

ESSENTIAL REFERENCE PAPER 'C'

21 Climate Change

21.1 Introduction

21.1.1 Climate change is caused in part by greenhouse gases that are primarily produced through the burning of fossil fuels and the release of carbon through activities such as agriculture and the loss of woodland for example. Problems commonly associated with climate change include flooding and extreme weather patterns. Climate change is both a global and local issue.

21.1.2 Building Futures is a Hertfordshire guide to promoting sustainability in development, including modules on Climate Change Adaptation and also on Energy and Climate Change. Both modules include practical advice in relation to measures which can help to address climate change.

Building Futures is an interactive website which can be accessed at: www.hertslink.org/buildingfutures

21.2 Adaptation

21.2.1 Climate change is expected to result in hazards such as heatwaves, flooding, and drought. Adaptation means improving our resilience to such impacts. This section addresses the issue of overheating. Measures related directly to water and climate change adaptation, including flood risk, water efficiency, and sustainable urban drainage, are contained within Chapter 22: Water.

21.2.2 Measures to address overheating may be undertaken at building level, neighbourhood scale, and town or urban extension scale. Examples of measures include:

1. using site landform and landscape to benefit from shelter, to minimise heat losses in winter, provide adequate shade in summer, and to catch breezes
2. using deciduous trees to maximise shade in summer and allow light in during the winter, or structural or functional design to achieve a similar effect
3. minimising energy demand, for example using cross-ventilation, to avoid a vicious circle whereby increased demand for air conditioning generates further climate-changing emissions
4. using materials that prevent the penetration of heat to a building, which can include green roofs or walls, light coloured materials in exposed surfaces, and for large car parks; road energy systems which store heat and release it during the winter months
5. providing green infrastructure including woodlands, orchards, street trees and green landscaping, parks, sports grounds, allotments, and green roofs.

21.2.3 Such measures may have a number of wider benefits, including reduced energy bills and improving the quality of the built environment. The Building Futures Climate Change Adaptation module contains further guidance on adaptation solutions.

Policy CC1 Climate Change Adaptation

All new development should:

(a) Demonstrate how the design, materials, construction and operation of the development would minimise overheating in summer and reduce the need for heating in winter; and

(b) Integrate green infrastructure from the beginning of the design process to contribute to urban greening, including the public realm. Elements that can contribute to this include appropriate tree planting, green roofs and walls, and soft landscaping.

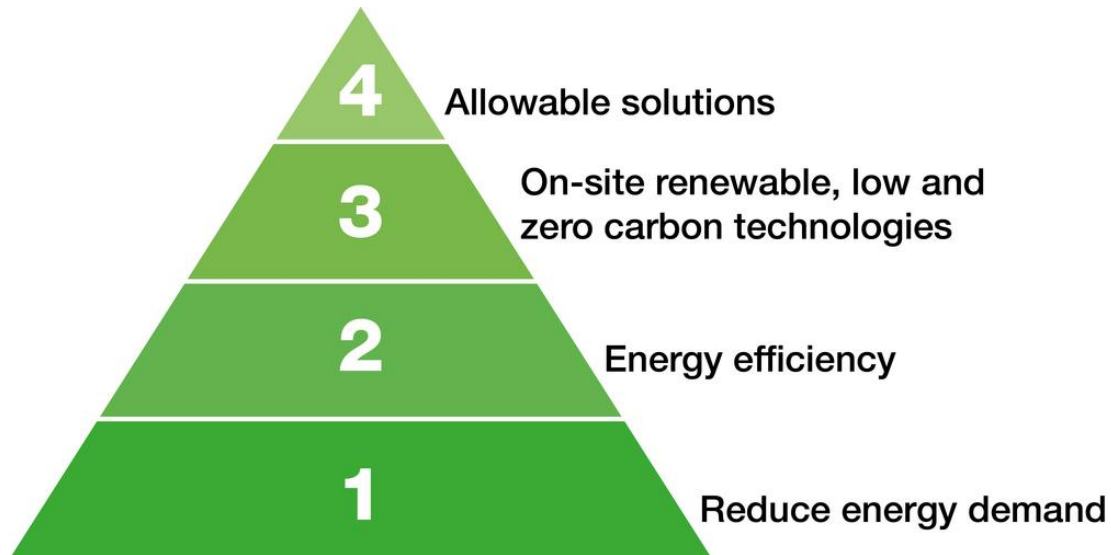
21.3 Mitigation

21.3.1 Carbon emissions originate from a wide range of sources, including transport, construction, and all forms of energy use including heating and appliances. The Climate Change Act (2008) sets out a legally binding target for reducing the UK's carbon dioxide emissions, in order to mitigate or reduce the impacts of climate change. Planning plays a role in terms of locating development so as to minimise the need to travel, which is addressed in the transport policies and also in the development strategy for the district.

21.3.2 There are four main types of approach to reduction of carbon emissions from development. These are as follows:

1. Reduce energy demand by providing natural ventilation and illumination, good insulation, and shading as described in relation to climate change adaptation
2. Increase energy efficiency through the use of efficient services and appliances, and low-energy lighting
3. Generate heat and/or power through on-site low and zero carbon technologies such as Combined Heat and Power (CHP), solar panels, biomass boilers, or heat pumps
4. Offsetting on-site carbon emissions through off-site means, for example retrofitting existing buildings elsewhere, investment in energy schemes such as district heating, payment into a community investment fund, or use of Green Energy Tariffs. These are known as 'allowable solutions'.

Figure 21.1 Energy Hierarchy



21.3.3 These four approaches are usually represented as an energy hierarchy as illustrated in Figure 21.1 above, in which the most effective ways of reducing carbon dioxide are shown at the base and must be fully explored first.

21.3.4 Wherever possible, developers should use reliable technologies and approaches with a proven track record.

Policy CC2 Climate Change Mitigation

I. All new developments should demonstrate how carbon dioxide emissions will be minimised across the development site, taking account of all levels of the energy hierarchy. Achieving standards above and beyond the requirements of Building Regulations is encouraged.

II. Carbon reduction should be met on-site unless it can be demonstrated that this is not feasible or viable. In such cases effective offsetting measures to reduce on-site carbon emissions will be accepted as allowable solutions.

III. The energy embodied in construction materials should be reduced through re-use and recycling of existing materials and the use of sustainable materials and local sourcing.

21.4 Renewable and Low Carbon Energy

21.4.1 There are a variety of opportunities for generating clean energy. The Hertfordshire Renewable and Low Carbon Energy Technical Study (July 2010) includes energy opportunity maps for East Hertfordshire, which may assist in the selection of appropriate carbon saving methods depending on the location of development proposals.

The Hertfordshire Renewable and Low Carbon Energy Technical Study (July 2010) can be viewed and downloaded from the Hertfordshire County Council Website at:
www.hertsdirect.org/services/envplan/plan/renewableenergy/

21.4.2 At the same time as promoting renewable energy, the Council is also mindful of the need to ensure that an appropriate balance is maintained between the benefits of renewable energy and other constraints and considerations in accordance with the National Planning Practice Guidance (NPPG).

21.4.3 Taking account of this guidance, Policy CC3 takes a balanced approach, promoting renewable and low carbon energy where the impacts can be satisfactorily mitigated.

21.4.4 The Council encourages proposals that embrace the use of renewable, zero and low-carbon technology. Where proposals are within or near the urban areas of settlements, applications should be supported by an air quality assessment, which details proposed mitigation measures where necessary.

Policy CC3 Renewable and Low Carbon Energy

I. The Council will permit new development of sources of renewable energy generation subject to assessment of the impacts upon:

- (a) environmental and historic assets;
- (b) visual amenity and landscape character;
- (c) local transport networks;
- (d) the amenity of neighbouring residents and sensitive uses;
- (e) air quality and human health; and
- (f) the safe operation of aerodromes.

II. In considering the impact of renewable technologies, the Council will attach particular importance to maintaining the special countryside character of the rural area, including the preservation of long-distance views from public rights of way.