

## Babergh Development Framework

### Core Strategy (2011- 2031) Submission Draft

(Part 1 of Babergh’s New Local Plan)

#### Technical Background Document 5: Environment and Climate Change Version 2.1 (November 2011)

##### 1. Introduction

- 1.1 The Spatial Vision and Development Strategy for Babergh District require a balance to be struck so that growth and development is sustainable. At the core of sustainable development is the issue of climate change and how this is addressed. The impacts of climate change have the potential to change the landscape of Babergh and lives of its residents. Indeed, the UK Climate Impacts Programme (UKCIP '09) projections show that under a “medium [CO<sub>2</sub>] emissions scenario”<sup>1</sup>, annual summer precipitation in the region is likely to decrease by 10% or more by 2020, and 20% or more by 2050, while annual winter precipitation is likely to increase at an equivalent level. It is therefore essential that planning policy both protects the character and appearance of the Babergh area, and promotes ways of reducing carbon emissions and good practice in sustainable design.
- 1.2 There is urgency in the need to address climate change that is apparent from the amount and frequency of policy, advice and regulation that has been, and is being published. For example, in March 2010, the Government published a Consultation draft of a new Planning Policy Statement (PPS) on Planning for a Low Carbon Future in a Changing Climate in March 2010, and although this PPS did not progress beyond the consultation draft it included a list of legislation and policy issues that had been published in the two years since the PPS1 Supplement on Climate Change (see Appendix 1). More recently, a draft National Planning Policy Framework, setting out a “presumption in favour of sustainable development” has been published for consultation and is discussed further in the body of this paper.
- 1.3 In terms of new development, probably the most significant of the new regulations are the phased changes to Building Regulations designed to implement ‘zero carbon’ homes by 2016. The definition of zero carbon is currently being developed, as it was considered that the earlier definition of a Zero Carbon Home as “one whose net carbon dioxide emissions, taking account of emissions associated with all energy use in the home, is equal to zero or negative across the year”<sup>2</sup> was too difficult and expensive to achieve across the board by 2016. The new concept of zero carbon is likely to impose a cap on the CO<sub>2</sub> emissions that can be emitted on site (“carbon compliance”) and an array of methodologies to reduce residual emissions (“allowable solutions”) as discussed below in the “Reducing Carbon Emissions” section. The Government’s target for zero carbon non-domestic buildings is 2019.
- 1.4 Meeting the challenges of climate change should not be left solely to regulation. Spatial planning policies have an important role to play in setting the context for, and complementing and supporting the regulatory system and delivery of national targets. There are two key areas where planning policy can require actions to be taken when considering development and climate change – i) reducing impacts of development on

<sup>1</sup> <http://ukclimateprojections.defra.gov.uk/22152>

<sup>2</sup> Written Statement by the Rt Hon John Healey MP, Minister of State, 16 July 2009.

climate change (mitigation), and ii) reducing impacts of climate change on development (adaptation), and these will be explored later.

## 2. Policy and regulatory context

### 2.1 National Planning Policy Framework

2.1.1 In December 2010 the Minister for Decentralisation and Planning, Greg Clark MP, announced a review of planning policy, designed to consolidate thousands of pages of policy statements, circulars and guidance documents into a single, simpler National Planning Policy Framework (NPPF). The draft NPPF, published for consultation in July 2011, aims to be user-friendly, accessible and clear, condensing national planning policy into 52 pages.

2.1.2 The NPPF is an outline of national requirements and priorities, dictating policy only as far as it is relevant, proportionate and necessary to do so. It is a framework within which local people and their accountable councils can produce tailored local and neighbourhood plans that reflect the needs and priorities of their communities.

2.1.3 The Framework attempts to:

- integrate economic, environmental and social planning policies to guide local authorities to make robust plans and facilitate local sustainable development through strategic development management decisions;
- champion positive and proactive planning through a ‘presumption in favour of sustainable development’, which aspires to streamline plan-making and development-making;
- inspire plans built from the bottom-up by Local Authorities (i.e. Local Plans) and local communities (i.e. Neighbourhood Plans) – positive and proactive documents; clear and concise; strategic documents with the flexibility to respond to changes in circumstance and priority.

2.1.4 With regards to development and supplementary planning documents, section 21 of the NPPF states extra guidance should only be prepared where it accelerates and incentivises planning opportunities.

2.1.5 Climate change mitigation and adaptation is one of five strategic priorities in the NPPF. Section 149 states: “local planning authorities should adopt proactive strategies to mitigate and adapt to climate change”. Transposing the broader aspirations of the NPPF whilst only accepting development that mitigates and adapts to climate change will be a challenge for local policy-makers. With regards to reducing greenhouse gas emissions, the NPPF states that local authorities should:

- plan for new development in locations and ways which reduce emissions; and,
- when setting local requirements for buildings’ sustainability, standards should be consistent with the national zero-carbon building’s policy and adopt nationally described standards.

2.1.6 Section 152 states local planning authorities are required to “have a positive strategy to promote energy from renewable and low-carbon sources [and] design their policies to maximise renewable and low-carbon energy development while ensuring that adverse impacts are addressed satisfactorily”.

2.1.7 With regards to flood-risk, plans must apply sequential, risk-based approaches to defining the location of development.

### 2.2 Planning Policy Statements:

- 2.2.1 Until the National Planning Policy Framework is formally adopted, the existing suite of Planning Policy Statements still bears weight and should be considered when drawing up local policies. Of particular importance is the supplement to Planning Policy Statement 1, on Planning and Climate Change, which sets out how local planning authorities should plan to contribute to carbon reduction targets. East Anglia is particularly vulnerable to the effects of climate change, such as coastal and inland flooding, drought and pressure on water resources, and this on top of the planned level of growth with the associated potential for this to contribute to a significant increase in carbon emissions. Planning policies to tackle climate change should seek to both mitigate and provide for adaptation, and should aim for carbon reduction in new developments, and the provision of renewable energy for residual energy requirements. Policies need to be appropriate to the area, and be based on evidence. Requirements for carbon reduction measures must be viable and achievable in the context of other planning requirements and policy constraints.
- 2.2.2 A Supplement to PPS25 setting out the Government's policies on Development and Coastal Change was published in March 2010. Reference is made to the need for local planning authorities to collect and maintain up to date evidence. The Shoreline Management Plans (SMPs) developed by the Environment Agency are the starting point for this. The PPS25 Supplement advises local planning authorities to "identify how coastal change could be affected by development in their plan areas, and identify how development could be affected by coastal change." The Environment Agency is currently working to complete the Essex and South Suffolk Shoreline Management Plan (SMP). The plan has been endorsed by the constituent local authorities and is currently (November 2011) with Defra for approval under the Habitat Regulations. Once adopted, this will be used to identify areas likely to be affected by physical changes to the coast. These areas are to be known as Coastal Change Management Areas (CCMA(s)). Local planning authorities are required to set out policies for CCMA(s) that specify the type of development that will be appropriate, the circumstances in which certain types of development may be permissible, and any allocations of land for appropriate development. We will do this in the Development Management and Site Specific DPDs.
- 2.2.3 In terms of advice on inland flooding, from rivers, ground water, surface water and tidal flooding Catchment Flood Management Plans (CFMPs) prepared by the Environment Agency are available. Two such CFMPs cover Babergh district, the East Suffolk and North Essex CFMPs and summary reports for these can be found on the Environment Agency's website: [www.environment-agency.gov.uk/research/planning/114303.aspx](http://www.environment-agency.gov.uk/research/planning/114303.aspx)
- 2.2.4 A consultation draft of a new PPS on Planning for a Natural and Healthy Environment was published in March 2010, and although this was not progressed, the approach taken informed preparation of the Babergh Core Strategy in as much as the draft PPS had a "key objective" "..... to bring together related policies on the natural environment and on open and green spaces in rural and urban areas to ensure that the planning system delivers healthy sustainable communities which adapt to and are resilient to climate change and gives the appropriate level of protection to the natural environment." As the introduction to this consultation draft points out, "green infrastructure can provide a wide range of environmental benefits (ecosystem services) in both rural and urban areas including flood water storage, sustainable drainage, urban cooling and local access to shady outdoor space".
- 2.2.5 The first new policy in PPS5: Planning for the Historic Environment, published in March 2010, Policy HE1, considers Heritage Assets and Climate Change. The policy promotes maintaining the use and the re-use of heritage assets, and modifying and adapting them to reduce carbon emissions, enhance energy efficiency, improve resilience to the effects of

climate change, allow greater use of renewable energy and allow for the sustainable use of water. Local planning authorities are told to weigh the public benefit of mitigating the effects of climate change against any harm to the significance of heritage assets where conflict arises.

### 2.3 Building Regulations

2.3.1 While regulatory standards are not strictly part of the planning framework, parts of the Building Regulations and parts of the planning framework are becoming increasingly linked, especially where energy and sustainability are concerned.

2.3.2 **Part L Conservation of Fuel and Power** is the section of the Building Regulations that sets mandatory maximum CO<sub>2</sub> emissions thresholds that all new and adapted existing buildings must not exceed. Part L1 deals with dwellings only and Part L2 deals with non-residential forms of development.

2.3.3 The current 2010 Building Regulations Part L (adopted October 2010) requires that CO<sub>2</sub> emissions of new developments (called the Dwelling Emissions Rate (DER) for dwellings, or Building Emissions Rate (BER) for non-residential) should be lower than or equal to the Target Emissions Rate (TER) which is calculated specifically for individual buildings using nationally-approved software – the Standard Assessment Procedure (SAP) for residential development and the National Calculation Method (NCM) for non-residential development. Revisions to Part L in late 2010 reduced the TER for all new development, and there is a strong expectation that the forthcoming revisions will feature increasingly stringent limits on CO<sub>2</sub> emissions of new buildings, as initially set out by Communities and Local Government:

- 2013: TER to be 25% lower than 2010 levels (corresponding to the energy requirements of Level 4 of the Code for Sustainable Homes)
- 2016: All new homes to be Zero Carbon – definition currently awaited from central government (corresponding to the energy requirements of Level 6 of the Code for Sustainable Homes).

2.3.4 **Part G Sanitation, Hot Water Safety and Water Efficiency**, meanwhile, sets a limit to water consumption in domestic buildings of 125 litres per person per day, to be calculated using the Building Research Establishment’s “Water Efficiency Calculator for New Dwellings” which is also specified under the Code for Sustainable Homes.

### 2.4 The Code for Sustainable Homes and BREEAM

2.4.1 The **Code for Sustainable Homes** (hereafter referred to as the **CSH**) and its non-residential equivalent, the **Building Research Establishment Environmental Assessment Method (BREEAM)** serves as overall sustainability standards for new developments.

2.4.2 Both standards address sustainability in broad terms, and buildings assessed against these standards are awarded credits based on their performance against a set of 34 issues, relating to energy, water, waste, materials and other topics. Based on the number of credits achieved, buildings are awarded a rating (1-6 for the CSH, and from a Pass to an Outstanding rating for BREEAM).

2.4.3 Many of the issues in both standards are “flexible” (i.e. there is no requirement to achieve credits against that particular issue, as long as the requisite total number of credits are achieved for the CSH/BREEAM Level targeted) certain issues are mandatory at different levels of CSH/BREEAM. Of particular significance the energy/CO<sub>2</sub> issue that applies to different levels of both standards, although it is crucial to remember that CSH and BREEAM

both cover a much broader range of issues than energy alone. See Energy and the Code for Sustainable Homes and Energy and BREEAM below for further detail.

- 2.4.4 Although there is no national level planning requirement for new developments to achieve CSH or BREEAM standards, local authorities are increasingly framing planning policies around these standards (typically requiring CSH Levels 3 or 4, and BREEAM Very Good or Excellent) as they provide an effective mechanism to secure a broad overall level of sustainability with a built-in third party verification system (e.g. the Building Research Establishment) that extends beyond the planning stage – see *Assessment process* below for further detail.

### *Current standards*

- 2.4.5 Both the CSH and BREEAM are regularly reviewed and new versions issued to reflect wider regulatory changes. The most recent version of CSH was issued in October 2010, while the current version of BREEAM is called BREEAM 2011.

### *Assessment process*

- 2.4.6 A CSH or BREEAM assessment usually occurs in three stages, each of which will need to be conducted by a licensed CSH or BREEAM assessor.

#### **1. Pre-Assessment**

- Initial scoping exercise to identify which credits should be targeted.
- Should be required at planning application stage.

#### **2. Design Stage**

- Detailed strategy developed, and evidence for each credit needs to be submitted to the certification body (usually the Building Research Establishment or Stroma) for review and issue of an interim certificate.
- Copies of certificate should usually be sought by LPA through a condition to be discharged within 3 months of work starting on site.

#### **3. Post-Construction Stage Certificate**

- Site assessed and evidence supplied to support each credit
- Copies of certificate should usually be sought by LPA prior to occupation.

### Energy and the Code for Sustainable Homes

- 2.4.7 The mandatory energy standard (called Ene1) of CSH relates directly to a dwelling's Target Emissions Rate (TER) – the maximum allowable CO<sub>2</sub> emissions under the Building Regulations Part L. The Ene1 requirement for CSH Levels 1 to 3 is simply that the actual predicted Dwellings Emissions Rate (DER) is no greater than the TER (i.e. compliance with Building Regulations), while for higher CSH levels, a percentage reduction from TER to DER is required, e.g. 25% for CSH Level 4.

### Energy and BREEAM

- 2.4.8 There is no mandatory energy requirement at lower levels of BREEAM (Pass, Good and Very Good) but BREEAM 'Excellent' and 'Outstanding' set requirements based on the development's Energy Performance Ratio which is calculated on the basis of operation energy demand and CO<sub>2</sub> emissions.

### 2.5 Building for Life

2.5.1 The Building for Life standard has been produced by the Commission for Architecture and the Built Environment (CABE) and is a benchmark for well-designed housing and neighbourhoods, and can be used as a tool by designers and planners for recognising and influencing good design. There are 20 criteria divided into four categories: character; roads, parking and pedestrianisation; design and construction; and environment and community. Developers should consider all elements of the Building for Life standard, and as a guide, should aim to achieve the silver standard in all new developments in the district. Further information and details of the standards can be found at [www.buildingforlife.org](http://www.buildingforlife.org)

### 2.6 Regional Policy:

2.6.1 The Localism Act 2011 enables abolition of Regional Strategies, but until the environmental assessment process currently (November 2011) being carried out by Government has been completed and the Regional Spatial Strategy for the East of England has formally been abolished it will remain in force and consequently local policies must be in conformity with it. The East of England Plan contains policies that seek to ensure that new development requires less energy, and that a proportion of energy requirements are met from renewable sources. Babergh's LDF provides the opportunity for a more detailed level of policies guided by an approach that is applicable to local circumstances.

2.6.2 In particular, policy ENG1 *Carbon Dioxide and Energy Performance* states that local authorities should encourage the supply of energy from decentralised, renewable and low carbon energy sources and expect new development of more than 10 dwellings or 1000m<sup>2</sup> of non-residential floorspace to secure at least 10% of their energy from these sources and should promote innovation through incentivisation, master planning and development briefs.

### 2.7 Local Strategies and Policies

2.7.1 Babergh is working with partners both through the Local Strategic Partnerships and Suffolk's 'Creating the Greenest County' (CtGC) initiative to address climate change, particularly ways of reducing carbon emissions. The aim of Suffolk's Community Strategy 2008 – 2028, 'Transforming Suffolk', is that by 2025 Suffolk will achieve a 60% reduction in emissions (from a 2004 baseline). The Suffolk Climate Action Plan, produced in 2009, shows how the CtGC Delivery Partnership aims to implement the objectives of 'Transforming Suffolk'. The Suffolk Climate Action Plan sets out five aims, the first two are particularly pertinent to planning:

1. **Reduce** greenhouse gas emissions.
2. **Adapt** in advance of the changes that will occur due to the changing climate.

#### *Suffolk Climate Change Action Plan*

There 34 objectives in twelve key themes in the **Suffolk Climate Action Plan**: Energy, Water and Coast, Communications; Agriculture; Waste; Biodiversity; Emergency Planning; Health; Low Carbon Economy; Public Procurement; Transport; and the Built Environment, and the document sets out an Action Plan for each of these themes.

One of the Objectives under the **Energy** theme is "To decarbonise energy supplies" with one of the Actions being to "Continue to promote microgeneration."

An Objective in the **Health** theme is to “Support climate adaptation in the community” with one of the Actions being “Incorporate adaptation policies into Local Development Frameworks”.

Under the **Transport** theme the first Objective is “Manage demand for transport and encourage modal shift to more sustainable forms of transport” with a concomitant Action being “Work with local employers, schools and planning authorities to develop and deliver robust travel plans for existing and new developments.”

The Objective for the **Built Environment** theme is “Promote sustainable communities”, and one of the two Actions is “Development of sustainable construction policies for local development document. These to include: form of development; use of materials; and incorporation of renewable energy; reduce exposure to climate risks.

### 3. How the Babergh Development Framework can address Climate Change

#### 3.1 Introduction

- 3.1.1 The pressures and concerns for East Anglian districts overall are well illustrated locally in Babergh district with the need to provide new homes and businesses in an area of nationally (and locally) protected landscapes, with a protected bio-diverse coastline, and existing historic towns and villages in its river valleys and diverse and attractive countryside.
- 3.1.2 Babergh District Council is a signatory to the Nottingham Declaration confirming the intention of over 200 local authorities in England to contribute, at a local level, to the delivery of the UK climate change programme. This is reflected in the Babergh Strategic Plan 2008 – 2018 which amongst its outcomes includes “a smaller carbon footprint for the area– striving for the right balance between protecting the natural environment and supporting development opportunities for the area and its people” under the wider theme of “a greener and cleaner Babergh”.
- 3.1.3 There is a limit to what Babergh District can achieve acting alone. The Council is working in partnership with other councils and organisations, such as the Western Suffolk LSP and Suffolk LSP, and through The Greenest County Delivery Partnership to help deliver 34 actions in twelve areas (see text box “Suffolk Climate Change Action Plan” above).

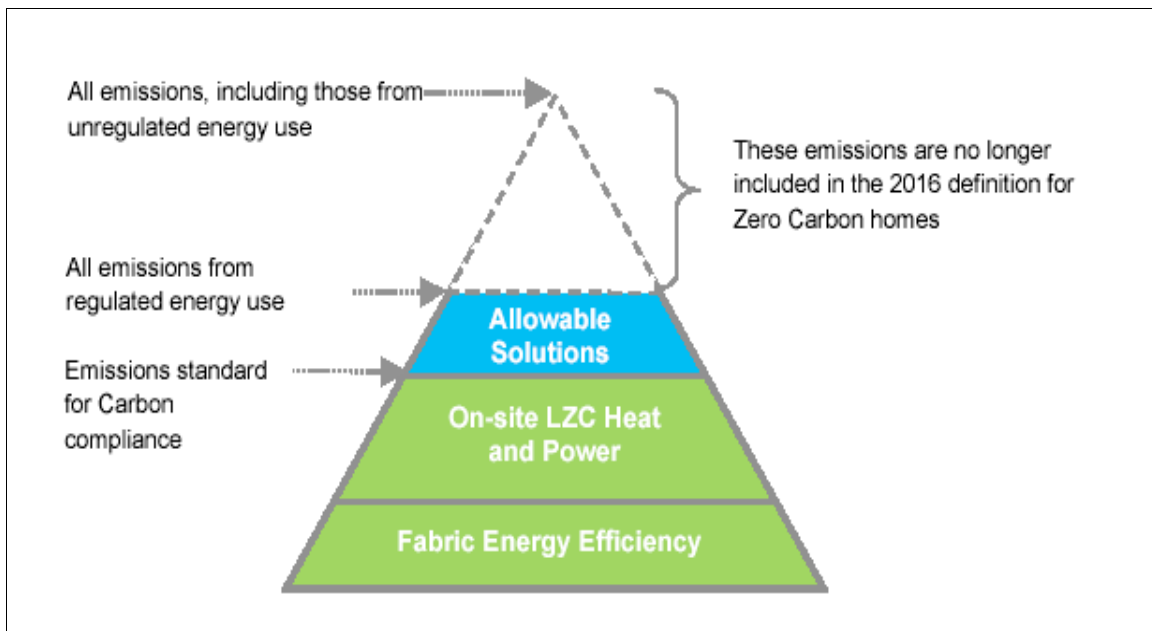
#### 3.2 Climate Change Mitigation – reducing CO<sub>2</sub> emissions

##### *The energy hierarchy*

- 3.2.1 The Government is promoting the cutting of greenhouse gas emissions as part of the design process for new development, with a target that all new homes will be <sup>3</sup>zero carbon from 2016. One way of approaching this is to follow the Government’s preferred Energy Hierarchy:

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<sup>3</sup> Sustainable New Homes – The Road to Zero Carbon: Consultation on the Code for Sustainable Homes and the Energy Efficiency Standard for Zero Carbon Homes, DCLG December 2009.



**Figure 1: The Energy Hierarchy Pyramid from Zero Carbon Hub (2011)  
Allowable Solutions for Tomorrow's New Homes**

- The lower portion of the hierarchy is called **Carbon compliance** which refers to CO<sub>2</sub> reduction measures deployed on site in order to bring the dwelling's CO<sub>2</sub> emissions below certain regulatory maxima. This should be achieved through the following measures in order of preference:
  - **Energy efficiency:** This is the base of the Energy Hierarchy pyramid and in the government's words "This approach prioritises measures which are likely to be cost-effective in the longer-term and will generate wider benefits to the economy as a whole, for example reducing the overall energy requirements to be met from relatively costly renewable energy."
  - **On-site low and zero carbon energy (and connected heat):** This is the next level in the hierarchy and includes renewable energy microgeneration (e.g. solar PV panels, ground source heating) or connection to a decentralised heat (or heat and power) network.
- Once a development has met its mandatory carbon compliance targets, residual CO<sub>2</sub> emissions can be offset through a variety of mechanisms called **allowable solutions** which are still in the process of being defined, but might include the following solutions:
  - further carbon reductions on site beyond the regulatory standard;
  - energy efficiency appliances meeting a high standard which are installed as fittings within the home;
  - advanced forms of building control system which reduce the level of energy use in the home;
  - exports of low carbon or renewable heat from the development to other developments; and
  - investments in low and zero carbon community heat infrastructure.

3.2.2 The Energy Hierarchy provides a useful and logical stepped approach to tackling the reduction in CO<sub>2</sub> emissions, and is helpful in framing local policies on climate change.

3.2.3 Reducing the demand for energy can be tackled through policies and regulations aimed at achieving good sustainable design from inception, through the build process to the completed development to meet the 2016 zero carbon target earlier. However, we also need to look at the energy needs of new development and encourage the provision of renewable energy either on-site, or through community schemes, and where viable and appropriate, through larger scale generation of renewable energy.

### **Energy efficiency**

3.2.4 The first priority of climate change mitigation in the built context is to reduce energy demand through efficiency building techniques such as:

- Passive design – e.g. consideration of natural lighting, heating, cooling and ventilation in the layout of the building?
- Fabric efficiency – improved insulation and thermal bridging to reduce heating demand.
- Air tightness – reducing opportunities for heat loss, and thus reducing heat demand.
- Efficient heating, cooling, lighting and ventilation.

3.2.5 The CLG (2011) *Cost of Building to the Code for Sustainable Homes – Updated Cost Review* shows that “good” levels of energy efficiency (defined as the level of insulation and air tightness required to bring CO<sub>2</sub> emissions down to current Building Regulations standards, equivalent to the mandatory energy requirements of CSH Level 3)<sup>4</sup> can be achieved at limited extra cost to that of a standard building:

	Dwelling type			
	2-bed flat	2-bed terrace	3-bed semi	4-bed detached
<b>Cost of “good” levels of energy efficiency</b>	£1,710	£2,125	£2,650	£3,165
<b>% cost increase over basic build cost</b>	3%	2%-3%	3%	3%-4%

**Table 1: Average cost of energy efficiency in new dwellings, - All figures taken from CLG (2011) *Cost of building to the Code for Sustainable Homes***

3.2.6 As the CO<sub>2</sub> reductions arising from such measures are now a requirement under current building regulations, the associated “additional” cost should now be regarded as part of the basic build cost.

#### *How will Babergh’s Core Strategy drive forward energy efficiency?*

Draft Policy CS10 states that “all new development should:

- be designed to make the best use of the site in terms of solar energy, passive heating and cooling, natural light and natural ventilation;
- use sustainable building methods that optimise energy efficiency.”

<sup>4</sup> See Table 12 of: <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1972728.pdf>

### ***On-site low and zero carbon energy (and connected heat): Opportunities for Decentralised and Renewable Energy in Babergh District***

3.2.7 In April 2011 AECOM and The Landscape Partnership produced the *East of England Renewable and Low Carbon Energy Capacity Study* using DECC's standard methodology. The study provides an insight into the renewable and low-carbon capacity of the region, highlighting practical and achievable opportunities for 2020, acknowledging technical limitations and uptake considerations. It is recognised as a key document for catalysing and informing renewable action at the local level.

3.2.8 Key figures from the report include:

- Energy Demand: 99,437GWh (69% Heat/31%Electricity.) This is predicted to rise by 2% by 2020.
- Main sources of decentralised and renewable energy to date:
  - Wind Turbines – 330MWe capacity within a few years
  - Biomass (e.g. the 38MW straw-fuelled power station in Ely and the 38.5 MW chicken litter power station in Thetford)
  - Combined Heat And Power – total current capacity 230Mwe (dominated by the British sugar plant in Bury St Edmunds)
  - Landfill Gas
  - Energy-from-Waste
- Potential for CHP based on mapped heat demand: 1050Mwe.
- Renewable energy potential: the most optimistic outlook, acknowledging landscape impacts and cumulative impacts, is that the area has the potential to generate 55% of its 2020 energy demands. Realistically, it is thought that the area could be generating 9.3% by 2020.

3.2.9 Meanwhile within Babergh district itself, the local geography, topography, history, ecology and appearance of the landscape may make it difficult to provide suitable sites for the generation of some types of renewable energy on a commercial scale. However, renewable energy technologies are developing and improving fast and becoming more affordable – the cost of solar PV, for example, has dropped considerably in the past few years, notwithstanding changes to the Feed-in Tariff regulations. The forthcoming Renewable Heat Incentive, meanwhile, will reward generation of renewable heat through technologies such as solar thermal panels, ground source heat pumps and biomass boilers. Micro-generation, either on-site or off-site local schemes, such as small local biomass schemes, or wind turbines, may well provide the solution to the needs of new development in the district. The Council will support energy service companies (ESCOs), and innovative schemes for renewable energy generation.

3.2.10 **Decentralised energy** refers to localised generation of heat, and often power and cooling, which due to its efficiency can lead to CO<sub>2</sub> emissions reductions of over 30% compared to conventional generation. The efficiencies can arise on two counts:

1. Boiler efficiency tends to increase with boiler size, meaning that a large communal boiler will operate more efficiently than a series of small individual boilers, notwithstanding the loss of heat through more widespread distribution.
2. In Combined Heat and Power (CHP) systems, electricity is generated in a local engine (rather than a centralised power station) and the waste heat arising from this process is recovered and distributed around the site in the form of hot water, thus reducing the reliance of gas boilers.

- 3.2.11 A typical decentralised energy system would require a communal plant, such as a combined heat and power (CHP) engine (fuelled by gas or by a renewable source e.g. biomass, biofuel, waste oil) and a network of pipes distributing hot water around the site, and potentially a private wire system to distribute electricity generated by the plant. CHP systems, in particular work best in high density sites with a constant “baseload” heat demand, which is typically best met in large, mixed use sites.
- 3.2.12 A wealth of further information on the cost implications of a variety of different renewable and decentralised energy strategies can be found in Sections 4.1.2 and 4.1.3 of the CLG’s (2011) *Cost of Building to the Code for Sustainable Homes – Updated Cost Review* (see footnote 4). Viability issues will be taken into account when developing more detailed Development Management Policies and Site Allocations Policies.

*How will Babergh’s Core Strategy drive forward renewable and decentralised energy generation?*

Draft Policy CS8 states that “... large-scale development proposals will be required to use on-site renewable energy sources, decentralised renewable or low carbon energy sources with the aim of achieving [a] 10% [reduction] in predicted CO<sub>2</sub> emissions in all types of development.”

This policy draws its justification from the existing policy in the East of England Plan ENG1, which requires major developments to secure at least 10% of their energy from decentralised, renewable and low carbon energy sources.

*How should Draft Policy CS8 be applied and interpreted?*

Any policy requiring a certain level of CO<sub>2</sub> reduction needs a clear baseline and methodology under which the reduction is calculated. Options open to Babergh District Council include:

- Using predicted regulated CO<sub>2</sub> emissions (arising from energy uses covered by the Building Regulations – space heating, hot water, lighting, pumps and fans) after the application of energy efficiency measures, and calculating the % CO reduction using approved software SAP (residential) and NCM (non residential).
- Using CSH and BREEAM standards by:
  - Requiring residential developments to achieve one credit under CSH Issue Ene7 (awarded for a 10% CO<sub>2</sub> reduction from renewable and/or decentralised energy and the calculation takes into account “unregulated” CO<sub>2</sub> emissions not included in the Building Regulations such as appliances and cooking). See Appendix 3 for a more detailed discussion on the links between Babergh’s Draft Policies and the Code for Sustainable Homes.
  - Requiring non-residential development to achieve two credits under BREEAM 2011 Issue Ene4 (based on a 10% reduction in regulated CO<sub>2</sub> emissions through the use of renewable energy technologies).

*Pushing for decentralised energy.*

Core Strategy Policies CS10: Sustainable Development and CS7 Design Standards set the overarching high-level policy standards for new development., Site specific policies for allocated sites and detailed policies for delivering sustainable design and construction and climate resilient development will be set out in Site Allocation and Development Management Development Plans Documents (DPDs) and may require development to achieve a certain Code Level under Code for Sustainable Homes, and may also identify specific opportunities for decentralised heat and power networks.

### ***Transport and CO<sub>2</sub> emissions***

3.2.13 One of the most significant contributors to CO<sub>2</sub> emissions is the use of cars and part of achieving sustainable development by design is how we address this issue. In a rural area such as Babergh it is difficult to achieve a reduction in car travel, as for many people in small villages and scattered hamlets public transport will not replace the need to own and run a car. However, we can help reduce the *need* to travel by ensuring new development is carefully planned to provide opportunities for work and leisure etc. close to new homes. This is a key principle of our Development Strategy where our preferred options are to focus new development in the towns, Ipswich urban fringe and Key Service Centres. The Council will also require Travel Plans for larger new developments, and will support local agriculture and the reduction of ‘food miles’ by enabling the provision of local farmers’ markets and similar initiatives.

#### *How will Babergh’s Core Strategy help reduce CO<sub>2</sub> emissions from Transport?*

Almost 60% of the new housing planned for Babergh over the next 20 years, and all of the new employment sites are to be located in new mixed-use developments in New Directions of Growth in the towns of Hadleigh and Sudbury/Great Cornard and the Babergh part of the Ipswich urban fringe. This will optimise the opportunities for people to work close to where they live, in new communities with appropriate levels of infrastructure including access to services and facilities. In addition, the Core Strategy promotes a sustainable approach to transport through Draft Policy CS10, which states that “new development proposals should:

- ensure an appropriate level of services, facilities and infrastructure are available or provided to serve the proposed development;
- seek to minimise the need to travel by car using the following hierarchy: walking, cycling, public transport, commercial vehicles and cars) thus improving air quality;
- where appropriate to the scale of the proposal, provide a transport assessment and Travel Plan showing how car based travel to and from the site can be minimised, and proposals for the provision of infrastructure and opportunities for electric, plug-in hybrid vehicles, and car sharing schemes.”

### ***Energy Efficiency and Existing homes in Babergh District***

3.2.14 An important part of the Babergh approach to carbon reduction is non-spatial through funding and enabling the upgrading of the existing housing stock. The 2001 House Condition Survey confirms that there is a correlation between energy efficiency and household income, with those households in the lowest income bands occupying homes having worse energy ratings than average. The energy efficiency approach addresses carbon reduction and fuel poverty and consequently health improvement, particularly in the elderly and vulnerable.

3.2.15 In Babergh in 2001 the total number of dwellings in the district was estimated at 32,301, and just under half of these, 45.6%, were built before 1964. Between 2001 and 2009 a further 2208 dwellings<sup>5</sup> were added to the total (growth rate of 6.8% in eight years). Many of the new houses planned already have planning permission or are currently being built, so the importance of addressing deficiencies in existing dwellings is significant.

<sup>5</sup> Completions from the AMR: - 2001/2002 – 242; 2002/2003 – 510; 2003/2004 – 212; 2004/2005 – 187; 2005/2006 – 189; 2006/2007 – 275; 2007/2008 – 304; 2008/2009 – 289; Total 2001-2009 = 2208. Total 2001= 32301 + 2208 = 34509 (Total dwellings 2009).

3.2.16 The most efficient way in which existing houses can contribute to energy-efficiency are simple cost-effective measures such as increasing loft insulation, providing wall insulation where appropriate, and draught-proofing windows and doors. Such measures are often grant funded, free or heavily discounted, and do not require planning permission, and will rarely require Listed Building Consent. As the technology becomes more affordable and more efficient some existing buildings may also be retro-fitted with “micro-renewables” such as photovoltaic panels, solar thermal panels or ground source heat pumps. A microgeneration guide for householders is available on the planning portal website: [www.planningportal.gov.uk/planning/greenerhomes](http://www.planningportal.gov.uk/planning/greenerhomes) .

3.2.17 It is therefore important that as well as the non-spatial approach taken by Babergh the LDF should include policies that encourage and enable appropriate schemes that will make a contribution to reducing carbon emissions in this area. “Allowable solutions”, as already discussed, may be able to play an important role in channelling funds from new development applications into retrofitting measures in existing development once Part L 2016 is in force. However, for Babergh District to reap the benefit of this it will be necessary to establish a “Community Energy Fund” managed by the Council or, if that proves impractical, to tap into a county-wide fund should such be established.

### 3.3 Climate Change Adaptation – living with climate change

3.3.1 Where climate change mitigation seeks to address the causes of climate change and minimise the contribution we make to further climate change, adaptation refers to the recognition that climate change is already happening and we need to equip our lifestyles and processes to cope with a rapidly changing environment. Key risks facing Babergh District include hotter, drier summers (with associated risks of overheating and water shortages) and wetter winters (with associated risk of flooding). Indeed, the UK Climate Impacts Programme (UKCIP '09) projections show that under a “medium [CO<sub>2</sub>] emissions scenario”<sup>6</sup>, annual summer precipitation in the region is likely to decrease by 10% or more by 2020, and 20% or more by 2050, while annual winter precipitation is likely to increase at an equivalent level.

3.3.2 The Suffolk Climate Change Partnership completed a Local Climate Impacts Profile (LCIP) for 2004-8 period, identifying the key effects of climate change already felt in the county and the costs associated with specific incidents (e.g. approximately £83,000 entailed by the tidal surge in November 2007; nearly £500,000 from the heatwave in July 2006). The LCIP also identifies future risks from a changing climate across Suffolk, and maps reveal that much of the Babergh area is vulnerable to tidal and fluvial flooding, the entire district is at a medium to high vulnerability to flash flooding (see Figure 2) and water resources are severely limited, with over abstraction already damaging the environment in the western parts of the district.

<sup>6</sup> <http://ukclimateprojections.defra.gov.uk/22152>

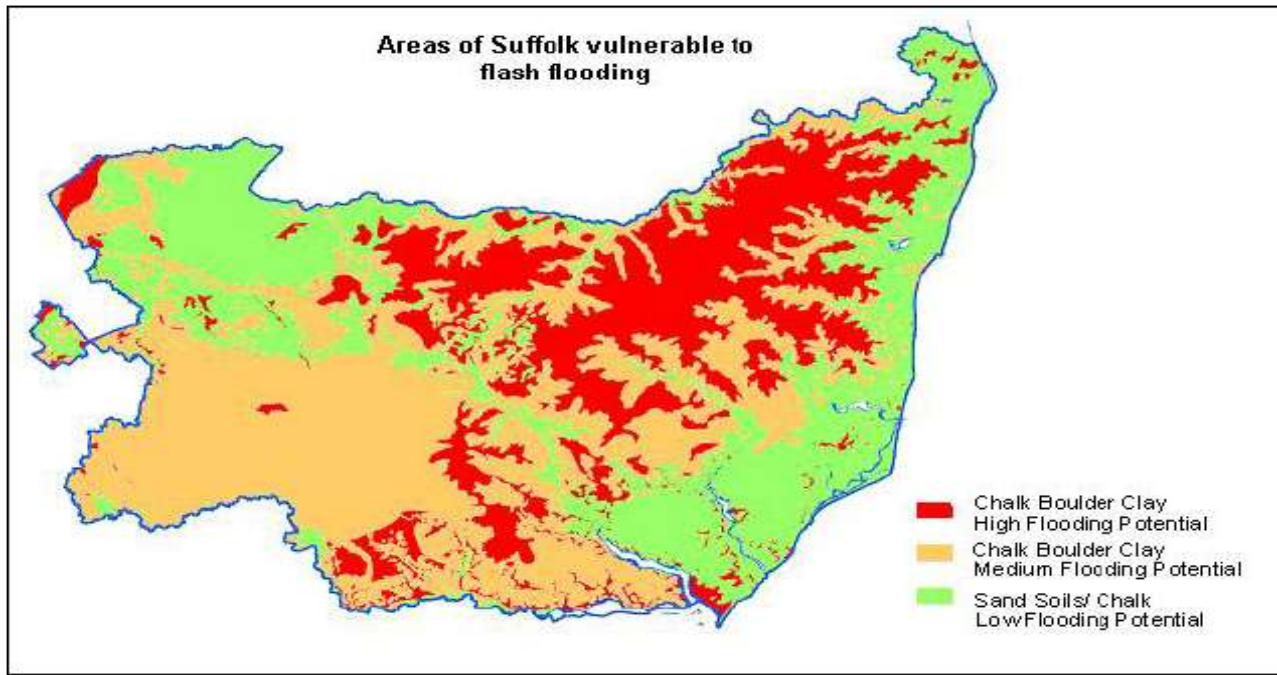


Figure 2: Vulnerability to flash flooding (from Suffolk LCIP 2004-8, adapted from the Environment Agency)

3.3.3 Planning policy has a critical role to play in ensuring the built environment is equipped to deal with the vicissitudes of a changing climate. The *South West Planners' Toolkit on Climate Change* identifies a number of broad themes that can be addressed through planning policy, namely:

- Water availability and quality policy
- High temperatures policy
- Flooding and sea level rise policy
- Biodiversity policy

3.3.4 The following sections deal with each of these in turn, showing how planning policies in general can address each issue, and examining how Babergh's Draft Core Strategy specifically addresses the issues. A more detailed discussion on the links between Babergh's Draft Policy CS10 and the Code for Sustainable Homes rating is presented in Appendix 3.

#### *Water availability and quality*

3.3.5 Typical domestic water consumption across the UK is estimated at 150 litres per person per day and *Future Water*, the Government's (2008) water strategy for England, outlines a vision for the average person to reduce this through "cost effective measures" to 130 litres a day by 2030.

3.3.6 Meanwhile, the Building Regulations Part G *Sanitation, Hot Water Safety and Water Efficiency*, now sets a limit to water consumption in domestic buildings of 125 litres per person per day, while different levels of the Code for Sustainable Homes set mandatory water consumption maxima (e.g. to achieve Levels 3-4 new residential developments are required to use the "Wat 1 Calculator" to demonstrate that the development will achieve a maximum water potable consumption of 105 litres/person/day). BREEAM 2011 meanwhile sets target reductions in water consumption below a notional baseline (see *How will Babergh's Core Strategy address water availability and quality?* below).

3.3.7 Examples of the water conservation measures that could be employed to achieve the water consumption levels required to achieve CSH Levels 3-4 (subject to detailed calculation) include the following, all of which can be incorporated at minimal increases to build costs (e.g. £150-£200 per dwelling).<sup>8</sup>

- Low flush WCs (e.g. 4/2.6 litre)
- Low flow washbasin taps (e.g. 2 litre/min)
- Low flow kitchen sink taps (e.g. 4 litre/min)
- Low flow shower (e.g. 6 litre/min)
- Low capacity bath (e.g. 150 litres) or no bath.
- Water efficient white goods (if specified)

3.3.8 While not mandatory under the CSH or BREEAM, a reduction in external water use can also be achieved at very limited costs, especially for flats where water butts can be shared.

3.3.9 Babergh has had Water Cycle Studies carried out, with part of the district covered by the Haven Gateway Water Cycle study:

[http://www.haven-gateway.org/resources/regeneration\\_1/studies\\_and\\_masterplans/studies](http://www.haven-gateway.org/resources/regeneration_1/studies_and_masterplans/studies)

and more recently (2011) a district-wide Water Cycle Study carried out by Royal Haskoning

<http://www.babergh.gov.uk/babergh/LDF>

The 2011 report considers the following issues, addressing the constraints that they may pose to future development and, where applicable, discusses the improvements necessary to achieve the required level of development throughout the planning period, until 2031:

- Water Resources and Supply;
- Wastewater Collection and Treatment;
- Water Quality and Environmental Issues;
- Flood Risk; and
- Demand Management and Sustainable Drainage Systems.

3.3.10 To assist the Council in determining the capacity of the water cycle for sustainable growth, the following five growth options have been considered within this Water Cycle Study:

- Growth Option 1 – the current situation
- Growth Option 2 – Former Regional Spatial Strategy Targets
- Growth Option 3 – Draft Regional Spatial Strategy Review to 2031
- Growth Option 4 – Alternative Growth Scenarios
- Growth Option 5 – the maximum capacity

The report concludes that most elements of the water cycle have sufficient capacity to accommodate the growth levels considered, although some locations require the implementation of new infrastructure and/or mitigation measures.

3.3.11 The Council is also keen to work with and promote Anglian Water's "Love Every Drop" campaign. This is a campaign to bring together all types of consumers "to put water at the heart of a new way of sustainable living." As explained on the Anglian Water website:

<http://www.anglianwater.co.uk/about-us/EDCA9E86306447CD91E9169E4A427B7B.aspx>

<sup>8</sup> Source: CLG (2011) *Cost of Building to the Code for Sustainable Homes – Updated Cost Review*, Table 4 and Table 5. <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1972728.pdf>

“**Love Every Drop** is about helping people understand the realities of water use and climate change in our region, where more people and even less rain could make filling the kettle and doing the washing a challenge for everyone.” The company is working with everyone who influences water use in the region – housing developers, retailers, manufacturers, government and customers with the object of learning about thinking in new ways to supply and use water in sustainable ways.

*How will Babergh’s Core Strategy address water availability and quality?*

Draft Policy CS7 requires all new non-residential development to achieve a BREEAM “Very Good” rating, which requires buildings to achieve a 12.5% reduction in water consumption below a notional baseline using the “Wat 01 calculator”

Draft Policy CS10 states that “all new development should:

Use sustainable building methods that optimise water efficiency

### ***Flooding and sea level rise***

3.3.12 New development both impinges on and is impinged on by flooding. As well as being at risk from flooding itself, developments can also exacerbate the problems of flooding elsewhere due to increased surface water run-off or impedance of the functioning of the flood plain. Similarly, the creation of large impermeable areas can cause sudden flooding.

3.3.13 The draft National Planning Policy Framework states that: “When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure” and that local authorities should “only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment... demonstrating that:

- Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and
- Development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed; and it gives priority to the use of sustainable drainage systems.”

3.3.14 In addition to the Suffolk LCIP already mentioned, a *Strategic Flood Risk Assessment* (SFRA)<sup>9</sup> was carried out for Babergh District in 2009 by jba Consulting which categorises the flood risks as follows:

- **Fluvial flood risk** – affects areas along the main river corridors of the Rivers Stour, Brett, Box, Gipping, their associated tributaries and the Belstead Brook. Some defences exist (e.g. embankments at Stratford St Mary) although risk is typically managed through river and structure maintenance.
- **Tidal flooding** – risk exists along the Stour and Orwell Estuaries including Shotley, Wherstead and Ipswich along the Orwell estuary, and Harkstead and Cattawade along the Stour. Significant protection (e.g. Cattawade tidal barrier) already exists and a new barrier for Ipswich is proposed.
- **Surface water flooding** – the most vulnerable areas include Sudbury, areas near Hadleigh and near Boxted.

<sup>9</sup> <http://www.babergh.gov.uk/Babergh/SFRA>

- **Sewer flooding** – Anglian Water records show that this is not a significant problem in the Babergh area compared with elsewhere in the country.
- **Groundwater flooding** – there are very few reported incidents of groundwater flooding in the district and flooding from this source is not considered as high risk.

3.3.15 Detailed policy recommendations are set out in Chapter 8 of the SFRA, and guidance for developers included in Chapter 9. These will prove crucial in shaping subsequent Development Management Policies.

3.3.16 Reference has been made to the Essex and South Suffolk Shoreline Management Plan (see paragraph 2.2.2 above) and the Catchment Flood Management Plans (CFMPs) (paragraph 2.2.3) prepared by the Environment Agency. These plans give the Council vital information and help identify constraints and the need for infrastructure improvements, and the Council will continue to work with the Environment Agency in framing any detailed policies that may be included in the Development Management DPD, and in selecting and assessing sites for future development in the Site Allocations DPD.

3.3.17 **Sustainable Drainage Systems (SUDS)** refer to an array of measures aimed at managing surface water runoff from a site, both in terms of reducing its volume but also reducing its rate. The **SuDS (Sustainable Drainage System) Management Train** takes a hierarchical approach to sustainable drainage design and the top two levels of the hierarchy are as follows:

1. Source control: reducing the runoff from its source (e.g. roofs, hard surfaces) through measures such as:
  - **Soakaways** - underground structures designed to permit infiltration into permeable/slightly permeable ground. They can be grouped together to drain large areas including highways.
  - **Porous/perVIOUS paving** – this should be considered as a matter of course in any car parking spaces, drive-ways and other hard surfaces (e.g. school playgrounds)
  - **Rainwater re-use/harvesting** – this is an excellent way of simultaneously reducing run-off volumes from roofs while reducing mains water consumption especially in residential properties where water demand is particularly high.
  - **Living roofs** – apart from their ecological benefits and insulatory properties, living roofs provide a porous surface that will significantly attenuate surface water run-off rates. Living roofs can also be designed to be compatible with solar photovoltaic arrays.
2. Site/local control: providing additional outlets for excess runoff through measures such as:
  - **Ponds** - will also provide biodiversity benefits and can contribute to a sense of place.
  - **Detention/Infiltration basins** – storage facilities which are generally non-permanent and with a gravel base to ensure good drain down to a downstream water body (detention) or directly to groundwater (infiltration). Due to their scale, they tend to be suited to larger residential (over 100 units) and mixed use developments.

3.3.18 An excellent regional example of a development that showcases a range of SUDS is the Lamb Drove project commissioned by Royal Haskoning in Cambridgeshire. The project is intended to demonstrate that SUDS are a viable and attractive alternative to more

traditional forms of drainage, and installed measures include: water butts, permeable paving, green roofs, swales, filter strips, underground swales and detention and wetland basins. Detailed monitoring reports<sup>10</sup> by Cambridgeshire County Council reveal that, when compared to a control site, the Lamb Drove site showed:

- Reduced volume and flow rates of surface water run-off.
- Lower levels pollutants (e.g. hydrocarbons and total suspended solids).
- Higher species richness.
- 20-25% lower maintenance cost than conventional drainage

3.3.19 Closer to home is Ravenswood, a council-owned 1000-unit residential development on the edge of Ipswich, on the former Ipswich Airfield. From the outset it was decided to pursue a SUDS drainage scheme, and so all surface water from the highway is collected and piped to infiltration basins, which are absorbed within the landscaped areas of the site. In addition, due to the very flat nature of the development, flood paths have been designed within the development to increase its resilience to flash flooding.

3.3.20 Anecdotal evidence from the London Borough of Islington suggests that installing SUDS does not need to increase build cost at all, and that costs are only usually incurred due to errors made by installers unfamiliar with the SUDS specifications.

*How will Babergh's Core Strategy address flooding and sea level rise?*

Draft Policy CS10 states that "all new development should:

- Minimise both the risk of flooding as well as the risk from flooding to people and property, and incorporate, where appropriate, flood mitigation and/or flood resilience measures;
- Minimise surface water run-off and incorporate sustainable drainage systems (SuDS) where appropriate.

### **High temperatures**

3.3.21 With an increasing emphasis on energy conservation through high levels of building fabric insulation and air tightness, it is important for the design of new buildings to combat the potential risk of overheating arising from these measures. Safeguards against this are included in the Building Regulations Part L which sets limits to design parameters that might lead to over-heating (e.g. orientation, window-sizes).

3.3.22 Beyond this, however, the planning framework should promote a collaborative approach between planners and developers to establish solutions to the issue of overheating, be this through building-level design measures, such as balconies, louvers and green roofs that can contribute to a sense of place, and masterplanning-level measures such as green and blue infrastructure (e.g. tree planting to provide shade and lower ambient temperatures).

<sup>10</sup> <http://www.cambridgeshire.gov.uk/NR/ronlyres/B7F64BAB-AEF3-4211-A8D6-84514D45CC6C/0/LambDroveSecondInterimMonitoringReportMainReport.pdf>

*How will Babergh's Core Strategy address high temperatures?*

Draft Policy CS10 states that "all new development should:

- create green spaces and/or extend existing green infrastructure... and mitigate some of the impacts of climate change e.g. enhancement of natural cooling and reduction in the heat island effect.

### ***Biodiversity (and green infrastructure)***

3.3.23 Biodiversity, while a difficult concept to define technically, is usually used to refer to the variety of life (from genes to ecosystems) in a given area. Of the numerous reasons why it is important for us to protect and enhance biodiversity, the following are examples:

- it can help maintain a safe physical environment (e.g. marram grass can stabilise sand dunes and reduce the risk of flooding, while a good green cover can demonstrably mitigate the overheating in urban environments)
- it can contribute to the economy
- it can provide a key draw for local tourism (e.g. the Dedham Vale AONB).
- it can benefit mental and physical health

3.3.24 There are many threats to biodiversity posed by human activity, of which the most familiar is simple destruction of habitats caused by new building or infrastructure projects. Climate change will undeniably affect biodiversity as well, but not in exclusively negative ways – while increased temperatures and flooding may damage the habitats of certain species, they will also open up opportunities to for new species, especially those driven further north due to temperature changes.

3.3.25 A suitable approach to biodiversity where planning and the built environment are concerned is not only to limit the damage done by new development to local wildlife, but also to use new development as an opportunity to enhance wildlife and ecosystems. The Town and Country Planning Association's *Biodiversity Positive: Eco-towns Biodiversity Worksheet*<sup>11</sup>, while ostensibly geared towards the now superseded Planning Policy Statement on Eco-towns, provides useful recommendations and case studies on increasing urban permeability to wildlife through measures such as:

- Green roofs (provide surface water attenuation as well as insulation and cooling benefits)
- Balconies (providing amenity space and possible solar shading and allowing room for planting).
- Small modifications to built design affording opportunities for birds to nest and bats to roost.

3.3.26 On larger sites, tree planting is another way to promote biodiversity. Native tree species should be prioritised, as this will maximise the potential for the woodland to provide a flourishing habitat for native bird and insect populations, as well as enhancing local distinctiveness) but considerations should also be given to new species which take account of changes in climate and require less water. The development of wild-flower meadow should be promoted wherever possible (an excellent report by CABI, Making contracts work for wildlife, gives some examples of where this type of approach has worked in practice) and the need for low water-tolerant plants also applies here.

<sup>11</sup> <http://www.tcpa.org.uk/data/files/biodiversity.pdf>

- 3.3.27 The BREEAM standards (including the Code for Sustainable Homes) include issues concerned with ecology and biodiversity that drive forward a specialist approach by stipulating the need for a “Suitably Qualified Ecologist”. In order to achieve a BREEAM “Very Good” rating, it is necessary to gain one credit under Issue LE03 *Mitigating Ecological Impact*, which limits negative change to the ecological value of the site.
- 3.3.28 The financial implications of embracing biodiversity can vary considerably but many of the measures discussed (e.g. small modifications to building design, innovate approaches to planting) can be achieved at little or no cost. Indeed, 89% of housebuilders surveyed as part of the CLG’s (2011) *Cost of building to the Code for Sustainable Homes*<sup>12</sup> stated that no additional cost was incurred protecting all features of ecological value during site clearance, preparation and construction works, thus achieving a credit against Issue Eco3 *Protection of Ecological Features* (this issue is closely aligned to the requirement under Babergh’s Draft Policy CS10 to protect and enhance biodiversity).
- 3.3.29 Other measures will inevitably have a bigger cost impact, and useful data on the cost of green roofs can be found on Page 40 of Design for London’s (2008) *Living Roofs and Walls*<sup>13</sup>, which suggests an indicative cost of £120-40/m<sup>2</sup> for an intensive green roof, and less for an extensive (e.g. sedum) roof. These are therefore likely to be more strongly promoted in larger developments, although this stance certainly does not preclude the installation of green roofs on individual dwellings.

### *How will Babergh’s Core Strategy address biodiversity?*

Draft Policy CS7 requires all new non-residential development to achieve a BREEAM “Very Good” rating which includes mandatory requirements to mitigate ecological impact and other non-mandatory issues on ecological enhancement.

Draft Policy CS8 imposes a caveat on wind turbine development on the grounds that, if unsuitably located, they can result in increased mortality among birds.

Draft Policy CS9 states that green infrastructure should be a key consideration for new developments, and that particular consideration should be given to ensuring new provision establishes links with existing Green infrastructure, providing a well connected network of green infrastructure in urban and rural areas.

Draft Policy CS10 states that “all new development should:

- Protect and enhance biodiversity, prioritise the use of brownfield land for development, and use and greenfield land and scarce resources efficiently
- Make provision for open space, amenity, leisure and play through providing, enhancing and contributing to the green infrastructure of the district
- Create green spaces and/or extend existing green infrastructure... and mitigate some of the impacts of climate change e.g. enhancement of natural cooling and reduction in the heat island effect.”

<sup>12</sup> <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1972728.pdf>

<sup>13</sup> <http://static.london.gov.uk/mayor/strategies/sds/docs/living-roofs.pdf>

### 4. Next Steps

- 4.1 We will consider representations made at the Core Strategy Preferred Options stage and monitor new policy, best practice, joint initiatives and partnership working opportunities to explore this policy area further. The Core Strategy Submission document will be updated and set out spatial policies for development in a changing climate, and will indicate where further research will be done and where there is scope for locationally specific and criteria based policies in the Site Specific and Development Management DPDs.

## Appendix 1

### Extract from Consultation Draft Planning Policy Statement on Planning for a Low Carbon Future in a Changing Climate (March 2010)

#### Part 1 – Changing Context.

Paragraph 3: “The reason we are consulting on a new PPS two years after publishing the Planning and Climate Change supplement, is because a significant amount of new legislation and policy has been put in place that affects planning and the policies that underpin plan-making and development management. The list below, whilst not exhaustive, demonstrates how much has happened since we last consulted on planning policies for climate change:

- The Climate Change Act 2008 introduced a statutory target of reducing carbon emissions by 80 per cent below 1990 levels by 2050, with an interim target of 34% by 2020. Government departments will prepare carbon budgets to indicate how greenhouse gas emissions will be reduced across the Government estate and in sectors where departments take a policy lead.
- EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources, where the UK has committed to sourcing 15% of its energy from renewable sources by 2020 – an increase in the share of renewables by almost a factor of seven from about 2.25% in 2008, in scarcely more than a decade.
- The Low Carbon Transition Plan and the Renewable Energy Strategy were both published on 15 July 2009 and set out how the UK will achieve dramatic reductions in emissions and meet targets on renewables.
- The Household Energy Management Strategy was published on 2 March 2010, and placed a greater emphasis on district heating schemes and identified an essential role for planning in facilitating delivery of these and other community-scale energy schemes.
- Publication of the proposed definition of zero carbon homes<sup>1</sup>. Meeting the zero carbon standard involves a combination of energy efficiency measures and the use of decentralised energy solutions, to be set out through Building Regulations and through use of a range of ‘allowable solutions’, the details of which are still to be decided.
- Climate change projections were updated in 2009 by the UK Climate Impacts Programme. These set out three global emission scenarios based on high, medium and low forecasts for a range of climate and weather related impacts such as temperature, rainfall, flooding and other extreme weather events.
- The Local Democracy, Economic Development and Construction Act 2009 replaces the requirement for a regional spatial strategy and regional economic strategy with a regional strategy (RS) from April 2010. Climate change, along with economic development and housing, has been identified as a priority for the regional strategies.
- The Energy Act 2008 introduced powers for a Feed-In Tariff and the Renewable Heat Incentive aimed at driving an increase in renewable energy generating capacity, and which is likely to have an impact on planning.”

## Appendix 2

### Glossary

#### <sup>14</sup>Building Regulations Part L

The Building Regulations 2000 set out broad standards and requirements which individual aspects of building design and construction must achieve. Part L deals with the energy efficiency of the building fabric and boiler, conservation of fuel and power, and some dedicated low-energy light fittings. It is a design standard and does not influence operation or occupancy. The headline CO<sub>2</sub> reduction requirements of Part L were increased in 2006 and again in 2010, and are anticipated to increase further in 2013 and finally reach “zero carbon” (see below) by 2016. These successively stringent CO<sub>2</sub> reduction requirements also form the basis of the mandatory energy standards of the Code for Sustainable Homes (see below) – Part L 2010 being equivalent to the energy standards of CSH Level 3, Part L 2013 to Level 4 and Part L 2016 to Level 6.

#### Coastal Change Management Areas (CCMAs)

CCMAs are identified in Shoreline Management Plans (SMPs – see below), and require local planning authorities to set out policies for CCMA(s) that specify the type of development that will be appropriate, the circumstances in which certain types of development may be permissible, and any allocations of land for appropriate development.

#### <sup>15</sup>Code for Sustainable Homes (The CSH)

The CSH was developed to promote sustainable building practices for new homes. It provides standards for the key elements of design and construction that affect the sustainability of a new home. It incorporates nine sustainability issues ranging from water usage to the health and well-being of the occupants. Energy efficiency and CO<sub>2</sub> emissions are central to the code. The CSH is mandatory for social housing and it is likely that assessment under parts of the code's standards will be made mandatory for all in the future.

#### <sup>16</sup>Energy Performance Certificates (EPCs)

Energy Performance Certificates record how energy efficient a property is as a building, and provides ratings on an A – G scale. These are similar to the labels now provided with domestic white goods such as refrigerators and washing machines. EPCs give information on the current performance of a house, along with its potential for cost-effective improvement. They have been a legal requirement on the construction, sale or rental of properties since 2008. An EPC does not give information on current energy usage, it calculates energy performance. One key feature of EPCs is that they look at performance rather than efficiency. This ensures that the design and integration of the building's components are all considered in conjunction, to help decarbonise the nation's building stock.

#### <sup>17</sup>Green Infrastructure (GI)

Green infrastructure is strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations.

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<sup>14</sup> Extract from Zero Carbon Britain 2030

<sup>15</sup> Ibid p85

<sup>16</sup> Ibid p86

<sup>17</sup> Extract from <http://www.greeninfrastructure.net/content/definition-green-infrastructure>

### <sup>18</sup>Merton Rule

The Merton Rule was first introduced by the London Borough of Merton in 2003. In its original form it was a planning policy that requires new non-residential developments above 1,000m<sup>2</sup> to provide 10% of their total energy demand from on-site renewable sources. It has subsequently been extended to residential developments and, in many Local Authorities, re-interpreted in terms of CO<sub>2</sub> reduction rather than energy generation.

### <sup>19</sup>Shoreline Management Plans (SMPs)

A Shoreline Management Plan (SMP) is a large-scale assessment of the risks associated with coastal processes which seeks to reduce these risks to people and the developed, historic and natural environments. An SMP determines the natural forces which are shaping the shoreline to assess how it is likely to change over the next 100 years, taking account of the condition of existing defences. The SMP develops policies outlining how the shoreline should be managed in the future, balancing the scale of the risks with the social, environmental and financial costs involved, and avoiding adverse impacts on adjacent coastal areas.

### <sup>20</sup>Standard Assessment Procedure (SAP)

The Standard Assessment Procedure is the UK Government's recommended system for measuring the energy rating of domestic dwellings. It calculates the typical annual energy costs for space and water heating and for lighting. CO<sub>2</sub> emissions are also calculated. SAP is included in Part L of the Building Regulations and CSH (see above).

### Zero Carbon Homes

The definition of zero carbon is currently being developed and is likely to impose a cap on the CO<sub>2</sub> emissions that can be emitted on site ("carbon compliance") and an array of methodologies to reduce residual emissions ("allowable solutions")

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<sup>18</sup> Ibid p86

<sup>19</sup> Extract from [www.suffolksmp2.org.uk](http://www.suffolksmp2.org.uk)

<sup>20</sup> Ibid p85

## Appendix 3

### Policy CS10 Sustainable Development and the Code for Sustainable Homes

The table below deconstructs the requirements set under Policy CS10 and shows how the majority of these can be addressed through requirements set in the Building for Life Standard (as required under Policy CS7) or the Code for Sustainable Homes. (CSH Issues marked with a \* have been identified in the CLG (2011) *Cost of building to the Code for Sustainable Homes* <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1972728.pdf> as being achievable at zero extra cost). Following the table is a discussion on the most effective way to interpret and enforce Policy CS10.

<b>Policy requirement - new development should:</b>	<b>Equivalent requirement in CSH/Building for Life</b>
<p>Respect the landscape, landscape features, streetscape / townscape, important spaces and historic views;</p> <p>Make a positive contribution to the local character, shape and scale of the area;</p>	<p>BfL 07. <i>Does the scheme exploit existing buildings, landscape or topography?</i></p> <p>BfL 08. <i>Does the scheme feel like a place with distinctive character?</i></p> <p>BfL 11. <i>Does the building layout take priority over the streets and car parking, so that the highways do not dominate?</i></p> <p>BfL 14. <i>Does the scheme integrate with existing streets, paths and surrounding development?</i></p> <p>BfL 17. <i>Do the buildings exhibit architectural quality?</i></p>
<p>Protect or create jobs and/or strengthen or diversify the local economy;</p>	<p>This topic is not covered within the CSH or BfL and commitments could be sought from applicants separately.</p>
<p>Ensure an appropriate level of services, facilities and infrastructure are available or provided to serve the proposed development;</p> <p>Retain, protect or enhance local services and facilities and rural communities;</p>	<p>BfL 01. <i>Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafes?</i></p>

## Core Strategy – Supporting Technical Paper

<p>Protect and enhance biodiversity, prioritise the use of brownfield land for development, and use and greenfield land and scarce resources efficiently;</p>	<p>CSH Eco1* – <i>Ecological value of site</i>          CSH Eco2 – <i>Ecological enhancement</i>          CSH Eco3* – <i>Protection of ecological features</i></p>
<p>Address climate change through design, adaptation, mitigation and by incorporating or producing sources of renewable or low carbon energy;</p>	<p>All CSH issues, especially:           CSH Ene1 – <i>Dwelling Emissions Rate</i>          CSH Ene7 – <i>Low and Zero Carbon Technologies</i></p>
<p>Make provision for open space, amenity, leisure and play through providing, enhancing and contributing to the green infrastructure of the district</p>	<p>BfL 16. <i>Is public space well designed and does it have suitable management arrangements in place?</i>          CSH Hea3* – <i>Private Space</i></p> <p>This topic is not covered comprehensively within the CSH or BfL and commitments could be sought from applicants separately.</p>
<p>Create green spaces and/or extend existing green infrastructure to access to shady outdoor space within new developments and increase the connectivity of habitats and the enhancement of biodiversity and mitigate some of the impacts of climate change e.g. enhancement of natural cooling and reduction in the heat island effect, provision of pollution sequestration for the absorption of greenhouse gases, and through the design and incorporation of flood water storage areas, sustainable drainage systems (SuDS);</p>	<p>CSH Hea3 – <i>Private Space</i>          CSH Eco2 – <i>Ecological enhancement</i>          CSH Sur1 – <i>Management of Surface Water Run-off from Developments</i></p>
<p>Minimise both the risk of flooding as well as the risk from flooding to people and property, and incorporate, where appropriate, flood mitigation and/or flood resilience measures;</p>	<p>CSH Sur2* – <i>Flood risk</i></p>
<p>Minimise surface water run-off and incorporate sustainable drainage systems (SuDS) where appropriate;</p>	<p>CSH Sur1 – <i>Management of Surface Water Run-off from Developments</i></p>

## Core Strategy – Supporting Technical Paper

Minimise waste (including waste water) during construction, and promote and provide for the reduction, re-use and recycling of all types of waste from the completed development.	CSH Was1 – <i>Storage of non-recyclable waste and recyclable household waste</i> CSH Was2 – <i>Construction site waste management</i>
Be designed to make the best use of the site in terms of solar energy, passive heating and cooling, natural light and natural ventilation;	CSH Ene1 – <i>Dwelling Emissions Rate</i>
Use sustainable building methods that optimise energy and water efficiency, and use techniques, methods and materials resilient to climate change (e.g. resilience to high winds and driving rain);	CSH Ene2 – <i>Fabric energy efficiency</i> CSH Wat1 – <i>Indoor water use</i> CSH Wat2 – <i>Outdoor water use</i> CSH Sur2 – <i>Flood risk</i>  Climate resilience is not covered comprehensively within the CSH and commitments could be sought from applicants separately.
Be accessible to people of all abilities including those with mobility impairments;	CSH Hea4 – <i>Lifetime Homes</i>
Seek to minimise the need to travel by car using the following hierarchy: walking, cycling, public transport, commercial vehicles and cars) thus improving air quality.	BfL 04. <i>Does the development have easy access to public transport?</i> BfL 13. <i>Are the streets pedestrian, cycle and vehicle friendly?</i> CSH Ene8 - <i>Cycle Storage</i>
Where appropriate to the scale of the proposal, provide a transport assessment and Travel Plan showing how car based travel to and from the site can be minimised, and proposals for the provision of infrastructure and opportunities for electric, plug-in hybrid vehicles and car sharing schemes.	This topic is not covered within the CSH or BfL and commitments could be sought from applicants separately.

**Table 2: Policy CS10 and its relationship to the *Building for Life* standard and the *Code for Sustainable Homes***

## Core Strategy – Supporting Technical Paper

The Code for Sustainable Homes, in particular, sets a clearly defined set of requirements and an associated methodology for each issue, and has the benefit of an in-built third party verification mechanism and post-construction review. It is therefore considered that, alongside the Building for Life assessment already required under Policy CS7, the simplest way for residential developments to demonstrate compliance with Policy CS10 would be to submit a Code for Sustainable Homes pre-assessment report outlining how the development will score against each of the issues identified above. Although there are costs associated with commissioning a Code assessor to complete this, there is no obvious reason to suppose that these would outweigh the consultancy costs required to demonstrate compliance with individual components of Policy CS10 and, indeed, by streamlining the process may actually reduce costs incurred by the applicant. Furthermore, the benefit to Babergh’s planning team of adopting this approach, aside from the third party verification and post-construction element discussed, will be the standardisation and simplification of the materials submitted by the applicant.

Meanwhile, the mandatory energy requirements of Code Level 3 are equivalent to those of the Building Regulations Part L 2010 and form the bulk of the “Extra Over” cost associated with achieving Level 3 (when compared to a Part L 2006 baseline). This means that the actual cost of achieving Code Level 3 (when compared to today’s Part L 2010 baseline) will potentially make a very limited addition to overall build cost (see Table 3 below). The same logic applies to the cost of achieving Code Level 4 in relation to the proposed cost of meeting the Building Regulations Part L 2013. Given this fact, and the fact that numerous local authorities in the East of England have adopted or emerging policies requiring new residential development to achieve Code Level 3 or higher standards (see Table 4 below) Babergh District Council are considering a requirement (following on from Policy CS10) in subsequent Development Management Policies and/or Site Allocations for new major residential development to achieve Code Level 3, stepping up to Code Level 4 in 2013, or such date as the Building Regulations are updated.

<b>Development scenario</b>	<b>Extra/over cost of mandatory energy requirement for Code Level 3 (Ene1) above Part L 2006 baseline</b>	<b>Extra/over cost of achieving Code Level 3 above Part L 2006 baseline</b>	<b>Extra/over cost of achieving Code Level 3 above Part L 2010 baseline</b>
Small brownfield	£3,000	£3,800 - £4,600	£800 - £1,200
Edge of town	£2,500	£2,900 - £4,900	£1,300 - £1,600
Urban regeneration	£2,000	£2,000 - £4,300	£700 - £900
Strategic greenfield	£2,500	£2,800 - £4,900	£1,300 - £1,600

**Table 3: Average Costs of achieving Level 3 of the Code for Sustainable Homes – All figures taken from CLG (2011) *Cost of building to the Code for Sustainable Homes***

## Core Strategy – Supporting Technical Paper

As discussed, in setting targets based on the Code for Sustainable Homes, Babergh District Council would not be acting alone: as the below table shows, several nearby local authorities have adopted, or are in the process of adopting, policies that require, or encourage different levels of CSH.

Local Authority	CSH Requirement	Location in Local Development Framework
Waveney District Council	<p><b>Policy DM04 Sustainable Construction:</b> All new residential developments are required to meet:</p> <ul style="list-style-type: none"> <li>• At least Code Level 3 from October 1st 2010</li> <li>• At least Code Level 4 once updates to Part L come into effect (currently scheduled for 2013).</li> </ul>	Development Management Policies DPD adopted January 2011
Forest Heath District Council	<p><b>Policy CS4 Reduce emissions, mitigate and adapt to further climate change:</b> Sustainable construction methods will be encouraged in all new dwellings to achieve at least three stars rating under CSH. The Council will monitor changes to standards and will consider higher sustainable construction standards where there is evidence to justify doing so.</p>	Core Strategy DPD 2001- 2026 adopted May 2010.
Ipswich Borough Council	<p><b>Policy DC1 Sustainable Development:</b> All developments exceeding the thresholds set out below shall achieve the following standards as a minimum unless, in exceptional circumstances, it can be clearly demonstrated that this is either not feasible or not viable:</p> <ul style="list-style-type: none"> <li>• &lt;250 Dwellings: 2010: 3; 2013: 4; 2016: 6</li> <li>• =/&gt;250 Dwellings: 2010: 4; 2013: 5; 2016: 6</li> </ul>	Core Strategy DPD (In final stages of adoption – final SA July 2011.)

## Core Strategy – Supporting Technical Paper

Mid Suffolk District Council	<b>Policy CS3 Reduce Contributions to Climate Change:</b> Sustainable Construction techniques will be encouraged in all new dwellings to achieve at least a CSH 3, rising to 4 in 2013 and 6 in 2016.	Core Strategy DPD adopted September 2008.
Suffolk Coastal District Council	<b>Policy DM24 Sustainable Construction:</b> In the case of housing, meet at least level 3 (until exceeded by national building regulation standards) of the CSH.  10> dwellings: at least 50% of the provision must comply with at least star level 4 (until exceeded by national building regulation standards) of the CSH.	Core Strategy adopted as ‘interim planning policy’ in June 2010, prior to official adoption.
Broadland District Council, Norwich City Council and South Norfolk Council	<b>Policy 3 Energy and Water:</b> New housing development must reach Code for Sustainable Homes level 4 for water on adoption of this document and developments of over 500 dwellings must reach code level 6 by 2015.	Joint Core Strategy adopted March 2011
Colchester Borough Council	<b>Policy ER1 Energy, Resources, Waste, Water and Recycling:</b> Residential dwellings will be encouraged to achieve a minimum 3 star rating in accordance with the Code for Sustainable Homes.	Core Strategy DPD adopted December 2008

**Table 4: Examples of policies from nearby Local Planning Authorities**