

SUSTAINABLE HOUSING ACTION PROGRAMME 2006-07

PLANNING FOR SUSTAINABLE HOMES: MEETING THE LOW CARBON CHALLENGE



In partnership with



Energy West Midlands



West Midlands
Regional Assembly
Speaking out for the region





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Sustainability West Midlands (SWM) is the Regional Sustainability Partnership for the West Midlands with members from business, community, voluntary and public sector organisations who are leaders in the delivery of Sustainability in the region.

Through its members and through its partnerships with the key Regional Bodies including the West Midlands Regional Assembly, Advantage West Midlands, the Government Office for the West Midlands and the Environment Agency, SWM acts as a champion body for sustainable development in the Region and seeks to communicate, promote and champion the principles of sustainable development and good corporate governance.

This guide was written by Nick Dodd from URBED (Urbanism, Environment, Design) and Rob Shaw from the Town and Country Planning Association (TCPA) for the Sustainable Housing Action Programme (SHAP). Additional case study material was researched and written by Dr Sarah Mander and Jenny Pidgeon. The report was designed by John Sampson and Nick Dodd from URBED.

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TCPA HOMES AND COMMUNITIES FOR A SUSTAINABLE FUTURE
TOWN AND COUNTRY PLANNING ASSOCIATION

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Foreword

by Sustainability West Midlands

The Vision of Sustainability West Midlands is to 'achieve a more sustainable region by developing a continually improving link between sustainable development in policy and sustainability in practice and by raising awareness of Sustainable Development'.

One of SWM's key roles is responsibility for embedding Sustainable Development in Regional Policies and Strategies, linking this to the practical demonstration of Sustainability by working in partnership with Members and Partners as illustrated by the SWM Vision. The Sustainable Housing Action Programme (SHAP) is an important example of putting this Vision in practice.

Phase One of SHAP was initiated in 2005 by SWM, in partnership with Energy West Midlands and the Energy Saving Trust, in response to the Sustainability Commentary produced by SWM on the Regional Housing Strategy. The following aim was subsequently incorporated into the Strategy as a result of this Commentary:

"...provide examples of best practice in sustainable housing in parallel with the SWM Climate Change Partnership and the Regional Energy Strategy."

The aim of the SHAP is to demonstrate how, through the promotion of existing best practice and identification of pathways and decision points particularly in the planning system, high specification energy efficiency and renewable energy measures could be mainstreamed into existing regional housing new build and refurbishment programmes.

Phase One of SHAP included a series of research projects and events that aimed to promote best practice demonstrated by existing local and national schemes and identify how these standards could be mainstreamed and or imposed through planning and development requirements. Further details of this Programme together with the Final Report are available at www.sustainabilitywestmidlands.org.uk

The final event was a Workshop to identify procedures for imposing Best Practice which was hosted by RENEW North Staffordshire and entitled "Meeting the Challenge of Climate Change Through Planning and Development". The workshop identified the use of existing planning and development systems as a key activity that the region could undertake to help ensure more widespread adoption of sustainable energy best practice in housing projects.

This led to SWM developing this theme into Phase Two of SHAP, for which SWM commissioned URBED and the Town and Country Planning Association to prepare this report with launches at Workshops on the 20th February and 22nd March 2007 in partnership with the Warwickshire Climate Change Partnership and Renew North Staffordshire.

This report is a guide which explores the full range of current best practice in planning and enabling low carbon homes, and is intended to provide a practical framework for planners working at all levels in the West Midlands region. It is, therefore, a key element in the delivery of the SWM Vision.

An important use of the report, which will enhance the SWM Vision, will be to inform the SWM responses to the West Midlands Regional Spatial Strategy (RSS) Phase Two Spatial Options and the West Midlands Economic Strategy (RES) Policy Choices both of which are being developed in 2007 and which are explained in this report.

George Marsh
Chair
Sustainability West Midlands

National policy context

by the Town and Country Planning Association

Climate change has soared up the political agenda in the past year, and it is undoubtedly the case that awareness amongst the general public has also risen – reflected by a growing interest in the impact of people's homes on the environment.

This has primarily been driven by the growing body of evidence of the havoc that climate change could cause within most of our lifetimes if left unchecked. Research from both the Hadley Centre, the UK Government's centre for research into climate change, and Tyndall Centre send stark messages about the task ahead. The Tyndall Centre, for instance, makes it clear that UK greenhouse gas emission reductions may need to be of the order of 70% by 2030 (rather than the Government's own 60% by 2050 target).

The recent Stern Review on the economics of climate change has raised the stakes. The ramifications of this report will only become evident with time, but indications from Ministers is that its message – that the economic cost of action is nothing compared with the cost to economies and societies of runaway climate change – is being taken very seriously.

Planning was identified as one of four priority areas for action. The Chancellor has already indicated that all new homes will be carbon neutral by 2016. The recent Queen's Speech included a climate change Bill, which may establish a Bank of England style independent commission to oversee emissions reductions. Furthermore, political space for genuine change has been created by the Conservative Party's vocal support for concerted action.

The Local Government White Paper has also highlighted the important role that local authorities have to play in seeking to reduce carbon emissions in their communities. Climate change is highlighted as one of seven key challenges for Local Authorities, and it emphasises their role as a 'strategic leader and place-shaper' that can co-ordinate and drive local action through planning and community strategies. The White Paper also calls for Local Area Agreements to set climate change targets across local government, and puts forward a new performance framework of local indicators on climate change, with a focus on delivery.

To support this, the long awaited Code for Sustainable Homes was launched on 13th December 2006. The Code sets out six environmental standards for new homes, with a strong focus on carbon reduction. While the Code is mandatory only for publicly funded development, a proposed timetable has been published for integrating Code levels into the building regulations after 2010.

Furthermore Housing and Planning Minister Yvette Cooper has also proposed that all new UK homes should be zero carbon by 2016.

Of greatest significance to regional and local planning is, however, the consultation launch of a draft climate change supplement to Planning Policy Statement (PPS) 1. The implications of this document are likely to be far reaching for planning policy and practice at all levels. The draft sets out a robust framework for tackling climate change and delivering more sustainable energy

There is no doubt that there is now high level support for low carbon standards in development. But, time is short and we must grasp every opportunity to take action. That is why this guide is so important in demonstrating how local authorities, planners, decision-makers and developers can use the emerging positive national policy framework to influence plan-making and practice across the West Midlands region.

Rob Shaw
Director (Policy and Projects)
Town and Country Planning Association

How this guide works

The aim of this guide is to illustrate best practice in sustainable energy planning for low carbon homes. It provides a framework of practical planning and enabling mechanisms that relate to each tier of planning system and different scales of development opportunity.

This guide has been commissioned to support the Sustainable Housing Action Programme (SHAP) which is managed by Sustainability West Midlands. The 2006-07 programme is funded by the Energy Saving Trust, and carried out on behalf of the region with the support of the SHAP steering committee comprising representatives from the Regional Assembly, Government Office West Midlands, Energy West Midlands, local government and leading RSLs.

Target audience and approach

The guide is aimed at planners at all levels – from regional to county, district and borough – as well as senior policy makers, sustainability officers, community strategy officers, regeneration agencies and property developers. It seeks to provide local authorities with a framework of practical planning and enabling mechanisms, relating to each tier of the planning system; planning functions; and different scales of development opportunity.

The guide promotes a carbon management-based approach, and recommends key actions that could be taken to install this approach into planning frameworks. This approach is designed to encourage planners to put in place climate change

policies and carbon reduction strategies, complemented by planning mechanisms aimed at cutting emissions in-line with headline targets for reductions. Planners should also work with housing developers and communities to establish baseline carbon emissions of new schemes, and to develop energy strategies that seek to reduce emissions in-line with climate change policies.

Carbon management approach

- Calculation of baseline emissions for new housing developments,
- Establishment of policies and targets for carbon emission reductions,
- Use of planning mechanisms to require carbon reduction strategies in line with targets,
- Identification of a mix of measures for each new housing development to achieve reduction targets,
- Co-ordination of enabling mechanisms to facilitate delivery of low carbon strategies.

Case studies

In order to demonstrate how this approach could work, the guide draws upon the lessons from over 20 'best practice' case studies – including 14 from planning authorities in the UK, and 6 from planning authorities and major innovative new housing schemes in the European Union. These have been chosen to illustrate the measures required to develop sustainable energy strategies for new housing, and complementing the Regional Energy Strategy and Sustainability West Midlands' climate change adaptation programme. Key measures covered include:

- Bioclimatic design – Masterplanning and urban design to maximise the potential for natural heating and cooling, and realise the benefits of higher densities;
- Microclimate moderation – Incorporation of green space, vegetation and waterways in order to moderate the microclimate around new housing;
- Energy efficiency – Performance standards designed to reduce heating, hot water and electricity demand;

- Efficient energy production – Identifying and developing opportunities for Combined Heat and Power to supply community heating networks;
- Renewable energy – Identifying and developing opportunities to make use of solar, wind, geothermal, biomass and hydroelectric energy;

The case studies have also been selected to illustrate a number of different aspects of project delivery, complementing the planning and enabling themes of the guide. For each case study we have highlighted the critical success factors.

In order to start to make the link between best practice and current activity 'on-the-ground' in the region we have identified a range of West Midlands case studies that illustrate work 'in-progress' – ranging from the adoption of new planning policies, to major housing development opportunities.

Using the guide

The guide can be easily navigated using the spatial framework and development process menu's on pages 8 and 10. Guidance material, case studies and key actions are colour coded throughout (see below). A comprehensive bibliography – including original planning documents and energy

strategies from case studies featured in the guide – can be found at the end of the guide, and a selection of resources will be available on the SHAP website the address for which is: www.sustainabilitywestmidlands.org.uk/shap

Guidance	Policy	Case Studies	In Progress	Key Actions

Indicative scale of development opportunities

Urban masterplans



Major masterplans currently being developed or at outline planning stage in Birmingham (Attwood Green and Eastside), Coventry (Swanswell), Herefordshire (Edgar Street Grid), Wolverhampton (Bilston Urban Village);

Housing Market Renewal



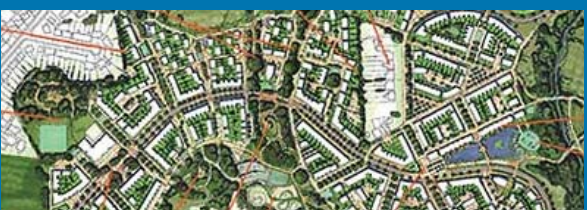
Edge of centre (City Waterside, Stoke) and brownfield sites (Warstock, Birmingham; Showell Park and Cross Street South in Wolverhampton), in-fill and market intervention (eg. Knutton & Cross Heath, Stoke). Identified from the HMR pathfinders RENEW North Staffordshire and Urban Living and regeneration agencies.

Rural housing



Former hospital and brownfield sites, including sites forming part of English Partnerships Hospitals Programme, as well as smaller plots that could be developed by RSL's (Station Crescent, Cravens Arms) or private housebuilders (The Wintles, Bishops Castle);

Model communities



Masterplans for the Telford Millennium Community and the extension to Lightmoor in Telford;

Using this guide

» Planning and the development process

This guide will enable you to identify best practice as it relates to the development process for new housing – from vision and masterplan to detailed planning and construction.

This is illustrated below by a hypothetical development process for a major new community with an energy strategy to reduce CO₂ emissions by 60%.



Stage 1: Development brief and vision



Development of site brief and vision by landowners, planners, communities and associated public and private bodies. Selection of key private sector partners to deliver the vision.

Actors

Landowner(s), Regeneration teams, Planning policy and strategy officers, Sustainability officers, Community strategy officers

Planning mechanisms

- LDF climate change and energy policies
- SPD guidance on low carbon development

Enabling mechanisms

- Property investment policies
- Community engagement

Stage 2: Masterplan and energy strategy



Development of masterplan and energy strategy by landowners and associated public, private and RSL partners, with community engagement in the process.

Actors

Landowners and developers, RSLs, Regeneration teams, Planning policy/strategy and Development Control officers, Sustainability officers, Community strategy officers, Masterplanner and technical team.

Planning mechanisms (outline application)

- SPD guidance
- Area Action Plan carbon reduction targets
- Community heat planning framework
- Green infrastructure plan

Enabling mechanisms:

- Planning gain and land sale
- Managing innovation
- Community engagement

Stage 3: Infrastructure and services



Establishment of ESCo to deliver infrastructure. Development of energy networks and 'green infrastructure'. Community engagement to develop offsite renewables.

Actors

Development Control, Masterplanner and technical team including landscape architects, Utilities and/or specialist ESCo's, Community renewables enabler

Planning mechanisms (detailed applications)

- Community heat planning framework
- Criteria-based renewables policies
- Green infrastructure plan

Enabling mechanisms

- Local Authority Carbon Management
- Energy Services Companies (ESCo's)
- Community engagement

Stage 4: Phasing and detailed design



Construction of low carbon homes, including pioneering zero carbon demonstration homes. Commissioning of energy centre, with CHP to supply the heat network.

Actors

Development Control, Building Control, Architects and technical teams, Construction contractors and technology suppliers, Utilities and/or specialist ESCo's

Planning mechanisms (detailed applications)

- Carbon reduction targets
- Efficiency performance standards
- Low carbon/renewable energy supply requirements

Enabling mechanisms

- Building control and enforcement
- Planning gain, land sale and partnerships
- Supply chain development

Stage 5: Realisation of vision



Completion and monitoring of all phases of low carbon homes. Completion of green infrastructure and off-site community-owned wind turbines.

Actors

Building Control, Architects and technical teams, including landscape architects, Utilities and/or specialist ESCo's, Community wind farm enablers.

Planning mechanisms

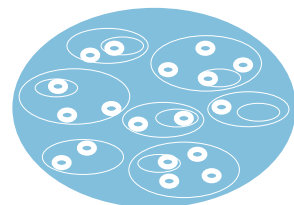
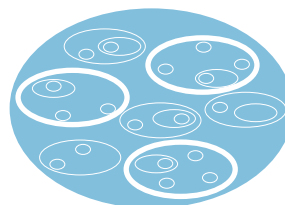
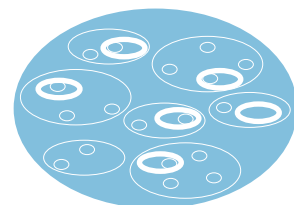
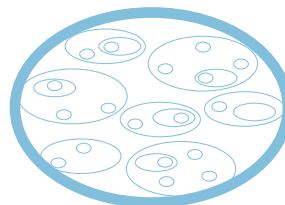
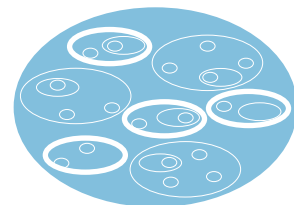
- Carbon reduction targets
- Efficiency performance standards
- Criteria-based renewables policies
- Performance monitoring

Enabling mechanisms

- Building control and enforcement
- Managing innovation
- Supply chain development
- Community ownership

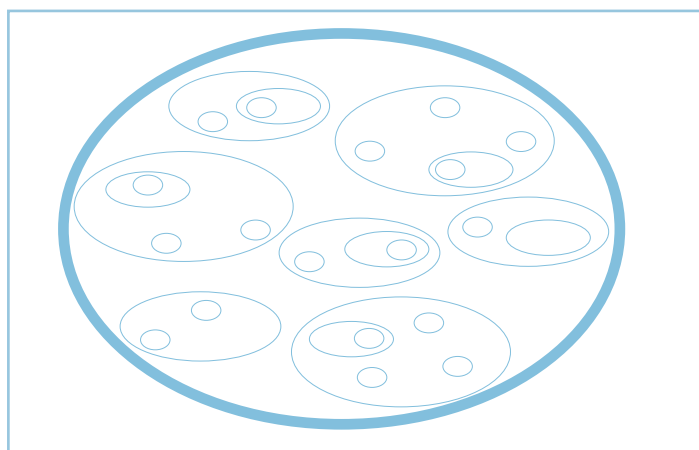
Using this guide

» Spatial planning from regional to local



The guide will enable you to identify best practice as it relates to the spatial planning framework for new housing – from Regional Spatial Strategy to Area Action Plans and development sites.

The full range of planning mechanisms are set out below, organised by the spatial level at which they have, or could, be introduced.



Spatial level
Regional

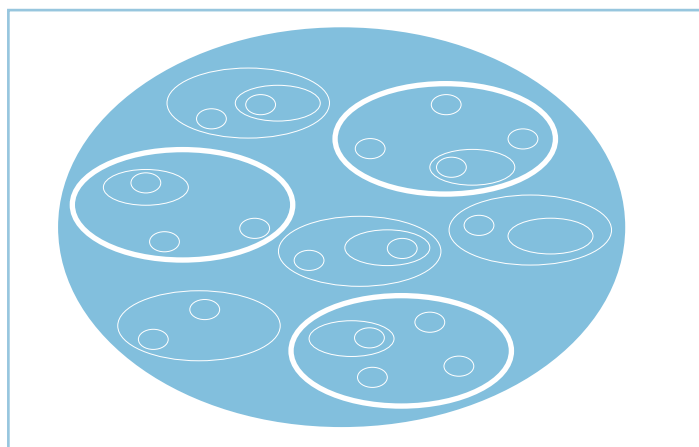
Planning Tier
RSS

Planning Mechanisms

- Carbon reduction baseline and trajectories
- Renewable resource assessments
- Carbon reduction policies and targets
- RSS energy planning policies
- Energy planning guidance and tools

Key Actors

- West Midlands Regional Assembly
- Government Office West Midlands
- Regional Housing Board
- Advantage West Midlands
- Energy West Midlands



Spatial level
Major Urban Areas
Rural Counties

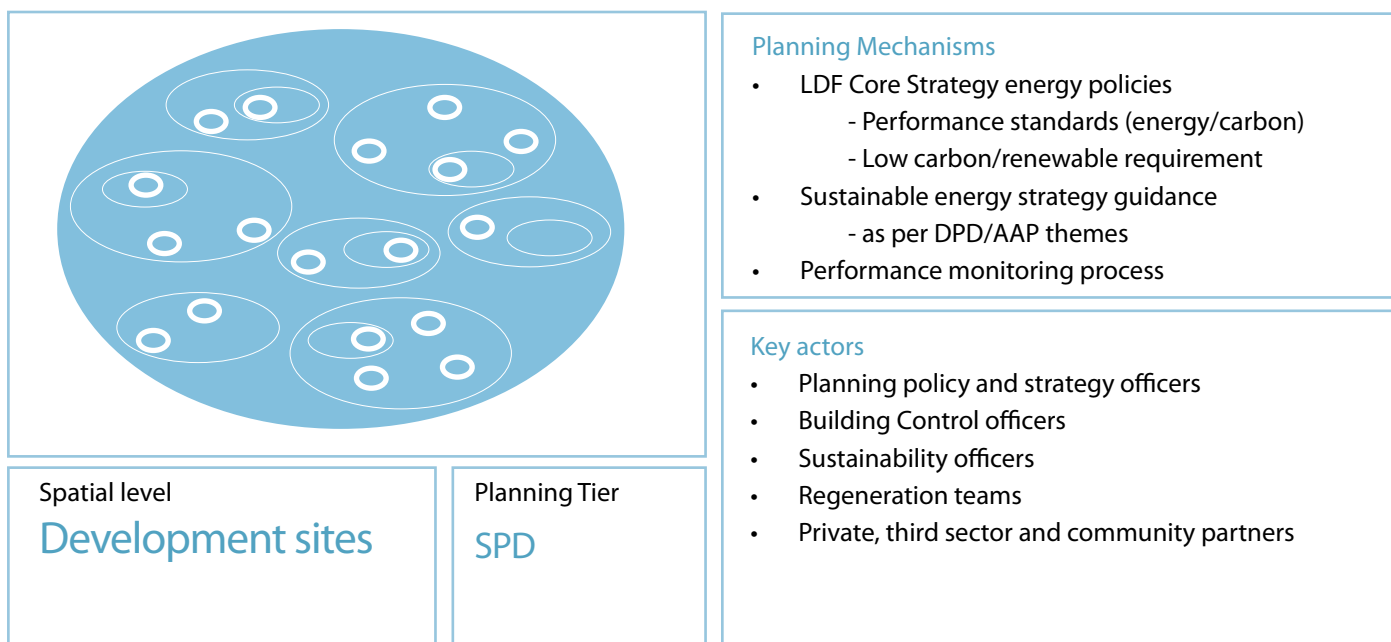
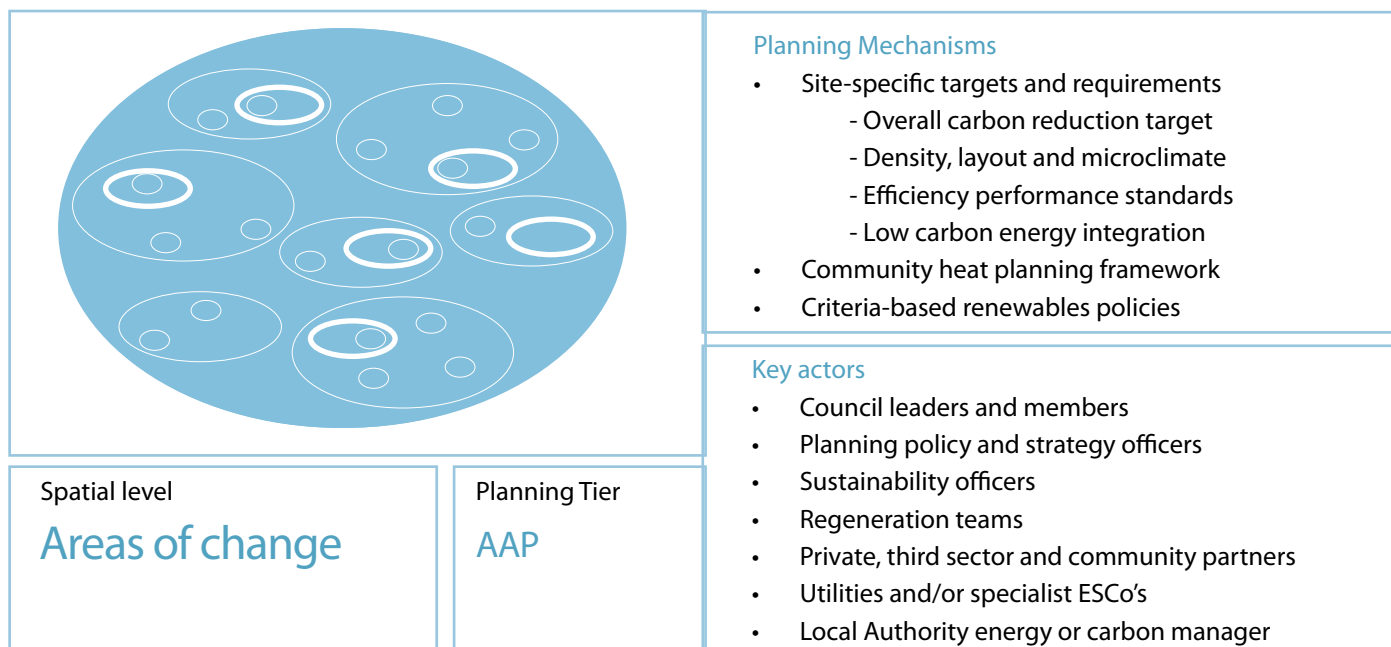
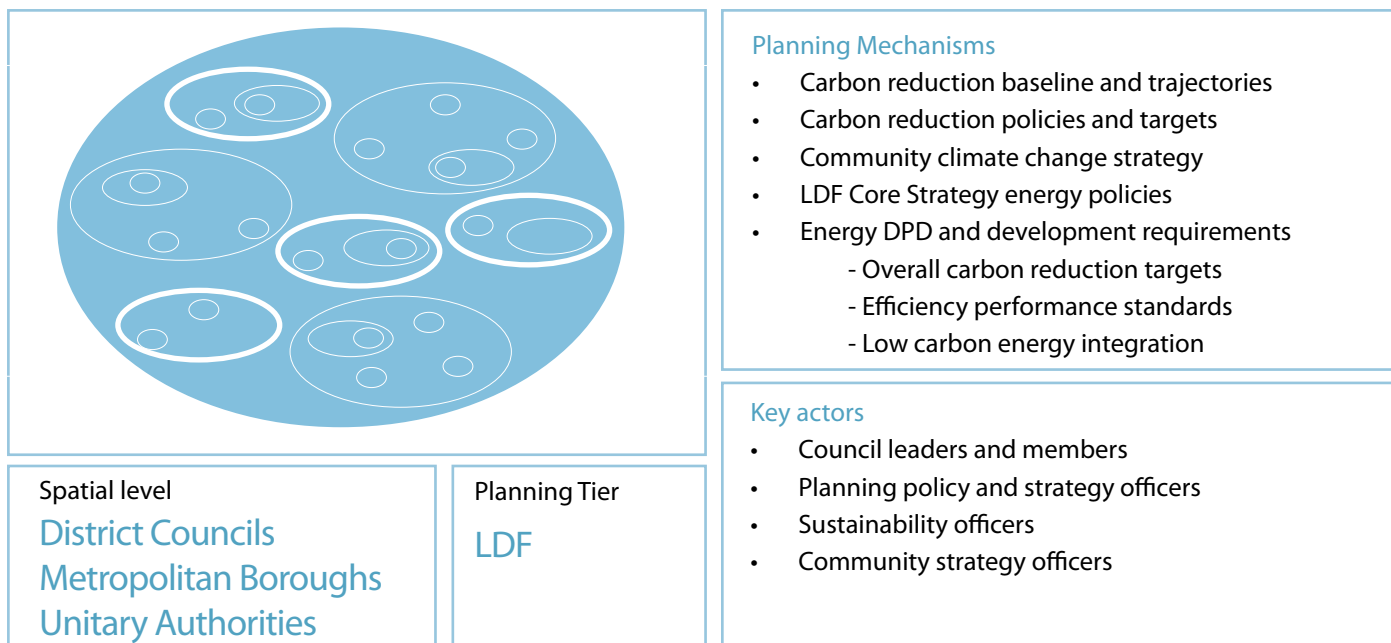
Planning Tier
Strategy/vision

Planning Mechanisms

- Climate change policies
- Carbon reduction policies and targets
- Renewable resource assessments
- Adoptable planning guidance
- Green infrastructure planning

Key actors

- Council leaders and members
- Planning policy and strategy officers
- Community strategy officers
- Sustainability officers
- Local Authority energy or carbon manager



1.1 Introduction

» Future Housing Development in the West Midlands

With the partial review of the West Midlands Regional Spatial Strategy (WMRSS) and the development of new Local Development Frameworks (LDF's) there are significant opportunities across the region to harness the potential of the planning system to meet the challenge of developing low carbon homes.

We begin this guide by exploring the future for housing development in the West Midlands, and the associated implications for carbon emissions. We move on to review the potential role of planning in seeking to develop low carbon housing, and the complementary role of enabling mechanisms in ensuring delivery on-the-ground.

The West Midlands has a population of 5.3 million people and around 2.2 million homes (2001 Census). The regions housing stock varies considerably in form and tenure – reflecting the contrast between the Major Urban Areas of Birmingham-Solihull, the Black Country, Coventry and North Staffordshire, and the rural shires of Shropshire, Herefordshire and Worcestershire which account for 80% of its area and 20% of its population.

The spatial planning framework for future housing allocations in the region up to 2026 is set out by the West Midlands Regional Spatial Strategy (WMRSS). The current version of the WMRSS identifies three key housing policy objectives for the region:

- Stemming outward migration from Major Urban Areas,
- Achieving Housing Market Renewal in Pathfinder areas,
- Meeting specific housing needs in rural areas.

A partial review of the WMRSS is currently underway, creating the opportunity to create stronger regional planning guidance for low carbon homes:

- Phase 2 is currently out for consultation and focusses on spatial options for new communities and future housing allocations across the region – see table below for consultation options.
- Phase 3 will develop further the region's climate change policies, taking into account the Regional Energy Strategy. Best practice in regional spatial planning frameworks for climate change, and in making the link between WMRSS and LDF spatial policies for low carbon housing, is explored in Sections 2.1 and 2.3 of this guide.

The Regional Economic Strategy is also under review, creating the potential to strengthen the regions response to climate change, which is identified as a 'key driver of change'.

The WMRSS Phase 2 spatial options consultation has emphasised the growing gap between actual regional CO₂ emissions and national government targets, with domestic emissions accounting for a significant proportion of these emissions. The regions total annual CO₂ emissions in 2002 were 41.6 Mt of which 30% were accounted for by domestic energy

Regional housing policy framework

The regional policy and planning framework for housing is defined by a number of key documents, in descending order of material consideration:

- Regional Spatial Strategy (RSS) - which sets the overall spatial planning policy framework, including an overarching framework for 'Communities of the future', specific policies for urban and rural areas and climate change mitigation policies;
- Regional Housing Strategy - which establishes the policy framework for housing provision until 2021, feeding into the RSS and including guidance on its spatial distribution, urban form and performance standards;
- West Midlands Economic Strategy - which seeks to realise the potential regeneration benefits of new housing development as well as growth in 'environmental industries' to achieve carbon reductions.

In addition the Regional Sustainable Development Framework and the Regional Energy Strategy set out policies and targets to be incorporated into the RSS, including reference to specific measures and technologies.

Indicative annual new-build rates (WMRSS 2006-07 consultation options)

Planning area	Annual Build Rate (gross)			
	Historical 2001-2005	Option One 2006-2026	Option Two 2006-2026	Option Three 2006-2026
Birmingham	3,016	2,832	3,344	3,680
Coventry	716	760	976	1,760
Black Country	2,452	3,176	3,996	4,268
Solihull	537	440	600	720
Metropolitan Area Total	6,721	7,208	8,916	10,428
Shropshire	1,148	992	1,164	1,164
Telford and Wrekin	694	960	1,200	1,440
Staffordshire	2,813	2,052	2,716	3,116
Stoke-on-Trent	721	600	840	840
Warwickshire	2,586	1,560	2,100	2,700
Worcestershire	2,101	1,244	1,892	2,492
Herefordshire	588	640	820	820
Shire and Unitary Authorities Total	10,649	8,048	10,732	12,572
Major Urban Areas	7,648	8,096	10,056	11,568
Other Areas	9,722	7,160	9,592	11,432
West Midlands Region	17,369	15,256	19,648	23,000

Source: West Midlands Regional Assembly (2006) West Midlands Regional Spatial Strategy – Phase Two Revision, Spatial options consultation,

use. Of this domestic energy use and CO₂ emissions in 2002 accounted for 51,330 GWh and 12,644 k tonnes respectively. The Regional Energy Strategy has proposed targets to reduce domestic emissions by 2.4 Mtonnes (19%) by 2010, and then by 3.7 Mt (29%) by 2020.

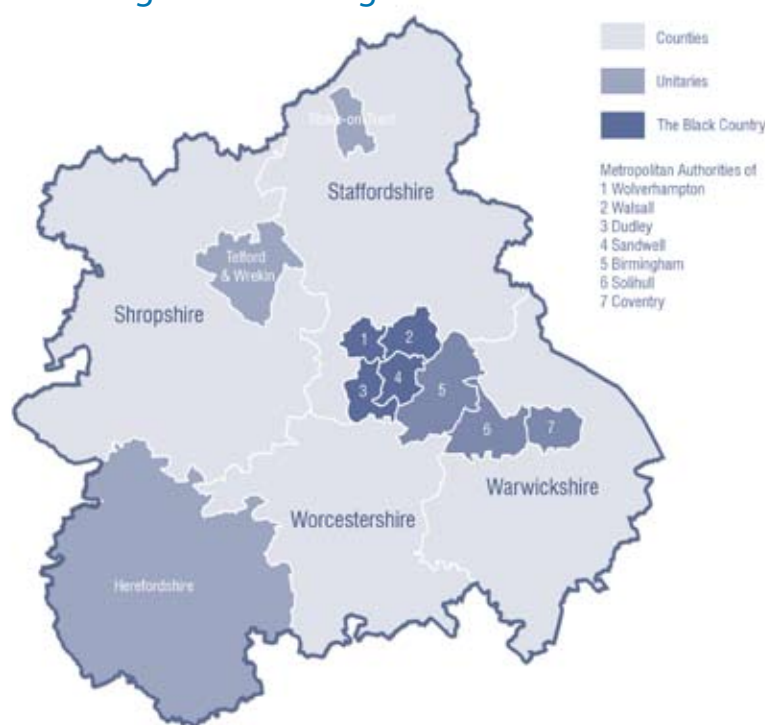
With a replacement rate of around 1.4% per annum (based on RSS projected annual demolitions) improving the energy efficiency of the existing housing stock – as promoted by the Home Energy Conservation Act (HECA) and the Decent Homes standards – is a major objective.

However, the Government's recent energy review has calculated that nationally 30% of the homes standing in 2050 will be built from 2007 onwards. The Government has therefore highlighted the need for new-build homes to deliver proportionately greater reductions in carbon emissions, on the grounds of cost and ease of achieving higher standards – particularly at a community or neighbourhood scale.

The annual rate of new-build across the region is currently around 17,400 – which could rise under the current WMRSS Housing Options 2 and 3 which are currently being consulted on – of which typically around 10-15% are social housing.

There is therefore significant potential for new homes and communities to contribute towards carbon reduction targets – as highlighted by the Regional Housing Strategy which stresses the 'essential role of housing in contributing to sustainable development, particularly through ensuring efficient use of natural resources.... with priority given to energy efficiency, renewable energy sources and district heating'.

Sub-Regional Planning Authorities



1.2 Introduction

» The role of Planning Mechanisms

Planning has an important role to play in the implementation of sustainable energy and climate change mitigation (and adaptation) strategies, establishing the spatial framework and requirements for the location, form and specification of new housing and energy generation.

National Planning Policy

2003's Energy White Paper set out a vision of a 'low carbon economy' and the subsequent revisions of Planning Policy Statements 1 'Delivering sustainable development'; PPS 3 'Housing'; PPS 11 'Regional Spatial Strategies'; PPS 12 'Local Development Frameworks' and PPS 22 'Renewable Energy' have evolved in response to the national vision for future energy security and action on climate change, setting the context for planning and development control.

The recently published draft supplement to PPS1 on climate change (currently out for consultation) confirms and strengthen this focus. The Local Government White Paper has also highlighted the complementary role of Community Strategies and Local Area Agreements in co-ordinating and building acceptance of the need for action.

Regional Spatial Strategies

PPS 11 establishes a clear role for Regional Spatial Strategies in setting regional carbon reduction trajectories, establishing targets for the deployment of renewable energy technologies, and providing the strategic planning framework to which local authorities should respond to at a local level through their Local Development Frameworks.

RSS's should seek to interpret the national policy and vision for a low carbon economy, taking a broader long-term view of housing and economic strategies, as demonstrated by the Mayor of London's energy strategy and the London Plan.

Local Development Frameworks

PPS 1 and PPS 12 define a clear role for Local Development Frameworks by establishing a framework for development control that goes beyond the 'promotion' of carbon reduction and moves towards creating 'requirements' in key areas. This should be justified by the evidence base formed during the Sustainability Appraisal process, which should establish baseline emissions and future scenarios for reductions.

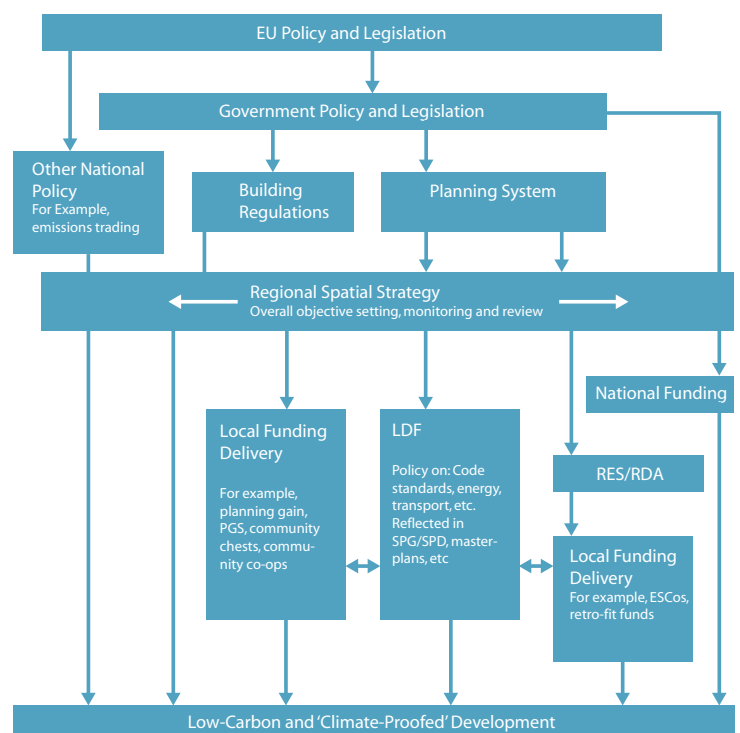
This should form the basis for establishing targets and local contributions to carbon reduction and renewable energy generation targets, which should be given weight through incorporation into LDF Core Strategies and Local Development Documents (LDDs). Supplementary Planning Documents can be used to provide design principles and guidance on how to deliver low carbon development.

Areas of Change

Area Action Plans (AAPs) can be used to define specific performance requirements and/or technologies for areas of change, which could include masterplans and regeneration areas. AAPs can be used to provide a finer grain of detail setting out expectations and planning requirements in site development briefs. These can specify infrastructure solutions or technologies as specific to a site. The approach to delivery can also be a material consideration at this stage eg. the capturing of wider economic benefits, community involvement in order to encourage engagement with climate change.

The planning framework should be tailored to different development opportunities and be responsive to the implementation requirements and market status of different technologies – from micro-generation to community heating. Planning should also take into account the wider picture – with PPS 22 highlighting the need to; 'acknowledge the wider environmental and economic benefits of all proposals whatever their scale as material considerations that should be given significant weight when determining applications;'

Planning tiers and responsibilities



Credit: TCPA and Friends of the Earth

1.3 Introduction

» The role of Enabling Mechanisms

Whilst planning has a significant role to play it will often need to be supported by enabling mechanisms, which will often complement each other as part of an overall action plan. This guide therefore seeks to highlight the role of the following enabling mechanisms:

Building control and enforcement

There is evidence from surveys such as that carried out by Leicester De Montfort University that the majority of new-build housing falls short of Part L Building Regulations due to poor quality. Building control therefore has a key role to play in ensuring that actual performance approaches design performance.

Planning gain and land sale

In the past Local Authorities and public agencies such as English Partnerships were required to seek the highest price for land. Guidance from the Treasury and the Department for Communities and Local Government has reduced the emphasis on price, creating the potential for lower bids to be accepted on the basis of delivering wider policy objectives such as climate change.

Local Authority Carbon Management

It is important for the credibility of wider climate change programmes that local authorities demonstrate corporate leadership by reducing the carbon emissions of council owned buildings, including retained housing stock. The Carbon Trust has developed a carbon management process for Local Authorities, which has been piloted with a representative range of councils;

Property investments

Across the region Local Authorities, Advantage West Midlands and English Partnerships are increasingly looking to strategically manage their land assets in order to contribute to long-term regeneration aims. Carbon reduction policies and the careful selection of development partners (see below) have the potential to be used to drive sustainable energy strategies.

Managing innovation

With the increasing focus on working in partnership with private sector developers for delivery of regeneration projects there is the potential to establish performance requirements, and to select partners with a track record and capacity to innovate and take risk. Housing Market Renewal Pathfinders and English Partnership-led programmes are key examples of where there is the potential.

Energy service companies (ESCOs)

The constraints placed on local authorities by the Public Sector Borrowing Requirement, together with the short-termism of the private sector, have focussed attention on the need to establish special purpose vehicles to lever finance into low carbon energy projects. Local authorities such as Woking have demonstrated the potential to establish ESCo's to invest in infrastructure such as CHP and community heating, and there is unrealised potential for ESCo's to invest in energy efficiency.

Community engagement and ownership

There is increasing evidence from leading countries in the EU, and from UK projects, of the importance of community engagement, and also ownership, in achieving a wider acceptance of the need for action on climate change. In particular the smaller scale of distributed and renewable energy generation means that it is more complex to deliver and requires projects to be in everyone's 'backyard'. At a general level engagement can be used to develop community visions for a low carbon future through mechanisms such as Community Strategies and Local Area Agreements that can feed into planning (see also 'the role of planning').

Supply chain development

An increase in the demand for low carbon products and services will need to go hand-in-hand with capacity building along the supply chain. Examples include building products, materials and construction systems, the development of local and regional supply chains for biomass fuel, and the training and franchising of solar installers.

2.1 West Midlands Region

» Developing a sustainable energy vision

In this section we explore how a best practice planning framework could be developed for the West Midlands region, with a focus on four key elements:

- Developing a sustainable energy vision
- Baseline emissions and future scenarios
- Planning tools and guidance
- Climate change mitigation and sustainable energy policies

These elements fit together to provide a comprehensive planning framework to achieve low carbon housing development.

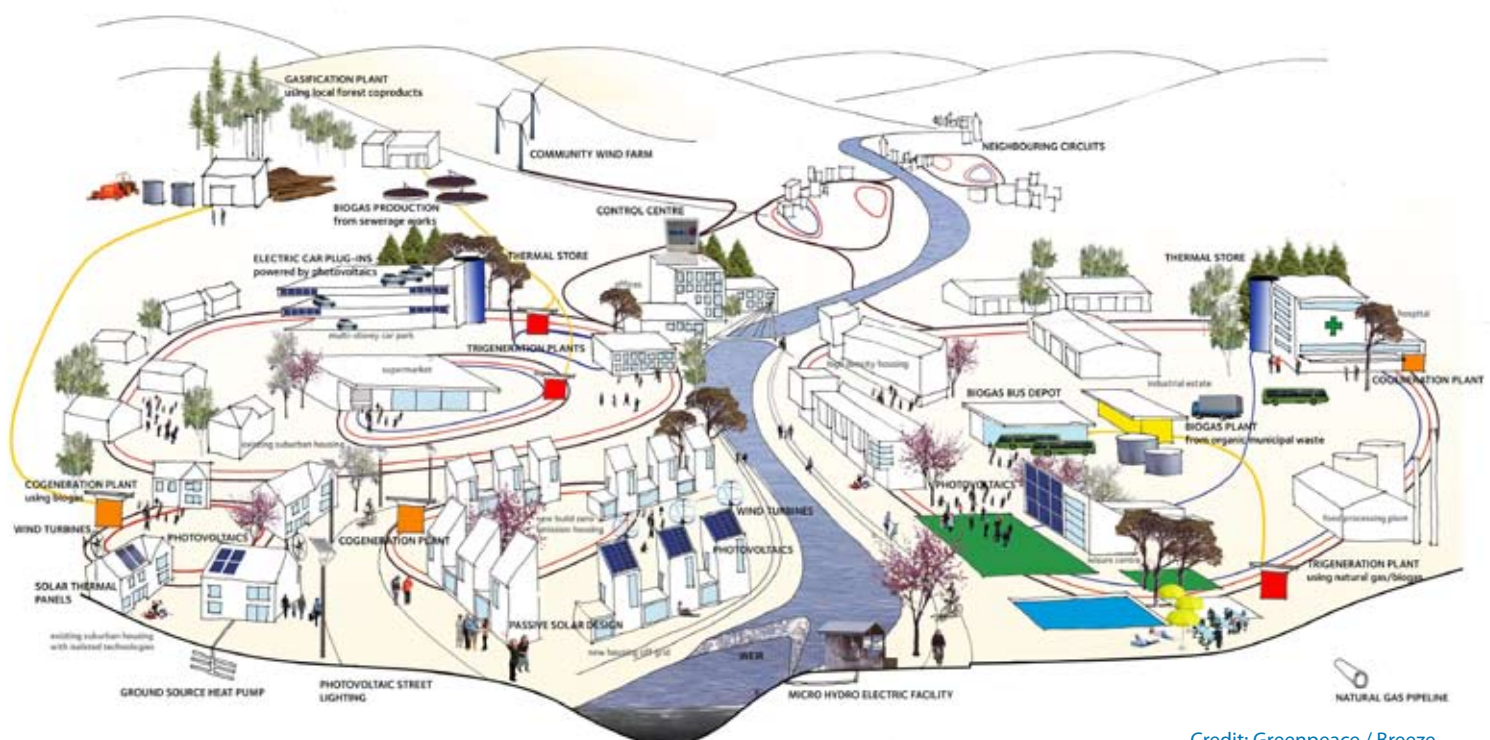
Responding to the threat of climate change will require a fundamental change in how homes across the West Midlands region use energy, facilitated by a vision for low carbon development. Whilst the government has begun to explore this in its 2003 Energy White Paper and this year's Energy Review, the UK still lacks a strategic vision of the kind being promoted by leading European countries such as Germany and Sweden, and by pan-European networks such as SIBART.

The building blocks for a low carbon energy future were explored by the Royal Commission for Environmental Pollution (RCEP) in their influential 22nd report and, more recently, the Tyndall Centre's 'Decarbonising the UK - energy for a climate conscious future' and Oxford University's Climate Change Institute's '40% house' - both of which look at how the national target of 60% CO₂ reductions by 2050 could be achieved

The West Midlands has taken the first steps towards a strategic energy vision with publication of the West Midlands Regional Energy Strategy. However, this now needs to be supported by a strong planning policy framework in the Regional Spatial Strategy (RSS). Furthermore our initial consultation with planners and stakeholders suggests that there still remains a gap between high level policy aims and clarity of direction and purpose at a local level.

At all levels it will be important to engage stakeholders in how this strategic vision can be effectively delivered 'on the ground'. Clearly each local area will be different, with different local priorities, housing vernaculars, economic circumstances, industry specialisms and renewable resources. There will, however, also be key principles of planning, design and engineering (see Sustainable Energy Vision 2050).

Vision of a decentralised energy future



Sustainable energy vision 2050

At a European level there is an emerging vision of the key spatial, design and engineering principles for low carbon communities. Drawing upon best practice we have identified the following key elements of a sustainable energy vision that could deliver on National Government target to reduce CO₂ emissions 60% or more by 2050:

Spatial planning

- Density and form - Housing should be more compact in layout, favouring terraces and apartments, and at a higher density, in order to minimise external wall areas, increase thermal efficiency, make community heating more viable and realise 'bioclimatic' design benefits (see below). Higher densities should be complemented by high quality greenspace provision, with an emphasis on how spaces contribute to green infrastructure networks (see below),
- 'Bioclimatic' design – The layout and massing of homes should respond to the landscape character and microclimate, seeking to moderate conditions and minimise heating and cooling requirements. Homes should be designed to utilise passive solar gain, natural daylighting and natural ventilation. Greenspace and vegetation should also be integrated into the urban environment as part of planned green infrastructure networks in order to moderate the microclimate. These techniques can also contribute positively to climate change adaptation strategies.
- Distributed energy generation – A greater proportion of energy will need to be supplied by the strategic use of a range of smaller, distributed heat and power sources utilising local renewable 'flow' resources and 'carbon neutral' cycles. These will include solar, wind, hydro, wave and tidal electricity-only generation as well as bio fuels for CHP engines and boilers. Technologies will range from community scale wind, bio fuel and tidal generators, to domestic sized solar, hydro and bio fuel generators.
- Community heating networks - Power stations will need to be smaller and located near to towns and cities so that waste heat can be used, requiring the development of community heat distribution networks of the kind already common place in Scandinavia and Germany. Community heating networks will also be required to future proof heating systems, enabling a range of fuels to be used including natural gas, bio fuels and hydrogen.

Detailed design and specification

- Building fabric - Homes will need to be super-insulated with robust detailing and materials selection to ensure high thermal efficiency standards, as promoted by the EU 'Passivhaus' standard. Glazing ratios should maximise passive solar gain, complemented by shading and thermal mass in order to counter overheating and to minimise any future need for comfort cooling. Passive ventilation should be facilitated through the use of passive vents, breathable building materials and dual aspects to allow for cross ventilation. The development of low energy homes should be incentivised through quality assurance and labelling, and by rewarding progressive developers.
- Electricity consumption – Home electricity demand will need to be reduced significantly, with a focus on increasing the market for low energy electrical equipment such as appliances and lighting – incentivised by programmes encouraging of consumers to value and differentiate low carbon homes and goods.
- Micro-generation – Homes will need to be designed in such a way as to integrate renewable micro-generation technologies, including solar thermal collectors and solar photovoltaics. This should include the futureproofing of facades and roofs for the installation of solar technologies.

Engineering principles

- Fuel efficiency - There will need to be a shift from carbon intensive fuels such as coal and oil to less carbon intensive natural gas for heating and power generation. Natural gas should be used as efficiently as possible for power generation - through the use of Combined Heat and Power (CHP) systems – and heating – through specification of efficient boilers.
- Energy storage - A future renewable energy grid will require fuels and energy storage systems to balance supply and demand – creating a strong argument for incorporating thermal storage into community heating networks, and for the development of bio fuel supply chains.

2.1 West Midlands Region

» Baseline emissions and future scenarios

Regional Assemblies are required to take into account the impact of climate change, establishing baseline emissions and scoping future carbon reduction scenarios needed to mitigate the impact, as part of the scoping of Regional Spatial Strategy options.

Under the provision of the Planning & Compulsory Purchase Act 2004, and set against the overall objective of achieving sustainable development – as set out in PPG 1 and the forthcoming climate change supplement to PPS1 - Regional Assemblies are required to take into account the social, economic and environmental impact of climate change.

Baseline emissions figures should be calculated and future carbon reduction scenarios needed to mitigate the impact scoped out as part of the preparation of Regional Spatial Strategy options. The TCPA has developed a simple five step process illustrating how this can inform the preparation of climate change policies (see next section).

This process can form the basis for target setting which should be used to determine the contribution that new and existing housing needs – and associated energy infrastructure - will need to make the link to overall carbon reduction targets.

National targets, as well as the latest scientific guidance – such as the recent recommendations from the Tyndall Centre which suggest the need for annual reductions of least 6%, should be used to inform the selection of these.

Climate change policy preparation

The TCPA and Friends of the Earth have proposed a five stage process for climate change policy preparation:

- Establish robust baseline data on CO₂ emissions
- Detailed analysis of potential impacts of policy options against the baseline
- Monitor and review progress
- Establish CO₂ reduction trajectories and targets based on policy options
- Policy implementation to reduce emissions in line with reduction targets

Regional policy: Regional Spatial Strategy (2004)

2.10 Climate change is recognised as one of the greatest threats facing the world. The major cause of climate change is the production of greenhouse gases, notably CO₂, through the combustion of fossil fuels to make energy for homes, industry, businesses and transport. While it is usually considered primarily an environmental issue with nature conservation implications, recent experiences of flooding have shown how climate change can cause social disruption and, through reducing property prices and raising insurance premiums, affect people economically.

2.11 RPG has a responsibility to help meet national targets for the reduction of greenhouse gases. This will require establishing comprehensive and up to date data in order to enable the local authorities and agencies to develop coordinated and effective solutions.

National Policy: PPS 1

Key principles

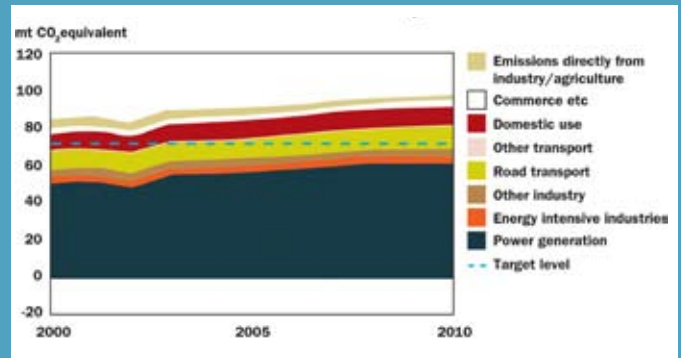
13. Regional planning bodies and local planning authorities should ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change – through policies which reduce energy use, reduce emissions, promote the development of renewable energy resources, and take climate change impacts into account in the location and design of development.

National Policy: Planning and Climate Change
(draft supplement to PPS1)

UK Best Practice Yorkshire & Humber RSS

Work to scope the Yorkshire & Humber RSS has been supported by separate projects by Cambridge Econometrics and UK CIP to establish baseline and project future scenarios for carbon emissions and the impacts of climate change. These have then been used to support the development of a regional Climate Change Action Plan. Cambridge Econometrics developed baseline emissions figures for the region, using a methodology based on energy consumption patterns.

The scenarios has allowed the potential impact of policies on emissions trends to be modelled. In conjunction with this work UK CIP have also produced a comprehensive impact assessment for the region in order to identify and plan for the impacts of climate change.



Credit: Yorkshire and Humber Regional Assembly

Critical success factors

- Establishment of baseline emissions
- Projections of future emissions scenarios

Appraisal of RSS options should also take into account the full range of wider environmental, economic and social benefits that could accrue from carbon reduction. The Regional Energy Strategy provides an evidence base and baseline data that can be used to inform this scoping process, extrapolating carbon reductions out to 2020 – and in order to build a robust climate change planning framework these now need to be reflected in revisions of the RSS.

The Phase 2 and 3 revisions of the RSS create the opportunity to establish baseline emissions and future projections as the basis for low carbon housing and energy policies that seek to achieve emissions reductions in-line with national targets.

West Midlands Regional Energy Strategy

In order to be on course for the 2050 target of a 60% reduction in emissions the Government states in the White Paper that by 2020 emissions need to be 11-18% lower than they would be if no additional efforts to reduce them were made.

There are also UK emission reduction targets for 2010. For the West Midlands this equates to a reduction from the current 41.6 Mt of CO₂ to 38.2 Mt (8%) by 2010 and 33.0 Mt (21%) by 2020.

Key Actions

- Use baseline data to establish regional trajectories for domestic carbon emissions
- Use revision process to integrate Regional Energy Strategy targets into RSS
- Use revision process to integrate complementary low carbon housing and energy policies

2.1 West Midlands Region

» Climate change and sustainable energy policies

The Regional Spatial Strategy has a key role to play in establishing overarching climate change mitigation policies and targets for the region. The RSS should establish the climate change and sustainable energy planning framework for the region, encompassing housing, regeneration, energy generation and economic development.

Government policy, in the draft climate change PPS, requires the setting of carbon reduction targets for new residential and commercial development. While it does not specifically encourage the setting of region-wide targets, these would be legitimate so long as they are implementable through related mechanisms as recommended by this guide.

National government expects local authorities to reflect the RSS's core policies in their LDFs and LDDs. The RSS should also seek to create a spatial planning framework which reflects and supports a sustainable energy vision to deliver carbon reductions. RSS climate change and sustainable energy policies can then be used to frame targets and requirements for new developments, which could include:

- Responding to urban design and bioclimatic design principles,
- Development of low carbon energy strategies,
- Responding to specific CO₂ and kWh/m² performance targets,
- Implementing specific technologies and infrastructure (dependant on scale),
- Specific levels of contribution from renewable or low carbon energy sources.

The practical application of RSS policies should be supported by planning tools and guidance (see 2.1 Planning tools and guidance section).

A number of regions are leading the way in demonstrating how the RSS can be used to translate national carbon reduction targets into a regional planning framework. The South West Region provides a good example of how long term targets can be used to require local authorities to initiate strategic planning for climate change mitigation. This has been complemented by training for local authority planning officers and policy makers.

There is the opportunity to strengthen the West Midlands' RSS's energy policies in order to give LDFs greater scope to impose planning requirements. The West Midlands Regional Energy Strategy establishes a clear framework for action which could be used to strengthen climate change and

sustainable energy policies in the RSS, and this should be integrated into the West Midlands RSS. The Phase 2 and 3 revisions of the RSS create a clear opportunity to update and strengthen these policies, with their respective focus on the spatial planning of new housing and overall climate change policies for the region.

Advantage West Midlands (AWM) has a key role to play in facilitating large-scale opportunities for low carbon development – creating the potential for a strong link through the Regional Economic Strategy (RES). These opportunities

National Policy: PPS 1

Prudent use of natural resources

22. Regional planning authorities and local authorities should promote resource and energy efficient buildings; community heating schemes, the use of combined heat and power, small scale renewable and low carbon energy schemes in developments;

National policy: Planning and Climate Change (draft supplement to PPS1)

Preparing the regional spatial strategy

9. Regional planning bodies should work with all stakeholders in the region and alongside their constituent planning authorities to develop a realistic and responsible approach to addressing climate change. In doing so, they should: – consider how the region's activities contribute to climate change and provide a framework for integrating policies for the development and use of land with other policies and programmes...and in line with applicable national targets, in particular for cutting carbon emissions, and with regional targets on climate change developed through the region's economic strategy and sustainable development framework;

UK Best Practice South West RSS

The Draft South West Regional Spatial Strategy (RSS), produced by the South West Regional Assembly (SWRA), recognises the major role it can play in tackling climate change. Given the current lack of strong national leadership, the South West region has taken this opportunity to push forward a faster pace on the climate change mitigation agenda.

The RSS sets a target for the South West to reduce greenhouse gas emissions at least in line with current national targets - currently 10% by 2010 and 30% by 2026, compared to 1990 levels. To help achieve this the RSS includes policies on sustainable construction and renewable energy generation and sets targets for larger scale commercial and residential developments to generate at least 10% of their energy needs from integrated renewable sources, with the emphasis on reducing CO₂ emissions by following an 'energy hierarchy'.

Notably local authorities will be required to demonstrate in their LDDs how they intend to contribute towards the required 60% cut in CO₂ emissions by 2050. This encourages Local Authorities to plan for the long

term, incorporating renewable energy generation into a holistic carbon reduction strategy including energy efficiency, low-carbon technologies and profitable delivery packages such as ESCOs.

The SWCCIP's Local Authority sector group will provide support and guidance on how the 60% target might be achieved and in partnership with the South West Local Government Association (SWLGA) is running workshops in December '06 to advise Local Authorities on the implications of signing up to the Nottingham Declaration on Climate Change. The RSS Implementation Plan will give further clarity on how all policies can be delivered through LDDs, and the SWRA have commissioned further studies, for example to assess the feasibility of achieving carbon neutral status for all larger scale developments.

Critical success factors

- Targets supported by a range of policy measures
- Requirement for Local Authorities to plan for long range targets
- Support and guidance provided to Local Authorities

would have the benefit of greater economies of scale, in order to bring down the cost of innovation, and the potential to act as exemplars.

AWM is also a statutory consultee for major strategic developments, giving it the ability to directly oversee the implementation of key RSS policies. AWM also has the ability to influence the performance of new developments being brought forward as part of its investment property portfolio (see Section 3.4 Property investment policies).

Key Actions

- Establish medium to long-term targets which Local Authorities must respond to
- Use RSS revisions to strengthen energy policies and encourage stronger LDF policies
- Provide support and guidance for Local Authorities

2.1 West Midlands Region

» Planning tools and guidance

In order for local authorities to implement regional climate change policies and targets set out by the West Midlands RSS a clear set of tools and guidance is needed which can be shape LDF policies and associated Local Development Documents.

The RSS can be used to establish a framework of tools and guidance which can be used to inform LDF policies and associated Local Development Documents. Tools are also required which can facilitate the assessment and monitoring of planning applications. This requires a focus on how policies and targets relate in practice to the development process for housing developments and energy generation projects.

The Greater London Authority is an exemplar for the establishment of a clear strategic planning framework for sustainable energy. The London Plan establishes targets and requirements for new housing developments encompassing carbon reduction, installed renewables capacity and technology deployment.

The Plans strong policies, targets and requirements are supported by a set of linked planning tools that it expects London Boroughs to use when considering planning applications. The London Plan's energy policies are supported by a guidance document targeted at Boroughs which has been published by the London Energy Partnership.

The implementation of RSS climate change and sustainable energy policies by local authorities could be supported by the promotion of a similar set of planning tools and guidance. The Regional Sustainability Checklist creates a potentially useful starting point, particularly if linked to carbon reduction requirements (see below).

The experience from the London Plan is that energy should be established as a separate and distinct planning policy theme, rather than being placed alongside a range of sustainability themes.

Key Actions

- Adopt a clear framework for encouraging low carbon energy strategies
- Create supporting planning tools and mechanisms to facilitate this process
- Encourage adoption by Local Authorities

West Midlands Sustainability Checklist: Sustainable energy theme

The draft regional sustainability checklist consists of questions which are designed to be applicable to different scales of development - based on whether it is small (<10 units), medium (11-999 units) and large (1000-5999 units). It has a strong energy theme which comprises the following key objectives:

- Cooling – Reduce the impact of mechanical ventilation and cooling devices,
- Heat islands – Reduce the urban heat island effect through passive design measures,
- Sustainable energy
 - Increase the overall energy efficiency of development through energy efficient design and management,
 - Promote the use of renewable energy sources
- to reduce dependence on fossil fuels
 - Increase the use of sustainable heating techniques
 - Increase the integration of renewable energy technologies during the design stage
 - Encourage the future use of renewable energy technologies
- Site infrastructure
 - Allow for easy access to site-wide services to allow for future expansion of services
 - Ensure that the masterplan considers the site-wide distribution of on-site produced renewable energy
 - Evolve an energy management scheme and to provide the public with easy access to information

UK Best Practice

The London Plan and Mayor's Energy Strategy

A strong framework of policies to stimulate action have been incorporated into the London Plan. These are intended to be used to determine strategic planning applications referred to the Mayor. They should also be adopted as policies by London Boroughs and entered into Development Plan Documents. These policies include:

Policy 3.25i Large residential developments will offer economies of scale to achieve particularly high environmental standards and very low carbon emissions. Unless there are exceptional circumstances, CHP should always be incorporated.

Policy 4A.15 Tackling climate change

The mayor will and boroughs should in their DPDs require developments to make the fullest possible contribution to the mitigation of and adaptation to climate change and, in particular, to reduce emissions of carbon dioxide. These contributions should most effectively reflect the context of each development - for example, its nature, size, location, accessibility and operation.

Policy 4A.2ii Climate change mitigation

The mayor will work towards the long-term reduction of carbon dioxide emissions by 60 per cent by 2050. The mayor has set the following minimum reduction targets for London against a 1990 base; these will be monitored and kept under review: 15% by 2010, 20% by 2015, 25% by 2020, 30% by 2025.

Policy 4A.7

Energy efficiency and renewable energy

The mayor will and boroughs in their DPDs should require developments to achieve a reduction in carbon dioxide emissions of 20% from onsite renewable energy generation.

Policy 4A.8 Energy assessment

The mayor will and boroughs should require an assessment of the energy demand and carbon dioxide emissions from proposed major developments, which should demonstrate the expected energy and carbon dioxide emission savings from the energy efficiency and renewable energy measures incorporated in the development, including the feasibility of CHP and community heating systems. This assessment should form part of the sustainability statement (Policy 4A.2i).

In addition the Mayor's energy strategy sets out an energy hierarchy and a heating hierarchy to assist developers, and the London Energy Partnership have published a toolkit for planners, developers and consultants which provides supplementary guidance. Training packages have been developed for councillors and officers.

Critical success factors

- Establishment of clear framework for encouraging and requiring low carbon energy strategies
- Creation of supporting planning tools and guidance to facilitate this process

West Midlands 'in-progress'

Regional Sustainability Checklist

Recognising the need for clearer guidance on determining the sustainability of planning applications a checklist tool is being developed by a steering group which includes the Regional Assembly, Advantage West Midlands, Government Office for the West Midlands and local authority stakeholders, facilitated by the BRE and WWF and funded by central government.

It is based on the South of East of England Development Agency's checklist, which has been well received by developers because of its clarity. The checklist is designed to ensure a systematic approach, highlighting key sustainability themes, but does not set targets or requirements – this is the role of local authorities.

The checklist creates the potential to establish a standard approach across the region. It is proposed that the checklist is promoted by the Regional Spatial Strategy, to be incorporated as part of the revision process, and supporting guidance on its use is also to be issued. It is shortly to be piloted with a number of local authorities, including Birmingham – who have expressed an interest in using it as a tool to screen planning applications.

Building blocks for future success?

- Highlight the potential benefit of ensuring consistency across the region
- Local Authorities set targets and requirements which can be monitored using the checklist

2.2 Counties and Urban Areas

>> Climate change policy framework

In this section we explore the strategic role of rural counties and city-regional groups in developing climate change mitigation and sustainable energy strategies which can support Districts, Boroughs and Unitaries, with a focus on two key elements:

- Climate change policy frameworks
- Renewable resource assessments

These elements are intended to complement the planning and enabling mechanisms described elsewhere in this guide.

In order to create an overarching framework for action, a key objective should be for sub-regions – including counties and city-regions – to adopt a policy on climate change action at the highest level. This should recognise the need for action and provide political leadership – for example by bringing together Council Leaders and signing up authorities to the Nottingham Declaration on Climate Change – setting out headline targets and a vision and strategy for local action on climate change. The Energy Saving Trust have made available an online action pack for those wishing to sign-up.

Policies and commitments can then be used to create a context for action at a number of different levels:

- Political – Making a strong political commitment in order to demonstrate leadership and re-inforce the need for action across counties and sub-regions, and at a local level across communities,
- Corporate – Establishing a corporate commitment to carbon reduction across a councils buildings, housing and property investments. This could include performance targets, agreements with private sector partners, and wider strategic projects to develop supply chains;
- Community – Engaging with stakeholders in order to increase acceptance of the need for action, generate projects and to embed climate change action through Local Strategic Partnerships and Community Strategies.

Regional policy: Regional Spatial Strategy

2.14 The challenge for local authorities is to generate corporate responses, through their services and activities, to potential climate change, working with the community and businesses to raise awareness about mitigation and adaptation.

UK Best Practice Strategic energy framework, Nottinghamshire County Council

Nottinghamshire has developed a clear strategic framework for sustainable energy covering both the Council's own emissions and those of the community. In addition to developing an energy strategy for the Council itself, Nottinghamshire has integrated sustainable energy into the Corporate and Community Plan and ensured it is a consideration in strategic management decisions within the Authority.

Carbon management is also built into other Council strategies and plans and into the Public Service Agreement (PSA). Policies promoting sustainable energy consumption and CO₂ emission reductions are included in the Joint Structure Plan.

Critical success factors:

- Integration into corporate and community strategies
- Key consideration in strategic planning decisions

West Midlands 'in-progress'

City Region carbon neutrality vision

Metropolitan Local Authority leaders and Chief Executives have commissioned a study looking at how the emerging City Regional Development Plan could provide a framework for climate change mitigation and the achievement of 'carbon neutrality' - 'city-region which does not cause any net addition to climate change - causing emissions'. The study suggests a range of measures that could be implemented to contribute towards this vision. The study recommends that the city-region should be seeking to aspire to a minimum of 2% annual reductions in carbon emissions.

Building blocks for future success?

- Highlight the role of planning policies in supporting action
- Identify measures required to achieve reduction targets, and associated planning policies



Credit: West Midlands Regional Assembly

Counties and city-regional groupings have the potential to bring together partnerships to take forward county climate change strategies, and provide guidance to districts;

- Planning – Highlighting the need to a strong planning framework at a district level in order to secure carbon reductions from housing and associated energy infrastructure, as well as through wider green infrastructure plans that can support climate change adaptation aims. County Councils have the potential to play a strategic role, including the provision of guidance to Districts and Boroughs;

In addition to an overall focus on the carbon management and the need for carbon reductions, the policy should also seek to align with national and regional energy policy themes – including energy security and affordable warmth – which can also be used as drivers for action.

Planning at the city or sub-regional level can also enable the development of green infrastructure strategies that can contribute to both climate change mitigation and adaptation aims – as demonstrated by the Berlin city-region (see case study below).

Green infrastructure, as described by the TCPA in its 'Biodiversity by design' guide, has a key role to play in moderating the urban microclimate – providing cooling and fresh air in summer and reducing exposure and heat loss in winter.

Strong climate change policies and strategies have been adopted in the region by Herefordshire Council, Stoke City Council, Shropshire County Council and Worcestershire County Council. A draft strategy for Birmingham is currently being consulted on, having been developed by the Local Strategic Partnership.

Leading local authorities in the region, as well as the Regional Assembly, have signed up to the Nottingham Declaration. At a city-regional level a number of metropolitan authorities are also considering the potential to sign-up to a vision of carbon neutrality (see previous page).

Key Actions

- Local Authorities should make a high level commitment to action on climate change
- This should be accompanied by targets and a strategy and vision for action
- Adopt a carbon management approach, using it to deliver wider benefits

EU Best Practice

City 'green infrastructure' to mitigate climate change, Berlin (Germany)

Introduced in 1994, the 'Biotope Area Factor' strategy aims to retain densities whilst developing the city's green infrastructure. The strategy is designed to contribute to the city's energy and climate change strategies. It focusses on realising the potential for greenspace and vegetation to moderate the microclimate and reduce energy use. The strategy divides the city into character areas:

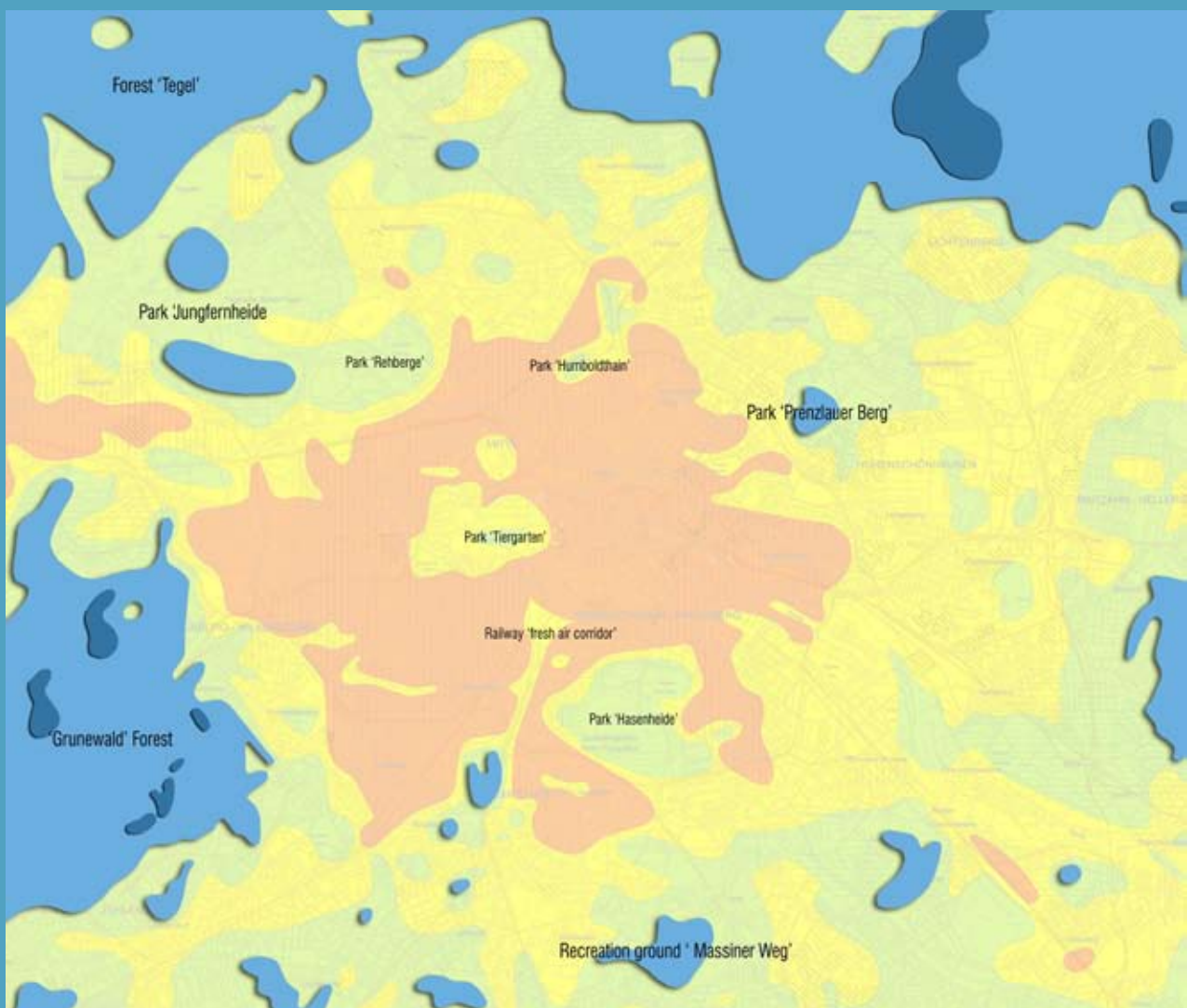
- Central city (intense use and dense population): Maintain densities whilst increasing the area of greenspace, including a reduction in sealed and hard surfaces through the promotion of pocket parks, courtyard greening and green roofs.
- Transition areas (mixed uses including residential, industry and infrastructure): providing natural greenspace that can serve a wider area, with the prioritisation of linkages between these spaces.

- Landscape elements (periphery of the urban area): Larger areas of greenspace should extend 'fingers' into the urban area, for example, along transport corridors or waterways.

The different climate zones within the city have also been mapped, illustrating variations in air temperature, humidity and soil moisture. The strategy – which has been co-ordinated by city planners – has enabled a city-wide perspective to be taken, enabling identification of how changes in the green-space network could influence the microclimate.

Critical success factors

- Strategic approach to the mapping and planning of new and existing green infrastructure
- Making the link between energy strategy and biodiversity and greenspace strategies



2.2 Counties and Urban Areas

» Renewable resource assessment

Counties and Metropolitan Authorities from Major Urban Areas should co-ordinate the strategic development of renewable resources in each area, exploring beneficial relationships with homes and communities, as well as providing guidance to Districts and Boroughs on the planning policies that may be required to facilitate development.

As part of the process of working towards meeting the national target of 10% of electricity from renewable sources by 2010 regional assessments of renewable resources and potential capacity have been carried out by Halcrow acting for Government Office West Midlands. These targets are broken down into County and District contributions, serving to focus attention on the strategic development of renewable resources in each area, and the planning policies that may be required to facilitate this.

A weakness of the regional assessment process is that it currently only focuses on electricity generation, and tends to discount the potential for the local application of technologies such as biomass heating and the large-scale domestic deployment of micro-generation technologies such as solar thermal.

The West Midlands Energy Strategy is notable in addressing these weaknesses – responding with targets which have been revised by the Energy Strategy’s working group to include heat from renewable sources, which could include biomass and solar thermal.

Regional policy: Regional Spatial Strategy

8.49 The Region should aim to contribute as far as possible towards the achievement of the national energy target – 10% of electricity produced from renewable energy by 2010, with an aspiration to double renewables’ share of electricity between 2010 and 2020.

8.51 Technical studies have indicated substantial Regional potential for renewable energy generation over the coming decades from biomass, solar, waste and wind sources. Together these could provide in excess of 15% of Regional needs. Other types of development, for example small water turbines, could also contribute to local energy supply.

These assessments should be used as a starting point for strategic planning to make use of the available renewable resources. As highlighted there is the potential to broaden the approach to encompass heat as well as power generation, with the potential for capacity assessments to be re-enforced by planning guidance commissioned by individual Districts or jointly by Districts at a County level.

There is also the potential for engagement with communities and the private sector in order to identify further potential capacity that can be missed by top-down regional assessments – as demonstrated by North Yorkshire County Council (see below). This could include potential of providing infrastructure for new housing – for example, biofuelled community heating – and the building integration of micro-generation technologies – for example, solar photovoltaics and thermal collectors.

Key Actions

- Break regional targets down into county and district targets
- Broaden the approach to include renewable heat
- Engage with communities to identify potential capacity

UK Best Practice

County and district renewables targets, North Yorkshire County Council

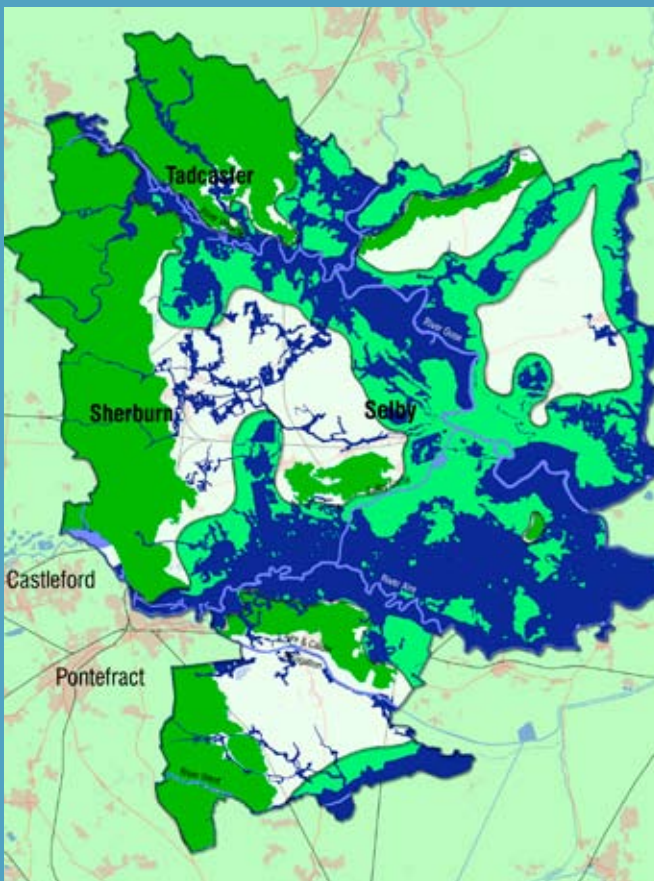
Targets for North Yorkshire's contribution towards the national 10% renewable electricity generation quota have been developed in conjunction with AEA Technology acting for the Government Office for Yorkshire and Humber.

The county's contribution has been further broken down into district allocations that have been consulted on with each district council. These take into account agreed environmental constraints and a pragmatic view of the potential for investment – though notably they do not include renewable heat opportunities.

The district allocations have been followed up with a piece of work jointly funded by the districts to develop adoptable Supplementary Planning Guidance to assist in developing the planning framework for implementation of the targets. A number of districts, including Selby, have initiated stakeholder-led projects to champion renewable energy projects.

Critical success factors

- Targets followed up by joint working by Districts
- Development of related guidance to assist planners



Biomass energy crop opportunity areas



Biomass heat network for new mixed use community

2.3 Local Development Frameworks

» Baseline emissions and future scenarios

In this section we explore how a best practice planning framework could be developed for Local Development Frameworks, with a focus on three key elements:

- Baseline emissions and future scenarios
- Community engagement
- Core Strategies and Development Plan Documents

These elements fit together to provide a comprehensive LDF planning framework to achieve low carbon housing development. This section is complemented by Sections 2.4 and 2.5 which explore the planning framework for Areas of change (including Area Action Plans) and development sites (including Supplementary Planning Documents).

Under the provision of the Planning & Compulsory Purchase Act 2004, and set against the overall objective of achieving sustainable development – as set out in PPG 1 and the forthcoming climate change supplement to PPS1 – Local Authorities are required to take into account the impact of climate change, to determine baseline emissions and scope out future emissions reductions, as part of the preparation of Local Development Framework options. The TCPA has developed a simple five step process illustrating how this can inform the preparation of climate change policies (see Section 2.1 Baseline emissions and future scenarios).

The process of establishing baseline emissions and scoping future emissions scenarios can form the basis for targets which should be embedded within LDF Core Strategies. This should be used to determine the contribution that new and existing housing needs to make to overall carbon reduction targets, with the potential to make links with HECA programmes and baseline housing stock profiles.

A good example is Shropshire's Climate Change Strategy that projects 'community' emissions scenarios. Appraisal of LDF options should also take into account the full range of wider environmental, economic and social benefits that could accrue from carbon reduction.

The scoping of emissions reduction scenarios should be used to identify the mix of measures that may be required and this should then be used to inform planning policies in support of specific performance targets and technologies, feeding into Area Action Plans, Supplementary Planning Documents and Development Briefs.

With the transition to LDF's there will be opportunities across the region to adopt this approach – as demonstrated by Herefordshire Council. The Council is currently in the early stages of scoping its policy options, the Sustainability Appraisal for which will establish an evidence base to set the planning framework for the Edgar Street Grid.

Climate change policy preparation

The TCPA and Friends of the Earth have proposed a five stage process for climate change policy preparation:

- Establish robust baseline data on CO₂ emissions
- Detailed analysis of potential impacts of policy options against the baseline
- Monitor and review progress
- Establish CO₂ reduction trajectories and targets based on policy options
- Policy implementation to reduce emissions in line with reduction targets

Key Actions

- Use baseline data to establish targets and trajectories for domestic carbon reduction
- Develop scenarios that can be used to identify the mix measures required
- Use scenarios to inform specific planning policies, as well as AAP's and SPD's

West Midlands 'in-progress'

Herefordshire LDF and Edgar Street Grid

The Edgar Street Grid is a major 10-15 year project to regenerate 100 hectares of the centre of Hereford. The local authority owns much of the land, including the livestock market, and Advantage West Midlands is assisting in the acquisition of further sites.

A new company has been established to manage the process which will focus on four character areas. The local authority has recently had its UDP approved and this will form the planning framework for Edgar Street for the time being.

However, work has begun to scope a replacement LDF and it is intended that an SPD will be produced for

Edgar Street. There is a proposal that the scheme should seek to be carbon neutral, however it is felt by the planning team that better information is needed to prove the economic viability of such a target.

Building blocks for future success?

- Use LDF options scoping as basis for target setting
- SPD will need to be supported by LDF energy policies
- Scoping of the mix of measures to deliver carbon reductions



Credit: ESG Herefordshire

2.3 Local Development Frameworks

» Community engagement

Community engagement – encompassing households, businesses, the third sector and the public sector - should therefore form a fundamental part of the process of developing climate change strategies – particularly at a local level. It should also be used as the starting point for developing complex projects which may require multiple stakeholders.

The evidence from European countries that have made the most progress developing sustainable housing – such as Germany and Denmark – is that engagement with local communities is crucial in building acceptance of the need for action on climate change.

Community engagement – encompassing Local Strategic Partnerships, households, businesses, the third sector and the public sector - should therefore form a fundamental part of the process of developing climate change strategies, planning frameworks, site development briefs and masterplans. There is also evidence that community ownership and direct involvement in project delivery can also play a complementary role (see Section 3.7 Enabling Mechanisms).

The need for a 'Statement of community involvement' when seeking to adopt new planning policies and guidance should be used to bring people into the process. The long-term aspiration should, however, be to engage communities in

National Policy: Planning Policy Statement 1

41. Local communities should be given the opportunity to participate fully in the process for drawing up specific plans or policies and to be consulted on proposals for development.

Local authorities, through their community strategies and local development documents, and town and parish councils, through parish plans, should play a key role in developing full and active community involvement in their areas.

UK Best Practice Cornwall Community Strategy

Cornwall County Council and the other 7 local authorities in the county are active members of the Cornwall Sustainable Energy Partnership which is a consortium of over 80 organisations from the public, private, education and health sectors.

The Partnership has four main task groups working on initiatives in the public, health, domestic, business, renewable energy and education sectors. In 2004 Cornwall launched the first community-wide energy strategy in the UK entitled 'Action Today for Energy Tomorrow – The Energy strategy for Cornwall'.

The strategy has been signed by 72 strategic partners (including Cornwall County Council and all of Cornwall's District/Borough Councils) that have agreed to work in partnership to deliver 32 key actions across the public, private, health and education sectors.

Critical success factors

- Engagement focussed on themed task groups
- Signup of strategic partners to energy strategy

process of delivery. Community strategies developed by Local Strategic Partnerships – and associated new Local Area Agreements – have an important role to play in galvanising support for local action on climate change, bringing together the public, private, social enterprise and voluntary sectors. This can deliver a range of benefits with joint working to develop and deliver: (see overleaf)

- County or district wide climate change strategies – such as the draft strategy currently being developed by the Birmingham Partnership,
- Fuel poverty and energy efficiency programmes – such as Wolverhampton's affordable warmth strategy,
- Community renewables and 'decarbonisation' projects – such as Bishops Castle in Shropshire (see below) and MESH (Making Energy Sustainable in Herefordshire),

Cornwall's Sustainable Energy Partnership provides an exemplar of how a community-wide energy strategy can drive initiatives, for which the County Council has received a Beacon Award.

Key Actions

- Community engagement as a fundamental part of climate change strategies
- Use community strategies to galvanise support for local action
- Complementary role for community ownership of projects

West Midlands 'in-progress' Bishops Castle to active decarbonisation, South Shropshire

Bishops Castle is a small village in South Shropshire with a distinctive heritage and identity. The community has initiated a long-term project to reduce its carbon emissions 85% by 2050. An initial feasibility study has been carried out which identified that the village has higher than average per capita emissions due to it having a high proportion of older housing stock and being off the mains gas network. The BC 2AD project envisages a combination of energy efficiency and renewable energy, including a range of biofuels.

Building blocks for future success?

- Identification of specific mix of measures
- Enabling mechanisms to support implementation



Credit: Marches Energy Agency

2.3 Local Development Frameworks

» Core Strategies and Development Plan Documents

LDF Core Strategies and Development Documents can be used to create the policy framework for sustainable energy and climate change mitigation. They form the starting point for establishing specific requirements for housing developers.

Strong climate change and sustainable energy policies need to be incorporated into LDF core strategies and associated Development Documents if local authorities are to establish specific requirements from housing developers, including:

- Low carbon energy strategies,
- Energy use or carbon emission performance targets,
- Implementation of technologies and infrastructure,
- Specific levels of contribution from renewable or low carbon energy sources.
- Connection to community heating networks

Policies can also be used to establish spatial energy planning frameworks, which could include the density and layout of new developments, and a strategic approach to the development of community heating networks.

Regional policy: Regional Spatial Strategy

2.15 Development plans and the plans, strategies and programmes of local authorities and statutory agencies should be co-ordinated to ensure that all new developments and activities which contribute to greenhouse gas emissions are identified. The impacts should be considered and where possible action taken to avoid, reduce, or offset them.

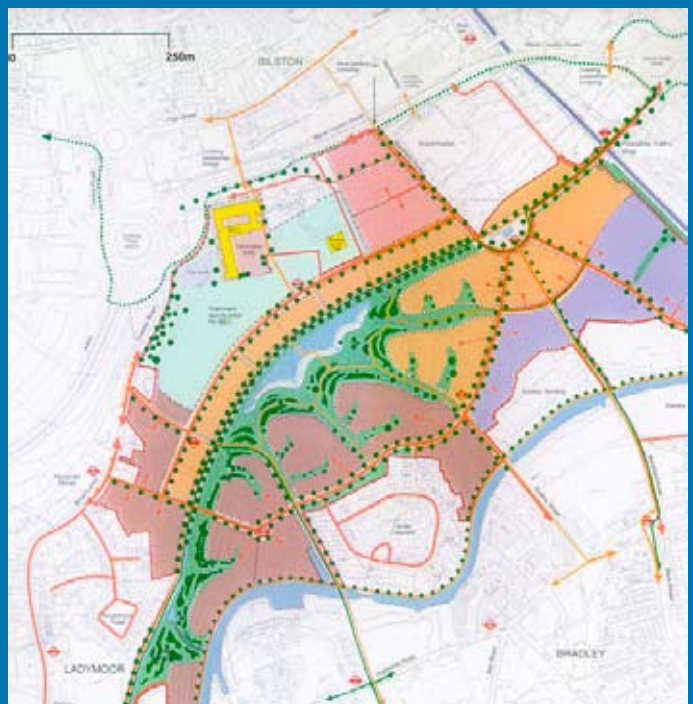
West Midlands 'in-progress' Bilston Urban Village, Wolverhampton

Bilston Urban Village is proposed for a 38 hectare brownfield site in Wolverhampton. The land is jointly owned by the council and Advantage West Midlands. The urban village has been masterplanned by Andrew Wright Associates and this has formed the basis for an outline planning application.

A more detailed energy strategy is being taken forward as part of the detailed design brief for the early phases – to include public sector buildings, a leisure centre and around 1,000 new homes. Energy and carbon targets will be established as plots are brought forward, with detailed studies carried out to investigate carbon reduction options.

Building blocks for future success?

- Develop low carbon energy strategy to deliver a specific reduction target
- Scope the mix of measures required to deliver the target at site-wide and plot scale



Credit: Advantage West Midlands / Wolverhampton City Council

UK Best Practice

40% carbon reduction requirement, Woking Borough Council

Woking's new LDF core strategy energy policy requires a 40% reduction in carbon emissions (compared to building regs) on all development to be achieved by a mix of energy efficiency, renewables and CHP (the mix to be determined by the developer), carbon neutral development on greenfield sites and 25% reductions through energy efficiency on household extensions.

To promote good practice they have produced a 'Climate Neutral Development Guide'. It is advisory and aims to raise awareness among developers of the opportunities for working towards climate neutrality. The Guidance is made up of 5 target areas, including site layout and building design, a summary leaflet and checklist for completion with planning application.

There is widespread acceptance amongst developers that this type of policy is here to stay but almost always they overlook the need to achieve high energy efficiency. In order to address this lack of knowledge, the Councils' strategy for implementation has been based on educating all the stakeholders – developers, councillors and planning officers – through workshops and seminars looking at 'live' case studies.



Credit: Sean Rendall, Woking Borough Council

Critical success factors

- Clear framework based on carbon reduction with guidance highlighting target areas to focus on
- Focus on the full range of measures that contribute to emissions reductions

Policies should be described in more detail in associated Local Development Documents – including Development Plan Documents, Supplementary Planning Documents, or Area Action Plans. A dedicated sustainable energy Development Plan Document can be used to set out the planning framework in greater detail – providing planning officers with the powers to implement policies through requirements.

Given the need for progress during the move from UDPs to LDFs local authorities may wish to adopt an interim position, with policies agreed at a member and committee level. National and regional policy statements provide a strong basis for this and local authorities across the region are exploring the potential to adopt a range of requirements including:

- A fixed percentage of on-site renewables,
- Carbon reductions from on-site renewables,
- A minimum Code for Sustainable Homes score,
- A minimum regional sustainability checklist score.

There is also significant potential to create a planning framework for community heating, re-inforcing energy strategies for Area Action Plans that might apply to regeneration areas such as Eastside in Birmingham or Swanswell in Coventry.

It is important that the contribution made by each policy is considered as part of an overall framework and vision. A good example of this approach is Woking Borough Council which has established a policy requiring 40% carbon reductions for new schemes, stimulating developers to develop low carbon energy strategies (see case study). There is the potential to demonstrate this approach on flagship urban masterplans in the region such as Bilston Urban Village.

The energy themes of assessment tools such as the Regional Checklist, Ecohomes and the new Code for Sustainable Homes can be used to complement policy requirements, and to provide developers with tools to respond to targets (see Section 2.5 Development sites).

Key Actions

- LDF Core Strategies as starting point for requiring carbon reductions
- Use this as basis for establishing an overall sustainable energy planning policy framework
- Support a mix of measures, with an overall focus on the need for low carbon energy strategies
- Core Strategy to be supported by an energy DPD

2.4 Areas of Change

>> Area Action Plans

In this Chapter we explore how a best practice planning framework could be developed to influence areas of change, with a focus on three key elements:

- Area Action Plans
- Community heating infrastructure
- Renewable energy generation projects

These elements fit together to provide a comprehensive planning framework for development briefs and outline planning applications in order to achieve low carbon housing development.

Area Action Plans (AAPs) are intended to define the parameters for development in a specific areas of change. They are also likely to form the brief for the development of masterplans. They have the potential to be used to establish site-specific targets and requirements for sustainable energy strategies that may be more ambitious than those set out in Core Strategies of DPDs, as well as responding to the specific opportunities of a site or location.

Traditionally, action on climate change has been split into mitigation (reducing greenhouse gas emissions) and adapt-

ing to the impacts. The focus until recently has to a large extent been on reducing emissions (mitigation). Better understanding of climate systems however is bringing about a shift in emphasis. While there are many opportunities for win:win policy - and decision-making, planners will need to be aware of potential conflicts between action on mitigation and adaptation. For example, higher densities and infill development may reduce the energy demand of a development, but it may contribute to the 'urban heat island'. Good design and careful consideration of what policies mean in practice will be important if such conflicts are to be avoided.

EU Best Practice Solar housing leads regeneration, Gelsenkirchen (Germany)

With the loss of its heavy industry the town of Gelsenkirchen in the Ruhr Valley has championed solar energy to transform its image. The wider region aims to build 50 solar housing estates. A science park focussing on the growth potential of renewable energy has been established on an old colliery site in the town, and it is now dubbed the 'solar capital of Germany'.

In order to demonstrate their commitment 72 solar houses have been constructed as part of the first phase of the redevelopment of a former colliery site. The houses incorporate solar electric and solar thermal panels. They are also highly energy efficiency, being designed to exceed current Building Regulations.

Critical success factors

- Development of distinctive new house types integrating efficiency and renewables
- Harnessing renewables to transform the image of the area



Credit: Gelsenkirchen-Bismark project, North Rhine-Westfalia State

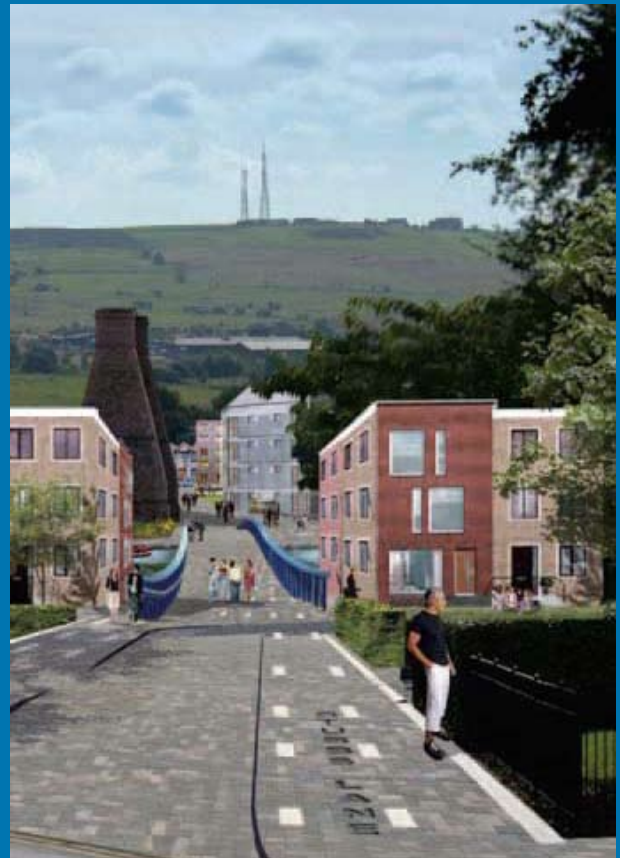
West Midlands 'in-progress' City Waterside, Stoke-on-Trent

City Waterside is a masterplan for a 50 hectare area of Stoke alongside the Caldon Canal, to comprise a mix of public and private housing. The scheme forms part of RENEW North Staffordshire's 'City Centre South' (area of major intervention) Housing Market Renewal area. It is being developed in conjunction with a range of partners including English Partnerships, who are taking a leading role, and lead developer Countryside Properties.

RENEW are seeking to establish Ecohomes 'very good' as a performance benchmark, with 'Excellent' for flagship schemes wherever viable. Part of the scheme has recently been accepted onto the shortlist for the European 9, a design competition and forum whose theme is 'European urbanity, the sustainable city and new public spaces'.

Building blocks for future success?

- Scoping of sustainable energy strategy for masterplan
- Establish clear focus on energy and carbon reduction with potential for targets to be set



Credit: Renew North Staffordshire / English Partnerships

The spatial planning framework established by an AAP can therefore be used to focus attention on the relationship between density, layout and microclimate – both in terms of thermal efficiency, ventilation strategies and daylighting, but also in terms of adaptation strategies – as well as communal energy infrastructure (see Section 2.4 Community heating infrastructure).

Building more compact urban housing forms such as terraces or blocks inherently reduces carbon emissions because of a reduction in heat loss walls. The proportion of green spaces in an urban area can also have a significant impact on urban microclimate – as recognised by the climate change adaptation project for Bilston Urban Village in Wolverhampton (see case study, Section 2.2 Core Strategies and Development Plan Documents).

AAPs may also be worked up in conjunction with strategic partners and landowners, and can be used to inform design and development briefs for RSLs and the private sector. Public sector bodies that own land – including Local authorities, regeneration agencies and Advantage West Midlands – will be in stronger position to impose requirements on potential purchasers or strategic development partners (see Sections 3.2 and 3.4 Enabling Mechanisms).

In the regional context sustainable housing has the potential to contribute to transformation of the housing market, presenting a new image for declining areas – as demonstrated by Gelsenkirchen in the Ruhr industrial area of Germany.

There are a range of emerging masterplans identified by this guide that have the potential to form the basis for AAPs with a strong requirement for sustainable energy strategies. These include Bilston Urban Village (Wolverhampton), City Waterside (Stoke on Trent), Eastside (Birmingham), Edgar Street Grid (Herefordshire) and the Swanswell Initiative (Coventry).

Key Actions

- Establish ambitious site-specific targets and requirements
- Spatial planning to address density, layout, microclimate and infrastructure
- Work with strategic partners to enable carbon reductions
- Harness the potential to transform the housing market in renewal areas

2.4 Areas of Change

» Community heating infrastructure

CHP with community heating is a cost effective way of delivering significant reductions in carbon emissions for large mixed use schemes – with the potential to reduce emissions by between 30% and 40%. However, implementing CHP requires strategic heat planning in order to facilitate the development of heat networks as utility infrastructure.

To date CHP and community heating have been slow to develop in the UK. This has largely been the result of cheap natural gas supplies and a focus on individual consumer choice. However rising gas prices, concerns of security of supply and the need for action on climate change are focussing attention on how it could be developed.

At a national and regional level targets have been set for CHP capacity, which feed into the national climate change strategy, and it is promoted as a key strand throughout PPS guidance on energy, climate change, housing and sustainable development.

Implementing CHP requires a focus on the development of community heating networks, with the need to maximise heat densities and link together a mix of uses in order to create a balanced heat demand profile. As a minimum developers should be required to install communal heating systems

in order that they can be connected to community heating network in the future – as demonstrated by Park Central in Birmingham (see below). However, a longer-term approach will be required to develop community-wide heating networks of sufficient scale to maximise the potential benefits – with community heating treated as essential utility infrastructure. Local authorities should therefore seek to develop

Regional Energy Strategy

2010 targets:

Combined Heat and Power 1,000 MWe

Heat from renewable sources

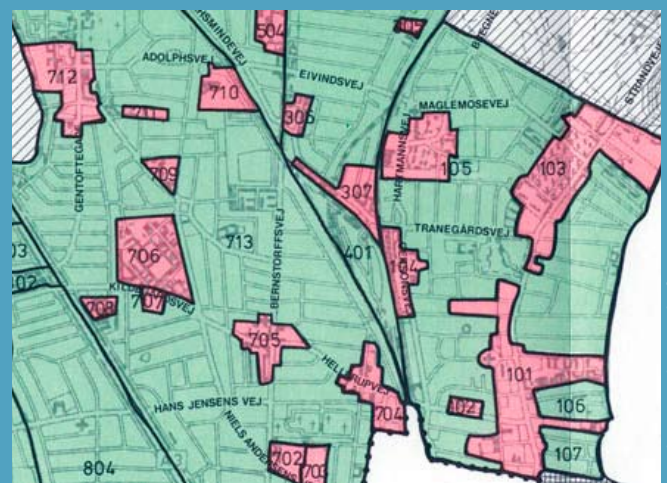
- 250 GWh (0.3% of consumption) by 2010

- 650 GWh (1% of consumption) by 2020

EU Best Practice Community heat planning, Denmark

In Denmark district (or 'community') heating accounts for over 50% of space heating. This level of market penetration has been achieved over 20 years almost entirely on a retrofit basis. District Heating has had the advantage of allowing cheaper, lower grade fuels than oil (including municipal waste) to be used. As a result Denmark is more resilient to fuel price fluctuations and has greater energy security.

The 1979 Heat Supply Act was instrumental in stimulating major investment in heating networks. Local Authorities were required to prepare strategic heating plans. They were given planning powers to make consumers connect to new networks, starting with the highest density heat loads, and enabling powers to establish new locally controlled heating companies (similar to ESCo's). Compulsory connections were balanced by a requirement for consumer control, a not-for-profit ethos and price transparency.



Critical success factors

- Preparation of strategic heating plans
- Planning powers used to require consumer connections
- Local Authorities facilitate establishment of ESCo's

West Midlands Good Practice

Park Central Zone 1, Birmingham

Park Central forms the first phased of the wider Atwood Green regeneration. It is a new-build project being carried out by Crest Nicholson and Optima Housing Association. Proposed in nine zones and business quarters the scheme will eventually deliver around 1,800 new homes.

The first phase comprises a mix of flats, townhouses and mews. The scheme has been designed so that the flats in each phase are supplied with heating from communal gas boilers. This has been driven by the new Building Regulations which make it difficult to comply using the cheapest option - electric heating. Once later phases are completed it is proposed that a Combined Heat and Power (CHP) plant will be installed to supply heat to whole scheme.

Building blocks for future success?

- Requirement to link phases and install CHP once scheme has been completed
- Potential to enable CHP through Birmingham EScO partnership



Credit: CABE / Building for Life

National Policy: Planning Policy Statement 11

Regional planning guidance (RPG) should also encourage development plans and other regional partners in their investment programmes to promote more local energy-efficient development through such measures as CHP and community heating schemes.

These need to be considered at the earliest stage of development because of the infrastructure required. CHP along with a community heating scheme can offer optimum energy efficiency and contribute towards urban regeneration and a sustainable environment.

CHP/community heating schemes are particularly relevant to assisting an urban renaissance since they work most efficiently when they are supplying a mix of nearby residential and commercial buildings, particularly in high density city areas, because of the diverse heating and power requirements throughout the day.

strategic heating plans for urban areas, to form part of a Development Plan Documents or Area Action Plans.

In order to secure the investment required Local Authorities will need to use their planning powers to ensure that consumers connect to heating networks. Experience from London, Southampton and Leicester demonstrates that developers can be required to either incorporate CHP/community heating on a site specific basis or connect to existing community heating networks.

Given the notes of caution in PPS22 and the draft supplement to PPS1 on climate change on the cost and viability of planning requirements, a local authorities position can be strengthened if there is an EScO partner to invest in the infrastructure, reducing the capital costs incurred by developers (see Section 3.6 Energy Service Companies).

Key Actions

- Community heating network developed through a planned approach
- Requirement for new housing to be futureproofed with communal heating systems
- Use of planning powers to facilitate investment by EScO's

2.4 Areas of Change

» Renewable energy generation projects

Renewable energy generation projects are now supported by strategic policies contained in PPS 22, the draft supplement to PPS1 on climate change and by regional renewables targets established to meet the government's targets for electricity generation. Policies and strategies should plan for the supply of renewable heat and power to new and existing communities.

National and regional guidance has moved towards a more strategic 'criteria-based' approach that strongly favours approval unless a project would have unacceptable adverse impacts when weighed against the wider strategic benefits of a proposal:

"Planning authorities...should: avoid policies that set stringent requirements for minimising impact on landscape and townscape if these effectively preclude the supply of certain types of renewable energy, and therefore other than in the most exceptional circumstances such as within nationally recognised designations¹⁶, avoid such restrictive policies;"
(paragraph 22, draft supplement to PPS1 on climate change)

A spatial approach should also be taken to harnessing local renewable resources, and the appropriate siting of renewable power generation. This could include: (see overleaf)

Regional Energy Strategy

The national target is 10% of electricity supplied to come from renewable sources by 2010 and 15% by 2015. Having considered the resources of the West Midlands the Energy Strategy recommends:

- Renewable generation equivalent to 5% of electricity consumption by 2010 and 10% by 2020. The 2010 target is equivalent to: up to 75 MW of landfill gas fuelled generators, 100 1.5 MW wind turbines and 27 1MW biomass/biogas powered generators.
- Heat from renewable sources providing 250 GWh (0.3% of consumption) by 2010 and 650 GWh (1% of consumption) by 2020.

UK 'in-progress' Northstowe, South Cambridgeshire

The creation of the new town of Northstowe with 8-10,000 homes is being promoted by the Government as an opportunity to put the principles of sustainable communities into action. South Cambridgeshire District Council and English Partnerships, who own a controlling interest in the land, are committed to making Northstowe 'a benchmark for sustainable development'.

The Northstowe Sustainable Energy Partnership has developed an integrated energy strategy, which includes the development of a cluster of 2-3 large MW wind turbines in farmland near the new town, with the potential for community ownership. Significant revenue could be generated by the wind cluster and it is proposed that over time it could cross subsidise energy efficiency measures - supported by an initial capital contribution from developers and/or developing it as a standalone community-owned project.



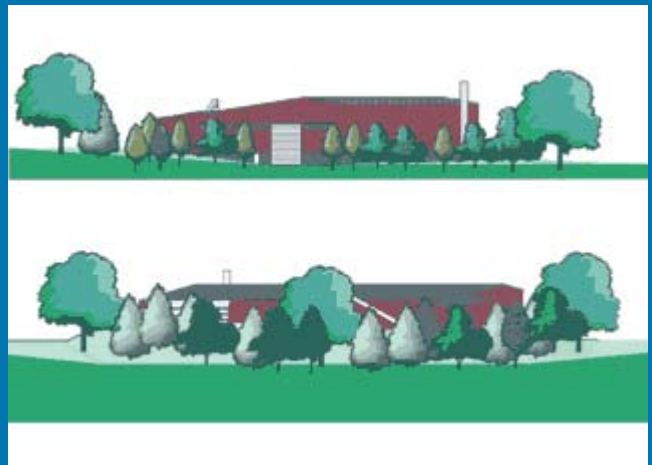
Credit: Gallagher Estates

West Midlands 'in-progress'

Eccleshall Biomass plant, Staffordshire

The Eccleshall biomass project is a £6.5m project to develop a 2 MWe generator fuelled by elephant grass (*Miscanthus*) grown by a co-operative of 170 local farmers across Staffordshire and Shropshire.

The project is being developed by Stafford based engineering firm Talbotts with the support of Advantage West Midlands and will be located on the Raleigh Hall Industrial Estate. The project will generate enough renewable electricity for 2,000 homes, but at present there are no proposals to make use of the 2-3 MWth of waste heat.



Credit: Talbott's / Eccleshall Biomass

- Biofuel and energy from waste plants - Larger electricity generation projects which produce waste heat – such as the Eccleshall biomass generator (Staffordshire), the Ludlow biodigester (South Shropshire), and energy from waste plants such as Tyseley (Birmingham) – should be co-located and developed in such a way that waste heat can be used to supply community heating. Proposals should be accompanied by a strategic plan to develop community heating – something which could be facilitated by LDF community heat plans and the involvement of an ESCo (see Section 3.6 Energy Service Companies).
- Small wind farms - There is the potential to develop clusters of larger, more efficient wind turbines on appropriate sites in association with new housing – as demonstrated by the energy strategy for Northstowe in Cambridgeshire. The latter may create the potential for community ownership where a project may be too small to be attractive to larger developers (see Section).

Larger biomass and wind power projects have the potential to generate a range of impacts, and their location must follow guidelines on acceptable distances from housing, as well as ensuring full regulatory compliance. The routing of biomass fuel deliveries will require careful consideration. Good community engagement will help to build acceptance of the need for a project, and may help to mitigate or trade-off impacts that may be unacceptable to some elements of the community.

Key Actions

- Projects should be determined using criteria-based policies
- Power stations should be located so that waste heat can be used for community heating
- Community engagement and ownership should be used to enable projects

County Councils will have a key role to play in the planning process for energy from waste facilities, and will need to work with local planning authorities to develop a spatial approach.

2.5 Development Sites

» Supplementary Planning Documents

In this Section we explore how a best practice planning framework could be developed in order to reduce the carbon emissions of detailed development proposals, with a focus on three key elements:

- Supplementary Planning Documents
- Performance standards
- Micro-generation

These elements fit together to provide a comprehensive planning framework that can be used by Development Control to achieve low carbon housing development.

Once climate change mitigation has been integrated into LDF core strategies and DPDs it is recommended that guidance is developed on how the local authority expects targets and requirements to be met. This can be achieved by a Supplementary Planning Document (SPD) illustrating sustainable energy strategies for different scales of housing development – as pioneered by Leicester City Council (see below). Woking Council is also notable for having produced comprehensive SPD for developers and their project teams (see Section 2.3 Core Strategies and Development Plan Documents).

Guidance can be used to support planning requirements, such as higher energy efficiency standards, as well as contributions from low carbon or renewable energy sources. It can also be used to encourage the ‘futureproofing’ of developments eg. communal heating to enable future connection to community heating networks and/or switching to renewable fuels; roof area aspects that can facilitate the future installation of solar panels.

UK Best Practice Pioneering Energy SPD, Leicester City Council

Leicester was one of the first authorities in the UK to develop an Energy Efficiency and Renewable Energy SPD which covers a range of different issues including site layout, density, thermal efficiency, CHP/community heating and renewable technologies. This supports a 10% on-site renewables requirement that is set to increase 1% annually.

In addition to their adopted SPD, detailed specialist advice is given by the Leicester Better Buildings project manager to those applicants who are unfamiliar with the considerations and calculations involved. This expert advice has proven very helpful in answering technical questions from applicants, assessing submissions, verifying applicant statements and advising planning officers.

The reaction has been mixed (developers sometimes claim an impact on the financial viability, even before

any assessment has been undertaken) but on the whole the response is constructive and there is an engagement with the issues. Because detailed design is not usually carried out until after consent is obtained, it is often difficult to secure sufficient information to give planners confidence about a developer's intentions. This can be overcome by asking for a statement of intent which describes the process of assessment being undertaken to consider the various renewable technologies available and their suitability to the site and use proposed. This in turn leads to an earlier engagement of developers with specialists, such as mechanical and electrical consultants.

Critical success factors

- Specific focus on energy efficiency and renewables
- Availability of supporting specialist advice
- Statement of intent required from applicants

West Midlands 'in-progress' Sustainability Assessment SPD, Coventry City Council

Coventry is a signatory of the Nottingham Declaration and the Council recently passed a motion pledging that new housing should generate a percentage of their energy needs from renewable sources. As part of its overall approach it has adopted an SPD which provides guidance on how to carry out Sustainability Assessments of new developments, including an energy theme. The SPD is designed to support UDP Policy OS4 which states that:

‘Sustainability Assessments will be required in respect of large-scale or high impact development proposals in order to establish the best practicable mix of land uses and design of developments and relationship to the built and natural environment.’

Large-scale developments are defined as any scheme with more than 50 residential units of greater than 3 hectares in size. The aim of the SPD is to improve the overall sustainability of new developments. It is also designed to help planning applicants understand how they could improve the sustainability of their proposals. It is intended that developers submit a self-assessment alongside the planning application



Credit: Swanswell masterplan, Coventry City Council / Urban Initiatives

Building blocks for the future?

- Strengthen with LDF energy policies and specific energy requirements
- Update SPD to reflect the specific mix of measures required

In the region Coventry have taken the lead with their Sustainability SPD, which incorporates an energy theme and is reinforced by a UDP policy requiring developers to respond to the guidance (see case study). Many planning authorities in the region are looking to follow, but because SPDs cannot be used to introduce new policies it will be important to strengthen the message by adopting stronger energy policies in LDFs as UDPs are superseded.

The experience of Leicester emphasises the importance providing advice and support in order to educate and respond to technical queries from planning applicants. This could be provided by the sustainability or planning team within a council – which will have resourcing implications - or by an external body such as a Sustainable Energy Agency or an Energy Efficiency Advice Centre.

Another approach is for regions or counties to develop an SPD-type document which can then be adopted by districts or metropolitan councils. Model examples include Surrey County Council (with support from the Energy Saving Trust), Cornwall County Council (through their Sustainable Energy Partnership – see Section 2.2 Community engagement) and North Yorkshire County Council (with District Council support - see Section 2.2 Renewable energy assessment). In the region Shropshire County Council and Worcestershire County Council are looking to take use this approach.

Key Actions

- SPD guidance should support LDF and energy DPD policies
- A dedicated energy or climate change SPD is preferable to a sustainability SPD
- Advice and support should be available to proposers and applicants
- Counties could seek to develop adoptable SPD

2.5 Development Sites

» Performance Standards

Planning policies can be used to expect or require new housing to implement higher standards of energy efficiency, with reference to national and regional standards. Policies and associated guidance can be used to focus attention on the detailing and specification of the homes, including the building fabric, lighting, heating systems, appliances and metering.

As a starting point building fabric performance should be scrutinised by Building Control in order to ensure that actual performance matches design performance. Policies can then be used to establish targets that improve on current Building Regulations – as demonstrated by Worcester City Council’s proposed new sustainable homes policy (see below) .

In seeking higher standards for the building fabric there is clearly a potential conflict between the role of Development Control and Building Control. This conflict has, however, been clarified following the upholding by Planning Inspectors of Milton Keynes’ proposal to set standards ahead of building regulations. In the region Worcester City Council, with the advice of the Planning Officers Society, have developed a sustainable homes policy which seeks to require performance 12% better than current Building Regulations.

The Code for Sustainable Homes was launched on December 13th and provides a national standard for new homes. The Code covers issues such as energy performance, water consumption, building materials, flooding and water run-off, waste, pollution, ecology, management and health and well-being. The Government does not encourage local authorities to develop their own performance standards, rather authori-

ties wishing to set standards that are higher than national building regulations should require specific standards within the Code.

Other standards are also available. Standards can either be expressed in terms of energy use – kWh/m² floor area for heating and hot water and/or power consumption – or carbon emissions – kg/CO₂/M² floor area. This approach can be linked to emerging standards such as the Energy Saving Trust’s new ‘best practice’ standards, and the Sustainable Buildings Association (AECB) ‘Energy Standard’ which is based on EU ‘Passivhaus’ standards used across Northern Europe. Standards can also be linked to, and used to complement, energy themes contained within assessment tools such as Ecohomes, the Regional Sustainability Checklist and the new Code for Sustainable Homes.

Across the region private schemes such as the Wintles (Developer: Living Villages) and Park Central (Developer: Crest Nicholson), and social housing schemes such as the Lying Estate (Developer: Sandwell Council), Station Crescent (Developer: South Shropshire Housing Association) and Frances Court (Developer: Accord Housing Association) demonstrate what can be achieved with strong commitment from the

Energy Saving Trust ‘best practice standards’

- The Energy Saving Trust have established a set of standards which can be used to encourage developers to achieve performance targets for new housing ahead of current minimum Building Regulation requirements. There are three standards of carbon reduction - good (-10%), best (-25%) and advanced (-60%).
- The Energy Saving Trust is keen to promote and encourage the adoption of the ‘best’ practice standard as the main standard that all housing professionals should be aiming to build to, as it considers this to be practical and readily achievable by the majority of housebuilders now.

Regional Energy Strategy

Domestic efficiency

Target: Reduce emissions by 2.4 Mt (19%) by 2010, and an additional 3.7 Mt (29%) by 2020.

Regional policy: Regional Spatial Strategy

Energy Conservation

8.53 Appropriate design and construction of buildings can avoid energy loss; minimise energy demand through use of natural lighting, heating and cooling; allow on-site generation of heat or electricity from renewable sources ; and can help reduce running costs.

West Midlands Best Practice Francis Court, Halesowen

Francis Court is a new build scheme by Accord Housing Association. The homes have been designed to minimise the amount of energy used to provide heating, hot water, lighting and power. The development, which has been designed by Bill Dunster Architects, includes super insulated walls, roof and floors, energy efficient windows and airtight construction. South facing conservatories maximise solar gain and reduce artificial lighting requirements, wind cowls maximise natural ventilation and a communal biomass boiler provides heating. A Sedum green roof has also been planted.

Critical success factors

- Selection of innovative design team
- Holistic design integration of passive systems, energy efficiency and on-site renewables



Credit: Accord Housing Association

client and a good design team. Emerging projects such as Cross Street South (see case study) and Showell Park in Wolverhampton (see Section 3.2 Planning gain and land sale) demonstrate what can be achieved with, in addition to this, a strong brief, realistic returns on land value and careful selection of development partners.

The retrofitting of existing housing stock to improve thermal efficiency and integrate low carbon energy technologies creates a significant challenge but is largely outside of the current remit of the planning system. It is however firmly within the remit of local authorities and RSLs as part of their requirement to meet the Decent Homes standards and to deliver affordable warmth. A number of West Midlands RSLs are pioneering projects to raise the standards for existing housing stock, including Family Housing Association with their Summerfield 'econeighbourhood' scheme and Whitefriars Housing Association with its commitment to Decent Homes.

West Midlands 'in-progress' Cross Street, Wolverhampton

INTEGER and Bromford Housing Group have won a competition to develop 30 new homes in Wolverhampton. The brief was written by the City Council and included requirements for high sustainability standards. The proposed scheme will deliver a high standard of energy efficiency – SAP 100 – and carbon reduction – Carbon Index of 10.

The scheme will build on the experience from the groundbreaking Lying Estate in Sandwell. It is intended that the learning from the development process is captured and fed into other development projects by Bromford and the City Council, as well as forming the basis for an 'eco-exhibition' pavilion on-site.

Critical success factors to-date

- Clear requirement for improved performance
- Selection of partner with capacity to innovate



Credit: Cole Thompson Anders Architects

In Housing Market Renewal areas the improvement of the existing stock should complement investment in new energy efficient housing – as is currently being demonstrated by Manchester Methodist Housing Association in Manchester and Oldham. Opportunities exist to demonstrate this approach in the West Midlands' Pathfinder areas, including masterplans for City Centre South and Knutton & Cross Heath in Staffordshire, and Greets Green in Sandwell.

Key Actions

- Work closely with Building Control to scrutinise design and detailing
- Use planning policies to set targets that improve on current Building Regulations
- Consider the use of simplified energy or carbon performance measures

2.5 Development Sites

>> Micro-generation

Increasing the deployment of micro-generation - defined by the DTI as 'the production of heat and/or electricity on a small-scale (<50 kW) from a low carbon source' encompassing a range of technologies - including solar thermal collectors, solar photovoltaics, heat pumps, micro-wind turbines, micro-CHP and biomass boilers and generators - creates a significant challenge.

Achieving a significant micro-generation capacity will require deployment and permitted development rights for many thousands of homes. Scenarios used to inform the Government's 60% CO₂ reduction target have suggested that, for example, by 2050 the UK may need to install up to 7.5 million 4 kWp solar photovoltaic arrays – equivalent to a system which could be installed on a large detached house.

The new-build solar district of Amersfoort Nieuwland in Holland demonstrates the scale of deployment that may be required across new neighbourhoods (see case study). Developed as a pilot project it also demonstrates how the potential benefits of achieving economies of scale and integrating new technologies into the urban fabric.

The micro-generation market requires pump priming in order to bring down the costs of equipment and installation – a key recommendation of the Government's Micro-genera-

National Policy: PPS22

Local planning authorities may include policies in local development documents that require a percentage of the energy to be used in new residential developments to come from on-site renewable energy developments. Such policies should:

- ensure that a requirement is only applied to developments where the installation is viable given the type of development proposed, its location, and design;
- should not be framed in such a way as to place an undue burden on developers,

EU Best Practice

On-site renewables requirement, Croydon Borough Council

The London Borough of Croydon has adopted a policy of requiring all new housing applications of more than 10 units to reduce their carbon emissions by 10% by installing on-site renewable energy generation. This policy was adopted ahead of its new UDP (adopted 2006) and the new LDF that is currently entering the consultation phase. The policy was prompted by PPS22 and the London Plan.

To date over 100 planning applications have to respond to the policy, and the response has generally been positive, giving public and private sector applicants the opportunity to gain experience with the technologies. The council has also made it clear that it will be flexible in the application of the policy, if there is the prospect of delivering greater carbon reductions on a housing scheme.



Critical success factors

- Clear target set at an easily achievable level
- Target supported by planning policy
- Sharing of experience as more schemes respond to policy

West Midlands 'in-progress'

Establishing on-site renewables requirements, Rugby Borough Council

Rugby has adopted a policy in its new UDP that requires all new non-residential buildings to obtain at least 10% of their energy from on-site renewables. However, the Council will shortly begin developing its new LDF core strategy. It is anticipated that the requirement will then be extended to cover residential developments.

Building blocks for future success?

- Identify pilot projects to test the approach with pro-active developers
- Review the experience of other pioneering Local Authorities

tion strategy was the establishment of the new 'Low Carbon Buildings Programme' - and to encourage early adopters. This can be achieved by establishing planning requirements for on-site renewable energy, or by seeking to encourage specific technologies.

Current best practice is a 10% requirement, as demonstrated by Croydon (see below) but the London Plan is now seeking 20% and several pioneering local authorities, including Calderdale, Leicester, Milton Keynes and Norwich have set rising targets into the future.

With the exception of Rugby – where the policy currently only applies to non-residential developments - this approach has not yet been formally adopted by West Midland Local Authorities. However, national government policy now requires all local authorities to prepare on-site renewable energy policies with a minimum of a 10% requirement in their LDF Core Strategies. However, it is important to consider on a site by site basis what scale of energy generation may be more suitable and beneficial in climate change terms

National Policy: Planning and Climate Change (draft supplement to PPS1)

22. Ensure that a significant proportion of the energy supply of substantial new development is gained on-site and renewably and/or from a decentralised, renewable or low-carbon, energy supply.

Key Actions

- Seek to maximise economies of scale in the deployment of micro-generation
- Use planning policies to require micro-generation quota on specific sites
- Consider a focus on specific technologies linked to supply chain development

EU Best Practice

Building a solar neighbourhood, Amersfoort (Holland)



Credit: Ecotys

In 1999 an ambitious programme was initiated to integrate 1.3 MWp of solar photovoltaics into an extension of the city of Amersfoort. The local authority and the Utrecht energy utility REMU have used the new development to demonstrate the building integration of 11,500 m² of solar photovoltaics. This has been delivered with comparable subsidy to that available in the UK and through co-operation agreements between the government's energy agency NOVEM, property developers, architects and utilities.

The development comprises a mix of 500 owners occupied and rented homes as well as a range of community buildings. The area has proved to be very popular with residents. As a result of their participation property developers and architects are now promoting PV as an added value to properties. A number of community buildings have also had photovoltaics incorporated into them – including three schools, a sportshall and a childcare centre.



Credit: REMU / NOVEM

Critical success factors

- Economies of scale are needed to support such an ambitious project
- Engagement of all stakeholders in the aims of the project, including utilities
- Harnessing of the benefits, including the added value to properties

3.1 Enabling Mechanisms

» Building Control and enforcement

In this Chapter we explore key enabling mechanisms which may be needed to complement, support and re-enforce the planning mechanisms highlighted in Chapter 2. This guide focusses on eight key areas:

- Building control and enforcement
- Planning gain and land sale
- Local authority carbon management
- Property investment policies
- Managing innovation
- Energy Service Companies (ESCo's)
- Community ownership and engagement
- Supply chain development

These have been identified by SHAP as some of the key enabling mechanisms that may be required to overcome barriers to low carbon housing development.

Surveys have revealed a significant gap between the design performance and actual performance of new homes due to poor quality construction and site practices. Building Control therefore has a vital role to play in scrutinising the detailed design proposals, and the construction process, for new homes.

Potential problems include poor quality detailing and construction which can lead to thermal bridging and air ingress – which can push up heating bills and create problems delivering affordable warmth. Poor quality design can also reduce the comfort of occupiers – with the potential for overheating in summer which could prompt the use of air conditioning systems.

This serves to highlight the importance of providing training for architects and construction firms in the basic principles of low energy design and detailing. Guidelines on robust detailing should also be promoted to potential applicants. With the higher Part L thermal efficiency standards, coupled with new requirements to carry out the inspection and testing of new homes, the role of Building Control is becoming increasingly important to facilitate compliance. Building Control officers may also require additional training in order to be pro-active in responding to the tighter Building Regulations. Local Authority Clerks of Works also have a role to play supporting enforcement.

Concern is often expressed by those who see overlap between planning and building regulations, particularly since more and more planning policies are stipulating the environmental performance of buildings and energy generation. As was noted in Section 2.5 there is now planning precedent that requirements can seek to require performance that is

better than Building Regulations. However publication of the draft supplement to PPS1 on climate change and the Code for Sustainable Homes seeks to formally address any confusion.

The Code for Sustainable Homes is a set of environmental standards (based on a star rating), with 1 Star being set above building regulations for energy and water and 6 Stars being carbon neutral. Use of the Code is currently voluntary, except for publicly funded developments (i.e. by English Partnerships or the Housing Corporation). However, the Government expects that particular star levels of the Code will at some point be incorporated into building regulations – the current consultation on when this should happen indicates that the 3 Star standard will become building regulations in 2010, 4 Star by 2012, and 6 Star by 2016. This presents a significant challenge to the housebuilding industry and Building Control officers.

In terms of the relationship with planning. The Government expects that planners will no longer develop their own specific performance standards, rather that they should require Code standards justified through specific Development Plan Documents. This will help to provide more uniformity in approach between local authority areas.

Key Actions

- Greater attention should be focussed on design and construction
- Training should be provided in low energy design and detailing
- Incorporate Code for Sustainable Homes standards into Development Plan Documents

3.2 Enabling Mechanisms

» Planning gain and land sale

The negotiation of Planning Gain (through Section 106 agreements) and the sale of local authority land for development both create the opportunity to use formal obligations to incorporate sustainable energy measures into housing schemes.

Section 106 may be used to secure investment in specific measures, which can be linked to conditions placed on land sale. Land may be sold at a reduced capital receipt if a housing scheme can be demonstrated to deliver wider social and environmental value. The London Borough of Sutton set a legal precedent with the Beddington ZED (see case study).

Central government guidance has been revised to give local authorities greater scope. The Local Government Act 1972: General Disposal Consent 2003 allows local authorities to dispose of land “for less than best consideration”. Central government consent is not needed for an undervalue of less than £2,000,000 with DCLG guidance stating that: ‘...specific consent is not required for the disposal of any interest in land which the authority considers will help it to secure the promotion or improvement of the economic, social or environmental well-being of its area.’

In the region Wolverhampton City Council is leading the way with its facilitation of on-site renewables at Showell Park (see

case study). English Partnerships have also looked using such powers to discount land values, although in practice there is still a financial imperative to maximise capital receipts.

This barrier could be overcome through partnerships with developers to reduce the cost of sustainability measures over time - as experience is gained and economies of scale achieved - and there is good evidence of this working from major EU low carbon housing schemes. Sites being brought forward in the region by English Partnerships – including the Telford Millennium Community and the Hospital Sites Programme - create an opportunity to use this approach.

Key Actions

- Use planning gain and land sale agreements to require sustainable energy measures
- Explore partnering agreements with innovative developers to recover value over time

West Midlands Good Practice Showell Park, Wolverhampton City Council

Showell Park is a scheme of 205 residential units being developed by Haslam Homes. It comprises a mix of flats and houses, with 32 affordable units to be managed by Midland Heart. The development brief sets out a minimum Ecohomes score of Very Good.

The City Council reserved the right not to take the highest bid for the site, and instead opted to take a lower capital receipt in order to secure the environmental benefits of the proposed scheme. The propos-

als include the integration of solar thermal collectors onto monopitch roofs. These will provide hot water for the new homes, and contribute to space heating.

Critical success factors

- Establish development brief setting out performance standards
- Negotiation of clear set of measures to be offset against capital receipt



Credit: Haslam Homes

UK Best Practice Beddington ZED, Sutton

The land acquisition bid for the Bed ZED development in Sutton included a summary of how the scheme would be a mechanism for Sutton Council to deliver objectives under its environmental and planning policies.

The Council engaged environmental economists to place an independent financial value on these benefits. It was found that by valuing the benefit of reduced carbon emissions alone, the value of the ZED scheme over its competitors was between £100,000 and £200,000. Other benefits that were present but not so rigorously costed included:

- Employment opportunities
- Educational value
- Reducing waste and pollution
- Attracting environmental businesses to the area.

Sutton Council agreed to accept the bid in 1998. While the bid for the land was not the highest, when these non-financial benefits were taken into account, the benefits to Sutton Council of selling the land for the development of the ZED scheme were greater than conventional financial accounting would suggest.



Critical success factors

- Evaluation of the financial value of environmental benefits
- Firm agreements relating to design performance and carbon reductions

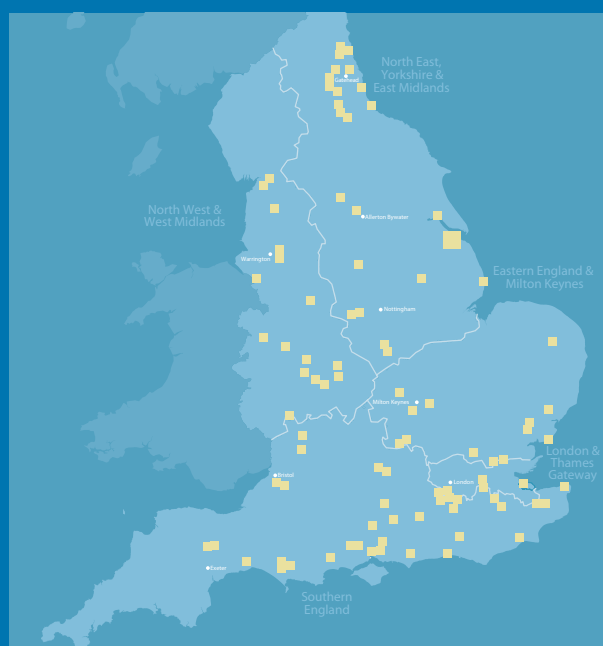
West Midlands 'in-progress' English Partnerships Hospital Sites Programme

The Hospital Sites Programme consists of a portfolio of over 96 former NHS sites. Consortiums of private developers and RSL's are expected to bid for the sites. The programme aims to create sustainable communities and increase the supply of affordable housing.

The sites – of which there are 10 in the West Midlands – create unique development opportunities combining refurbished hospital buildings with new-build housing (subject to local plans and housing allocations). English Partnerships environmental standards will be applied to all the sites.

Building blocks for future success?

- Explore partnerships to deliver carbon reduction targets on an 'open book' basis
- Develop methodology for considering the 'additionality' of sustainability measures



Credit: English Partnerships

3.3 Enabling Mechanisms

» Local Authority Carbon Management

In order to demonstrate leadership local authorities should seek, as a first step, to establish a corporate commitment to carbon reduction. This can then be used to drive a focus on reducing the carbon emissions of local authority buildings, with the potential to act as a catalyst for wider action in the community.

The Carbon Trust has piloted a carbon management process for local authorities based on five steps. In the region Birmingham City Council and Worcestershire County Council have participated. A number of other local authorities in the region are also taking action corporately, including Telford, Shropshire and Stoke. Further opportunities for West Midlands Local Authorities to participate in the Carbon Trust programme will be available in early 2007.

Local authority carbon management is important to send out signal to communities of progress to reduce emissions. It can also become a catalyst for projects across a district or county, as demonstrated by Barnsley where a focus on biomass has

evolved into a much wider supply chain and infrastructure development programme. A similar approach is currently being taken in Telford and Worcester with the support of Marches Energy Agency and biomass specialists Econergy.

Key Actions

- Local Authorities should make corporate commitments to carbon reduction
- The link between these measures and community-wide projects should be explored

UK Best Practice

Barnsley biomass fuel heating policy, Yorkshire

Barnsley Council has made significant progress seeking to reduce its corporate carbon emissions. Reductions of more than 20% have been achieved since the early 1990's through programmes to improve the energy efficiency of its buildings – including its housing stock. It has now set a more ambitious target to reduce its emissions 60% by 2015 by switching to biomass heating. This has been adopted at member level as the 'biomass fuel heating policy'.

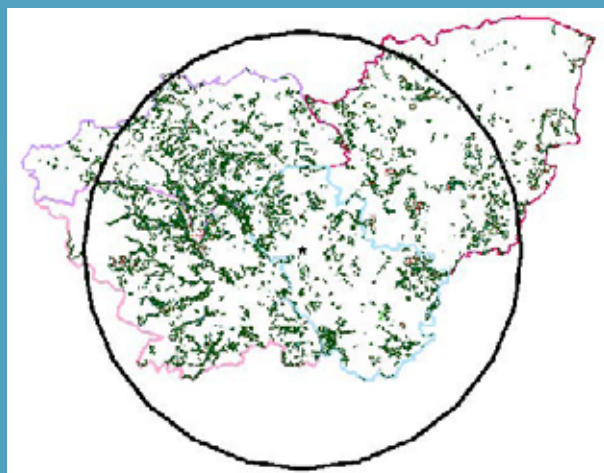
Working with biomass heating specialists Econergy the council have initiated a switch over programme. To date this included the central library, schools and council blocks of flats and shortly to include the new civic centre. The council has also carried out a survey of the available biomass resources in the district, and has begun to establish wood fuel handling centres to supply its boiler programme.

Critical success factors

- District-wide focus to develop supply chain
- Identification of strategic partners to develop projects



Credit: Dick Bradford, Barnsley MBC



Credit: Dick Bradford, Barnsley MBC

3.4 Enabling Mechanisms

» Property investment policies

Advantage West Midlands, and other public sector land and property owners in the region, have a significant opportunity to establish policies for low carbon development in order to demonstrate progress towards meeting regional climate change objectives.

Like most RDA's Advantage West Midlands has a significant portfolio of land and property at its disposal and, working in partnership with local authorities and regeneration agencies such as English Partnerships, it is seeking to promote mixed use development.

AWM's position as landowner gives it a unique ability to establish the planning and development framework for schemes, and where the private sector is involved, to screen the selection of partners and establish development requirements. The soon to be established West Midlands Property Regeneration Partnership (PRP) creates an opportunity to demonstrate this approach.

A potential model from a neighbouring region is the East Midlands Development Agency's property investment fund – known as Blueprint – which has integrated climate change mitigation into its investment policies (see below). The emerging investment framework for sustainable homes was explored by a recent report for the Chartered Institute for Building, exploring the business benefits and opportunities.

Key Actions

- Align carbon reduction aims with performance of property portfolio
- Use position to identify suitable partners and develop low carbon energy strategies

UK Best Practice Carbon reduction policy, Blueprint

Blueprint is the East Midlands Property Investment Fund, which has been established by the East Midlands Development Agency, English Partnerships and the Igloo Regeneration Fund (Norwich Union). It aims to build on the potential of a £35m portfolio of sites in Derby, Leicester and Nottingham.

The Board of Blueprint has approved an adapted version of Igloo's Socially Responsible Investment policy – the Blueprint Sustainability Policy. This includes a specific requirement that schemes produce a holistic energy strategy setting out how they will reduce their carbon emissions by 60% or more, by addressing both the supply and demand for energy.

Critical success factors

- Establishment of carbon reduction policy with clear target and mechanisms
- Adoption of policies at board level
- Resourcing of project teams

West Midlands 'in-progress' Advantage West Midlands PRP

Advantage West Midlands is seeking to establish a long-term partnership with a private sector organisation(s) to further its involvement in the physical regeneration of the West Midlands through property development. This joint venture has been given the generic title of the West Midlands Property Regeneration Partnership (the "PRP").

The PRP is directly aligned with AWM's vision of how property development should be carried out. The PRP will take forward physical development of schemes and will also purchase new development opportunities that meet its criteria. The PRP will seek to achieve a balance between financial and social benefits in the short and, more importantly, long-term.

Building blocks for future success?

- Establish carbon reduction as a key investment policy
- Explore the potential to adopt the practices of similar investment vehicles

3.5 Enabling Mechanisms

» Managing innovation: Creating model communities

Sustainable energy and climate change mitigation strategies require innovation in the design and delivery of housing and infrastructure, and in the technical specifications. The innovation process can be managed to the benefit of all stakeholders - from the selection of private sector partners through to design processes and the development of energy strategies.

Local authorities and regeneration agencies need to take account of this in drawing up the planning framework for sites, and in their negotiations and participation in the development process alongside housing developers.

Model communities such as those promoted by the Millennium programme create the potential to influence the housing market by creating the opportunity for 'early adopters' to develop new housing products, and trial new approaches with the support of the government and stakeholders to reduce the risk. This process does, however, require careful management in order to get the best results, as well as benchmarking to develop energy strategies that respond to the national policy agenda on climate change as well as local opportunities.

Model communities should seek to emulate the performance of comparable exemplar schemes that have/are been developed in mainland EU, and which are brought together as part of the SIBART – ‘seeing is believing’ – project. In this

respect the UK's millennium communities have the potential to emulate strategic energy planning of the kind seen on schemes such as Kronsberg in Hanover, Germany (see case study below). In the region Telford Millennium Community creates the opportunity to set new standards.

Key Actions

- Seek to work with 'early adopters' to demonstrate low carbon energy strategies
- Benchmark the performance of model communities eg. SIBART schemes

West Midlands 'in-progress' Telford Millennium Community

The Telford Millennium Community is being developed on a brownfield site in East Ketley blighted by coal mine workings. Taylor Woodrow were selected as the private sector developer for the scheme following a detailed selection process. Beth Johnson Housing Group are to develop the social housing element of the scheme.

Based on the experience from the Greenwich Millennium Community, English Partnerships have established a set of Millennium Community standards that the scheme is contracted to respond to. This stipulates achievement of Ecohomes 'Excellent' and achievement of a 20% reduction in metered energy consumption. The developer was also encouraged to explore CHP/community heating and on-site renewable energy generation.



Building blocks for future success?

- Clear focus on carbon reduction in order to benchmark performance
- Scrutiny of detailed design and construction in order to meet performance targets

EU Best Practice

Low carbon energy strategy, Hannover Kronsberg (Germany)

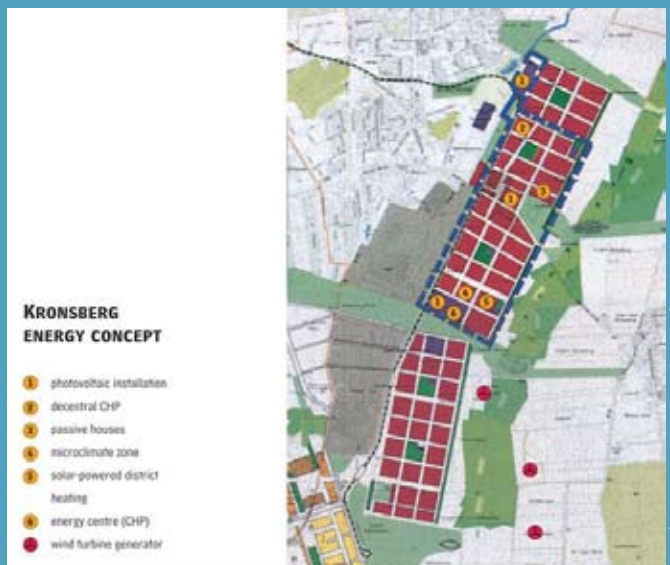
Kronsberg is a new high density neighbourhood of over 3,500 homes that was built as part of the World EXPO 2000. A holistic energy strategy has been developed and implemented for the scheme, with the aim of achieving over 60% reductions in CO₂ emissions by co-ordinating a range of measures. These have included:

- 'Low Energy House' standards – All properties regardless of developer must deliver heating demand of less than 50 kWh/m². A smaller number of plots have been sold to developers with a requirement to build 'passive houses' with a consumption of less than 15 kWh/m².
- Reducing electricity consumption – A comprehensive programme to encourage a reduction in electricity use, with a focus on providing low energy appliances and lighting, as well as targeted grants and awareness raising campaigns.
- Supply infrastructure – The municipal utility Stadtwerke Hannover has developed a district heating network supplied by natural gas fired CHP units and boilers. This supplies the whole neighbourhood with the standing charge adjusted to ensure return on capital investment despite the lower energy use of the properties. Two large wind turbines (1.5 and 1.8 MWe) have also been installed in close proximity to the scheme.
- Solar homes – A demonstration project for solar heat and power has been developed as part of the scheme. These incorporate solar thermal collectors with thermal storage and solar photovoltaics.

Quality assurance and monitoring have been carried out extensively post-occupancy to establish the actual CO₂ reductions achieved by the energy strategy. The results highlight the successful combination of combining efficient communal infrastructure with low energy buildings, awareness raising and building integrated renewables.

Critical success factors

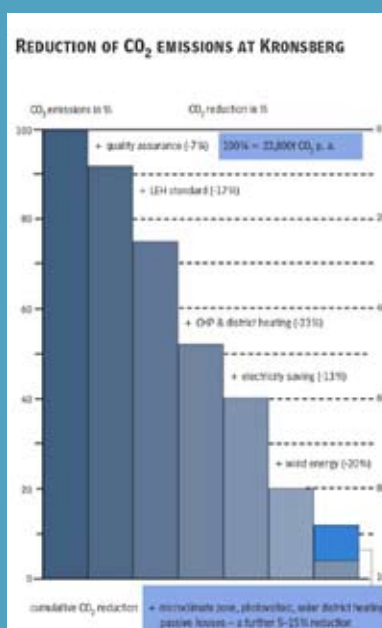
- Development of holistic energy strategy with clear carbon reduction target
- Careful selection of partners with the capacity to innovate
- Co-ordination of process from vision to monitoring of actual carbon reductions



Credit: Hannover City Council / KUKA



Credit: Hannover City Council / KUKA



Credit: Hannover City Council / KUKA

3.5 Enabling Mechanisms

Managing innovation: Developing partnerships

With the focus of planning and housing policy on brownfield sites, and associated constraints on the supply of land, housebuilders and property investors are becoming increasingly aware of the need to bid to become strategic regeneration partners.

Lovells, for example, now have a 'partnership division' which builds private and social housing. This creates opportunities for Local Authorities to identify partners with the capability to innovate and take risks, and to insert performance requirements into tender and bid documentation as well as partnership agreements.

The region's regeneration agencies – including the two Housing Market Renewal (HMR) Pathfinders – have the potential to use the procurement process to their advantage, working with experienced practitioners in the region - such as Black Country Housing Group who are currently working with Urban Living (see below) - to guide the process of innovation.

There is also potential to learn from the experience of other HMR Pathfinders, such as Oldham and Rochdale, who have

established performance standards. This could include innovative approaches to the refurbishment of properties - as demonstrated by Oldham and Rochdale HMR partner Manchester Methodist Housing Association - and as proposed by Family Housing Association in Birmingham.

Key Actions

- Use selection processes to identify partners with the capacity to innovate
- Incorporate carbon reduction requirements into partnership agreements

West Midlands 'in-progress' Warstock Sustainable showcase

Black Country Housing Group is working with Birmingham City Council to shortlist and identify private sector partner to develop the Warstock Sustainable Housing Showcase. 114 houses and flats are to be developed on the former site of structurally defective council tower blocks. Two thirds of the homes will be for private sale and the remaining third will be let by Black Country Housing Group.

The planning permission and agreement with the private sector partner will require incorporation of super insulation, solar water heating and building mounted micro wind-turbines. It is anticipated that the net land value will be adjusted to reflect the 'abnormal' costs of some of the sustainability features.

Building blocks for future success?

- Calculation of the carbon reduction delivered by the proposed mix of measures
- Incorporation of measures and performance in development agreements



Credit: Black Country Housing Group

3.6 Enabling Mechanisms

Energy Service Companies (ESCo's)

CHP and community heating are capital intensive and as such require long-term investment. ESCo's can be used to as a mechanism to bring in the specialist investment and expertise needed – with the ESCo functioning as a local utility company.

Energy Service Company's (ESCo's) aim to shift the focus from selling energy such as gas or electricity, to a focus on selling the end-use eg. heating, lighting, cooling. Because of the short-termism of the larger utilities this may require specialist investors or a new standalone ESCo – as demonstrated by schemes in Woking, Southampton and Sheffield where new heating companies have been established with the support of the local authority. In each of these cases support through the planning system is important in order to underwrite and secure investments by ESCo's.

A number of local authorities in the West Midlands are in the process of, or are exploring the potential, to establish ESCo's. Birmingham City Council has established an ESCo to deliver a new CHP/community heating scheme for Eastside, involving Aston University and with major funding from the Energy Saving Trust, and with the potential to connect Ventureast development phases.

A key action from Herefordshire's Carbon Management Action Plan has been a feasibility study to look at establishing an ESCo, focussing initially on council buildings and schools. Black Country Housing Group and Accord Housing Association have also jointly established an ESCo, which is now called Energy Extra. However, this has mainly focussed on energy purchasing (to reduce costs for its tenants) and household energy efficiency advice, including the distribution of light bulbs and appliances.

Key Actions

- Use ESCo's to attract specialist investment for CHP/community heating
- Explore the potential to establish new ESCo's to deliver low carbon development

UK Best Practice Southampton Heat and Power

Established in 1986 the cities extensive CHP and community heating network has been delivered by a partnership between Southampton City Council and Utilicom. The scheme consists of 11km of insulated heating mains and a 5.7 MW CHP engine, supplying more than 20 commercial customers and over 400 flats (including a major new Barratt Homes scheme).

The scheme has received support from the local authority through the planning system - with new developments now required to justify why they should not connect to the district energy supply, and strategic planning of heating mains as a utility for regeneration masterplans such as the Holyrood and Millbrook areas.

Critical success factors

- Establishment of ESCo partnership with a specialist utility
- Use of the planning system to support strategic investment in the heating network



3.7 Enabling Mechanisms

Community engagement and ownership

Renewable energy generation by its very nature tends to be smaller scale. Projects must therefore be located in many more 'backyards' - both urban and rural. Community ownership has the potential to help build acceptance for distributed energy production in the future.

Community ownership can take a number of forms – from local people owning shares in a wind farm, to heating consumers overseeing investment by their local community heating EScO. Community ownership has the potential to help build acceptance at a local level by;

- Ensuring that projects are transparent and directly accountable;
- Harnessing demand for local action to tackle climate change;
- Capturing locally the social and economic benefits that accrue.

It must, however, be emphasized that energy projects are complex to develop. As a result community owned projects require support and facilitation throughout the development process. This could be provided by local Energy Agencies such as Marches or specialists such as Energy4All.

This is recognised in PPS 22 which highlights the need to “foster community involvement in renewables and promote knowledge of and greater acceptance by the public of prospective renewable energy developments.” In addition the RSS states that ‘Local co-ownership of these may assist community regeneration, supporting policies RR1 ‘Rural renaissance’ and UR3 ‘Enhancing the role of city, town and district centres’. A practical example of how it can be used to gain acceptance are community heating co-operatives in Denmark.

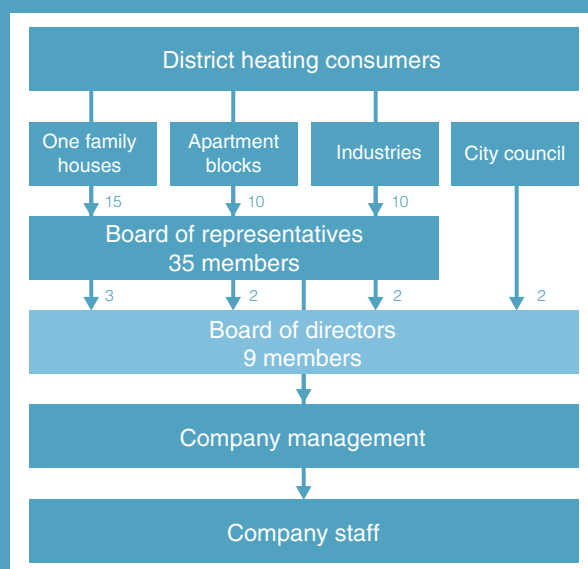
Key Actions

- Ensure mechanisms are in place to provide practical support and facilitation
- Identify opportunities to facilitate low carbon energy for housing developments

EU Best Practice Consumer-owned heating networks, Denmark

Høje Taastrup is one of 19 community heating co-operatives in Greater Copenhagen. Community ownership has proven to be a very efficient model community heating in Denmark. It has ensured trust and accountability for what is a monopoly supply, and enables a closer relationship to be developed with the heating consumers.

Høje Taastrup is owned by its heat consumers and manages a heating network, standby boilers and associated customer services. The co-operative supplies heat to 4,500 consumers, equating to 2.6 million sq metres of heated floor area or 30,000 households. The co-operative is not-for-profit and surpluses are re-invested or used to lower prices. The heating prices are calculated on a transparent basis to consumers, reflecting the actual cost of providing and maintaining the service. Prices are also benchmarked against other heating suppliers in the area.



Credit: Danish Board of District Heating

Critical success factors

- Establishment of locally accountable business model to deliver monopoly service
- Long-term approach to investment in infrastructure

3.8 Enabling Mechanisms

Supply chain development

As demand increases capacity building will be required to support and develop the regional supply chain for low carbon products and services. In line with the aims of the Regional Economic Strategy increases in the deployment of energy efficient products and services, and renewable energy technologies, could be harnessed to benefit the regional economy.

The current consultation on the Regional Economic Strategy creates the opportunity to strengthen the link between planning and targeted regional opportunities to develop the supply chain. Opportunity areas are likely to include:

- Building products and construction systems – for example, prefabricated timber frame systems to reduce thermal bridging and ensure robust detailing;
- Technologies – for example, the need to train more solar installers in order to keep costs down or to assemble equipment more cheaply, as demonstrated by Solar Chicago (see below);
- Renewable resources – for example, the establishment of biomass supply networks fuel for heat and power projects, as demonstrated by Midlands Wood Fuel which has been established by the Marches Wood Energy Network.

There may also be opportunities to develop links with other European countries that already have significant expertise in sustainable energy and construction, with a view to sharing knowledge and developing partnerships – as demonstrated by Advantage West Midlands' DTI-funded Global Watch trade missions to learn from experience developing biomass, solar and prefabricated housing industries.

Regional Energy Strategy

4.7 Developing an Environmental Economy

Pressures for improved environmental practice will provide opportunities. The region's manufacturing base, particularly through its expertise in engineering, is well placed to exploit major opportunities in environmental technologies and broaden the business base by developing this new growth area. This provides a valuable opportunity to integrate the environmental and economic themes of sustainable development.

Key Actions

- Identify needs for capacity building to supply products and services
- Explore the potential for delivery by regional enterprises
- Explore the potential for the sharing of European knowledge and expertise

West Midlands Good Practice Midlands Wood Fuel Ltd

Midlands Wood Fuel was established by the Marches Wood Energy Network to develop the regions wood fuel supply chain. The company works with stakeholders to provide a complete service, from advice and support with boiler installations to the supply of wood chips or pellets. It has established a network of depots to store and dry fuel, and has invested in equipment to process fuel to customers specifications.

Critical success factors

- Bring together stakeholders to put in place a complete service
- Develop services that are responsive to customer specifications



Credit: Midlands Wood Fuel

4. Key Actions for the region

1. Regional Spatial Strategy

Baseline emissions and future scenarios

- Use baseline data to establish regional trajectories for domestic carbon emissions
- Use revision process to integrate Regional Energy Strategy targets into RSS
- Use revision process to integrate complementary low carbon housing and energy policies

Climate change and sustainable energy policies

- Establish medium to long-term targets which Local Authorities must respond to
- Use RSS revisions to strengthen energy policies and encourage stronger LDF policies
- Provide support and guidance for Local Authorities

Planning tools and guidance

- Adopt a clear framework for encouraging low carbon energy strategies
- Create supporting planning tools and mechanisms to facilitate this process
- Encourage adoption by Local Authorities

2. Counties and Urban Areas

Climate change policy and vision

Local Authorities should make a high level commitment to action on climate change

This should be accompanied by targets and a strategy and vision for action

Adopt a carbon management approach, using it to deliver wider benefits

3. Local Development Frameworks

Baseline data and future scenarios

- Use baseline data to establish targets and trajectories for domestic carbon reduction
- Develop scenarios that can be used to identify the mix measures required
- Use scenarios to inform specific planning policies, as well as AAP's and SPD's

Community engagement

- Engagement as a fundamental part of climate change strategies
- Use community strategies to galvanise local support
- Complementary role for community project ownership

Core Strategies and Development Plan Documents

- LDF Core Strategies as starting point for requiring carbon reductions
- Use this as basis for establishing an overall sustainable energy planning policy framework
- Support a mix of measures, with an overall focus on the need for low carbon energy strategies
- Core Strategy to be supported by an energy DPD

4. Areas of Change

Area Action Plans

- Establish site-specific targets and requirements
- Spatial planning to address density, layout, microclimate and infrastructure
- Work with strategic partners to enable carbon reductions
- Harness the potential to transform the housing market in renewal areas

Community heating infrastructure

- Community heating network developed through a planned approach
- Requirement for new housing to be futureproofed with communal heating systems
- Use of planning powers to facilitate investment by ESCo's

5. Development sites

Supplementary Planning Documents

- SPD guidance should support LDF and DPD policies
- A dedicated energy or climate change SPD is preferable to a sustainability SPD
- Advice and support to be available to proposers and applicants
- Counties could seek to develop adoptable SPD

Performance standards

- Work closely with Building Control to scrutinise design and detailing
- Use planning policies to set targets that improve on current Building Regulations
- Consider the use of simplified energy or carbon performance measures

Micro-generation

- Seek to maximise economies of scale in the deployment of micro-generation
- Use planning policies to require micro-generation quota on specific sites

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