact Assessment must be submitted with all planning applications for hydropower schemes to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

### **5.21 Sites with statutory protection**

In south Worcestershire there are a number of national and local environmental designations. Hydropower schemes can have a significant impact on the setting of these designations.

South Worcestershire has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value.

If a proposal for a hydropower scheme lies within or near to a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not an EIA is required.

There are also sites in south Worcestershire that make a significant contribution to the natural diversity of the area and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of hydropower schemes on these heritage assets. Such assets in south Worcestershire are identified on the SWDP Interactive Map and

include:

- Areas of Outstanding Natural Beauty
- Regional and Local Sites of Wildlife Importance
- Conservation Areas
- Listed Buildings
- Scheduled Ancient Monuments
- Historic Parks and Gardens

In addition, there are a number of non-designated heritage assets in the south Worcestershire. These are included on the Worcestershire Historic Environment Record, along with the designated heritage assets above. Consideration needs to be given to the impact of hydropower schemes on these non-designated heritage assets. Developers are advised to consult the Record at an early stage in planning a scheme.

The impact of a proposal on ecological networks in south Worcestershire must also be taken into consideration.

If a hydropower scheme is proposed within, or affects the setting of, one of the above types of heritage asset (both designated and non-designated), an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated. The level of detail in the assessment should be proportionate to the assets' importance. The impact on the setting of a heritage asset needs to be assessed over a reasonably extensive area, in part but not solely dependent upon the scale of the hydropower scheme proposed.

#### **5.22 Noise**

The noise emitted from a hydroelectric turbine is likely to be contained by the turbine house and is unlikely to be heard more than a few metres away. Where residential properties are located in close proximity to a hydropower scheme the Council may require a noise assessment to be submitted with the planning application, demonstrating that the scheme will not have a negative impact on local amenity. Noise limits can also be imposed if necessary as a condition on the planning permission.

#### **5.23 Ecology**

Hydropower schemes can have significant impacts on wildlife, particularly fish as they can be harmed if they pass through a turbine. As part of the application to the Environment Agency for an environmental permit, the Environment Agency will advise whether the scheme should include structures such as fish passes to protect fish and other freshwater animals from the turbines.

Developers should also consult with Natural England regarding the presence of important habitats or protected species in and around the proposed scheme. Developers may also wish to consult the Worcestershire Wildlife Trust.

An ecological survey must be submitted with all planning applications assessing any potential impacts and identifying appropriate mitigation measures.

#### **5.24 Flood risk**

Some hydropower schemes can lead to reduced flows in rivers which can increase flood risk or affect land drainage.

A flood risk assessment must be submitted with all planning applications for hydropower. The flood risk assessment should identify and assess the risk on all forms of flooding to and from the development and demonstrate how these flood risks will be managed or mitigated so that the development remains safe throughout its lifetime.

## **C: Wind Turbines**

### **5.25 Introduction**

Wind power is a technically proven energy technology for which there is great potential in the UK due to it benefitting from some of the highest wind speeds in Europe. Wind energy is produced by turbines operated by winds. When the wind is blowing the blades are pushed around and each circulation powers a turbine which then generates electricity.

Due to the initial relatively easy setup, low maintenance requirements and high levels of energy produced, wind energy is one of the most cost effective renewable fuels available. The faster the wind, the more energy the wind turbine will produce. If the wind is very strong the turbines will stop for safety reasons. One wind turbine as part of a wind farm can produce enough energy to supply 1,000 homes over a year.

There are various types of wind turbines, principally horizontal and vertical axis types. Wind turbines also vary considerably in size. Small-scale (microgeneration) wind turbines have a power output less than 50kW and are generally intended to supply electricity to a household. They can be building mounted or stand alone. Building mounted wind turbines have a blade diameter less than 2 metres. Stand-alone small-scale wind turbines typically have a blade diameter less than 15 metres and are usually no more than 30 metres in overall height.

Medium scale wind turbines have a power output between 50kW and 500kW and can range from a single turbine to small groups of turbines. They are most commonly installed to supply electricity to businesses. Medium size wind turbines typically have a blade diameter between 15 and 30 metres and are usually no more than 80 metres in overall height.

Large scale wind turbines have a power output between 500kW and 5MW and are used for producing electricity which feeds directly into the national grid. They are usually grouped together to form a wind farm. Large wind turbines can have a blade diameter over 100 metres and are over 80 metres in overall height with some exceeding 150 metres in overall height.

### **5.26 Planning application procedure**

In June 2015, the Secretary of State for Communities and Local Government set out considerations to be applied to proposed wind energy developments. It made clear that planning permission should only be granted if the site has been identified as suitable for wind energy development in a Local Plan or Neighbourhood Plan and that the planning impacts identified by the affected local community have been fully addressed and the proposal has the local community's backing.

The SWDP has not identified sites suitable for wind energy development. Therefore

planning proposals for medium or large scale wind turbines will only be supported if the site has been identified as suitable for wind energy development in a Neighbourhood Plan and that the planning impacts identified by the affected local community have been fully addressed and the proposal has the local community's backing.

The Council will deal with planning applications for wind turbine developments of 50MW or less installed capacity if they meet the above criteria. Larger installations of more than 50MW capacity are subject to separate statutory consultee.

Pre-application consultation with local communities must be carried out for developments of more than 2 wind turbines or where the hub height of any turbine exceeds 15 metres in accordance with the Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendments) Order 2013. All subsequent planning applications must be accompanied by details of how this requirement has been complied with, any responses that were received, and the account taken of those responses.

### **5.27 Permitted development**

In some cases domestic wind turbines can be installed without the need for planning permission if specified limits and conditions are met. See Appendix 3 for more information.

Domestic wind turbines not meeting these conditions and all non-domestic wind turbines will require planning permission.

### **5.28 Environmental Impact Assessment**

Wind turbines are listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require an EIA if any of the following apply:

- More than 2 turbines are proposed;
- The hub height of any turbine exceeds 15 metres;
- The proposal lies within a sensitive area (SSSIs).

If any of these conditions apply the Council must provide a Screening Opinion advising the applicant whether or not an EIA is required. An applicant can also request a Screening Opinion to be provided.

An EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.

Where an EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.

Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

### **5.29 Planning issues and requirements**

Although wind energy has many environmental, social and economic benefits, wind turbines can also have negative impacts as they can give rise to noise issues, be visually intrusive and impact upon ecology, aviation, telecommunications and cultural heritage.

The planning issues associated with wind turbines are set out below and must be addressed in all planning applications to ensure that any potential negative effects are mitigated.

### **5.30 Landscape and visual impact**

Wind turbines are large structures and along with associated infrastructure they will inevitably have an impact on the landscape and visual environment. Effects will vary depending on the size and number of turbines in a scheme, its location, the landscape characteristics and the sensitivity of viewpoints or visual receptors.

Landscape impacts are the effects of a wind turbine on the fabric, character and quality of the landscape and the degree to which it will become a significant or defining characteristic of the landscape.

Visual impacts concern the degree to which the wind turbine will become a feature in particular views and the impact this has upon the people experiencing those views.

A Landscape and Visual Impact Assessment must be submitted with all planning applications for wind turbines to assess the likely landscape and visual impacts of the proposal. This should be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition, April 2013 (Landscape Institute and Institute of Environmental Management and Assessment).

### **5.31 Sites with statutory protection**

In south Worcestershire there are a number of national and local environmental designations. Wind turbines and ancillary infrastructure can have a significant impact on the setting of these designations and the designation itself.

South Worcestershire has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs). These are identified on the SWDP Interactive Map, available at

<http://swdp.addresscafe.com/app/exploreit/default.aspx>.

If a proposal for a wind turbine lies within or is considered to have an impact upon a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not an EIA is required.

There are also sites in south Worcestershire that make a significant contribution to the natural diversity of the area and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of wind turbines on these heritage assets. Such heritage assets in south Worcestershire are identified on the SWDP Interactive Map and include:

- Areas of Outstanding Natural Beauty
- Regional and Local Sites of Wildlife Importance

- Conservation Areas
- Listed Buildings
- Scheduled Ancient Monuments
- Historic Parks and Gardens

The impact of a proposal on ecological networks in the Borough must also be taken into consideration.

If a wind turbine is proposed within, or affects the setting of a heritage asset, an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated. The level of detail in the assessment should be proportionate to the assets' importance. The impact on the setting of a heritage asset needs to be assessed over a reasonably extensive area, in part but not solely dependent upon the scale of the turbines proposed.

### 5.32 Noise

It is perceived that noise from wind turbines will have an adverse impact on local amenity, however noise levels from modern turbines are generally low. Improvements in technology have significantly reduced the level of mechanical noise produced.

When considering a proposal, developers should identify any noise sensitive developments such as residential dwellings and carry out a noise assessment produced in accordance with 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97). This document sets noise limits at the nearest noise sensitive properties at 5dB(A) above background noise and sets an absolute limit within the range of 35-40dB(A) in low noise environments during the day and 43dB(A) at night time.

A noise assessment must be submitted with all planning applications for wind turbines. Good practice guidance on noise assessments of wind turbines has been prepared by the Institute of Acoustics to supplement ETSU-R-97.

### 5.33 Safety

Safety may be an issue with wind turbine developments. However, this can often be mitigated through appropriate siting.

Wind turbines must be located a safe separation distance away from buildings, public footpaths and bridleways. A safe separation distance is defined as the fall over distance of the turbine, which is the height of the turbine to the tip of the blade, plus 10%.

In order to mitigate the risks to the safety of road users arising from the structural or mechanical failure of wind turbines, the Highways England seeks a minimum setback distance from the boundary of a highway of the height of the turbine plus 50 metres or height x 1.5 metres, whichever is the lesser.

An appropriate separation distance between wind turbines and power lines is also required. National Grid should be consulted on all wind turbine applications and will advise on the required standards for wind turbines being separated from existing overhead power lines. Evidence of consultation with the National Grid must be submitted with the planning application. If any issues with connection are identified, details of how these issues have been addressed must also be submitted.

### **5.34 Ecology**

There is a risk of collision between moving wind turbine blades and birds and bats. Whilst the risk is relatively low, the impacts on birds and bats and other protected species should be assessed for all wind turbine applications.

Developers should consult with Natural England regarding the presence of important habitats used by birds, bats or other protected species in and around the proposed development site. Developers may also wish to consult the Worcestershire Wildlife Trust.

An ecological survey must be submitted with all planning applications for wind turbine schemes assessing any potential impacts and identifying appropriate mitigation measures.

### **5.35 Air traffic and radar**

Wind turbines may represent a risk of collision with low flying aircraft and may interfere with the proper operation of radar by limiting the capacity to handle air traffic and aircraft instrument landing systems.

The National Air Traffic Services (NATS) provides air traffic control in the UK and safeguards all radars, navigation aids and communication stations from interference or disturbance. NATS is a statutory consultee for all wind turbine planning applications in the UK. The Council will consult with NATS during the planning process, however applicants for wind turbines are encouraged to consult them to ascertain whether their application is likely to be objected to in advance of submitting a planning application.

Wind turbines can also adversely affect a number of Ministry of Defence (MOD) operations including aerodromes, radar facilities and communication facilities. Developers should consult with the MOD if a proposed turbine is 11 metres to blade tip or taller and/or has a rotor diameter of 2 metres or more. If the MOD has concerns about a proposal they will work with the developer to look for ways to mitigate them. This will prevent the MOD objecting to a proposal when consulted by the Council as part of the determination of the planning application.

Consultation with NATS and the MOD is strongly encouraged and evidence of the consultation should be submitted with the planning application along with details of how any concerns have been mitigated.

### **5.36 Electromagnetic interference**

Wind turbines may interfere with electromagnetic transmissions such as television, radio and phone signals. The Office of Communications (Ofcom) has information on systems that might be affected by a proposal and will identify specific consultees relevant to a site. Ofcom should be consulted prior to submitting a planning application as well as any specific consultees they identify. Operators may impose a clearance zone around their systems or require re-routing to prevent interference. There is often scope for the design and layout of a scheme to be amended to mitigate any adverse effects that may be identified.

Evidence of consultation with Ofcom and any other relevant consultees must be submitted with the planning application along with details of how any identified adverse effects have been mitigated.

### 5.37 Unstable land

There are areas within the south Worcestershire defined by the Coal Authority as Development High Risk Areas. These are areas where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. All proposals for wind turbines in these areas will be required to prepare and submit a Coal Mining Risk Assessment (available on the Coal Authority website) with the planning application.

### 5.38 Shadow flicker

Under certain circumstances, the sun may pass behind the rotors of a wind turbine and create a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off, an effect known as 'shadow flicker'. Problems caused by shadow flicker are rare and the likelihood of it occurring will depend on a range of factors including direction, distance, turbine height, time of year and prevailing wind direction. It can only occur within ten rotor diameters of a turbine.

If a wind turbine is proposed within 10 rotor diameters of a building, an analysis of the effect of shadow flicker must be undertaken and submitted with the planning application. Where a proposal could give rise to shadow flicker, the analysis must quantify the impact and where necessary propose mitigation measures to reduce the effects to an acceptable level. Modern wind turbines can be controlled so as to avoid shadow flicker and mitigation can also be secured through the use of a planning condition requiring the provision and operation of a system to stop the turbine(s) rotating when shadow flicker occurs.

## D: Biomass

### 5.39 Introduction

Biomass involves the burning of fuel to produce heat and electricity, the most common being wood. Other fuels that can be used include energy crops and animal waste.

Biomass heating from the burning of wood is considered a low carbon source of energy, as only the carbon that has been absorbed by the wood is released. If trees are replanted to replace the ones used, the use of wood as a fuel is almost carbon neutral as the new trees will absorb the equivalent amount of carbon released.

At a domestic scale biomass heating usually comes from the burning of wood in one (or a combination) of the following forms:

- An open fire
- A wood burning stove
- A wood fuel boiler.

The cost of wood burning stoves and boilers are relatively low, biomass therefore has one of the lowest capital costs of all the low carbon technologies.

In addition to homes, biomass systems can be used in many other sectors such as schools, offices and industrial premises.



On a larger scale, wood and other biomass fuels can also be used for the production of electricity. The main method of producing electricity from wood is a combustion plant where the fuel is burned to produce steam.

In addition to the combustion of biomass material, organic wastes can be digested under anaerobic conditions (oxygen free) by bacteria to produce a flammable gas consisting mainly of methane and carbon dioxide. This biogas can be used to generate electricity and/or hot water. This process is called anaerobic digestion.

#### **5.40 Planning application procedure**

##### Permitted development

Planning permission is not normally needed when installing a biomass system in a house if the work is all internal. If the installation requires a flue outside, planning permission will not be required if all of the following conditions are met:

- The flue is on the rear or side elevation of the building and is not more than one metre above the highest part of the roof.
- The building is not listed or in a designated area.
- If the proposal is in a Conservation Area, the flue should not be fitted on the principal or side elevation if it would be visible from a highway.

If the project also requires an outside building to store fuel or related equipment the same rules apply to that building as for other extensions and garden outbuildings.

Large biomass systems used to heat commercial premises or large buildings will require planning permission if the boiler is to be sited outside the building, or in a new building or extension. Planning permission will also be required if a new building is needed as a fuel store.

#### **5.41 Environmental Impact Assessment**

Biomass schemes are not specifically listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require an EIA. However, Section 3a) of Schedule 2 specifies that any industrial energy installation producing electricity, steam and hot water which exceeds 0.5 hectares may require an EIA. If the proposal lies within a sensitive area (SSSI) it may require an EIA even if it is under 0.5 hectares.

Any industrial biomass schemes over 0.5 hectares or within a SSSI may therefore require an EIA. For such schemes the Council must provide a Screening Opinion advising the applicant whether or not an EIA is required. An applicant can also request a Screening Opinion to be provided.

An EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.

Where an EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.

Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the

impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

#### **5.42 Planning issues and requirements**

There are relatively few planning issues when installing biomass systems, and the issues mainly relate to large non-domestic biomass systems. These issues are identified below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

#### **5.43 Landscape and visual impact**

Domestic biomass systems will not have any landscape or visual impact unless external flues are required. If required they should be designed and sited to have the minimum effect on the appearance of the building.

If new buildings are required to house the boiler or store fuel, they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area.

Larger biomass plants should be located within existing industrial areas so that the landscape and visual impact is minimised.

#### **5.44 Sites with statutory protection**

The installation of a biomass system in a Listed Building will require planning permission if the installation requires a flue outside. The flue should be designed to have minimal effect on the appearance of the Listed Building otherwise planning permission will not be granted. The same applies if the building is located in a Conservation Area.

In south Worcestershire there are a number of national and local environmental designations. Large biomass plants can have a significant impact on the setting of these designations.

South Worcestershire has an extensive network of sites important for biodiversity. These include Sites of Special Scientific Interest (SSSIs) which are statutory sites of national conservation value.

If a proposal for a biomass scheme lies within or near to a SSSI an Environmental Impact Assessment (EIA) may be required. The Council will provide a Screening Opinion advising the applicant whether or not an EIA is required.

There are also sites in south Worcestershire that make a significant contribution to the natural diversity of the area and a number of buildings, monuments, sites, areas or landscapes that have heritage significance. Careful consideration needs to be given to the impact of biomass schemes on these assets. Such assets in south Worcestershire are identified on the SWDP Interactive Map and include:

- Areas of Outstanding Natural Beauty
- Regional and Local Sites of Wildlife Importance
- Conservation Areas
- Listed Buildings
- Scheduled Ancient Monuments

- Historic Parks and Gardens

In addition, there are a number of non-designated heritage assets in south Worcestershire. These are included on the Worcestershire Historic Environment Record, along with the designated heritage assets above. Consideration needs to be given to the impact of biomass schemes on these non-designated heritage assets. Developers are advised to consult the Record at an early stage in planning a scheme.

The impact of a proposal on ecological networks in south Worcestershire must also be taken into consideration.

If a biomass scheme is proposed within, or affects the setting of, one of the above types of heritage asset (both designated and non-designated), an assessment of its impact on the asset must be undertaken and submitted with the planning application along with details of how any identified negative impacts have been mitigated. The impact of biomass planting also needs to be taken into consideration if energy crops are used in large biomass systems or anaerobic digestion plants. The level of detail in the assessment should be proportionate to the assets' importance. The impact on the setting of a heritage asset needs to be assessed over a reasonably extensive area, in part but not solely dependent upon the scale of the biomass scheme proposed.

#### **5.45 Noise**

The operation of larger biomass systems and associated activities such as fuel deliveries may create noise. Planning applications for non-domestic biomass systems should be accompanied by a noise assessment demonstrating that the noise will not cause an unacceptable degree of disturbance to surrounding amenities.

#### **5.46 Odour**

The burning of the fuel in biomass systems can create odour, particularly in larger systems. The impacts of odour from a proposed biomass system and methods for controlling it must be detailed in the planning application so that it does not unduly harm residential amenity.

#### **5.47 Transport**

The environmental impact of transporting biofuels can outweigh the positive benefits of biomass systems. Sufficient fuel storage should be provided so that fewer fuel deliveries will be needed to help minimise the environmental impact.

Larger biomass systems should be located in close proximity to a fuel source if possible and surrounding roads should have adequate existing capacity to serve the plant and ensure that delivery vehicles can access the site.

## **E: Heat Pumps**

#### **5.48 Introduction**

Heat pumps work by transferring heat from one place to another rather than using fuel to produce heat. The heat source can be the air, ground or water and the heat pump transfers heat to a building. They can also be used in reverse to cool a building in the summer. There are three main types of heat pumps, ground, water and air.

Ground source heat pumps transfer the heat from the ground into a building to provide space heating. They can also be used to pre-heat domestic water. Heat is drawn from the ground using a ground loop which is a closed circuit of piping buried in the ground in either a borehole or a trench. These pipes are normally filled with a refrigerant or brine that is pumped around the pipes and absorbs heat from the surrounding ground. The heat pump boosts this heat to the temperature needed in the home. There is a power requirement for the pump itself.

Water source heat pumps work in the same way as ground source heat pumps but the pipes are sunken in a water source instead of the ground. They can also work by pumping natural water through a heat pump.

Air source heat pumps usually work by transferring heat from the outside air to heat water for building heating. They can also be used for cooling in much the same way as an air conditioner. They are cheaper to install than a ground or water source heat pump but are not usually as efficient. This is because they draw the heat from the surrounding air, which in Britain is substantially colder in the winter months when the heating is needed, than in summer.

## **Planning application procedure**

### **5.49 Permitted development**

The installation of a ground or water source heat pump on domestic premises does not usually require planning permission, unless the installation is within the grounds of a Listed Building or is in a Conservation Area.

The installation of an air source heat pump on domestic premises will not require planning permission if all of the following conditions are met:

- Development is permitted only if the air source heat pump installation complies with the Microgeneration Certification Scheme Planning Standards or equivalent standards.
- The volume of the air source heat pump's outdoor compressor unit (including housing) must not exceed 0.6 cubic metres.
- Only the first installation of an air source heat pump would be permitted development, and only if there is no existing wind turbine on a building or within the curtilage of that property. Additional wind turbines or air source heat pumps at the same property requires an application for planning permission.
- All parts of the air source heat pump must be at least one metre from the property boundary.
- Installations on pitched roofs are not permitted development. If installed on a flat roof all parts of the air source heat pump must be at least one metre from the external edge of that roof.
- Permitted development rights do not apply for installations within the curtilage of a Listed Building or within a site designated as a Scheduled Monument.
- On land within a Conservation Area the air source heat pump must not be installed on a wall or roof which fronts a highway or be nearer to any highway which bounds the property than any part of the building.
- On land that is not within a Conservation Area, the air source heat pump must not be installed on a wall if that wall fronts a highway and any part of that wall is above the level of the ground storey.

In addition, the following conditions must also be met. The air source heat pump must be:

- Used solely for heating purposes.
- Removed as soon as reasonably practicable when it is no longer used for microgeneration.
- Sited, so far as is practicable, to minimise its effect on the external appearance of the building and its effect on the amenity of the area.

Installations for commercial premises will require planning permission.

### **5.50 Planning issues and requirements**

There are few planning issues associated with heat pumps as they are unlikely to be visually intrusive and often the main components are located underground or within buildings. The main issues are associated with air source heat pumps and excavations for trenches for ground and water heat pumps that involve sizable locations. These issues are set out below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

### **5.51 Landscape and visual impact**

Air source heat pumps are located on the outside of the building and can therefore affect the appearance of the building. They should be sited so that they have minimal impact on the appearance of the building.

Ground and water source heat pumps require the installation of underground pipes. During construction there may be landscape and visual impacts. The ground must be restored following installation so that there is no continued landscape and visual impact.

### **5.52 Sites with statutory protection**

A planning application for an air source heat pump on a Listed Building will be assessed against the extent to which it would interfere with the appearance, structure, design or character of the Listed Building. When this would have a negative effect on a Listed Building's special interest, a proposal would not be allowed. The same approach will be taken for proposals in Conservation Areas.

When digging trenches or boreholes for ground and water source heat pumps outside of the curtilage of a dwelling, consideration needs to be given to possible archaeological interests in the land. Before any work takes place it needs to be established whether there are any archaeological remains on the site and if this has implications for the work involved. Worcestershire County Council Archaeological Service can provide information and advice to applicants.

### **5.53 Noise**

Although air source heat pumps are relatively small, the external fan units can generate a considerable level of noise, this can be exacerbated if the pump is not sited correctly e.g. where noise echoes or can vibrate against a wall or fitted close to a bedroom window. As such, any application for an air source heat pump will be required to demonstrate that noise will not be an issue.

### **5.54 Ecology**

Drilling through contaminated land or soil when digging trenches for ground or water source heat pumps poses significant risk of pollution to groundwater. Before submitting a planning application, the site must be assessed in order to establish whether there is any contamination. Boreholes will need to be designed so that groundwater is not polluted. The Environment Agency regulates open loop ground source heat pump systems and requires a Groundwater Investigation Consent followed by an abstraction licence and an environmental permit to discharge water. Developers of open loop systems should contact the Environment Agency at an early stage of a scheme to discuss the intended location, proposed design and operation of their system. This will help to ensure a faster permit determination and reduce the need for any system redesign.

Closed loop ground source heat pump systems do not require a permit from the Environment Agency, however the Environment Agency strongly recommends that these systems use non-hazardous substances to avoid pollution of groundwater in the event of a leak. If leaks occur the Environment Agency can serve notices to prohibit the discharge or require a permit.

Any proposed ground disturbance has the potential to cause habitat damage. Consideration should be given to the extent of this damage, and whether the site is of ecological value. An ecological assessment will be required in order to determine likely impacts and any required mitigation. Where impacts are significant and effective mitigation is not possible sites should be avoided. Developers may also wish to consult the Worcestershire Wildlife Trust.

For proposals on canals and rivers consultation with the Canal and River Trust is also strongly encouraged.

## **F: Combined Heat and Power**

### **5.55 Introduction**

Combined heat and power (CHP) systems provide both heat and electrical power. They recover the heat that is a by-product of electricity generation and distribute it alongside electricity in the form of hot water for space heating. CHP systems are located at the point of consumption meaning there is very little loss of energy through transmission and distribution.

CHP plants can be adaptable to different fuels. Conventionally natural gas is used but fuels such as biomass and hydrogen can also be used. Further efficiency savings can be made with the addition of an absorption chiller which allows the CHP system to provide cooling, potentially for air conditioning and refrigeration.

CHP can be used for a variety of scales. The main markets for CHP tend to be those with high heat requirements, for example flats, high density housing, supermarkets, leisure centres, hospitals and industrial sites which will require larger scale CHP units.

However, CHP can also be used to provide space and water heating in residential or commercial buildings using micro CHP units which are similar to conventional boilers.

### **Planning application procedure**

#### **5.56 Permitted development**

CHP systems used in the home do not require planning permission for any internal components of the system. If the installation requires a flue outside planning permission will not be required if the following conditions are met:

- The flue is less than one metre above the highest part of the roof (excluding any existing chimneys).
- If the building is in a Conservation Area the flue should not be fitted on a wall or roof slope that fronts a highway.

In other buildings, if the installation requires a flue outside planning permission will not be required if the following conditions are met:

- The capacity of the system that the flue would serve is less than 45kW.
- The height of the flue is less than one metre above the highest part of the roof or no higher than an existing flue that is being replaced.
- There would be no more than one flue on the building.
- If the building is in a Conservation Area, the flue should not be fitted on a wall or roof slope that fronts a highway.

Planning permission will be required if the flue is to be installed on a Listed Building.

If the development also requires an outside building to store the CHP unit, related equipment or fuel the same rules apply to that building as for other extensions and garden outbuildings.

Larger commercial scale CHP plants will require planning permission and may also require authorisation from the Environment Agency regarding emissions and wastes.

### **5.57 Environmental Impact Assessment**

Combined heat and power schemes are not specifically listed under Schedule 2 of the Environmental Impact Assessment (EIA) Regulations 2011 as projects that may require an EIA. However, Section 3a) of Schedule 2 specifies that any industrial energy installation producing lies within a sensitive area (SSSI) it may require an EIA even if it is under 0.5 hectares.

Any industrial combined heat and power schemes over 0.5 hectares or within a SSSI may therefore require an EIA. For such schemes the Council must provide a Screening Opinion advising the applicant whether or not an EIA is required. An applicant can also request a Screening Opinion to be provided.

An EIA is an assessment of the possible impacts that a proposed project may have on the environment including the environmental, social and economic impacts.

Where an EIA is required the planning application will need to be accompanied by an Environmental Statement that assesses the impact the project is likely to have on the local environment.

Where a proposal does not require a full EIA the Council may still require that certain relevant issues are addressed, such as the cumulative impacts of the proposal or the impact of the proposal on a SSSI if it is adjacent to it but not within it, in an Environmental Statement which must accompany a planning application.

### **5.58 Planning issues and requirements**

There are few planning issues in relation to micro and small scale CHP systems as

these are usually located within the building. Issues only arise if an external flue is required and there can also be issues with noise. There issues associated with small scale CHP plants are identified below and must be addressed in all planning applications to ensure that any negative effects are mitigated.

#### **5.59 Landscape and visual impact**

Micro and small scale CHP units will not have any landscape or visual impact unless external flues are required. If required they should be designed and sited to have the minimum effect on the appearance of the building.

If the development also requires an outside building to store the CHP unit or fuel they should be located close to the existing building and be designed sensitively to complement the adjacent buildings and surrounding area.

#### **5.60 Sites with statutory protection**

The installation of a CHP unit in a Listed Building will require planning permission if the installation requires a flue outside. The flue should be designed to have minimal effect on the appearance of the Listed Building otherwise planning permission will not be granted.

The same applies if the building is located in a Conservation Area.

#### **5.61 Noise**

Small scale CHP units will generate some noise. Although most CHP engines and gas turbines are supplied with acoustic enclosures, noise is still produced by the unit and its auxiliary equipment. Since the unit may operate almost continuously, where possible it should be located so that the impact of the noise will be minimised and not have an impact on any neighbouring buildings or land uses. A noise assessment will be required for larger schemes.



## APPENDIX 1:

### POLICY SWDP 27: Renewable and Low carbon Energy <sup>(60)</sup>

#### Incorporating Renewable and Low Carbon Energy into New Development

- A. To reduce carbon emissions and secure sustainable energy solutions, all new developments over 100 square metres gross or one or more dwellings should incorporate the generation of energy from renewable or low carbon sources equivalent to at least 10% of predicted energy requirements, unless it has been demonstrated that this would make the development unviable.
  
- B. Large scale <sup>(61)</sup> development proposals should examine the potential for a decentralised energy and heating network. If practical and viable, a decentralised energy and heating network should be provided as part of the development.

#### Stand Alone Renewable and Low Carbon Energy Schemes

- C. With the exception of wind turbines (see D below) proposals for stand-alone renewable and other low carbon energy schemes are welcomed and will be considered favourably having regard to the provisions of other relevant policies in the Plan.
  
- D. Proposals for stand-alone wind turbines will only be considered favourably if:
  - i. The site is identified as suitable for wind energy development in a Neighbourhood Plan; and
  
  - ii. Following consultation, it can be demonstrated that any significant planning impacts identified by the affected local community have been fully addressed and that the proposal has the local community's backing.
  
- E. The South Worcestershire Councils (SWC) will set out associated advice and guidance on the implementation of this policy in a Renewable and Low Carbon Energy Supplementary Planning Document.

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60 This policy should be considered within the context of an “energy hierarchy”, whereby energy demand is reduced through energy efficiency and low energy design before meeting residual energy demand, first from renewable or low carbon sources and then from fossil fuels.

61 For the purposes of this policy only, the definition of large scale development is residential developments of 100 or more dwellings or non-residential developments of more than 10,000 square metres.

#### Reasoned Justification

1. The European Union Renewable Energy Directive (Directive 2009/28/EC) sets an overall target for 20% of the energy consumed in the European Union to come from renewable sources by 2020. This overall target is divided by country, with the UK's target being

15% by 2020.

2. The Climate Change Act (2008) established a legal requirement for the UK to achieve an 80% cut in Carbon Dioxide emissions by 2050, with a 34% cut by 2020. The Planning and Energy Act (2008) allows local planning authorities' policies to impose reasonable requirements for a proportion of energy used in developments to be from renewable and low carbon sources in the locality of the development.
3. The Framework recognises the key role planning plays in supporting the delivery of renewable and low carbon energy. To help increase the use and supply of renewable and low carbon energy, the Framework states (paragraph 97) that local planning authorities should:
  - a) Have a positive strategy to promote energy from renewable and low carbon sources.
  - b) Design policies to maximise renewable and low carbon energy development, while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts.
  - c) Identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.
4. The development of renewable and low carbon energy is a key means of reducing south Worcestershire's carbon dioxide (CO<sub>2</sub>) emissions, promoting energy security for the future and reducing vulnerability to rising fuel costs.
5. Energy can also be recovered from waste management facilities such as Energy from Waste (EfW) and landfill gas. Planning applications relating to waste management facilities are "county matters" and are determined by Worcestershire County Council.
6. 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), provide the most detailed evidence of opportunities for the development of renewable and low carbon energy in south Worcestershire.
7. The West Midlands Renewable Energy Study identifies on-site micro-generation in new and existing developments as offering the largest opportunity for renewable energy generation in Worcester. On-site micro-generation also provides significant opportunities for Malvern Hills and Wychavon, particularly in proposed new developments.
8. Building Regulations set out minimum levels of carbon compliance to be achieved by all new residential dwellings. These compliance levels require a reduction in carbon dioxide emissions of 25% over 2006 Building Regulation standards. From 2013, this compliance level increased to 44% reduction and from 2016 a zero carbon standard will come into force, representing a 100% reduction from all sources of emissions. The Government has also indicated its desire to achieve zero carbon status in all non-residential buildings by 2019, with an indication that emission reductions should be sought from 2013 onwards, in a similar "stepping stone" approach to emission reduction targets in residential dwellings.
9. Whilst the SWC will rely on the national timetable for introducing standards in carbon dioxide emission reductions from residential and non-residential development, to secure sustainable energy solutions all new development (over 100 square metres or one or more dwellings) will be required to incorporate the generation of energy from renewable or low carbon sources equivalent to at least 10% of predicted energy requirements.
10. The use of on-site sources, off-site sources or a combination of both, can be considered

in meeting this requirement. To demonstrate that the renewable and low carbon energy target will be met, planning applications must be accompanied by an energy assessment.

11. All developments to which SWDP27 A applies will be expected to meet the renewable and low carbon energy targets unless it can be demonstrated that:
  - a. a variety of renewable energy sources and generation methods have been assessed and costed; and
  - b. achievement of the target would make the proposal unviable (through submission of an independently assessed financial viability appraisal).
12. Based on existing patterns of heat demand, the West Midlands Renewable Energy Capacity Study also identified opportunities for district heating and CHP plants in Worcester, Pershore, Evesham, Droitwich Spa and Malvern. The development of decentralised heat networks will be encouraged and a decentralised heat network viability assessment should be submitted as part of the application process for large scale developments.
13. The retro-fitting of micro-generation technologies in existing developments will be encouraged, subject to consideration of potential impacts on local planning designations, the historic environment and the residential amenity of the local area.
14. Micro-generation and decentralised energy supplies in new developments will provide only part of the solution to reducing CO<sub>2</sub> emissions and promoting energy security. Both the Planning for Renewable Energy in Worcestershire and the West Midlands Renewable Energy Capacity studies indicate opportunities for the development of stand-alone renewable and low carbon energy schemes including:
  - a. Potential sites throughout south Worcestershire where there are sufficient average wind speeds to generate energy from wind turbines.
  - b. Significant potential for biomass energy from existing woodland and from energy crops.
  - c. Localised opportunities for hydroelectric power.
15. In June 2015, the Secretary of State for Communities and Local Government set out considerations to be applied to proposed wind energy developments. It made clear that planning permission should only be granted if the site has been identified as suitable for wind energy development in a Local Plan or Neighbourhood Plan and that the planning impacts identified by the affected local community have been fully addressed and the proposal has the local community's backing.
16. Whilst it is important that renewable and low carbon energy development is encouraged, it is also important that it is appropriately located and designed. The integration of large-scale renewable and low carbon energy proposals into south Worcestershire's varied landscapes requires careful consideration. Statutorily protected areas (e.g. AONB) in particular need to be protected from inappropriate development. The purposes of and reasons for such protective designations will vary considerably between sites and may not be in conflict with particular forms or scales of renewable and low carbon energy development. The key test in assessing proposals will be the extent to which they might affect the integrity of the designation.
17. Minimising any impacts caused by noise, odour, traffic and discharges to the air and watercourses will be important, particularly in relation to nearby residential areas and individual dwellings. Visual impacts on the landscape will also be a relevant issue when determining the acceptability of proposals for large-scale renewable and low carbon energy proposals.

18. The wider benefits of renewable and low carbon energy projects will also be material considerations when assessing planning applications. These benefits include a contribution to CO2 reduction, the diversification of local rural economies, the creation of new jobs and support for the regeneration of urban areas, including industrial and brownfield sites.
19. Community involvement in developing proposals for renewable and low carbon energy schemes is encouraged.

## APPENDIX 2: INFORMATION REQUIREMENTS FOR SELECTED TECHNOLOGIES

For each technology selected to deliver the minimum 10% target, the information listed below will be required. This must be set out in an Energy Assessment and submitted with the planning application. The information will then be assessed as part of the decision-making process to establish whether the policy requirements of policy SWDP 27 have been met.

Technology	Information Required
<b>Solar Thermal Systems</b>	<ul style="list-style-type: none"> <li>• Description of the technology</li> <li>• Capacity i.e. number of panels or tubes, total area</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Elevations to show proposed location</li> <li>• Orientation/roof pitch</li> <li>• Roof plans and detail of roof mounting arrangements and methods of fixing, if applicable</li> <li>• Potential shading from trees and other buildings</li> <li>• Visual impact assessment required by policy SWDP 25:B Landscape Character</li> <li>• Biodiversity impacts- policy SWDP 22</li> </ul>
<b>Photovoltaics</b>	<ul style="list-style-type: none"> <li>• Description of technology</li> <li>• Capacity- electrical output (kWp)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Design of the module or array</li> <li>• Elevations to show proposed location</li> <li>• Orientation/roof pitch</li> <li>• Roof plans and detail of roof mounting arrangement and methods of fixing, if applicable</li> <li>• Potential shading from trees and other buildings</li> <li>• Visual impact assessment if required by policy SWDP 25:B Landscape Character</li> <li>• Biodiversity impacts- policy SWDP 22</li> </ul>
<b>Wind Turbines</b>	<ul style="list-style-type: none"> <li>• Description of technology</li> <li>• Capacity- electrical output (kW)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Layout plan showing the site size, boundary and location of infrastructure (e.g. location of turbines, sub-station, access tracks)</li> <li>• Elevation plan</li> <li>• Roof plan to show location of wind turbine (if roof mounted)</li> <li>• Average site wind speed (minimum 12 months) and further justification to fully demonstrate that the proposed wind turbine would actually deliver the wind output claimed</li> </ul>

	<ul style="list-style-type: none"> <li>• Grid connection</li> <li>• Proximity to the dwellings</li> <li>• Noise, vibration and visual impact assessment</li> <li>• For large wind turbines further information will be required, including topple zones, radar interference, microwave transmission buffers, archaeological assessment, consideration of impact on birds/bats, etc. &amp; Air Traffic Control</li> <li>• Evidence of consultation with appropriate bodies such as Network Rail, the Highways England, The health and Safety Executive to establish if there would be any potential impacts on rail, road, rivers or other infrastructure or development, e.g. topple zones, cabling, and vibration impacts. radio/signalling impacts, shadow flicker</li> <li>• Visual impact assessment where required by policy SWDP 25:B Landscape Character</li> <li>• Biodiversity impacts- policy SWDP 22</li> </ul>
<b>Hydroelectric</b>	<ul style="list-style-type: none"> <li>• Layout plan showing location of turbine</li> <li>• Elevations and size of turbine</li> <li>• Capacity-electrical output (kW)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Evidence of consultation with appropriate bodies such as the Environment Agency, The Canal and River Trust, Avon Navigation Trust, rivers, canals or other infrastructure or development, e.g. topple zones, cabling, vibration impacts; and Natural England as regards potential ecology impacts</li> <li>• Visual impact assessment where required by policy SWDP 25:B Landscape Character</li> <li>• Biodiversity impacts- policy SWDP 22</li> </ul>
<b>Ground Source Heating / Cooling</b>	<ul style="list-style-type: none"> <li>• Description of technology</li> <li>• Capacity-for heating and cooling (kW)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Number and location of boreholes/trenches</li> <li>• Location of pipe work</li> <li>• Connection details to the building</li> <li>• Plan showing tree locations and their potential rooting zones</li> <li>• Archaeological assessment, where applicable</li> <li>• Evidence of consultation with appropriate bodies such as the EA, as regards potential soil contamination, and Natural England as regards potential ecological issues</li> </ul>

<b>Air Source Heat Pump</b>	<ul style="list-style-type: none"> <li>• Description of technology e.g. air-to air, air-to-water system</li> <li>• Capacity-for heating and cooling (kW)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Elevations to show location and design</li> <li>• Visual impact assessment</li> <li>• Noise report (should be available from the manufacturer) to include localized background noise too</li> </ul>
<b>Use of river or canal water for heating or cooling buildings</b>	<ul style="list-style-type: none"> <li>• Description of technology and fuel supply</li> <li>• Capacity-boiler specification (kW)</li> <li>• Estimated energy generation</li> <li>• Number and location of canal extraction points</li> <li>• Location of pipe work</li> <li>• Connection details to the building</li> <li>• Evidence of consultation with the Canal and River Trust/Avon Navigation Trust, Environment Agency; and Natural England as regards potential ecology impacts</li> <li>• Biodiversity impacts – Policy SWDP 22</li> </ul>
<b>Biomass</b>	<ul style="list-style-type: none"> <li>• Description of technology and fuel supply</li> <li>• Capacity – boiler specification (kW)</li> <li>• Estimated energy generation (kWh/yr)</li> <li>• Floor plans and elevations showing the location and design of the plant, flue and storage facilities;</li> <li>• Details of vehicle access to and from the plant and estimated vehicle movements</li> <li>• Source of fuel supply, principal transport routes to and from the supply</li> <li>• Landscaping and visual impact of plant</li> <li>• Details of noise emissions</li> <li>• Details of air pollution impacts and mitigation measures</li> <li>• Evidence of consultation with appropriate bodies such as DEFRA / Natural England</li> <li>• Biodiversity impacts- policy SWDP 22</li> </ul>

<p><b>Combined Heat and Power (CHP) and District Heating</b></p>	<ul style="list-style-type: none"> <li>• Description of technology including fuel type to be used</li> <li>• Capacity – plant specification, electrical output (kWe), heat output Wth)</li> <li>• Estimated energy generation (kWh/yr) for electricity and heat separately</li> <li>• Layout plan showing site size, boundary and location of infrastructure (e.g. location of boiler house, CHP units and boilers, storage area, pipe networks)</li> <li>• Floor plans and elevations</li> <li>• Details of connection to distribution network</li> <li>• Noise and visual impact assessment</li> <li>• Details of operation and management of installations</li> <li>• Where appropriate, source of fuel supply, principal transport routes to and from the supply</li> <li>• Details of vehicle access to and from the plant and estimated vehicle movements</li> <li>• Biodiversity impacts – Policy SWDP 22</li> </ul>
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## APPENDIX 3: PERMITTED DEVELOPMENT

Many renewable and low carbon systems are small in scale and can often be considered to be “permitted development”, which means they do not require planning permission providing certain limits and conditions are met. Some microgeneration schemes, which are small scale systems that generate electricity and/or heat for domestic dwellings such as solar panels and small wind turbines, may not require planning permission. Section 5 of this report touches on permitted development for some renewable technologies. Other sources of information are:

The Planning Portal provides information on the different types of microgeneration, and whether permission is required or not.

[https://www.planningportal.co.uk/info/200140/greener\\_homes](https://www.planningportal.co.uk/info/200140/greener_homes)

The Planning Portal website also has an interactive diagram of a house where an individual can explore which types and size of systems require permission

<https://interactive.planningportal.co.uk/detached-house>

If your property is a listed building, due to its special architectural or historic interest you may require listed building consent for microgeneration projects if this involves alterations that will affect its character or appearance. Advice should be sought from the councils’ conservation officers in the first instance.

## APPENDIX 4: REQUIREMENTS FOR VIABILITY ASSESSMENTS

Planning obligations are negotiated between councils and developers on a case by case basis. Where a developer believes that planning obligations will make a development unviable they will need to make a submission to the relevant planning authority, as follows:

1. An independent financial viability appraisal setting out how they are unable to meet the full planning policy requirements

The appraisal should be agreed with the relevant local planning authority and should include an “open book approach” with the following information as follows:

- a. A quantity surveyor’s cost assessment of construction costs. The report should include a schedule of accommodation with floor areas.
- b. Sales Values and Market evidence of the sales values of the development type proposed
- c. Site value
- d. A development and sales programme (if relevant)
- e. Details of any development costs e.g. sales and marketing fees, finance costs, s106 costs
- f. Details of any “abnormal” costs over and above those already listed
- g. Developer’s profit
- h. The expected Community Infrastructure Levy (CIL) charge showing payments required in accordance with the instalments policy.

2. Assessment of the Viability Appraisal

The local planning authority will seek independent advice to review the evidence within the financial appraisals and the cost of this review will be paid for by the applicant. The local planning authority will consider the potential benefits of a development by weighing these against the resulting harm from the potential under-provision or delayed provision of infrastructure

Based on the independent financial viability advice and other evidence, planning obligations may be deferred, phased or discounted, where this would not make the development unacceptable in planning terms.

### **Financial contributions in lieu of on-site provision**

In cases where a financial contribution, as opposed to on-site (or off-site provision on an alternative site), is accepted on viability grounds, the calculation will be based on an open book viability assessment of how much of the SWDP 27 on-site requirement can be borne by the development, taking into account other

infrastructure planning obligations required to make the development acceptable in planning terms.

## STUDIES COVERING SOUTH WORCESTERSHIRE

The West Midlands Renewable Energy Capacity Study (2011) -  
[http://www.swdevelopmentplan.org/wp-content/uploads/2013/05/Renewable\\_Energy\\_Capacity\\_Study.pdf](http://www.swdevelopmentplan.org/wp-content/uploads/2013/05/Renewable_Energy_Capacity_Study.pdf)

Worcestershire County Council Renewable Energy Report (2008) -  
[http://www.worcestershire.gov.uk/downloads/file/5118/renewable\\_energy\\_final\\_report](http://www.worcestershire.gov.uk/downloads/file/5118/renewable_energy_final_report)

Worcestershire County Council: Renewable Energy Research Paper (2016?) -  
Considers the impacts of decentralised and 'larger-scale' renewable energy schemes and provides examples of current local projects that are delivering renewable energy -  
[http://www.worcestershire.gov.uk/downloads/file/6746/renewable\\_energy\\_research\\_paper](http://www.worcestershire.gov.uk/downloads/file/6746/renewable_energy_research_paper)

## APPENDIX 6: USEFUL CONTACTS

### Malvern Hills District Council:

- Planning Development plans: [developmentplans@malvern hills.gov.uk](mailto:developmentplans@malvern hills.gov.uk)
- Conservation: [developmentplans@malvern hills.gov.uk](mailto:developmentplans@malvern hills.gov.uk)
- Building Control: [mail@southworcestershirebuildingcontrol.gov.uk](mailto:mail@southworcestershirebuildingcontrol.gov.uk)

Tel 01684 862223

### Worcester City Council

- Planning: [planning@worcester.gov.uk](mailto:planning@worcester.gov.uk)
- Conservation: <https://www.worcester.gov.uk/heritage-design>
- Building Control: [mail@southworcestershirebuildingcontrol.gov.uk](mailto:mail@southworcestershirebuildingcontrol.gov.uk)

Tel 01684 862223

### Wychavon District Council

- Planning: [policy.plans@wychavon.gov.uk](mailto:policy.plans@wychavon.gov.uk)
- Conservation: [planning@wychavon.gov.uk](mailto:planning@wychavon.gov.uk)
- Building Control: [mail@southworcestershirebuildingcontrol.gov.uk](mailto:mail@southworcestershirebuildingcontrol.gov.uk)

Tel 01684 862223

### Worcestershire Regulatory Services

<http://www.worcsregservices.gov.uk/pollution/planning-and-pollution.aspx>

Worcestershire County Council: <http://www.worcestershire.gov.uk/contactus>

Environment Agency: <https://www.gov.uk/government/organisations/environment-agency/services-information>

Natural England: <https://www.gov.uk/government/organisations/natural-england/services-information>

Worcester Wildlife Trust: <http://www.worcswildlifetrust.co.uk/>

Historic England: <https://historicengland.org.uk/>

The Woodland Trust: <https://www.woodlandtrust.org.uk/>

The Canal and River Trust: [https://canalrivertrust.org.uk/?gclid=EAlaIQobChMI7LT-5b3P1wIVQxYbCh0o\\_wM5EAAYASAAEgJW4\\_D\\_BwE](https://canalrivertrust.org.uk/?gclid=EAlaIQobChMI7LT-5b3P1wIVQxYbCh0o_wM5EAAYASAAEgJW4_D_BwE)

The Avon Navigation Trust: <https://www.avonnavigationtrust.org/>

Network Rail: <https://www.networkrail.co.uk/>

Highways England: <https://www.gov.uk/government/organisations/highways-england>

Severn Trent: <https://www.stwater.co.uk/help-and-contact/contact-us/>

Western Power Distribution: <https://www.westernpower.co.uk/Contact-us.aspx>