Appendix A

Warwick District Council

Sustainable Buildings Supplementary Planning Document

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Contents

1. Introduction

1.1 This Supplementary Planning Document (SPD) expands upon policies **DP11 (Drainage), DP12 (Energy Conservation)** and **DP13 (Renewable Energy Developments)** of the Warwick District Local Plan (1996 – 2011).

1.2 These policies aim to encourage sustainable construction through the conservation and management of water resources, the efficient use of energy and the use of renewable sources of energy. This is in response to concern at all policy levels to address the causes of climate change by reducing carbon emissions. There is also the need to mitigate against the expected impacts of climate change such as the increased incidence of flooding and extreme temperature events. The Government regards climate change as the greatest long term challenge facing the world and has set a target of reducing UK carbon dioxide emissions by 60% by 2050

1.3 This document therefore provides guidance to developers and applicants on how to achieve sustainable buildings which take account of the following:

- The use of sustainable construction techniques and energy efficient layout and design such as passive solar gain.
- The Council's requirement that 10% of the energy demand of new buildings should be met by renewable sources.
- The use of water conservation measures such as Sustainable Urban Drainage Systems (SUDS).

1.4 ***The requirements of this SPD should be applied to all new development, extensions, redevelopments and change of use unless otherwise stated***.

2. Policy Background

2.1 The SPD is underpinned by a range of national, regional and local policy documents and strategies.

National Policy

2.2 The Government's commitment to addressing the causes and impacts of climate change through the planning system is set out in the supplement to Planning Policy Statement 1 (PPS1). This states that new development should be planned to limit carbon dioxide emissions and make good use of low carbon and renewable energy sources. Local authorities may develop planning policies which require a percentage of the energy demand of new developments to be provided from decentralised renewable or low carbon sources. This builds upon the Government's commitment to renewables set out in Planning Policy Statement 22: Renewable Energy (PPS22).

2.3 Planning Policy Statement 25: Flooding (PPS25) ensures that the future risk of flooding is taken into account in the planning process. This encourages water conservation measures such as Sustainable Urban Drainage Systems (SUDS).

2.4 The Code for Sustainable Homes sets out national standards for the design and construction of sustainable homes covering 9 categories including water conservation, energy efficiency and waste management. There are 6 code levels of which level 6 is zero carbon emissions. It is the Government's intention that all new homes will be zero carbon by 2016 through the progressive tightening of building regulations.

West Midlands Regional Spatial Strategy (Preferred Option)

2.5 The West Midlands Regional Spatial Strategy (RSS) was adopted in 2004 and forms part of the development plan. A review of the RSS is currently being undertaken and the preferred options were published in December 2007. The preferred options version contains a framework of policies which encourage the construction of sustainable buildings. **Policy SR3** requires developments of 10 dwellings or 1000 sqm or over to meet at least 10% of the developments energy requirement through renewable or low energy sources. It also requires new development to meet the Building for Life standard, the Code for Sustainable Homes and BREEAM office scale. **Policy EN2** encourages energy conservation in new development through the use of energy efficiency design and layout. It is recognised however, that these policies have not been the subject of a public examination and therefore can only be afforded limited weight.

Warwick District Local Plan (1996 – 2011)

2.6 The Warwick District Local Plan was adopted in September 2007 and forms part of the Development Plan. It includes a suite of policies which provide the framework for this SPD.

2.7 Policy DP13 deals with renewable energy and requires that in appropriate new developments 10% of the energy requirement is met from renewable energy sources. DP11 promotes the use of sustainable urban drainage systems and the reuse and recycling of surface water and domestic waste water. DP12 encourages energy efficient design. The full policy wording is contained in Appendix 1.

3. Meeting the Requirement

3.1 The applicant will be expected to submit an **Energy Statement** along with the planning application to demonstrate how the requirements of this SPD have been met.

3.2 Following the guidance set out in this SPD the statement should include the following information:

Energy Statement Checklist

Maximise Energy Efficiency (Section 6)

- A detailed description of how the design, layout and orientation of the development maximises energy efficiency. For example, how does the development optimise passive solar gain, how does the design encourage natural ventilation?
- Will other measures such as energy efficient lighting or cavity wall insulation be implemented?

Code for Sustainable Homes (Section 6)

- In the case of residential development, what level of the Code for Sustainable Homes will be met. This should be in line with the Government's aim of achieving zero carbon by 2016.

Preparing for Climate Change (Section 6)

- What consideration has been given to ensuring that the development will be capable of adapting to the future impacts of climate change? For example ensuring that the potential for overheating is limited through the choice of materials.

Implementing Renewable Technologies (Section 7)

- Does the application include a detailed statement of how at least 10% of the predicted energy demand of the development will be provided through renewable sources? What type of renewable technology will be implemented, and what proportion of energy will this provide?

Low Carbon Technologies (Section 7)

- Does the scheme incorporate Combined Heat and Power? Has the potential for CHP been considered in developments of 10 dwellings or 1000 sqm or over?

Water Conservation (Section 8)

- What measures have been included to encourage water conservation such as greywater recycling?

Sustainable Urban Drainage (Section 8)

- How has the development has been designed to incorporate Sustainable Urban Drainage Systems such as porous paving and soakaways?
- If SUDS are not included what justification has been provided?

Obtaining Planning Permission

3.3 To ensure compliance with this SPD the Council would encourage applicants to enter into pre application discussions prior to the submission of a planning application. The applicant should contact the designated renewables officer to discuss which type of technology and energy efficiency measures may be appropriate.

3.4 Planning conditions will be attached as part of the planning permission to ensure that renewable energy equipment is installed and operational prior to any unit being operated, occupied or sold.

Building Regulations

3.5 The Council will expect applicants to meet the expectations of this SPD above and in conjunction with the requirement to comply with current building regulations as these are progressively tightened in order to achieve the government's aim for zero carbon homes by 2016 (see section 6).

Monitoring

3.6 The installation of renewable technologies will be monitored by the Council's building control officers. Where the Council's officers are not used the applicant will need to provide a completion certificate to show that the technology has been installed correctly.

4. The 10% Requirement

4.1 Policy **DP13** of the Local Plan sets out the Councils requirement that 10% of the energy demand in new developments should be met by renewable sources.

> **DP13 Renewable Energy Developments**
>
> ***B. In appropriate residential and non residential developments, including conversions, the Council will require 10% of the predicted energy requirement to be produced on site, or in the locality from renewable energy resources***

4.2 The 10% requirement will be applied to **all** developments unless the applicant can demonstrate it would not be appropriate. Development may not be appropriate because one or more of the following criteria can be met:

(i) It can be demonstrated that the site or building, character or scale of development would not be feasible for any type of renewable energy technology

4.3 In the case of smaller developments and in constrained sites (such as the town centre) it may not be technically possible to implement certain types of renewables. For example, the change of use of a ground floor unit where the upper floors are not in the same ownership is likely to prohibit the use of solar panels or wind turbines which need to be mounted on an unobstructed wall or roof. Similarly in the town centre there may not be the physical space to install certain technologies. In such cases the applicant must demonstrate that all possible renewable options have been fully explored. In addition the Council will expect all developments regardless of size or location to be designed to maximise energy efficiency.

(ii) **The installation of renewables would conflict with other planning objectives**

4.4 There may be other planning objectives such as the preservation of the historic environment which make it difficult to install renewables. In conservation areas and in particular on listed buildings careful design is required to ensure that renewables are installed in a way that is sensitive to the historic and visual character of the building. There are however, some examples of where this has been successfully achieved. The applicant will therefore need to demonstrate that all options have been explored.

4.5 In rural areas, particularly land in the Green Belt, careful consideration is needed of the visual impact of renewables such as wind turbines on the open countryside.

(iii) It can be demonstrated that implementing renewables would not be financially viable and would undermine the delivery of the development

4.6 It is recognised that in some developments the cost of implementing renewables may make the scheme unviable. This may be the case in small developments such as residential extensions or where the development involves other costs such as remediation works. The applicant will be required to clearly justify in the energy statement why the use of renewables would be unviable. This may take the form of a financial appraisal. The Council will in all instances expect the development to be designed to a high standard of energy efficiency.

4.7 In small scale developments the Council would encourage applicants to investigate any financial grants which may be available to support the implementation of renewable energy equipment (see sources of further information).

4.8 Where one of the above criteria can only be met in part, the Council will expect a reduced percentage to be met through renewables.

Combined Heat and Power

4.9 The Council may consider reducing the 10% requirement if a Combined Heat and Power (CHP) unit is implemented and the applicant can demonstrate that this will provide significant carbon savings. The percentage reduction will depend on the individual circumstances of the development and the size of the CHP plant. The Council would encourage all developments of 10 dwellings or 1000 sqm or over to consider the potential for a CHP unit.

5. Calculating the Renewables Requirement

5.1 The Council will expect the applicant to demonstrate how they have met the 10% requirement including details of the type of technology which will be installed and how this will achieve the expected energy requirement. In order to do this the Council has set out the following stages as a guide for applicants in meeting the requirement.

Stage 1 – Maximising Energy Efficiency
Stage 2 – Calculating Total Energy Demand
Stage 3 – Assessing different types of Renewable Technologies
Stage 4 – Calculate the Energy Savings

Stage 1 – Maximising Energy Efficiency

5.2 The development should be designed to maximise energy efficiency to ensure that the overall energy demand is as low as possible. It is important that this is undertaken in conjunction with the installation of renewables to maximise energy savings. For example, ground heat source pumps will be most effective where there is high thermal mass. **The Council will not accept energy efficiency measures as being sufficient in meeting the 10% requirement.**

5.3 The applicant should consider the potential to use Combined Heat and Power to reduce carbon emissions within the scheme (see section 7).

Stage 2 – Calculating Total Energy Demand

5.4 The total predicted energy demand of the development should be calculated taking account of all potential energy uses. This should not only include energy for heating, ventilation, cooling and lighting but also (where applicable) energy use from appliances which along with other unregulated emissions can account for between 40% to 50% of the total carbon emissions in new homes.

5.5 Applicants should use the Standard Assessment Procedure (SAP) calculating the target emission rate (TER) and building or dwelling emission rate (BER / DER) in order to implement the building regulations. The electricity and heating requirement per kilo watt hour should be identified and this should be multipied by the size of development in square metres. The BER / DER should be recalculated to reflect the energy efficiency measures and addition of renewable energy equipment.

5.6 It is anticipated that a renewables toolkit will be produced to provide up to date energy data for different types of development (see paragraph 5.11). In the absence of this the applicant should use established sources of benchmark data such as the London or Oldham toolkit.

5.7 For developments where the end user is not known it may not be possible to accurately calculate the energy demand. In these cases the Council will expect the applicant to provide an estimate based on best knowledge using one of the available toolkits.

Stage 3 – Assessing different types of Renewable technologies

5.8 Consideration should be given to different types of renewable technologies and their potential suitability for the development site. The applicant should demonstrate why the chosen method of renewables is the most suitable for the site. For example, although some developments may not be suitable for renewables such as wind turbines and solar panels there may be scope for other alternatives.

Stage 4: Calculate the energy savings

5.9 The applicant should calculate the proportion of energy which will be provided by the chosen technology. To do this it may be necessary to consult specialist advice particularly as the systems output may be dependant on siting and location.

The following basic calculation should be completed:

$$\text{\% Renewable Energy Contribution} = \frac{\text{energy delivered by renewables system}}{\text{predicted site energy requirement}} \times 100$$

5.10 This should be expressed as a percentage and stated in the **energy statement**

Sub regional toolkit

5.11 In conjunction with other authorities in the subregion the Council will provide a renewables toolkit. It is likely that this will take the form of a spreadsheet which will enable applicants to calculate the percentage of energy which will be generated by a particular renewable energy technology. It will also assist development control officers in determining planning applications.

6. Sustainable Layout and Building Design

6.1 It is possible to significantly reduce the energy requirement of a building through its design, layout and orientation. The Council will expect the applicant to demonstrate the ways in which the development has been designed to a high level of energy efficiency in line with the following principles.

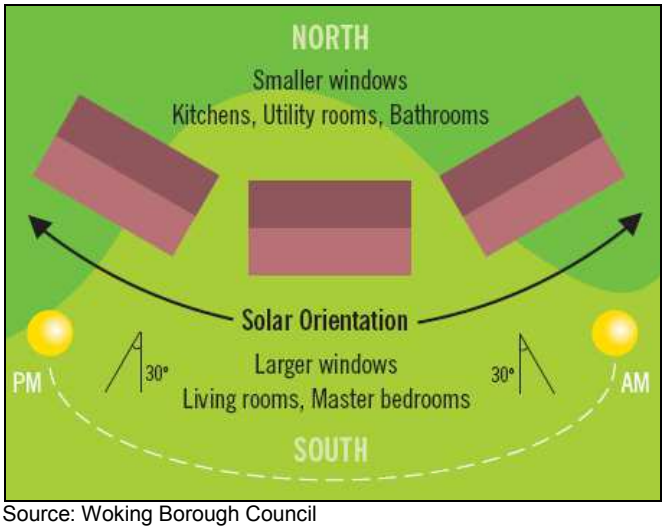
Design and Construction

6.2 Where appropriate buildings should be constructed to achieve a high level of thermal mass using solid masonry or concrete materials which are more effective in absorbing heat in warm conditions and retaining it during cooler weather, reducing the need for artificial heating and cooling. Heat loss can also be minimised through the use of wall and loft insulation, double glazing and ensuring that the building is as air tight as possible. In addition the use of energy efficient lighting and fixings which do not allow the use of non efficient lighting will reduce energy consumption. In residential properties, the installation of energy efficient heating and water systems such as condensing boilers and energy saving electrical appliances are encouraged as standard. In the case of extensions an audit of the whole building should be completed to investigate the potential to improve energy efficiency throughout the development.

Passive Solar Gain

6.3 The sun's energy can be used to naturally heat and light a building reducing the requirement for artificial light and heat. Passive solar design can be easily integrated into the design of individual buildings but also in the layout of larger developments and estates. To maximise solar gain the orientation of the building should be due south up to 30 degrees east or west. In residential units the main habitable rooms (living room, bedrooms) should face south and have larger windows to collect heat and light energy with bathrooms and the kitchen being sited on the north elevation (see figure 1).

Figure 1: Solar Orientation



Source: Woking Borough Council

6.4 Overshadowing by neighbouring buildings should be avoided particularly on the southern elevation. It is recommended that dwellings should be spaced at least twice their height apart (north to south) and garages can be used to shelter north elevations. It is however, important to balance the energy saving benefits with the risk of uncontrolled or excessive passive gain which can cause overheating in the summer. This should be taken into account when considering the resilience of the building to withstand the future impacts of climate change.

6.5 Natural lighting is a particular issue in large deep buildings such as offices which are more reliant on electric lighting and mechanical ventilation. Courtyards and atriums can be used to allow natural light to filter into the central areas of buildings.

6.6 It is recognised that in some circumstances the most appropriate layout for encouraging passive solar gain may not accord with other design principles and for ensuring the best use of land. The applicant should justify if this is the case in the energy statement.

Natural Ventilation and Cooling

6.7 Good natural ventilation can reduce the need for mechanical forms of ventilation such as air conditioning which require significant amounts of energy. The design, and location of windows and the orientation of the building according to wind direction can encourage natural air circulation. For example, positioning windows on opposite walls can draw air through the building.

6.8 The use of fountains and pools can have a cooling effect as air moves over the water and retains moisture. These features can also serve as amenity space particularly in constrained town centre locations. Shading south facing elevations with adjustable awnings or shutters can provide shelter from the sun particularly during the summer months. Landscaping features can also be used to shade buildings.

Code for Sustainable Homes

6.9 New residential development should be designed to reflect the national standards and targets for sustainable construction set out in the Code for Sustainable Homes. As a minimum the Council would encourage all new housing to meet level 3 in order to meet the Government target towards achieving zero carbon by 2016.

6.10 Each level represents a progressive tightening of part L building regulations. For example by 2010 building regulations are expected to reflect code level 3 which is a 25% improvement on the current level.

Code Level	% above part L building regulations
Level 1	10%
Level 2	18%
Level 3	25%

Level 4	44%
Level 5	100%
Level 6	Zero carbon

Source: Energy Saving Trust briefing note: Code for Sustainable Homes (January 2008)

7. Renewable Energy Technologies

Photovoltaics (Solar Panels)

7.1 Solar Panels convert the sun's energy into electricity which can be used to power the energy needs of a development. The panels are made of PV cells which consist of two layers of semi conducting material available as panels or tiles which can be mounted on the roof, ground or as cladding. They are most effective on a south facing roof surface but can be used at most locations providing there is no overshadowing by nearby buildings. Solar Panels are suitable for most types and sizes of development and are low maintenance once they have been installed. It is also possible to feed excess electricity back into the power grid. Careful consideration in terms of siting and design is needed in the case of listed buildings (see paragraphs 7.11 to 7.15).

Solar thermal systems

7.2 Solar collectors absorb the sun's energy and use it to heat water which is transferred to a hot water cylinder to meet the needs of the building. Three types of collectors are available; unglazed plastic, flat plate and evacuated tube, the suitability of which depends on the location and type of development. This technology is most suitable for schemes which have a year round hot water demand.

Wind Energy

7.3 Turbines use energy from the wind to produce electricity. The capacity for utilising large scale wind turbines or wind farms within Warwick District is limited particularly within the urban areas. There may be potential for stand alone micro turbines where they can be mounted away from other buildings and where consideration is given to:

- any potential disturbance on neighbouring uses in terms of noise and vibration.
- the visual impact on the townscape (see paragraphs 7.16 to 7.18).

A new generation of vertical axis turbines is now available which are not dependant on wind direction.

Biomass Heating

7.4 Biomass boilers and stoves burn organic materials such as wood pellets or biocrops instead of traditional oil and gas. Boilers can be connected to central heating and hot water systems and stoves can be used to directly heat a room.

The biofuels must come from a sustainable source in order for it to be considered a renewable energy. It is most cost effective and sustainable when the supply of biofuel is in close proximity and where there is adequate space to store the biomass on site.

Ground Source Heat Pumps

7.5 Underground pipes are used to absorb heat from the ground which is transferred to a heat distribution system which can provide heating as well as preheated domestic hot water. A large space is required for the pipes to be buried underground at a depth of around 1m however vertical heat exchangers (bore holes) may be used at a depth of 15 to 150 m where space is limited.

- Vertical heat exchangers are expensive and permission to drill boreholes may be required.
- There may be archaeological reasons which would make this technology unsuitable in certain locations
- Feasibility depends on the ground conditions

7.6 As underground temperatures remain fairly constant throughout the year and below peak temperatures in the summer, ground source pumps may also be used for cooling in offices and non domestic buildings.

Combined Heat and Power (CHP)

7.7 CHP units burn gas or oil to generate both heat and power and are therefore a much more efficient way of producing energy. CHP can provide significant carbon emission reductions however unless it is powered by biofuel it is not considered to be a renewable technology. Where CHP is provided the Council may consider reducing the requirement for renewable energy. The Council will encourage schemes of 10 dwellings or 1000 sqm or more to consider the potential for CHP.

7.8 It is most suitable for large scale mixed use developments where there is a constant demand for heat and power. For example, a mixed development where offices would have a high energy demand during the day and residential units which would have a peak demand in the evening. Other uses which require a constant source of heat such as hotels (particularly those with a swimming pool) are particularly suited to this type of technology. There is potential for CHP to be connected to a wider district heating system.

7.9 Where CHP is proposed applicants will need to be clear who will be responsible for billing residents, the long term maintenance of the unit and the sourcing of fuel. This information should be set out in the energy statement.

7.10 More detailed guidance on the different types of renewable energy is available from the other sources listed in section 8.

Renewable Energy and the Historic Environment

7.11 The following paragraphs provide specific guidance on implementing renewable technologies in the historic environment.

Photovoltaics

7.12 The installation of solar panels can have a significant visual impact on the roof of a listed building or unlisted building in a conservation area which would detract from the historic integrity of the building. Careful consideration should therefore be given to locations that are not visible or are hidden from the main public view of the building. In certain instances there may not be a suitable location on the building itself and a free standing location in the garden of the property may be the best or only suitable location.

7.13 Photovoltaic tiles or slates may be used as a roof covering. In the case of listed buildings this may result in the removal of historic fabric that would be unacceptable With unlisted buildings in conservation areas it may be possible to use this format on a rear or hidden roof slope. In certain cases with both listed and unlisted buildings this format may be appropriate on a contemporary extension where it is a designed element or on a garage, garden building or outbuilding physically detached from the main building.

Solar Thermal

7.14 Solar collectors are available in three basics types (see section 7) all of which are usually mounted as panels but can vary in appearance, for instance evacuated tubes will appear differently to a flat plate collector. All however can have a marked effect upon the appearance of an existing building that may detract from the quality of the building if it is listed or in a conservation area. Many roof coverings on traditional buildings are comprised of small scale elements that cannot readily accommodate the visual impact of large scale panel installations.

7.15 Wherever possible installations should be located on inner roof slopes or roof slopes that are not visible in the context of the important views of the building . In certain listed buildings it may not be possible to satisfactorily locate the collectors anywhere on the building itself without compromising its integrity. In such cases detached locations such as free standing locations in the garden with suitable screening or the use of roofs on outbuildings may be possible.

7.16 Several successful locations on listed building have included high level flat roofs and discrete locations behind parapets and or inner slopping roofs. A further consideration with historic buildings would be the effect upon the structure and the location of the thermal store inside the building.

Wind turbines

7.17 Wind turbines clearly need a certain height relative to their location to be effective and this means that they are particularly visible in any one location. In conservation areas and on listed buildings they can therefore be particularly intrusive and may significantly detract from the character of the area unless very sensitively located. There is also the need to ensure that a building is structurally capable of accommodating the turbine and the vibration that may be caused.

7.18 There may be locations at the rear of listed buildings and buildings in conservation areas where wind turbines can be located relatively unobtrusively, and these areas should always be investigated first when dealing with the historic environment. Detached locations may also be a means of accommodating a turbine in the historic environment for example within the ground or garden of the property, sometimes existing trees may act as a foil to the installation. With any detached location the need to seek approval for the excavation of a historic site may be necessary particularly if the site is a scheduled ancient monument.

7.19 Turbines with horizontal blades are available but less widely used than vertical blades. These may be less obtrusive and have less overall height

Biomass Boilers

7.20 The burning of biomass fuels in a historic building may have a similar function to the historic heat source in that building .The location of biomass boilers needs to take account of the impact on the historic fabric of the building and in the case of listed buildings may require listed building consent even if located entirely within the building. The location of any new flues will clearly also require listed building consent and may in some unlisted buildings in conservation areas require

planning permission. Any new chimneys need to be sensitively located and constructed from traditional materials. Adequate storage buildings need to be provided for the fuel, these need to be sensitively designed and may also require separate consent. If the biomass fuel is to be grown on site the impact on the landscape particularly if it is a registered park or garden needs to be considered.

Ground Source Heat Pumps

7.21 Ground source heat pumps rely on either a system of pipes directly under a building or a single deep bore where space is restricted. These can be the least obtrusive form of renewable energy in the historic environment especially where a single deep bore can be accommodated. In listed buildings and scheduled ancient monuments care is needed not to disturb archaeology below the surface.

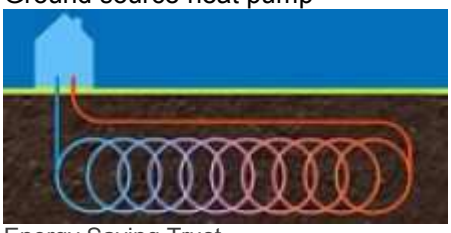
Combined Heat and Power

7.22 The impact on a historic building of using a combined heat and power system may be similar to biomass boilers where care needs to be taken in the location of the units internally and the location of any flues that may be needed.

General Advice

7.23 The use of any of the above systems may require either Listed Building Consent , or Planning Permission and/or Scheduled Monument Consent dependent on the location. Appropriate advice should always be sought. Each application will be determined on its merits and the precedent it may set for future location. It is recommended that an energy audit is carried out on any traditional property whether listed or in a conservation area to ascertain if the proposal is the most cost effective as well as the most visually appropriate for the location.

Table 1: Summary of the design considerations of different renewable technologies and low carbon technologies.	
Renewable Technology	**Design Considerations**
Photovoltaics (Solar Panels)  Energy Development Co-operative Ltd	• Most effective on south facing orientations • Can be mounted on the roof, ground, or used as cladding. • Low maintenance once installed. • Careful design is needed in the case of listed buildings • An average domestic system of between 1.5 – 3kwp costs £5000 – £8,000. • Solar tiles are more expensive than panels.
Solar Thermal  BERR	• Most effective on south facing orientations • Available in a range of sizes. • Can be easily used on individual buildings and requires minimal maintenance. • Systems come with a 5 to 10 year warranty • An average domestic system costs between £3,200 and £4,500. • Evacuated tubes are more expensive than flat plate systems due to more advanced design.
Combined Heat and Power  Combined heat and power association	• It is most suitable for larger mixed use schemes where there is a constant demand for energy and heat. • There is potential to link to a wider district heating system. • Biomass CHP is considered to be a renewable technology. Gas and oil fired CHP still provides significant carbon savings.
Wind Energy  BWEA	• Large turbines may not be suitable in confined urban areas. • It is important to consider the visual and noise impact on adjacent properties • Larger systems (between 2.5kw to 6kw) cost between £10,000 – 25,000 to install

Ground source heat pump  Energy Saving Trust	• Can be laid horizontally as pipes or vertically as boreholes • May not be suitable where there are archaeological remains or sensitive landscape areas. • A system of 6kw – 8kw would cost between £7,300 - £11,800 (not including the price of distribution system).
Biomass Heating	• Storage space is needed for the biomass chips or pellets. • May be a potential conflict in designated smokeless zones.

8. Sustainable Water Management

8.1 Surface water flooding is caused when local drainage capacity is unable to cope with peak rainfall events. Increased areas of hard standing created through new development prevents surface run off from draining away. The need to control this run off is important in order to reduce the risk of flooding.

Sustainable Drainage Systems (SUDS)

8.2 In accordance with policy DP11 the Council encourages the use of sustainable drainage systems for the disposal of surface water. SUDS can take various forms depending on the location, size and type of development.

8.3 *Green roofs* use vegetation and other organic matter to absorb rainwater and reduce run off from the building's roof. This can also act as insulation and in some cases provide open space for the development.

8.4 *Permeable paving* such as pebbles, gravel or crushed stones can be used on hard surfaces such as car parks as these allow surface water to infiltrate into the ground. This does not however, negate the need to provide disabled access to comply with building regulations. In the future the Government may remove permitted development rights to pave over front gardens using impermeable paving.

8.5 *Soakaways* allow stormwater to drain away from buildings and paved areas and permeate into adjacent soil.

8.6 *Balancing ponds* provide a temporary storage facility to reduce the risk of flooding. They are particularly useful in larger developments where there is likely to be an excess of surface water at certain times.

8.7 *Swales and basins* reduce and manage peak water flows, provide temporary storage for storm water, assist in filtering pollutants and aid the infiltration of water into the ground.

8.8 In all cases the applicant should indicate where applicable, who will be responsible for the maintenance of these systems.

8.9 Where SUDs are not used the applicant will be expected to fully justify why this is the case and that all options have been thoroughly explored. Failure to do this could result in the application being refused. Instances where SUDs may not be appropriate include:

- where there is no accessible outdoor space such as a garden or roof area,
- where it can be demonstrated that it would not be financially viable. For example in the case of small developments (such as extensions)
- where it can be demonstrated that there would be no increase in the volume of surface water (such as a change of use proposal)

Water Conservation Measures

8.10 Design measures can also help in reducing the demand for water by encouraging greater efficiency. The Council would encourage greywater recycling such as the reuse and recycling of domestic waste water and the use of rain harvesting systems. In residential developments water butts, dual flush toilets and energy efficient showers should all be considered as standard.

9. Further sources of information

The following list provides links to some of the sources of further information which may assist applicants in meeting the requirements of this SPD.

Government Guidance

- Code for Sustainable Homes and Technical Guides
  http://www.communities.gov.uk/planningandbuilding/buildingregulations/legislation/englandwales/codesustainable/

- Planning Policy Statement 1 (PPS1) Climate Change Supplement and associated documents
  http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/ppsclimatechange/

- Planning Policy Statement 22 (PPS22) Renewable Energy
  http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps22/

- Planning Policy Statement 25 (PPS25) Development and Flood Risk
  http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/pps25/

Renewables Toolkits

- London Renewables – Integrating renewable energy into new development: Toolkit for planners, developers and consultants (Faber Maunsell September 2004)
  http://www.london.gov.uk/mayor/environment/energy/docs/renewables_toolkit.pdf

- Oldham Renewables Toolkit – available from Oldham Metropolitan Borough Council www.oldham.gov.uk

General sources of information

- Energy Saving Trust
  www.energysavingtrust.org.uk
  - Meeting the 10 per cent target for renewable energy in housing – a guide for developers and planners (Energy Saving Trust 2006 edition)

- British Wind Energy Association
  http://www.bwea.com/

- Warwickshire Energy Efficiency Advice Centre
  http://www.weeac.org/

- The Carbon Trust
  www.carbontrust.co.uk

10. Appendix 1 – Local Plan Policies

DP11 Drainage

Development will be encouraged to incorporate sustainable drainage systems which provide for the disposal of surface water. Where this is not possible, it will be necessary to demonstrate:-

a) why it is not possible to incorporate sustainable drainage systems, and

b) that an acceptable means of surface water disposal is provided which does not increase the risk of flooding or give rise to environmental problems.

The re-use and recycling of surface water and domestic waste water within new development will be encouraged.

4.67 The conservation and management of water is an increasingly important issue in light of the increased incidence of flooding, the increasing demand for water supplies and the importance of watercourses and wetlands to nature conservation. Development throughout a river catchment, including locations outside of the flood plain, can have a significant impact on the risk of flooding simply by increasing run off through extending the area of impermeable ground. Further, government guidance states that the potential effects of climate change may be a 20% increase in peak flows.

4.68 Government guidance requires consideration of drainage and flooding issues in all locations, not just within the floodplain. It encourages reduction and restriction of surface water run off from new developments by the provision of sustainable drainage systems. This guidance is reflected in the Structure Plan which requires development to meet water conservation and flood control requirements. The views expressed through the Community Plan identified reducing the risk of flooding as a key aim.

4.69 The objective of this policy is to incorporate sustainable drainage systems into new developments as an integral part of their layout and design. Sustainable drainage systems aim to use a variety of techniques to control surface water run-off as close to its origin as possible by engineering solutions that seek to mimic natural drainage processes. These will help to protect against flooding and pollution of water resources as well as enabling opportunities for benefits in terms of nature conservation and the landscape value of the site and surrounds.

4.70 The Environment Agency can give further information on sustainable drainage systems and water recycling. The Council will work closely with them and other sewerage undertakers to enable surface water drainage to be controlled as near to the source as possible by encouraging such systems.

4.71 Applicants will need to demonstrate how they comply with the objective of this policy. It is recognised that some developments, e.g. changes of use, may have

little or no impact on drainage and therefore such information will not be required where this is the case.

DP12 Energy Efficiency

The layout and design of development will be encouraged to promote energy efficient buildings. Where appropriate, development proposals will be expected to demonstrate that they have considered:-

a) opportunities to maximise passive solar gain, minimise heat loss and wind tunnelling and eddying;

b) opportunities to limit overshadowing of buildings to minimise loss of useful solar gain;

c) opportunities for landscaping to provide shelter belts to improve energy conservation;

d) the use of materials with a reduced energy input, such as recycled products; and

e) the use of sustainable and renewable forms of heating such as solar panels and CHP (Combined Heat and Power) schemes.

4.72 The prudent use of natural resources is a key objective of the UK Sustainable Development Framework. The layout and design of development can have a significant effect on reducing energy consumption by ensuring maximum use is made of passive solar gains and reducing the unnecessary loss of energy.

4.73 Government guidance states that energy conservation and efficient use of energy are considerations for Local Plans. This is reflected within Regional Planning Guidance which requires development plans to include measures to minimise energy demands from development. Furthermore, an aim of the Community Strategy is to promote energy efficiency. Other policies within the Local Plan will also contribute towards energy efficiency, such as ensuring that developments are located in areas which reduce peoples need to travel and encouraging renewable energy developments.

4.74 The objective of this policy is to design new developments which make the most of opportunities to reduce energy consumption and carbon emissions. Consideration should be given to maximising solar gain through orientation of the principal façade of buildings southwards, configuring the internal layout accordingly and providing appropriate spacing between buildings to avoid overshadowing. The ability to avoid exposing external walls through windbreaks should also be considered.

4.75 It may also be appropriate for large scale developments to consider the ability to incorporate sustainable forms of energy production within the overall design, for example combined heat and power systems.

4.76 Applicants will be required to demonstrate how they comply with the objective of this policy. It is recognised that minor developments and changes of use may have little or no impact on energy conservation and therefore such information will not be required where this is the case.

4.77 The Council will welcome applications for development that have embraced the adoption of recognised environmental design standards such as Breeam (The Building Research Establishments Environmental Assessment Method). This audit system considers a set of environmental issues and gives accreditation for designs that successfully incorporate an appropriate range of environmental criteria.

4.78 It is acknowledged that the most appropriate layout and design for promoting energy efficient buildings may not accord with other policy objectives, such as achieving good design or making the best use of land. The Council will expect applicants to demonstrate how they have sought to balance these competing objectives and where they have made clear choices between policies.

DP13 Renewable Energy Developments

A. Planning permission will be granted for developments which generate energy from renewable resources where they do not have an unacceptable impact on:-

a) local amenity including visual appearance, noise, dust, odour, and traffic generation;

b) public health and safety;

c) townscape and/or landscape character;

d) the natural environment; or

e) interests of archaeological or historic importance

In the case of all applications for renewable energy projects, the following will apply:

i) the wider environmental and economic benefits of the proposals will be a significant material planning consideration; and

ii) provision should be made for the removal of the facilities and the reinstatement of the site should it cease to be operational.
In the case of large scale renewable energy projects, there should be community involvement in developing the proposals.

B. In appropriate residential and non-residential developments, including conversions, the Council will require 10% of the predicted energy requirements to be produced on site, or in the locality, from renewable energy resources.

4.79 The Government's energy policy is set out in the Energy White Paper. This aims to put the UK on a path to cut its carbon dioxide emissions by some 60% by 2050, with real progress by 2020, and to maintain reliable and competitive energy supplies. The development of renewable energy, alongside the improvements in energy efficiency and the development of combined heat and power, will make a vital contribution to these aims. The Government has already set a target to generate 10% of UK electricity from renewable energy sources by 2010. The Government's planning policy in PPS22 (Renewable Energy) states that local development documents, such as local plans, should include policies to promote and encourage the development of renewable energy resources. Further guidance is given in the Companion Guide to PPS22.

4.80 The West Midlands Energy Strategy sets a target of at least 5% of electricity to be generated from renewable means by 2010. This lower target reflects the lower baseline in the region and the potential. Regional Planning Guidance recognises the fact that if energy targets are to be met it is important that development plans incorporate policies to help facilitate the realisation of the energy generation potential of renewable resources. The Structure Plan promotes the maximum use of renewable energy resources.

4.81 Warwick District Council is a signatory to the Nottingham Declaration on Climate Change and as such is committed to encouraging all sectors of the community to achieve a significant reduction in greenhouse gas emissions and to provide opportunities for the development of renewable energy developments.

4.82 The objective of this policy is to provide clear criteria for consideration of development proposals for renewable energy developments and to promote the use of small scale, on-site, renewable energy technology in developments. For the purposes of this policy, renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the sun and also from biomass. In Warwick District, the energy sources which have most potential include solar energy, wind and biomass.

4.83 Development proposals for renewable energy projects may include both large scale, commercial plant supplying to the local distribution network, or "micro-generation scale" plants supplying a specific building, site or community. The nature and significance of developments will vary according to the scale, the primary source of renewable fuel, the technology used and the location. Commercial scale plants are likely to use wind or biomass. Micro-generation scale plants may make use of a variety of fuels and technologies.

4.84 Where appropriate, Environmental Assessment will be used to determine the effect of any proposal on amenity, public health and safety, townscape and/or landscape character, the natural and historic environment, climate and other factors. Applications should include arrangements for the reinstatement of the site, should the operation cease, and in the case of large scale projects should engage in active consultation with local communities before any planning application is submitted.

4.85 Many renewable energy projects will be inappropriate development in the green belt. Careful consideration will be given to the visual impact of the scheme on the

openness of the green belt and developers will need to demonstrate very special circumstances that clearly outweigh any harm by reason of inappropriateness and any other harm if the project is to proceed.

4.86 Government guidance allows local plans to require some new developments to provide a percentage of their energy requirements from on-site renewable energy developments. In Warwick District this requirement will be applied to "appropriate" developments which will include those developments where the installation of micro generation equipment is viable given the type of development proposed, its location and design. Such equipment could include photovoltaic cells, solar panels, solar powered water heating, energy from wind turbines in small clusters and energy from biomass. Where, in the case of an appropriate development, it is claimed that micro generation equipment is not viable, developers will be required to demonstrate why this is the case. Further guidance on the implementation of this policy will be set out in a Supplementary Planning Document.

11. Glossary

Combined Heat and Power – an efficient technology for generating electricity and heat together.

Conservation Area – specifically designated areas of architectural or historic interest the character of which it is important to maintain or enhance.

District Heating Systems – a system for distributing heat produced in a central location to residential and commercial developments.

Listed Buildings – buildings which are designated for their architectural or historic interest and are statutorily protected to ensure their protection.

Low Carbon Technologies – methods of providing electricity and heat which are more energy efficient than conventional energy flows.

Microgeneration - small-scale production of heat and/or electricity from a low carbon source. This can include solar (photovoltaics (PV) to provide electricity and thermal to provide hot water), micro-wind (including the new rooftop mounted turbines), micro-hydro, heat pumps, biomass, micro combined heat and power (micro CHP) and small-scale fuel cells (as defined in section 82 of the Energy Act 2004).

Passive Solar Gain – an energy efficient method of designing buildings to maximise the potential to collect heat and light from the sun.

Regional Spatial Strategy – sets the framework for Local Development Frameworks within the Region. It is prepared at the regional level and is adopted by the Secretary for State.

Renewable Energy - Energy flows that occur naturally and continually in the environment such as wind, solar, and wave power.

Surface Water Drainage – drainage systems created to deal with the efficient disposal of surface rain water.

Warwick District Local Plan – a land use document which regulates the development and use of land. Under the Planning and Compulsory Purchase Act 2004 Local Plans are being replaced with Local Development Frameworks.

Zero Carbon Homes - over a year, the net carbon emissions from all energy use in the home would be zero (Building a Greener Future Policy Statement July 2007)