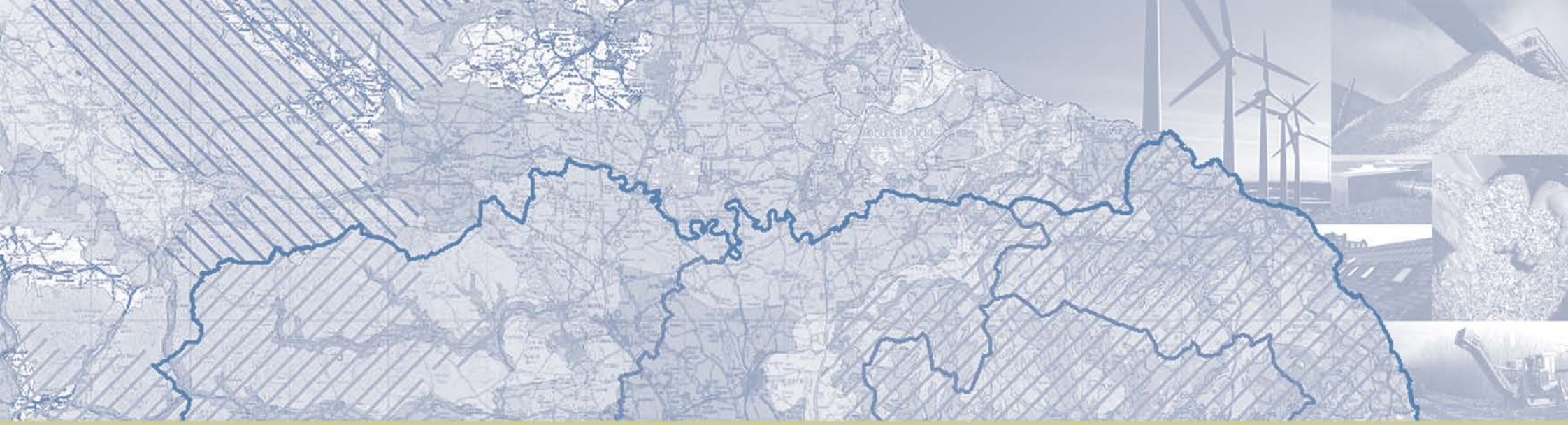

Delivering Sustainable Energy in North Yorkshire

Recommended Planning Guidance

Produced by Land Use Consultants
and National Energy Foundation
for a Partnership of North Yorkshire Local Authorities

October 2005

DELIVERING SUSTAINABLE ENERGY IN NORTH YORKSHIRE: RECOMMENDED PLANNING GUIDANCE

Prepared for
a Partnership of Local Authorities in North Yorkshire
by
Land Use Consultants
and
National Energy Foundation

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14 Great George Street
Bristol BS1 15RH
Tel: 01179 291 997
Fax: 01179 291 998
luc@bristol.landuse.co.uk

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ABBREVIATIONS

AONB	Area of Outstanding Natural Beauty
BREEAM	Building Research Establishment Environmental Assessment Model
BRE	Building Research Establishment
CCA	Countryside Character Area
CCL	Climate Change Levy
CHP	Combined Heat and Power
DEFRA	Department for Environment, Food and Rural Affairs
DER	Dwelling Emission Rate
DTI	Department of Trade and Industry
EIA	Environmental Impact Assessment
GHP	Ground Source Heat Pump
CO_2	Carbon dioxide
GOYH	Government Office Yorkshire and the Humber
GW	Giga Watts
LCA	Landscape Character Area
LDD	Local Development Documents
LUC	Land Use Consultants
NHER	National Home Energy Rating
MW	Mega Watt
NEF	National Energy Foundation
ODPM	Office of the Deputy Prime Minister
PPG	(National) Planning Policy Guidance
PPS	(National) Planning Policy Statement
PV	Photovoltaic
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
SAC	Special Area of Conservation
SAP	Standard Assessment Procedure
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SPG	Supplementary Planning Guidance
SPD	Supplementary Planning Document
UDP	Unitary Development Plan
UK	United Kingdom
ZVI	Zone of Visual Influence

A glossary of terms is provided in **Appendix 1.**

SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

INTRODUCTION

1. One of the greatest opportunities that local authorities have for delivering their statutory obligation to promote sustainable development and the Government's sustainable energy targets is to shape the nature of future development through the planning process. To this end, a partnership of local authorities in North Yorkshire commissioned Land Use Consultants and the National Energy Foundation to prepare planning guidance to encourage the appropriate development of sustainable energy within the county.

2. This guidance focuses on:

   - developing positive planning policies within Local Development Documents covering: sustainable energy use, integration of renewables within buildings; and stand alone renewable energy and combined heat and power (CHP) developments;
   - implementing and monitoring sustainable energy policy objectives;
   - understanding the landscape sensitivity of areas within North Yorkshire to renewable energy developments; and
   - assessing renewable energy proposals in relation to their impact on landscape character.

3. A summary of the key findings and recommendations of the guidance is set out below.

CREATING A POSITIVE LOCAL PLANNING POLICY FRAMEWORK

4. The guidance sets out nine key recommendations on creating a positive policy framework for sustainable energy. These include:

Recommendation 1: Energy Hierarchy

5. The energy hierarchy should be adopted as the overarching framework for energy policy within the Regional Spatial Strategy and local development documents. Whilst the hierarchy suggests a prioritisation for energy activity, it is recommended that it should not be applied in a strictly sequential manner. Instead, development should be encouraged which minimises energy demand, improves energy efficiency and develops renewable energy technologies as part of an integrated approach, as that is the only sustainable way of reducing the dependence on fossil fuels.

Recommendation 2: Sustainable Design

6. All local planning authorities within North Yorkshire should ensure appropriate coverage of sustainable energy measures in their development plans, supported where possible by appropriate development briefs and design guides, explaining to developers how these policies should be implemented. Local authorities may wish to set out the categories of sustainable energy measures that they wish to see included in new developments.

7. Developers should be required to show that they have addressed sustainable energy issues as part of a broader statement on sustainable design and construction.

Recommendation 3: Energy Use Assessments - Commercial

8. Developers should be required to provide evidence that they addressed sustainable energy issues by reference to accredited assessment schemes such as BREEAM. Local planning authorities should request developers to ensure that all new office, industrial, or retail development at least meet BREEAM's 'very good' accreditation.

9. Local planning authorities should require that all major applications must undertake an energy use assessment (measured in carbon) of the electricity heating and cooling requirements of the proposed development. In addition developers should also demonstrate the steps taken to apply the energy hierarchy, to ensure that the energy demand of the development will be met in the most efficient way.

Recommendation 4: Energy Use Assessments - Domestic

10. Local planning authorities should encourage developers to ensure that all new dwellings at least meet:

- Building Research Establishment Ecohomes 'very good' standard where there is access to the mains gas network and 'good' standard in areas off the mains gas network; or
- the Government's Standard Assessment Procedure (SAP) levels of in excess of 85[1]; or
- the National Home Energy Rating (NHER) 9.0 rating.

11. The choice of which energy rating is used should be at the discretion of the local authority.

Recommendation 5: On-site Renewable Generation Policy

12. Local authorities should require, as a minimum, that all developments, either new build or conversion, with a floor space of 1000m^2, or ten or more residential units, to incorporate on-site renewable energy equipment to reduce predicted CO_2 emissions by at least 10%.

Recommendation 6: On-site Renewable Generation Condition

13. When drafting conditions related to securing on-site renewable generation, reference should be made to the need for local authorities to be satisfied that the installed technologies will provide energy for the development and that they will be permanently retained and maintained for as long as the buildings remain.

[1] Under the revised SAP 2005 ratings this figure will be lower.

Recommendation 7: Stand-alone Renewable Energy Criteria Based Policies

14. Development plans should:

- positively encourage the development of all forms of renewables and give support to the 2010 and 2020 sub-regional targets for renewable energy;
- set out how the local authorities anticipate they will contribute towards the sub-regional target;
- require the need to consider the social, environmental and economic benefits of proposals at a national, regional and local level as material considerations that should be given significant weight in the decision making process;
- set out the criteria in which renewable energy proposals will be permitted, covering issues such as:
  - appropriateness of the location and scale of the proposal in relation to:
    - its impact on visual amenity and the character and sensitivity of the landscape (state that size, location and design of proposed development should be informed by landscape character assessment);
    - the potential for cumulative impacts;
    - accessibility by road or public transport.
  - need to avoid unacceptable environmental or amenity impacts (such as noise, dust, odour etc.);
  - need to ensure that the proposed development does not compromise the 'openness' of the green belt;
  - need to ensure that the proposal does not compromise the objectives of nationally designated areas;
  - need to ensure that the proposal does not compromise the integrity of internationally designated areas and features and/or species of nature conservation importance.
- express positive support for developments of an appropriate scale within National Parks and AONBs. State that size, location and design should be informed by landscape character assessment; and
- express positive support for the development of community renewable energy schemes.

Recommendation 8: Combined Heat and Power (CHP) Policies

15. Local authorities should include policies and proposals within their LDDs encouraging the development of CHP schemes. Developers should be required to assess the feasibility of integrating CHP and district/ block heating or cooling infrastructure (along with renewable energy technologies) into new developments of over 1000m^2.

Recommendation 9: Integration with other Policies and Strategies

16. Local authorities should seek to ensure that other policies that are complementary to, and mutually supportive of sustainable energy use, are included in wider council strategies and initiatives, especially Community Strategies.

IMPLEMENTING SUSTAINABLE ENERGY POLICY

17. If North Yorkshire is to achieve its target of generating 194MW of electricity from renewable sources by 2010 and 350MW by 2021, the policy recommendations outlined above will need to be backed up by appropriate development control decisions and implementation mechanisms. **Chapter 4** of the guidance sets out the various tools which are available to local planning authorities to help in the delivery of sustainable energy policy. These include:

- site selection and allocation;
- permitted development;
- local development orders;
- planning conditions and obligations;
- site acquisition and investment;
- supplementary planning documents; and
- public awareness and support.

Recommendation 10: Implementation Mechanisms

18. It is recommended that where appropriate local authorities should seek to maximise the use of these implementation mechanisms to assist in the delivery of sustainable energy policy.

LANDSCAPE SENSTIVITY ASSESSMENT

19. An assessment was undertaken of the sensitivity of different landscapes within North Yorkshire to sustainable energy development. The following broad conclusions were drawn in relation to wind, biomass and hydro development.

Wind

20. The study found that areas of high landscape sensitivity to wind energy developments include:

- upland areas e.g. North York Moors and Pennines, smaller scale valleys within upland areas e.g. Wensleydale and Eskdale, and key skylines and distinct/ recognisable landforms e.g. Howardian Hills and Yorkshire Wolds edge.

21. Areas of medium-high or medium sensitivity include:

- transitional[2] landscapes/landforms and lowland areas with strong visual connections with hill scarp slopes,

22. Areas with medium low or low sensitivity include:

- lowland wooded agricultural areas, areas influenced by settlement and industry, and areas of coastal settlement, e.g. south of Selby.

23. Please note that the landscape sensitivities identified in the study are relative within North Yorkshire. What is classed as medium sensitivity in North Yorkshire may well be classed as of higher or lower sensitivity in other areas of the UK.

[2] Transitional areas are areas that are dominated in character by other landscapes around them, and often show a gradation of features typical of other landscape types either side. They therefore form a transition between these other landscape types, with a subtle transition of characteristics such as walls gradually being replaced by hedges as typical boundaries.

Biomass

24. The planting of biomass crops has the potential to change landscape character positively or negatively depending on location. This however falls outside planning control; only biomass installations and their associated environmental and amenity impacts (including traffic impacts) can be considered by local authorities in determining biomass proposals. The landscape sensitivity study therefore assessed the landscape sensitivity of introducing a large biomass plant into the landscape of North Yorkshire.

25. Areas of high and medium-high sensitivity to biomass installations include:

- upland remote treeless areas, transitional areas, tranquil/remote rural areas, and smaller scale rural valleys eg North York Moors, Pennines and Howardian Hills and Yorkshire Wolds valley.

26. Areas of medium low and low sensitivity include:

- areas of intensive agriculture, areas around modern/large settlements and areas influenced by industry e.g. Vales of York and Pickering.

Small Scale Hydro

27. For hydroelectric schemes, the study reviewed 40 potential hydro sites which were used in the AEAT 2002 and 2004 studies to calculate the indicative targets for hydro development in the sub-region. These sites are deemed to have the greatest potential for development within North Yorkshire.

28. The study found that most of the identified sites have medium to low sensitivity, four are located in remote narrow wooded valleys which are of high sensitivity and six of the sites were inaccessible and as such no assessment could be undertaken. Sites of high sensitivity include gorges/ upland streams and isolated weirs. Sites of low sensitivity include rural locations in villages and industrial/business parks.

29. Detailed information on the findings of the landscape sensitivity study is included in Chapter 5, Figures 5.1-5.4, 6.1-6.4 and Appendices 4 and 5. Guidance was also produced on the criteria that local planning authorities and developers should consider using when assessing the impact of a proposed renewable energy development on the landscape. This is set out in Chapter 6.

30. It is important to note that the landscape sensitivity study cannot be prescriptive at a site level, it is intended to provide broad guidance on the relative sensitivity of the landscape of different areas of North Yorkshire. It cannot be used to indicate whether a specific development site is suitable or not. Furthermore the results of the study need to be interpreted with care as it should not be inferred that areas with high sensitivity are not suitable for any wind energy developments or vice versa.

31. Finally it should be recognised that landscape and visual impacts are only one of the issues that need to be taken into account when assessing the suitability of a renewable energy development. There are many other factors which will also influence decisions. These include national and regional policy considerations, the benefits of the scheme and potential impacts on aspects such as biodiversity, archaeology and cultural heritage.

NEXT STEPS

32. In its present form, this document constitutes non-statutory, informal guidance on planning for sustainable energy in North Yorkshire. Although it has not been endorsed individually or jointly by the regional and local authorities, the document was prepared with significant inputs from them and from other stakeholders.

33. To maintain the momentum and level of debate that the preparation of this guidance has generated, we recommend that a sub-regional Sustainable Energy Planning Working Group be established. The Group could comprise the steering group that was set up to oversee the production of this guidance and other stakeholders, as appropriate. The aim of the Group should be to secure a high level of consensus or 'Memorandum of Agreement' between local authorities in relation to the guidance as a whole or aspects of it. This would help to ensure a consistent approach across the county, and could be used as a step towards adopting the Guidance as council policy in each authority.

34. Having secured consensus between the authorities on the guidance to be followed, the Sustainable Energy Planning Working Group should focus on promoting key aspects of the guidance in the emerging Regional Spatial Strategy (RSS). The RSS could also refer to the guidance as an example of a sub-regional partnership approach which could be replicated across the region.

35. The Working Group could also promote the use of guidance by local authorities (and the National Park Authorities) in the preparation of their Local Development Frameworks. This should include both the policies of the Core Strategy Development Plan Documents (DPD) and other DPDs as appropriate, and the preparation of Supplementary Planning Documents (SPD). As part of this process of policy development, the Group could provide a valuable a forum for exchanging information and best practice on sustainable energy planning.

1. INTRODUCTION

BACKGROUND

1.1. Land Use Consultants and the National Energy Foundation were commissioned by a partnership of local authorities in North Yorkshire (comprising North Yorkshire County Council, District Councils, National Park Authorities, City of York Council, the Regional Assembly and the Government Office for Yorkshire and the Humber) to undertake a sub-regional renewable energy study. The study was carried out between April and October 2005 and consisted of four interrelated elements:

1. Review of the technical constraints and opportunities for renewable energy development in North Yorkshire.
2. Preparation of planning guidance on sustainable energy for local planning authorities.
3. Assessment of the sensitivity of the landscape to accommodate renewable energy developments.
4. Preparation of guidance for local authorities on delivering renewable energy as part of their corporate strategies.

1.2. This document presents the outputs of the study in relation to the planning guidance on sustainable energy (element 2) and the landscape sensitivity assessment (element 3). The results of the review of the technical constraints and opportunities for renewable energy activity (element 1) and the guidance on delivering sustainable energy as part of corporate strategies (element 4) are contained within an accompanying document titled *Delivering Sustainable Energy in North Yorkshire, Recommended Guidance on Developing Energy Action Plans and Strategies (2005)*.

PURPOSE OF THIS GUIDANCE

1.3. The Government has set a target to cut the UK's greenhouse gases by 60% by 2050 and to increase the uptake of renewables by 10% by 2010, rising to 20% by 2020. In June 2005 around 3.6% of electricity in the UK was generated from renewable sources. Clearly much remains to be achieved. In July 2004 the House of Lords Science and Technology Committee asserted that "*a dramatic change in the rate of introduction of renewable energy generating capacity will be required if the Government are to come anywhere near their target for 2020*"[3].

1.4. In addition to the Government's renewable energy objectives, a national target has been set to achieve at least 10,000 MWe of installed combined heat and power (CHP) by 2010 and to save some 12 million tonnes of carbon through energy efficiency measures.

1.5. This guidance aims to encourage the appropriate development of sustainable energy schemes within North Yorkshire through effective use of the planning system. For the purpose of this guidance, the term 'sustainable energy' refers to the three elements of renewable energy, energy efficiency and combined heat and power.

[3] House of Lords Science and Technology Committee (2003-2004 Session) *Renewable Energy: Practicalities 4th Report.*

1.6. The land use planning system is one of the most powerful tools for promoting sustainable energy available to local authorities. It can be used to guide the form and location of sustainable energy developments, promote the integration of energy efficiency and renewable energy technologies within buildings and raise community involvement in, and awareness of, sustainable energy developments.

1.7. The guidance is intended to assist planners, elected members, developers and other bodies or individuals with an interest in sustainable energy on the role of the planning system in increasing the up-take of appropriate sustainable energy developments within the sub-region. The guidance aims to bring about greater consistency and understanding of the way in which local planning authorities address energy issues.

1.8. Guidance is provided on:

- developing positive planning policies within Local Development Documents covering: sustainable energy use, integration of renewables within buildings; and stand alone renewable energy and combined heat and power (CHP) developments;
- implementing and monitoring sustainable energy policy objectives;
- understanding the landscape sensitivity of areas within North Yorkshire to renewable energy developments; and
- assessing renewable energy proposals in relation to their impact on landscape character.

1.9. Readers are also directed to other sources of national, regional and local policy guidance or information which provides further advice on these issues. It is not the intention of this guidance to replicate existing information/ guidance but rather to provide advice which is specifically tailored to North Yorkshire. Case studies are also used to illustrate key points and to demonstrate how specific issues can be addressed.

1.10. A summary of the aims of the guidance is provided in **Box 1.1.**

BOX 1.1: AIM OF THE GUIDANCE

The Guidance aims to:

- assist planners in developing new policy related to renewable energy developments;
- assist planners in implementing and monitoring their planning policies;
- assist planners and developers in understanding which areas of North Yorkshire are likely to be most sensitive in landscape terms to renewable energy development;
- assist planners in assessing the impact of proposals on landscape sensitivity; and
- assist developers in understanding the detailed requirements of policy.

PREPARATION OF THE GUIDANCE

1.11. A central component to the preparation of this guidance was the involvement of local planners, elected members, developers and other key stakeholders. The consultation process involved three key elements:

- a questionnaire survey of local planning officers – to obtain information about what issues needed to be covered in the guidance;
- two consultation workshops with planners, elected members and renewable energy stakeholders in June and July 2005 – to discuss in more detail the key planning issues associated with renewable energy development in North Yorkshire. A detailed briefing paper was prepared to focus discussions at these workshops.
- circulation of the draft planning guidance from the 31st August until the 23rd September to a wide range of key stakeholders throughout the county and wider region.

1.12. The findings of the questionnaire survey, consultation workshops and written responses were used to inform the contents of this guidance. These contributions are gratefully acknowledged. A summary of the key issues raised at the consultation workshops and the comments on the draft planning guidance are included in **Appendix 2.**

1.13. The final guidance document and its key recommendations were presented to a range of key stakeholders at a conference at County Hall, Northallerton on the 7th October 2005.

RESOURCE IMPLICATIONS

1.14. The guidance promotes a positive approach to planning for sustainable energy in accordance with Government policy. To implement the approach will require political and financial commitment from local authorities and key stakeholders. Financial commitment will be required to both at the development plan stage, in formulating appropriate policies, and at the development control stage, in considering and negotiating planning applications.

1.15. By adopting this approach North Yorkshire will be at the forefront of planning for sustainable energy and will make an important contribution to national and regional targets.

STRUCTURE OF THE GUIDANCE

1.16. This guidance is structured as follows:

Chapter 2:	Context and Policy Framework
Chapter 3:	Guidance on creating a positive local planning policy framework for sustainable energy
Chapter 4:	Guidance on implementing sustainable energy policies
Chapter 5:	Landscape sensitivity assessment
Chapter 6:	Landscape guidance
Chapter 7:	Next steps for taking the guidance forward

2. CONTEXT AND POLICY FRAMEWORK

INTRODUCTION

2.1. This chapter describes the context for pursuing sustainable energy developments within North Yorkshire. It includes a brief summary of the need for sustainable energy, followed by an overview of the national, regional and local policy context. The chapter concludes with a discussion of the challenges and benefits of pursuing sustainable energy development within North Yorkshire.

NEED FOR SUSTAINABLE ENERGY

2.2. In North Yorkshire, as elsewhere in the UK, energy consumption is an essential feature of daily life: in the home, at work, in industry, and in the way people travel and enjoy leisure time. However the use of energy is widely taken for granted and there is a lack of awareness about how energy is generated and used.

2.3. Traditional energy generation, through the burning of fossil fuels, is 'unsustainable'. Coal, oil and gas are finite resources and the environmental impacts of their exploitation are significant. There are increasing concerns about the UK's shift from being virtually self sufficient in energy to becoming ever more dependent upon external supplies of oil, coal and gas. There is also uncertainty of the role that nuclear power has to play in the future energy mix.

2.4. Arguably the greatest challenge however is climate change. Greenhouse gas emissions from traditional forms of energy generation are a major cause of climate change. Although this is a global problem, addressing the causes of climate change requires international, national, regional and local based action.

POLICY CONTEXT

International

2.5. At the international level, the UK Government is a signatory to the 1997 Kyoto Protocol on climate change which sets internationally agreed and binding targets for reducing emissions of a basket of greenhouse gases up to 2012. The Kyoto Protocol, which was ratified in 2005, requires industrialised countries to reduce their greenhouse gas emissions by an average of 5.2% below 1990 levels by the period 2008-2012. The UK Government has also set a target for a 12.5% reduction in CO_2 (from 1990 levels) by 2008-2012.

National

2.6. At the national level, in recognition of the need to address the challenge of reducing CO_2 emissions, in 2003 the Government published the Energy White Paper[4]. This sets out a strategy to move towards a low carbon economy by placing renewables, energy efficiency and low carbon transport at the heart of the UK's future energy system. This includes targets to cut the UK's CO_2 emissions by 60% by 2050 and to increase the proportion of electricity generation from renewables from a base of 3% in 2003, to 10% in 2010 and 20% in 2020.

[4] *Energy White Paper: Our Energy – Creating a Low Carbon Economy* (February 2003).

2.7. A brief summary of the Energy White Paper is provided in **Box 2.1.**

BOX 2.1: ENERGY WHITE PAPER

The White Paper sets out a strategy to reduce carbon emissions over the next 50 years through the expansion of renewable energy and energy efficiency. The Paper outlines four goals for the Government's energy policy:

- to work towards cutting emissions of carbon dioxide by 60% by 2050;
- to maintain the reliability of energy supplies;
- to promote competitive energy markets in the UK and beyond; and
- to ensure that every home is adequately and affordably heated.

The White Paper also:

- prefers to create a market framework giving investors, businesses and consumers the right incentives to find the balance that will best meet the four goals;
- reaffirms the Governments' commitment to the target for 10% of UK's electricity to come from renewable sources by 2010 and sets out an ambition to double the share of electricity from renewables by 2020;
- makes some very specific commitments with reference to the planning system and renewable energy / energy efficiency. It states that *"Planning needs to be streamlined and simplified"*;
- instructs operators to take a more proactive approach towards distributed power generation;
- sets out a range of regulatory and fiscal support measures including:
  - the Renewables Obligation;
  - an expanded support programme for renewable energy including a capital grants programme worth £250 million from 2002-2006;
  - exemption of renewable electricity and heat from the Climate Change Levy (CCL); and
  - a new carbon trading system that gives energy suppliers and consumers incentives to switch to cleaner energy.

These measures seek to stimulate the development of new technologies to provide the basis for the continuing growth of renewables in the longer term, and to assist the UK renewables industry to become competitive in home and export markets.

A copy of the energy white paper is available from the DTI website www.dti.go.uk/energy

2.8. In terms of national planning policy on renewables, Planning Policy Statement 1 (PPS 1)5, states that development plan policies should seek to promote and encourage, rather than restrict, the use of renewable resources and that 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.

[5] ODPM (2005) *PPS1: Delivering Sustainable Development.*

2.9. PPS 1 goes on to state under key principles of development plans that:

"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."

2.10. *PPS 22: Renewable Energy* (2004) together with *The Companion Guide to PPS 22: Planning for Renewable Energy (2004)* set out the Government's detailed policy stance and guidance on renewable energy. A brief summary of the key principles of PPS 22 is provided in **Box 2.2.**

BOX 2.2: PPS 22 AND THE COMPANION GUIDE

Planning Policy Statement (PPS) 22 sets out the latest Government planning policy advice on renewable energy. The objective of the statement is to ensure that the planning system plays its part in delivering Government policy on energy as set out in the Energy White Paper. The key principles of PPS 22 are as follows:

- regional spatial strategies and local development frameworks should contain policies designed to promote and encourage, rather than restrict, the development of renewable energy resources;
- regional planning bodies should set out criteria based policies which should then be used to identify broad areas at the regional/ sub-regional level where the development of particular types of renewable energy may be appropriate. Local authorities should also set out criteria-based policies but should only focus on the key criteria that will be used to judge applications;
- when assessing proposals for renewable energy, the wider environmental and economic benefits are material considerations that should be given significant weight in determining whether proposals should be granted planning permission;
- regional renewable energy targets should be introduced in regional plans as minimum targets to be monitored and increased if and when they are met;
- development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimised though careful consideration of location, scale, design and other measures.

The Companion Guide to PPS 22: *Planning for Renewable Energy* (December 2004) provides further practical advice for planners on how these policies can be implemented on the ground. It includes a technical annex which includes specific advice on the range of renewable energy technologies covered by PPS 22, this includes guidance on the type of planning conditions local planning authorities may wish to attach to a planning permission.

www.odpm.gov.uk/stellent/groups/odpm_control/documents

Regional Targets and the RSS

2.11. At a regional level, in 2001 the Government asked each region to set their own target, based on an assessment of the area's capacity to generate electricity from all potential sources of renewable energy.

2.12. In 2001, the Government Office for Yorkshire and the Humber commissioned AEA Technology (AEAT) to undertake an assessment of the potential for renewable energy production in the region[6]. This study led to the establishment of regional and sub-regional renewable energy

[6] AEAT (July 2002) *Development of A Renewable Energy Assessment and Targets for Yorkshire and the Humber*. www.goyh.gov.uk/goyh/menvrur/enrgy/247547/?a=42496

targets[7]. An indication of how the regional targets for 2010 and 2021 could be met is set out in **Table 2.1.** The regional target of 674MW for 2010 is equivalent to 9.4% of energy consumption within the region. Please note that the break down according to technology type is just an indication of how the total targets could be met, no targets for each technology type were set.

Table 2.1: 2010 and 2021 renewable energy (electricity) targets by technology (AEAT 2002)

	2010		2021	
	MW	**GWh**	**MW**	**GWh**
Wind - On shore	305	796	740	1,927
Wind – Offshore	160	490	400	1,226
Biomass Co-firing	50	288	-	-
Biomass Power Stations	129	683	347	1,996
Biomass CHP	10	58	40	230
Anaerobic Digestion	1	8	10	85
Hydro	3	9	5	16
PV	16	12	155	117
Wave	-	-	153	-
Total	**674**	**2,344**	**1,850**	**5,597**

2.13. The study identified a target to generate 674 MW from renewable energy sources by 2010, with 194 MW of this located in North Yorkshire. The regional target for 2021 is 1850 MW. Both these targets have subsequently been incorporated into the *Regional Spatial Strategy (RSS) for Yorkshire and the Humber*[8].

2.14. The RSS states that local authorities should work towards meeting these sub-regional targets as a matter of urgency and that the targets should be treated as **minimums**. In line with the requirements of PPS 22, the RSS does not set targets for which technology types should be used to meet the sub-regional targets, but instead states that development plans should maximise the use of technologies such as biomass, wind, solar and small scale hydro. A summary of the policies addressing sustainable energy issues within the RSS is set out in **Box 2.3**.

[7] The study only considered the potential for renewables to generate electricity and not heat.

[8] GOYH (December 2004) *Regional Spatial Strategy for Yorkshire and the Humber to 2016, based on Selective Review of RPG12.*

BOX 2.3: REGIONAL SPATIAL STRATEGY

Policy S4 requires that sub-regional or local design guides (or supplementary elements within other design guides/plans) address energy efficiency and demand reduction in all development.

Policy S5 addresses the prevention and adaptation to the effects of climate change.

Policy R12 states that development plans should include measures which help to secure the following targets for renewable electricity generation by 2010:

Humber	146MW
North Yorkshire	194MW
South Yorkshire	100MW
West Yorkshire	74MW
Yorkshire and Humber	674MW

and a regional target for renewable energy generation of at least 1850MW by 2020.

The policy also requires local planning authorities to set out locational and environmental criteria which take account of the need to:

- maximise the use of community heating projects;
- maximise the use of CHP systems for all new development with significant energy demands;
- provide for new efficient energy generation and transmission infrastructure close to or within areas of demand and restrict new overhead transmission lines in sensitive areas;
- support the use of fossil fuel power stations which incorporate clean coal technologies or significant abatement measures.

A copy of the RSS can be downloaded from www.goyh.gov.uk/goyh/plan

2.15. The Government Office for Yorkshire and Humberside has also produced *Guidance for Local Planning Authorities on Taking Forward Renewable Energy Developments* (2004)[9]. This guidance covers a broad range of renewable energy sources and issues relevant to local planning and the development decision-making process. The guidance sets out:

- background to renewable energy development;
- renewable energy in practice including local impacts, site selection factors, good practice for consultation and case studies; and
- planning for key technologies, and approaches to consultations in local plans and applications.

2.16. Future Energy Yorkshire is also in the process of developing a Regional Renewable Energy Toolkit which will also include a section on planning guidance. This will be a web-based tool that will provide an additional planning resource for local planning authorities within North Yorkshire.

[9] www.goyh.gov.uk/goyh/menvrur/energy

Renewable Energy Potential within the Districts

2.17. A further regional renewable energy resource study was undertaken in 2004 by AEAT[10]. This study identified indicative potential targets for each district within the region based on the assessment of technical constraints and broad landscape capacity. The study did not suggest a major revision of the regional and sub-regional targets in the existing RSS but set out what they considered to be the current 'potential' that could be delivered in the periods to 2010 and 2021 in the light of the latest market and technology information. This was intended to help local authority planners focus on what might be realistically achieved within their districts and show how the RSS can be achieved through developments at the local level. The report suggested that a potential 209 MW by 2010 and 350MW by 2021 could be generated within the North Yorkshire area. A summary of the indicative district potentials and an illustrative technology breakdown for 2010 and 2021 are set out in Tables 2.2 and 2.3.

Table 2.2: Indicative renewable energy potential for North Yorkshire for 2010 (MW)

Local Authority*	Wind onshore	Biomass	Co-firing	Hydro	PV	Total
Craven	17			0.46	0.12	17.6
Hambleton	40				0.17	40.2
Harrogate	16			0.9	0.31	17.2
Richmondshire	17			0.78	0.12	17.9
Ryedale	10				0.11	10.1
Scarborough	5				0.24	5.2
Selby	14			0.27	0.15	14.4
York	10			0.9	0.32	11.2
Total	**129**	**0**	**75****	**3.32**	**1.5**	**209**

* Local authority administration boundaries (not planning authority boundaries).

** The amount of material that could be co-fired in the two existing power stations within North Yorkshire (Eggborough and Drax in Selby) could vary considerably and will be determined by the power companies. This is beyond the control of Selby District Council. AEAT therefore stated that it is inappropriate to indicate potential for co-firing at the LA level since a small variation in co-firing would have an overriding effect on the LA's renewables contribution. However to allow a comparison to be made with the 2002 study and the RPG targets, the total potential for co-firing has been estimated at the county level.

Table 2.3: Indicative renewable energy potential for North Yorkshire for 2021 (MW)

Local Authority	Wind onshore	Biomass wood	Biomass other	Hydro	PV	Total
Craven	43	0.7	2.2	0.46	1.5	47.8
Hambleton	90	1.1	3.7		2.6	97.4
Harrogate	56	2.0	6.4	0.9	4.6	69.9
Richmondshire	34	0.7	2.1	0.78	1.5	39.1
Ryedale	15	0.6	2.0		1.3	19
Scarborough	15	1.4	4.5		3.1	24
Selby	26	0.9	3.0	0.27	2.2	32.4
York	15	2.2	7.2	0.9	5.9	31.3
Total	**294**	**9.6**	**31.1**	**3.32**	**22.8**	**361✧**

✧ The total potential figure of 361MW was rounded down by AEAT to 350MW (see para 2.17) to give an indication of how the RSS target could be met.

[10] AEAT (December 2004) *Planning for Renewable Energy Targets in Yorkshire and Humber*. www.goyh.gov.uk/goyh/menvrur/energy/247547/?a=42496

2.18. The main technologies identified in the AEAT studies are onshore and off shore wind, biomass, co-firing, hydro and PV. The focus is placed on these technologies as it is felt that they could make the most significant contribution to the sub-regional electricity target.

2.19. The key points to note from these tables are that it is anticipated that:

- the main renewable energy technology which will contribute to the proposed targets for both 2010 and 2021 will be onshore wind;
- the only sizeable contribution from biomass in 2010 will be from co-firing; and
- that all suitable small hydro schemes will be developed by 2010.

2.20. These indicative district potentials have subsequently been reviewed as part of this study by the National Energy Foundation (NEF) and the detailed findings of this review are set out in the accompanying report *Delivering Sustainable Energy in North Yorkshire, Recommended Guidance on Developing Energy Action Plans and Strategies (2005)*. NEF concluded that the indicative potentials and underlying assumptions of the 2004 AEAT study are appropriate and valid. No substantive deviations from the figures set out in Tables 2.2 and 2.3 were therefore proposed.

2.21. Both the 2002 and 2004 AEAT studies focussed on large-scale renewable energy electricity generation and did not consider micro-generation of electricity or heat (with the exception of PV). An assessment was therefore undertaken by NEF of the likely potential uptake of micro-generation renewables by 2010 and 2021 within the districts.

2.22. Five types of micro renewable energy generation associated with buildings were considered in the assessment – solar water heating (SWT), ground source heat pumps (GSHP), small scale wood heating, micro wind and PV. The first three technologies are used to generate heat and the later two, electricity. A summary of the micro-renewable energy potentials for each district within North Yorkshire for 2010 and 2021 are set out in Tables 2.4 and 2.5.

Table 2.4: Indicative micro-generation potential for North Yorkshire - 2010 (MW)

2010	SWH	GSHP	Wood Heat	PV*	Micro Wind
	Heat			*Electricity*	
Craven	0.98	0.85	2.58	0.13	0.06
Hambleton	1.37	1.30	3.67	0.18	0.08
Harrogate	2.06	2.23	6.13	0.36	0.16
Richmondshire	0.95	0.78	2.22	0.10	0.04
Ryedale	0.83	0.71	2.12	0.11	0.05
Scarborough	1.88	1.64	4.90	0.25	0.11
Selby	1.07	1.02	2.80	0.14	0.06
York	2.32	2.37	6.47	0.37	0.16
N Yorkshire	**11.25**	**10.48**	**28.76**	**1.55**	**0.66**

*The estimated potential contribution from PV in the 2010 NEF assessment broadly concurs with the indicative PV potential identified by AEAT (2004) study (see Table 2.2).

Table 2.5: Indicative micro-generation potential for North Yorkshire - 2021 (MW)

2021	SWH	GSHP	Wood Heat	PV*	Micro Wind
	Heat			*Electricity*	
Craven	7.03	7.45	15.34	1.81	0.62
Hambleton	10.48	11.11	20.89	2.67	0.91
Harrogate	16.70	18.94	33.33	5.17	1.72
Richmondshire	6.97	6.99	13.89	1.50	0.51
Ryedale	5.94	6.17	12.39	1.52	0.53
Scarborough	13.56	14.27	28.44	3.55	1.24
Selby	8.37	8.74	15.50	2.15	0.74
York	18.47	20.09	34.42	5.45	1.87
N Yorkshire	**86.88**	**91.20**	**163.50**	**22.97**	**7.81**

* The estimated potential contribution from PV in the 2021 NEF assessment broadly concurs with the indicative PV potential identified by AEAT (2004) study (see Table 2.3).
NB: More detailed information setting on the micro-renewables assessment is set out in Technical Annex A of the *Recommended Guidance on Developing Energy Action Plans and Strategies (2005).*

2.23. It is anticipated that owing to the introduction of new building regulations there will be a significant increase in the use of micro-renewables within the new build market. From April 2004, all new properties will be able to use the energy contributions from micro-renewables to reduce the target emissions rate (TER), which is required to meet the regulations.

2.24. By 2010 and 2021, the greatest contribution from micro-generation is expected to come from small scale wood heating followed by solar water heating, ground source heat pumps, PV and finally micro wind.

Renewable Energy Potential within the National Parks and AONBs

2.25. There are two National Parks (North York Moors and Yorkshire Dales) and three Areas of Outstanding Natural Beauty (Howardian Hills, Nidderdale and parts of the Forest of Bowland) within North Yorkshire. The National Park Authorities and the AONB units have expressed a strong desire to integrate sustainable development into their activities and are seeking to support appropriate small scale renewable energy developments and demonstration projects. Both Nidderdale and the Howardian Hills AONBs for example are investing £75,000 in renewable energy demonstration projects in the 2005/6 financial year. The North York Moors National Park has also set up a Community Renewable Energy Project – which has involved a project officer working with four communities in the National Park to establish and implement community led energy action plans and developments.

2.26. In order to identify how the National Parks and AONBs could contribute towards the sub-region target, a capacity assessment was undertaken by the National Energy Foundation[11]. This assessment found that biomass production, small scale hydro schemes and the development of micro renewables such as SWH, GSHPs, wood heat, PV and micro wind are likely to be the most suitable forms of renewable energy development within the designated areas. As detailed in **Chapters 5 and 6** of this report, owing to the high landscape sensitivity and value of the designated areas, the opportunities for commercial scale wind energy

[11] Further details on the assessment are set out in Chapter 4 of the *Recommended Guidance on Developing Energy Action Plans and Strategies (2005).*

developments are extremely limited. It is therefore anticipated that only single and domestic scale wind energy developments will be appropriate within these areas.

EXISTING ENERGY GENERATION AND USE

2.27. North Yorkshire currently produces far more energy than it consumes and this is also the case for the Yorkshire and the Humber Region as a whole. **Table 2.6** shows the level of domestic and commercial electricity use in North Yorkshire in 2003. The data indicates that the districts with highest electricity use include Harrogate and York, with the more rural districts of Richmondshire and Craven using just a quarter of the same amount of electricity.

Table 2.6: Electricity Consumption in North Yorkshire[12]

District	Domestic Sales 2003 - GWh	Commercial Sales 2003 - GWh	Total Sales 2003 - GWh	CO_2 Emissions Equivalent
Craven	124	138	262	114,000
Hambleton	196	259	454	195,000
Harrogate	335	409	744	320,000
Richmondshire	115	107	222	95,000
Ryedale	125	165	290	125,000
Scarborough	252	316	568	244,000
Selby	166	332	498	214,000
York	354	448	802	345,000
Total North Yorkshire	**1,667**	**2,174**	**3,841**	**1,652,000**
Total Yorkshire & Humber	**9,442**	**13,483**	**22,925**	**9,860,000**

[12] DTI (2003) Electricity experimental statistics at regional and local levels www.dti.gov.uk/energy/inform/energy_trends

2.28. North Yorkshire is a net exporter of electricity. This is because two coal fired powers stations are located within the sub-region; Eggborough (1960MW capacity), and Drax (3750MW capacity). Both of these plants lie within the district of Selby. The level of renewable energy generation within the sub-region is very low, with less than 10MW of energy being generated from renewable energy schemes. The existing schemes range from a single windfarm connected to the grid to landfill gas schemes, individual off-grid wind turbines and small-scale solar installations on individual properties. **Box 2.4** provides examples of some of the projects that are currently operational or have recently been granted planning permission within North Yorkshire.

BOX 2.4: RENEWABLE ENERGY SCHEMES IN NORTH YORKSHIRE

- ***Chelker Reservoir Windfarm***

  This scheme has four turbines and a capacity of 1.2MW. It was developed by Yorkshire Water Services and is located near Draughton in North Yorkshire. The scheme has been operational since 1991.

- ***Landfill Sites***

  There are two landfill sites operated by Yorwastes and one operated by the Waste Recycliing Group.

  The Yorwaste sites are:

  - Seamer Carr (Scarborough) with a capacity of 1.33MW. The site has been generating energy since March 2000.
  - Harewood Whin (Harrogate), which has a capacity of 2.37MW, has been generating energy since December 1997.

- Allerton Park (Harrogate) is a landfill gas scheme run by Waste Recycling Group and has a capacity of 0.95MW. This site has been generating electricity since October 2002.

➢ ***Nidderdale High School and Community College***:

A single Gazelle wind turbine was installed at the school in 2003 to supply energy requirements. The turbine has the capacity to supply 15 – 20% of the energy requirements at the site.

➢ Knabs Ridge Windfarm:

Approval was granted at appeal in September 2005 for a 10.4MW windfarm comprising eight turbines (98m to tip height) near Penny Pot Lane, Harrogate. Further information about the Knabs Ridge Planning Inquiry is provided in Appendix 3.

THE CHALLENGE FOR NORTH YORKSHIRE

2.29. To meet the sub-regional target will require a significant increase in the deployment of renewable energy projects on the ground within North Yorkshire. Whilst this will provide opportunities for the development of the economy and employment in the county, it also presents significant challenges; not least in terms of identifying suitable locations and forms of development.

2.30. Covering an area of 8,288km^2, North Yorkshire is the largest county in England and has a wide array of potential renewable energy resources. At the same time the development of renewables within the county is heavily constrained by its rich environmental and cultural heritage. As previously outlined there are two National Parks, three Areas of Outstanding Natural Beauty and two areas of Heritage Coast. There are also over 200 Sites of Special Scientific Interest, over 12,000 listed buildings and many more monuments and archaeological sites including Fountains Abbey, a World Heritage Site. Over 46.4% of the county is protected by international or national designations, (i.e. National Parks, AONBs, Heritage Coast, SSSIs, SPAs, SACs, and Ramsar sites).

2.31. The challenge for the planners and developers of North Yorkshire is to find a means of securing sustainable energy development and its associated economic environmental and social benefits whilst ensuring that the local environmental effects are minimised and that the unique heritage of the county is protected, if not enhanced.

2.32. The development of renewables has the potential to deliver significant benefits for North Yorkshire. As well as helping to combat climate change, the benefits of sustainable energy developments within North Yorkshire could include diversifying energy generation, creating employment and aiding rural diversification and regeneration. Important social benefits could include reducing levels of fuel poverty, and supporting local empowerment and greater community enterprise. A summary of the key benefits that can be delivered by sustainable energy initiatives within North Yorkshire is set out in **Table 2.7** below. The table sets out the benefits that can be obtained from all forms of sustainable energy. Not all the benefits can however be delivered by a single form of sustainable energy technology.

Table 2.7: Key Benefits of Sustainable Energy

Theme	Key Benefits
Social	▪ Contributing to security of energy supply ▪ Encouraging greater self sufficiency, particularly for isolated communities or farms/ estates with grid connection difficulties ▪ Providing opportunities for more local ownership of generation ▪ Facilitating greater community involvement or control with associated benefits for community empowerment and fostering of community spirit ▪ Creating educational assets – raising the profile of clean energy generation and enabling people to take responsibility for contributing towards their own energy needs ▪ Helping to reduce fuel bills thereby helping to reduce fuel poverty
Environment	▪ Reducing the use of fossil fuels and the associated CO_2 emissions ▪ Reducing need for other large scale energy developments e.g. fossil fuel and nuclear power stations ▪ Creating new environments by creating new habitats for rare species associated with new developments ▪ Managing existing habitats – e.g. through woodland management ▪ Improving air quality through contribution to reducing fossil fuel emissions
Economic	▪ Providing a new impetus for rural diversification and regeneration. ▪ Creating direct jobs through the manufacture, installation, operation and maintenance of renewable energy systems, as well as in the delivery of related services ▪ Creating indirect income generation through the multiplier effect of re-circulating income in local areas (local shops, schools, post office, pubs, etc.) ▪ Improving local government finance from job creation and local investment ▪ Facilitating development of the renewable energy technologies sector (including firms involved in the design, manufacture, supply, construction and maintenance of renewable energy schemes) ▪ Enhancing opportunities for community enterprise development through community finance initiatives ▪ Reducing fuel bills by integrating renewable energy generation into new developments ▪ Enhancing tourism potential e.g. visitor centres at renewable generation sites, such as wind installations ▪ Providing new revenue streams for landowners

2.33. The successful introduction of renewables within North Yorkshire will involve the development of different kinds of schemes in different contexts to maximise these benefits. For example, it may involve the installation of small scale wind turbines, biomass and hydro plants within the National Parks and AONBs, the development of commercial windfarm developments in the Vale of York and the integration of small scale biomass, solar panels and ground source heat pumps across the county and particularly within urban areas. Whatever the preferred technology and location, each district and National Park Authority has an important contribution to make towards meeting the targets, both in terms of developing renewable resources and in reducing the overall demand for energy.

3. CREATING A POSITIVE LOCAL PLANNING POLICY FRAMEWORK FOR SUSTAINABLE ENERGY

INTRODUCTION

3.1. This chapter provides guidance to the local planning authorities of North Yorkshire on how they can play a proactive role in facilitating sustainable energy development through the establishment of a positive planning policy framework and the effective use of regulatory measures.

3.2. In addition to setting out the challenge and key issues for sustainable energy policy development, this chapter provides specific advice on:

- the role of the energy hierarchy as a guiding framework for the consideration of energy issues;
- the integration of sustainable energy within built developments;
- the development of criteria-based policies for stand alone renewable energy developments;
- the development of polices for Combined Heat and Power; and
- the integration of sustainable energy objectives into wider policy framework.

3.3. This chapter sets out the positive steps that could be taken by local authorities when preparing their local development frameworks to encourage the take-up of sustainable energy developments. However, the guidance does not seek to be prescriptive as local authorities are best placed to decide what policies are most appropriate to meet their local needs. This guidance does however provide examples of good practice and links to further sources of information and tools which may be of use to planners, members and developers when developing or implementing sustainable energy policies.

PLANNING FOR RENEWABLES

3.4. In May 2004, the *Government Planning and Compulsory Purchase Act* received Royal Assent. This Act has had a range of impacts on the planning system in relation to planning for renewables. Under the Act local authorities are obliged to revisit their full suite of plan policies. This has presented opportunities for raising the profile of renewables.

3.5. As set out in the Companion Guide to PPS 22, key issues for planning for renewables at a local level include:

- the introduction of the spatial planning approach within the new system which has provided an opportunity for integrating renewable energy issues into the wider planning framework;
- requirement for local planning authorities to prepare criteria based policies that focus on local issues;
- use of supplementary planning documents to provide more detail on the application of policies in the local context;
- scope for local planning authorities to set specific targets for on-site generation within their LDDs;

- scope for local authorities to demonstrate practical support for renewable energy through their procurement strategies; and

- requirement for local planning authorities to encourage community involvement in planning for renewable energy.

3.6. A positive and strategic approach to land use planning is required to help deliver the regional and sub-regional targets for renewable energy development, and the local planning authorities of North Yorkshire have a pivotal role to play in this regard. Many local authorities in the UK and North Yorkshire are already actively involved in dealing with sustainable energy issues, particularly in the determination of planning applications for stand alone renewable energy developments. Much more however remains to be done in terms of strengthening the local policy framework if the challenge of meeting the sub-regional targets is to be met.

THE ENERGY HIERARCHY

3.7. It is important to recognise that people do not want to consume energy. Instead it is the services and benefits that energy can provide which people require. These services may include being warm, having sufficient lighting levels, travelling from A to B and using electrical appliances such as washing machines, computers and televisions. If more effort could be focused on providing these energy services rather than focusing on fuel and electricity supply, then the benefits could be delivered much more efficiently.

3.8. The energy hierarchy provides a useful guiding framework for the consideration of energy issues. It suggests four key principles to guide decisions on energy, whilst optimising environmental and economic benefits (see **Box 3.1**). These include:

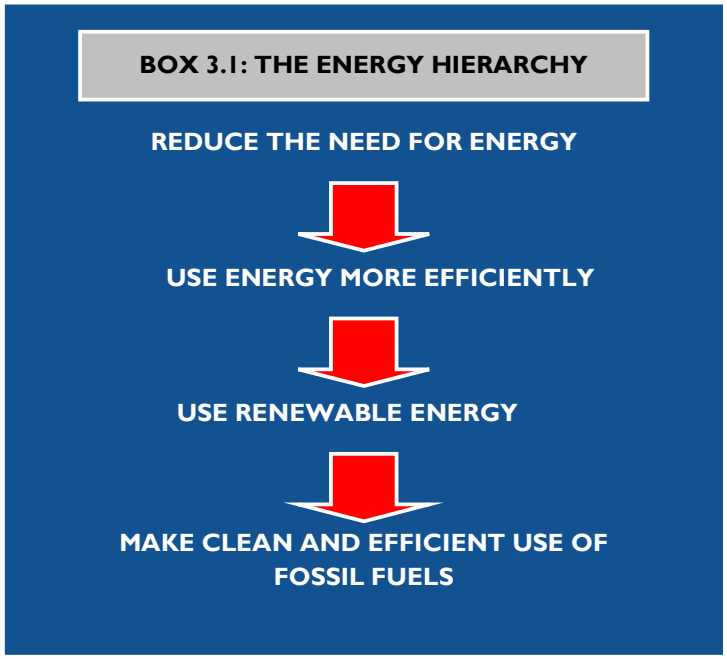
- ***Reducing the need for energy*** by trying to find other means of securing the benefits energy provides – i.e. by siting developments to reduce the need to travel and by minimising the demand for heating, lighting and cooling by designing buildings that maximise use of the sun, natural light and ventilation.

- ***Using energy more efficiently*** by getting more out of each unit of fuel we use - i.e. by insulating our buildings better, using energy efficient appliances, using combined heat and power systems and by cutting transmission losses through local generation.

- ***Supplying energy from renewable sources*** such as from the wind, sun, water and plants - i.e. by using wind turbines, hydro power, biomass, solar panels and ground source heat pumps.

- ***Using fossil fuels more efficiently*** by improving the efficiency and environmental impacts of fossil fuel use - i.e. by using cleaner fossil fuel technologies in buildings and transport and by improving the efficiency and reliability of our fossil fuel power stations.

BOX 3.1: THE ENERGY HIERARCHY



RECOMMENDATION 1: ENERGY HIERARCHY

It is recommended that the energy hierarchy should be adopted as the overarching framework for energy policy within the Regional Spatial Strategy and Local Development Documents. Whilst the hierarchy suggests a prioritisation for energy activity, it is recommended that it should not be applied in a strictly sequential manner. Instead, development should be encouraged which minimises energy demand, improves energy efficiency and develops renewable energy technologies as part of an integrated approach, as that is the only sustainable way of reducing the dependence on fossil fuels.

3.9. The hierarchy is flexible and can be adapted to many applications by a range of users. For example, it could support the work of forward planners, architects, developers, development control officers and building and transport managers. It can also be applied to the behaviour of individuals.

3.10. It is acknowledged that some of the actions required to reduce the use of energy and to achieve the clean use of fossil fuels fall outside the control of planners. Nevertheless it is possible to influence these issues through the careful design and siting of developments as discussed below.

INTEGRATING SUSTAINABLE ENERGY INTO BUILT DEVELOPMENTS

Sustainable Design

3.11. Addressing energy issues is an essential element of good sustainable building design. It is now possible to design buildings with minimal requirements for space heating and by incorporating renewable energy technologies to reduce net carbon emissions to zero. Minimising energy demand and using energy efficiently are central to reducing carbon emissions, but there are also significant benefits to be gained in terms of reducing running costs and providing affordable warmth.

3.12. The energy related measures that should be encouraged as part of sustainable building design are summarised in **Table 3.1**.

Table 3.1: Planning Considerations for Sustainable Energy in Buildings

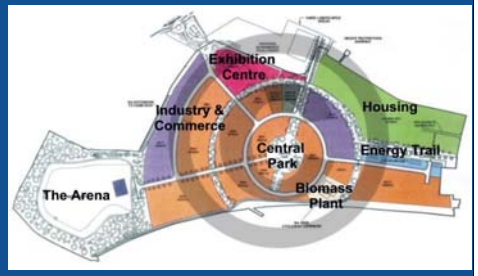
Planning Consideration	Energy Reduction
Location of Development	▪ Access and movement ▪ Choosing topography for maximum solar gain
Site Layout	▪ Orientation and layout for solar gain ▪ Minimising overshadowing ▪ Creating shelter(through landscape treatment) for microclimate
Building Design	▪ Compact built form ▪ Passive solar design ▪ High levels of insulation ▪ Passive ventilation ▪ Maximum use of natural light
Use of Materials	▪ Reused and recycled materials ▪ Locally sourced materials ▪ Materials with low embodied energy and long life
Building services	▪ Efficient cooling systems only to back up passive ventilation ▪ Well controlled energy efficient luminaires ▪ Well controlled, zoned, energy efficient space and water heating systems
Use of Water*	▪ Reuse of grey water and collection of rainfall ▪ Water efficient appliances and fittings
Energy supply	▪ Integrate renewable energy technologies e.g. photovoltaics, solar water heating, micro wind turbines, and ground source heat pumps and in larger buildings biomass fired CHP ▪ In larger developments consider district heating and cooling networks connected to CHP or the use of local electricity grids

* High levels of energy use are required for the treatment and transportation of water.

3.13. The various measures listed in **Table 3.1** require a systematic approach to planning and design, from the initial concept stage right through to construction and implementation. This approach has been used in the development of the Sherwood Energy Village (see **Box 3.2)**.

BOX 3.2: SHERWOOD ENERGY VILLAGE, NOTTINGHAMSHIRE

Sherwood Energy Village is a major initiative to transform the 91 acre site of a former colliery in north Nottinghamshire. The scheme plans to adhere to the highest energy efficient and environmental standards.



The village will integrate industrial, commercial, residential and leisure uses and will be constructed on environmental, ethical and sustainable principles, with on site developments complying to the highest environmental standards. Buildings will utilise sustainable construction techniques and will include technologies such as passive ventilation, solar, thermal and PV technologies, ground source heat pumps, rainwater harvesting and recycling. Biomass will also be used to generate electricity for village.

As a whole, the development aims to be CO_2 neutral.

Further Information: www.sherwoodenergyvillage.co.uk

RECOMMENDATION 2: SUSTAINABLE DESIGN

All local planning authorities within North Yorkshire should ensure appropriate coverage of sustainable energy measures in their development plans, supported where possible by appropriate development briefs and design guides, explaining to developers how these policies should be implemented. Local authorities may wish to set out the categories of sustainable energy measures that they wish to see included in new developments (see **Table 3.1**).

Developers should be required to show that they have addressed sustainable energy issues as part of a broader statement on sustainable design and construction.

Energy Use Assessments

3.14. It is recommended that developers should be asked to provide evidence that they have addressed energy efficiency issues in the design of buildings by reference to accredited energy rating schemes.

Commercial

3.15. For office, retail and industrial units, developers should be encouraged to use the Building Research Establishment Environmental Assessment Model (BREEAM). Further details are provided in **Box 3.3**.

BOX 3.3: BREEAM AND ECOHOMES

BREEAM assesses the performance of buildings in the following areas:

- *management*: overall management policy, commissioning site management and procedural issues
- *energy use*: operational energy and carbon dioxide (CO_2) issues
- *health and well-being*: indoor and external issues affecting health and well-being
- *pollution*: air and water pollution issues
- *transport:* transport-related CO_2 and location-related factors
- *land use*: greenfield and brownfield sites
- *ecology*: ecological value conservation and enhancement of the site
- *materials*: environmental implication of building materials, including life-cycle impacts
- *water*: consumption and water efficiency

Credits are awarded in each area according to performance. A set of environmental weightings then enables the credits to be added together to produce a single overall score. The building is then rated on a scale of Pass, Good, Very Good or Excellent, and a certificate awarded that can be used for promotional purposes.

BREEAM covers a range of building types including offices, retail and industrial units. The Ecohomes Assessment is the version of BREEAM for new, converted or renovated homes, covering both houses and apartments.

Some local planning authorities are negotiating Section 106 agreements, with developers requiring them to design and build to specific BREEAM and EcoHomes ratings on particular developments. Others are requiring developers to submit a BREEAM assessment as apart of the planning application. This provides a means of achieving energy efficiency standards above those specified by the Building Regulations.

Further information is available from www.breeam.org

3.16. Whilst local planning authorities have limited powers to insist on minimum energy ratings, they are able to provide information and recommendations. The forthcoming introduction of the *EU Energy Directive on the Energy Performance of Buildings* (2002/91/EC)[13] will require non-domestic properties in excess of 1,000m² and those that are publicly accessible to undertake periodic energy assessments (of no longer than five years).

RECOMMENDATION 3: ENERGY USE ASSESSMENTS - COMMERCIAL

Developers should be required to provide evidence that they addressed sustainable energy issues by reference to accredited assessment schemes such as BREEAM. Local planning authorities should request developers to ensure that all new office, industrial, or retail development at least meet BREEAM's 'very good' accreditation.

Local planning authorities should require that all major applications must undertake an energy use assessment (measured in carbon) of the electricity heating and cooling requirements of the proposed development. In addition developers should also demonstrate the steps taken to apply the energy hierarchy, to ensure that the energy demand of the development will be met in the most efficient way.

[13] This must be brought into force by member states by January 2006.

Domestic

3.17. Part L of the building regulations (which covers the conservation of Fuel and Power) was updated in April 2002 and the new standards have led to a 25% increase in the efficiency of new residential dwellings compared with the previous standard[14]. Nevertheless, these standards still fall short of what is currently being achieved in other European countries such as Germany and Scandinavia.

RECOMMENDATION 4: ENERGY USE ASSESSMENTS - DOMESTIC

Local planning authorities should encourage developers to ensure that all new dwellings at least meet:

- Building Research Establishment Ecohomes 'very good' standard where there is access to the mains gas network and 'good' standard in areas off the mains gas network; or
- the Government's Standard Assessment Procedure (SAP) levels of in excess of 85[15]; or
- the National Home Energy Rating (NHER) 9.0 rating.

The choice of which energy rating is used should be at the discretion of the local authority.

3.18. The Yorkshire and Humber Regional Housing Strategy 2005-2021 states that all new social housing developments should attain the Housing Corporation's "very good" Eco Homes standard, and progress will be reviewed each year with a view to increasing to the "Excellent" standard for schemes which benefit from financial support through the Regional Housing Board.

3.19. Further details on Ecohomes is provided in **Box 3.3** and on SAP and NHER in **Boxes 3.4 and 3.5**.

BOX 3.4: STANDARD ASSESSMENT PROCEDURE (SAP)

The SAP is the Government's recommended system for energy rating of dwellings. The Standard Assessment Procedure is used for:

- *calculating the SAP rating,* which is based on the energy costs associated with space heating, water heating, ventilation and lighting. It is adjusted for floor area so that it is essentially independent of dwelling size for a given built form. It is proposed in the Draft SAP 2005 that the SAP rating will be expressed on a scale of 1 to 100, - the higher the number the better the standard.
- *calculating the Dwelling Emission Rate* (DER), which is equal to the annual CO_2 emissions per unit floor area for space heating, water heating, ventilation and lighting, less the emissions saved by energy generation technologies, expressed in kg/m²/year.

The SAP rating is used to fulfil requirements of the Building Regulations to notify and display an energy rating in new dwellings.

The method of calculating the SAP rating and the DER is set out in the form of a worksheet, accompanied by a series of tables. The calculation should be carried out using a computer program that implements the worksheet and is approved for SAP calculations by the BRE.

A typical SAP for an average house in England is about 45. A 'SAP2001' rating on a house built to current Part L building regulations would be closer to 80-100 or more SAP points.

Further information: www.bre.co.uk

[14] Part L is currently in the process of being revised again and it is anticipated that the new regulations will be coming into force in early 2006.
[15] Under the revised SAP 2005 ratings this figure will be lower.

BOX 3.5: NATIONAL HOME ENERGY RATING (NHER)

The NHER uses a scale from 0 to 10 and is operated by National Energy Services Ltd. NHER is a super-set of SAP and takes into account the local environment and the affect it has on the building's energy rating. The NHER calculates the costs of space and water heating as well as cooking, lights and appliances.

The NHER can only be calculated using computer software as supplied by National Energy Services (NES).

Further information: www.nher.co.uk

3.20. Further information on these energy assessment ratings is provided in the accompanying *Recommended Guidance on Developing Energy Action Plans and Strategies (2005)*.

BOX 3.6: CASE STUDY: ENGLISH PARTNERSHIPS

English Partnerships use a combination of the NHER and Ecohomes to set standards on developments on land controlled by them. They estimate that savings of up to 30% above current building regulations levels can be achieved at an acceptable cost to the developer.

Integrated Renewables

3.21. Perhaps the most significant step forward in planning for renewables in recent years has been the opportunity local authorities have been given to require developers to incorporate on-site renewable energy generation within new developments.

3.22. As set out in section 8 of PPS 22:

"Local planning authorities may include policies in local development documents that require a percentage of the energy to be used in new residential, commercial or industrial developments to come from on-site renewable energy developments".

The Merton Approach

3.23. The London Borough of Merton was the first to see its demand for 10% renewable energy adopted in its in UDP in October 2003. Policy PE13 of the Adopted London Borough of Merton UDP states that:

"All new non-residential development above a threshold of 1,000 square metres will be expected to incorporate renewable energy production equipment to provide at least 10 per cent. of predicted energy requirements."

3.24. When the policy was originally put forward at the Second Deposit Stage of the Merton UDP, the policy attracted objections from the Government Office for London (GOL) and the Chartered Institute for Personnel Development, which was in the process of applying for planning permission for an office development at the time. The requirement was successfully defended at public inquiry, with the planning inspector supporting Merton's approach. Subsequent legal challenges to the policy were also dropped.

3.25. The objections to the Merton proposal focussed on two key issues:

- the policy places an unacceptable and unjustified requirement on developers, as it cannot be considered a land-use matter and could impose additional costs upon development; and
- inclusion within a Unitary Development Plan (UDP) first requires demonstration of its reasonableness and feasibility.

3.26. The objections were successfully overcome with the following arguments, which were supported by the Planning Inspector at the public inquiry:

- sustainable energy is as much a land-use issue as other issues such as employment potential, wildlife protection and protection of an area's character. Whilst costs could be increased for new development, this would be reflected in reduced land costs or increased revenue through the selling of development with embedded energy generation; and
- the Council undertook financial appraisals of a hypothetical development which indicated that the new policy would not produce a negative residual value for the development site. Their confidence that it was both feasible and reasonable were supported by other Government policy instruments, in particular the Climate Change Levy and enhanced capital allowances for investment in approved energy saving measures.

3.27. In approving the policy, the Government inspector stated that there was "*unambiguous national and regional support for the approach adopted by Merton*." Since the policy was adopted a new commercial development has been built within Merton which has integrated renewable energy technologies. See **Box 3.7** for more information.

BOX 3.7: CASE STUDY: WILLOW LANE INDUSTRIAL ESTATE DEVELOPMENT

The first commercial development in Merton that was asked to provide 10% on-site renewable energy generation was the Willow Lane Industrial Estate Development. This is a 4,500m^2 speculative commercial development comprising of 10 units. The units will be occupied by a mixture of storage, light fabrication, partial offices or other similar industries. The site is located in a light industrial estate in a built up suburb within the London Borough of Merton. To meet the requirements of the policy the developers, Chancerygate, commissioned a detailed technical appraisal examining the energy saving and renewable energy options available.

As a speculative development it was difficult to establish a baseline energy/carbon footprint. Without knowing what types of firms might occupy the buildings it was impossible to determine how much hot water might be needed. Unlike electricity generating technologies, it is not possible to sell excess hot water onto a third party unless there is a district heating infrastructure available. It was therefore decided that only electricity generating technology could be used to meet the policy in this specific case. It was agreed with the London Borough of Merton that the development would include: 10 small scale wind turbines, 5kWp of solar power panels and various energy saving measures including condensing boilers, intelligent lighting and passive stack ventilation.

Contrary to expectations, the developer is enthusiastic about the policy and is seeing it as an opportunity for them to lead in designing and marketing low carbon buildings in the future.

Mainstream Policy

3.28. The Merton approach has now moved into the mainstream with a significant number of planning authorities throughout England having drafted similar policies. By June 2005, around 100 local authorities had or were in the process of introducing a policy of this nature within their LDDs.

3.29. The policy statement drafted for the London Borough of Croydon's UDP is the model that has been most widely adopted by other authorities. This states that:

"The Council will expect all development (either new build or conversion) with a floorspace of 1000m² or ten or more residential units to incorporate renewable energy production equipment to provide at least 10% of the predicted energy requirements."

3.30. The London Borough of Croydon's policy, goes further than the London Borough of Merton's approach as it also applies to residential developments. This approach has also been adopted in the Calderdale Metropolitan Borough Council Draft Replacement Unitary Development Plan.

3.31. It is strongly recommended that the local authorities of North Yorkshire should also seek to include a policy of this nature within their LDDs. A measure of this kind could quickly create a substantial market for building based renewable energy.

3.32. It is also important to recognise that there are many wider benefits that can be gained from the introduction of a target for on-site generation. These include reduced energy costs arising from both reduced energy use and protection from rising costs. There is also potential for improved comfort and health, improved capital value. As illustrated in the Willow Lane case study (see **Box 3.7**), businesses can also benefit through enhanced social responsibility, prestigious designs, exemption from climate change levy, renewable obligation certificates, local job creation and increased community spirit.

Key Issues

3.33. When drafting and implementing a policy requiring the on-site generation of renewable energy there are a number of key issues that local authorities need to consider. These are as follows:

i) What types of renewable technologies are likely to be most appropriate?
ii) What level of renewable energy generation is required?
iii) How much will it cost?
iv) How flexible should the policy be?
v) How should the policy be worded?
vi) What conditions should be attached to planning permission?
vii) How should the policy be monitored?

3.34. These issues are discussed in more detail below:

i) What types of renewable technologies are likely to be most appropriate?

3.35. There are a wide range of renewable energy technologies that can be integrated into both new build and retrofitted to existing buildings. A list of the technology types that are likely to be most appropriate for developers within North Yorkshire are set out in **Table 3.2** below. All these technologies are commercially available, technically proven and have been available for many years. All the technology types are also

suitable for supplying both domestic and non-domestic energy demand.

Table 3.2: Integrated Renewable Energy Technologies

Technology Type	Description	Application
Solar water heating (SWH)	Use of solar energy to heat water. The systems use solar collectors (either flat plate or excavated tube) usually placed on the roof of a building to preheat water for use in sinks, showers and other hot water applications. They do not provide enough energy for space heating.	▪ Easiest and potentially cheapest renewable energy solution for domestic buildings. ▪ For non-domestic buildings SWH only applicable if they have high hot water demand e.g. swimming pools, hotels and some industrial buildings.
Photovoltaic (rooftop or cladding)	Conversion of solar energy using semi conductor cells to generate electricity. Can be fitted as bolt on panels to roof, solar power roof tiles or attached to individual items e.g. lights, parking meters. They are applicable to any unshaded roof but careful design is needed in sensitive areas.	▪ Particularly suited to buildings that use electricity during the day e.g. offices, schools, retail etc. ▪ Unlikely to be the most cost-effective option as pay-back period is comparatively long. PV is therefore not likely to be suitable to provide base loads but may be suitable for toping up or meeting peak loads. ▪ PV cladding could be used on prestigious office and hotel developments.
Biomass heating	Use of stoves or boilers that use biomass (including wood, woodchips, pellets and some industrial waste products).	▪ If available, fuel supply and storage within area, suitable for offices, industrial buildings, care homes, schools, sport centres and communal heating residential developments. ▪ Integrates well with wind power as CHP engines can be switched off during periods of high wind.
Biomass CHP	Use of biomass to generate both heat and power (usually electricity) in a single process.	▪ Can be used for district residential and commercial heating systems. ▪ Steam turbines only applicable to large schemes. ▪ Biomass CHP is most likely to be viable when used to provide a base load.

Technology Type	Description	Application
Wind generators	Use of energy from wind to turn generator which produces electricity. A wide range of different sizes available.	▪ If space and suitable windspeeds available, potentially suitable for industrial, office, suburban residential, school and sport centre developments.
Small scale hydro	Use of water flowing from a higher to lower level to drive a turbine. Water usually taken from a river behind a low weir and return to same watercourse. Also potential for small hydro schemes on reservoirs.	▪ Suitable for most commercial developments if located adjacent to appropriate river site.
Ground source heating and cooling	Use of underground pipes or boreholes to provide space heating and to pre-heat domestic hot water.	▪ Likely to be the least cost option for retail units and hotels. ▪ Also highly suitable for office, care home, residential, school and sport centre developments.

3.36. In preparing policies in relation to on-site generation, the *Companion Guide to PPS 22* (2004) states that local authorities should encourage developers to consider a range of renewable energy technologies on their sites, but that they should not be prescriptive about what technologies should be used on named sites. It is likely that a mix of different types of technologies may be required to meet the energy requirements of a development. The Companion Guide also states that policies should be flexible as not all technologies are appropriate on all sites and local constraints should be taken into account.

3.37. Further information: Chapters 3 and 4 of the *London Renewables: toolkit for planners, developers and consultants* (September 2004) provides an excellent source of information on the types of renewable energy technology that are appropriate for on-site generation. This covers the benefits of the technologies, site specific details of applicability, planning requirements and costs. Chapters 6 and 7 of the *Companion Guide to PPS 22* (2004) also contain useful information on the types of technologies that can be integrated into built developments.

ii) What level of renewable energy generation is required?

3.38. It is the responsibility of the developer to undertake an assessment of what renewable energy technologies they will need to install to meet the policy requirements. Clear guidance on how developers can assess the feasibility of renewable technologies and how to include them in development proposals is contained in Chapter 4 of the *London Renewables Toolkit*. This outlines a number of steps that developers should take in the form of a route map (see **Box 3.8**).

3.39. Guidance is also provided within the toolkit for planners on how to use the route map to assess proposals and to liaise and negotiate with developers from an informed position. In particular advice is provided on:

- the need to raise awareness with developers and their consultants at the earliest possible stage and to negotiate with developers on the inclusion of renewables;

- how to calculate the likely cost of the renewables target for developers in terms of total development cost; and
- how to assess the proposals put forward by the developer in the planning application and in particular how to establish:

  a) baseline carbon emissions;
  b) target carbon emissions reduction for the site;
  c) contribution of proposed renewable technologies;
  d) total carbon emissions reductions achieved.

BOX 3.8: ROUTE MAP FOR DEVELOPERS: INCLUDING RENEWABLES IN DEVELOPMENTS

Step 1: Draw up a shortlist of renewable technologies to consider

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Step 2: Calculate the annual predicted energy demand of the site

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Step 3: Calculate the carbon emissions of the development

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Step 4: Calculate the contribution of each proposed renewable energy technology

↓

Step 5: Calculate the costs of technically feasible renewable energy technologies

↓

Step 6: Assess the benefits of technically feasible renewable technologies

↓

Step 7: Calculate the reduction of baseline carbon emissions for the development

↓

Step 8: Include renewables proposals in the planning application

Further Information: Chapter 4 of London Renewables Toolkit

iii) How much will it cost?

3.40. PPS 22 states clearly that local authority policies should not place an undue burden on developers. The Companion Guide goes on to state that planning officers should be mindful of the level of development pressure in their area when setting generation targets.

3.41. The extent to which the proposed policy places an undue burden on the developer is likely to come down to the additional costs that the developer has to meet to install the on-site renewable technologies. Section 4 of the London Renewables toolkit provides useful guidance on the likely costs implications of meeting the 10% target. Section 6 of the toolkit also sets out advice for developers on how they can calculate the likely cost implications of meeting the target. The toolkit indicates that usually the 10% target can be exceeded for less than 4% of building costs and in many cases it is actually below 1%. In larger developments where economies of scale may occur, the cost is likely to be even lower.

3.42. There are a wide range of factors that will affect costs in any particular development. These may include: land prices, technology costs, development size, available grants, fossil fuel prices etc. It will be for the developer to justify if a technology is or isn't viable and how the 10% target can be achieved.

iv) How flexible should the policy be?

3.43. The Companion Guide to PPS 22 states that policies should be flexible, as not all technologies are appropriate on all sites and local constraints should be taken into account.

3.44. In order to meet the requirements of the policy, developers will be expected to demonstrate that they have explored all the renewable energy options to deliver the required % of on-site generation. Strong justification should be required from the developer if they do not think they can meet the required target.

3.45. There are three possible issues that developers could raise which might question the viability and feasibility of a development proposal, and which may require local authorities to adopt a more flexible approach. These are:

1. *Capital cost is cutting too deeply into developers' profits.* In some circumstances the costs on installing the renewable energy technologies may compromise the overall commercial viability of the scheme. It is only anticipated that this would be the case if the developer could only meet the targets by installing photovoltaic cells.

2. *Infrastructure payback times are unreasonably long and could not realistically be factored into an end users business plan.* If the payback timeframe for the installed equipment is very long (i.e. over 15 years) then the developer could argue that it is unrealistic to expect an end user to factor it into their business plan (which may only run for 5 years), and as such it is unreasonable to expect them to cover the cost. Again this is only likely to occur if the developer could only meet the targets by installing photovoltaic cells.

3. *Technical, architectural, engineering or climatic impediments make it impossible to meet the targets.* The developer may be able to claim that one of these factors may compromise the feasibility of installing renewables.

3.46. If it is not believed to be feasible for the developer to meet the targets, local authorities should expect them to explain their reasoning and to set out in their proposals what portion of the target they do consider is achievable. What is considered to be feasible, however, is likely to vary as energy prices fluctuate, the

cost of the technologies change and as new grants or legislation come in.

3.47. Collective action is however the only effective way of implementing these policies, and as such the local planning authorities should seek to work closely with the developer to agree the most acceptable solution.

v) How should policies be worded?

3.48. It is recommended that as a minimum, the following policy should be adopted by local planning authorities within North Yorkshire.

RECOMMENDATION 5: SUGGESTED (MINIMUM) ON-SITE RENEWABLES POLICY

The Council will require all developments, either new build or conversion, with a floor space of 1000m^2, or ten or more residential units, to incorporate on-site renewable energy equipment to reduce predicted CO_2 emissions by at least 10%.

3.49. The key components of this policy are that it:

- includes the word 'require' rather than 'expect';
- covers both new build and conversions;
- has clear thresholds for the size of development to which the policy applies;
- clearly states the need to incorporate renewables on-site;
- relates to predicted CO_2 emissions rather than energy demand;
- establishes a percentage target.

3.50. These issues are discussed in more detail below:

Expect versus require

3.51. When the Inspector was reviewing the London Borough of Merton's policy PE13, he asked for the word 'required' to be replaced by 'expected'. It was felt that the word 'expected' implied a degree of flexibility on the 10% target, which was initially considered to be more appropriate considering the radical nature of the policy. However, since the adoption of the policy, PPS 22 has been published and confirms the legality of prescriptive policies including the word 'require'.

3.52. It is therefore recommended as set out in **Recommendation 5,** that the policy should 'require' all new development to incorporate 10% on-site renewable energy generation. That is not to say that the local authority should not be prepared to adopt some flexibility under specific circumstances (as discussed in para 3.62 below).

New build and conversions

3.53. The suggested policy covers both new build and conversions. This expands the scope of the policy from the original London Borough of Merton approach which only covered new developments, although in their forthcoming policy review the Borough are proposing to expand the policy to cover conversions. It is considered feasible to achieve the 10% target for conversions, although local authorities may have to show greater flexibility as the cost of retrofitting is generally higher.

Size of development

3.54. The thresholds of the size of development that the policy applies to have been taken from the ODPM's definition of major development (on the PS2 form which is completed by all district authorities) as set out in **Box 3.9** below. These thresholds are also the model that has been most widely

adopted by other authorities developing an on-site renewable energy policy.

BOX 3.9: DEFINITION OF MAJOR DEVELOPMENTS

For dwellings: 10 or more houses (or area is greater than 0.5 hectares).
For all other uses: Floor space will be 1000m^2 or more (or area of site is 1 hectare or more).

Area of site is that directly involved in some aspect of the development.
Floor space is defined as the sum of floor areas within the building measured externally to the external walls at each level.

3.55. It is suggested that these are the minimum thresholds that should be applied to the policy. With respect to new-build residential properties, the additional cost for a solar hot water heating system is likely to be approx 2.5-3% of costs (approx £2,000 per dwelling) which would mean that there could be scope for local authorities to require every new home to meet the 10% target. In the same way there may also be scope to revise the commercial threshold down to 500m^2.

3.56. Consultees at the planning workshops highlighted that North Yorkshire is a predominately rural county and that outside the main urban areas, there are few developments which come forward of greater than 1000m^2 and housing developments tend to consist of a relatively small number of units. It was also noted by local planning officers that much of North Yorkshire is an attractive region for commercial and residential development so it is not anticipated that the additional costs for integrating on-site renewables will deter developers from coming to the area. Discussions with other local authorities who have implemented a policy of this nature would also appear to indicate that the policy has not had a negative impact on inward investment to date.

3.57. **Where justified, it is recommended that the local planning authorities of North Yorkshire should lower the policy thresholds for commercial and residential development.** However, it is strongly recommended that these thresholds should be determined by each local authority based on a sound financial appraisal which includes detailed consultations with the regional development agency, local economic development officers, commercial and residential developers and the house building federation etc.

On-site versus off-site

3.58. The policy clearly states that the targets apply to the delivery of renewable energy equipment on-site. Off-site generation of power is not considered to be an acceptable alternative.

3.59. The national target for renewables is challenging and is only going to be achieved through the use of a range of renewable energy sources at a variety of scales. Each developer needs to take a lead in becoming more responsible for the energy it uses, and the carbon dioxide emitted because of that use. It is therefore important that opportunities are taken to integrate renewables within new buildings and major refurbishment schemes at the design stage.

Carbon versus energy

3.60. It is recommended that compliance with the 10% target should be measured in terms of a reduction in CO_2, emissions i.e. developers will be expected to put in place sufficient renewable energy generation such that CO_2 emissions for the development will be reduced by 10% compared to the baseline. Implementing the target in terms of CO_2 reduction and not energy creates an incentive to use Combined Heat and Power (CHP) and discourages developers from installing electric

heating systems. The use of carbon and not energy is also aligned with national policy and building regulations, which are moving towards the use of targets based on carbon burden.

Percentage target

3.61. The wording of the requirement does have the effect of implementing the energy hierarchy as the renewable energy contribution to total demand is expressed as a percentage. It will therefore be in the developer's interest to reduce demand as much as possible in order cut the costs of meeting the renewable requirement.

3.62. In terms of the size of the % target that is required, in line with Government renewable energy targets, it is considered reasonable to expect developers to generate at least 10% of their on-site energy needs from renewable sources. The only circumstances where it may be necessary to reduce the percentage of generation required is with respect to:

- high density/ high rise buildings (e.g. over four storeys high), as the scope to integrate enough solar hot water heating panels will be limited.
- manufacturing plant - as this is an energy intensive use, and in most cases it would be impossible to generate the required energy from on-site renewables (except by using medium scale wind turbines), the policy would also penalise manufactures to a far greater extent than low energy business, e.g. storage facilities which could be potentially divisive and damaging for commercial development.
- speculative developments – as the final end users of the development may not be known and as such it will be difficult to predict baseline energy usage/ carbon emissions.

3.63. However, with regards to other forms of development, it is possible that rising fossil fuel prices and the falling cost of renewables may mean that it will be feasible for local authorities to ask for more than 10% in future years. The planning policy in the Calderdale MBC Draft Replacement UDP states that the percentage of renewable energy generation should be in line with the Government targets i.e. 10% by 2010, 15% by 2015 and 20% by 2020 (see **Box 3.10** below).

BOX 3.10: CALDERDALE UNITARY DEVELOPMENT PLAN: REVISED DEPOSIT DRAFT FOR THE REPLACEMENT UDP (2005)

POLICY EP23A Renewable Energy in Developments

Major employment, retail and residential developments will be required to incorporate renewable energy generation to provide at least 10% of predicted energy requirements up until 2010, 15% up until 2015 and 20% up until 2020.

vi) What conditions should be attached to planning permission?

3.64. In order to ensure that adequate energy generating measures required for the development are provided and retained, it is recommended that local planning authorities should give careful consideration to the conditions which apply to the planning approval (see **Recommendation 6**).

RECOMMENDATION 6: SUGGESTED PLANNING CONDITION

It is recommended that local planning authorities should include the following type of condition as part of planning approval for on-site renewable energy generation:

"Before any unit of the development hereby approved is occupied, the renewable energy technologies shall have been installed and the local planning authorities shall be satisfied that their day- to-day operation will provide energy for the development. The renewable installations (e.g. turbines and photovoltaic cells) shall be permanently retained and maintained so as to continue to provide energy for the development for as long as the buildings remain."

vii) How should the policy be monitored?

3.65. Local planning authorities should put in place monitoring processes that track the proposed specifications in planning applications against what is actually implemented. This will largely be achieved through development control procedures. Additional training for development control officers may be required in order to ensure that they are fully up to speed with the different forms of renewable energy technology.

3.66. At the time this guidance was produced, London Renewables and South Bank University are in the process of creating additional guidance for local planning officers on how to monitor the implementation of on-site renewable policies.

DEVELOPING CRITERIA BASED POLICIES FOR STAND-ALONE RENEWABLE PROJECTS

3.67. The achievement of North Yorkshire's renewable energy potential will depend on creating a greater climate of certainty in which the renewable energy industry can invest.

3.68. Most stand-alone renewable energy developments will require planning permission, with the exception of:

- some renewable developments (e.g. solar) which may be treated under Part 1, Class B1(B) of the Town and Country Planning (General Permitted Development Order 1995). **See Chapter 4** for further details;
- developments which generate greater than 50MW as these are determined by the Secretary of State under Section 36 of the Electricity Act 1989; and
- offshore developments as these lie beyond normal planning jurisdiction and are the subject of separate DTI consent procedures. Associated onshore infrastructure is however likely to require planning permission.

3.69. To date, North Yorkshire has experienced a very low level of renewable energy development but that situation is likely to change. Strong Government support for the take-up of renewables through the introduction of the Renewables Obligation and the Climate Change Levy is stimulating the development of markets for renewable energy. The publication of PPS 22 has also created a positive national planning framework which can be used by regional and local planning bodies to encourage the development of renewables.

Government Guidance

3.70. PPS 22 sets out the Government's advice on how planning authorities should include requirements for renewable energy within their plans. It also set outs out the guiding principles which should be used to frame the development and consideration of policy, these include the need to:

- promote and encourage, rather than restrict, the development of renewables;
- recognise the full range of renewable energy sources, their differing characteristics, locational requirements and potential for exploiting them subject to appropriate environmental safeguards;
- 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;
- recognise the importance of small-scale projects in providing a small but valuable contribution to meeting local and national energy needs; and
- foster community involvement in renewables and promote knowledge of and greater acceptance by the public of prospective renewable energy developments.

3.71. In terms of local policy development it specifically states that Planning Authorities should:

"Set out the criteria that will be applied in assessing applications for planning permission for renewable energy projects. Planning policies that rule out or place constraints on the development of all, or specific types of renewable energy technologies should not be included in regional spatial strategies or local development documents without sufficient reasoned justification."

3.72. It goes on to state that local authorities should only focus on the key criteria that will be used to judge applications, and that more detailed issues should be left to supplementary planning documents. When preparing criteria based policies, PPS 22 also states that these should fit within the framework set out by national policy and the Regional Spatial Strategy.

Key Policy Considerations for Stand Alone Renewable Developments

3.73. The following section discusses the key considerations that will be of relevance to local planning authorities within North Yorkshire when drafting policies for stand alone renewable developments.

Encouraging all forms of renewables and including targets

3.74. Given the distribution of renewable resources across the county, it is expected that all types of renewable energy development will come forward within North Yorkshire. However, as outlined in **Chapter 2**, it is anticipated that the majority of applications for standalone renewable developments before 2010 will be for wind energy developments and potentially small scale hydro schemes. Thereafter it is expected that there will be an increase in the number of applications for biomass developments.

3.75. Local planning authorities should reflect in their policy proposals that they will positively encourage the development of all forms of renewables within their districts, and highlight which renewable resources are most prevalent within their area.

3.76. Reference should also be made to the regional and sub-regional targets as set out in the Yorkshire and the Humber Regional Spatial Strategy. These targets should be referred to as '**minimum targets'**. The indicative district potentials as set out in **Chapter 2** of this report should also be included to illustrate how the local authorities are anticipating they will contribute towards the sub-regional target. If, as expected, local authority targets are included in the next version of the Regional Spatial Strategy, then district targets will have to be included within LDDs. It is therefore recommended that local authorities should consider addressing this issue as soon as possible.

Benefits of renewables

3.77. PPS 22 states that local planning authorities should give weight to the wider environmental and economic benefits of renewable energy schemes when determining proposal. This allows local authorities to take account of the benefits of renewables at all scales, including the contribution that can be made to reducing CO_2 emissions at a national and even international level. A summary of the environmental, economic and social benefits associated with different forms of renewable development is provided in the Companion Guide to PPS 22.

Impacts on landscape and visual amenity

3.78. The development of most renewable energy developments within North Yorkshire, and particularly wind turbines, will require careful consideration due to their potential to have adverse visual and landscape impacts, especially in designated or sensitive landscapes. **Chapter 5** of this document provides guidance on the sensitivity of different character areas within North Yorkshire to wind energy and biomass installations. It sets out useful information for developers on what areas are most likely to be of greatest sensitivity to wind and biomass development and so by implications encourages developers to identify and develop schemes within the less sensitive areas. In conjunction with the provision of advice from local authority landscape officers, this could help reduce the potential for conflict and delay when determining planning applications.

3.79. It is recommended that the size, location and design of applications for renewable energy schemes, and in particular wind energy developments should be informed by landscape character assessment, alongside other key environmental issues as set out in the recommended criteria based policy.

3.80. The planting of biomass crops has the potential to change landscape character positively or negatively depending on location. This does however fall outside planning control; only biomass installations and their associated environmental and amenity impacts (including traffic impacts) can be considered in determining such proposals. If biomass crops are being planted on semi-natural or uncultivated land then DEFRA may require an Environmental impact Assessment (EIA) to be undertaken, Likewise the Forestry Commission may also require an EIA for applications submitted under the Energy Crop Scheme. In such cases local planning authorities may be asked to comment on the EIAs and the potential landscape impacts of the new crops. The EIA assessment will also cover other environmental issues such as transport impacts and the loss of crop land etc.

3.81. Additional information and guidance on the landscape and visual amenity issues associated with wind, biomass, solar and hydro schemes is provided in **Chapter 6.**

Other environmental and amenity impacts

3.82. Renewable energy developments can have a number of environmental and amenity impacts, both positive and negative depending on the site location. Reference should be made in the LDD that proposals need to avoid any unacceptable

environmental or amenity impacts. Such impacts may include noise, vibration, dust, odour, traffic generation, shadow flicker, habitat or species disturbance or loss or disturbance to recreation activity.

3.83. The impacts, as above, will differ with the technology, the scale of the proposal and the sensitivity of the local area (for instance, proximity to housing).

Designated areas

3.84. Within nationally designated areas, PPS 22 states that planning permission for renewable energy projects should only be granted where it does not compromise the objectives of the designation and where any significant adverse effects on the qualities for which the area was designated are outweighed by the benefits of the scheme.

3.85. PPS 22 goes on to state that regional planning bodies and local planning bodies should outline in LDDs the criteria based policies which set out the circumstances in which particular types and sizes of renewable energy developments will be acceptable in nationally designated areas. It also states that care should be taken to identify the scale of renewable energy developments that may be acceptable in specific areas. In particular it suggests that small-scale development should be permitted within areas such as National Parks, AONBs and Heritage Coasts, provided that there is no significant detriment to the area concerned. PPS 22 does not however include a definition of what constitutes a small-scale development.

3.86. Policy U2 of the existing North York Moors Local Plan encourages small-scale renewable energy electricity generation, provided the development is to meet local need. Policy U5 of the Yorkshire Dales National Park Authority Local Plan Post Enquiry Policies also looks favourably on small-scale generation. In the case of wind energy Policy U5 on Large Scale Renewable Energy Developments states *'development of more than one turbine or a single* turbine with a ground to hub height of 25m or more, will not be permitted.' A turbine with a hub height of 25m would equate to a 12-50kW machine. Small scale is defined in their 2nd Deposit Local Plan as "Domestic or community power schemes …that can be carried on within the capacity of the local environment, without causing lasting damage or eroding the special qualities of the area".

3.87. At the consultation workshops it was discussed whether this planning guidance should include a county-wide definition of what constitutes a small-scale development within designated areas. There was no firm consensus on this issue. It is therefore recommended that this should be left to the discretion of the local planning authorities. When defining small scale renewable energy developments within designated areas, it is important to consider the number, size and potential impact of the proposed development type on landscape character. In the case of wind turbines, it is recommended that size should be defined in terms of height to tip, rather than turbine capacity (e.g. MW). This is because technological developments may mean that if turbines become more efficient in the future, higher capacity turbines could be built at lower tip heights.

Cumulative impacts

3.88. In areas where a number of proposals come forward for development, careful consideration will have to be given to the potential cumulative and visual impacts of the developments. Local authorities should not however set limits in LDDs of the number of developments that will be acceptable within an area. Further guidance on assessing the cumulative impacts of wind, biomass, solar and hydro developments is set out in **Chapter 5.** Please note that under the EIA regulations cumulative

impacts may include the impact of several schemes of the same type within an area (e.g. two or more windfarms), or if appropriate, different types of schemes (e.g. windfarm and a retail park).

Green belt

3.89. Green belts are not a landscape designation; their role is to protect the openness of the countryside around urban areas. Any renewable energy proposals within the green belts within York, Harrogate and Selby therefore need to assess whether they compromise the sense of openness. In November 2004 a public inquiry was held for a proposed 65MW windfarm located in a green belt. A summary of the inspector's comments in relation to the impact on the green belt is provided in **Box 3.11**. The inspector concluded that the windfarm is an appropriate form of development in the green belt.

BOX 3.11: SCOUTMOOR WINDFARM PUBLIC INQUIRY

An application by United Utilities Green Energy Limited and Peel Investment (North) Limited was made to the Secretary of State for Trade and Industry for consent to construct and operate a 26 x 2.5MW(100m to blade tip) windfarm under Section 36 of the Electricity Act 1989. The site is located on 545 hectares of elevated moorland located between Edenfield and Rochdale within the Boroughs of both Rossendale and Rochdale. The land within the Rochdale part of the site is designated green belt. Neither Lancashire CC nor Rossendale BC objected to the development in terms of the green belt. Moreover, the County Council has amended the draft Structure Plan to include the green belt in the areas of search for wind development, because it is considered that wind turbine development would not have a significant impact on openness.

In the inspector's report it was stated that whilst the turbines and tracks would obviously be strikingly new, they would not be discordant or obstruct views of the historical landscape. He also noted that visual permeability is relevant to the question of openness and that "*One would be able to see 'through' between the widely spaced turbines to whatever is beyond and the visual impact is necessarily materially lessened by this factor. "*

In terms of *PPG2* which sets out the Government's advice on green belts, he suggested that the windfarm would preserve the openness of the green belt. Moreover *"given the agreement as to the importance of achieving renewables targets, it cannot sensibly or fairly be denied that it is essential."* Thus, the development was considered to be appropriate in terms of *paragraph 3.4* of *PPG2* and *paragraph 13 of PPS 22*. Finally, the inspector concluded that: *"In any event, even if one were to conclude that what is here proposed as inappropriate, the result would be the same. It is common ground that the international, national and regional need for, and the benefits to be derived from, renewables are in themselves very special circumstances capable of countering any inappropriateness."*

The application was approved in April 2005.

A review of the key issues and inspectors comments that were made in public inquires for a selection of windfarm proposals are set out in **Appendix 3.**

Internationally designated sites

3.90. Internationally designated sites such as Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar Sites etc are protected by specific legislation and should also be afforded a high level of protection within LDDs. This also includes potential SPAs (pSPA) and candidate SACs (cSAC). The purpose of the designation will vary from site to site and they may not be in conflict with some forms of renewable energy development. The key test in assessing such a proposal is the extent to which it might affect the integrity of the proposal.

Community projects

3.91. Community based and owned projects can be defined as schemes which the community develops and operates and in which the economic benefits are retained within a locality. As set out in PPS 22, such schemes are important in improving the understanding and acceptance of renewables. These projects

can also maximise the wider benefits of renewables. It is therefore recommended that local authorities should encourage the development of community schemes within their districts.

3.92. The Countryside Agency's Community Renewables Initiative (CRI) specifically promotes community based schemes which:

- are environmentally sensitive;
- have support of all stakeholders;
- are appropriate to the circumstances of the locality; and
- link to other diversification and regeneration schemes.

3.93. More information can be obtained from www.countryside.gov.uk or by contacting the local CRI support team at the Yorkshire and Humber Region Yorkshire Renewable Energy Network on Tel: 0845 3304930, E-mail: info@yren.org.uk

3.94. **Recommendation 7** sets out the key issues which it is suggested the local planning authorities of North Yorkshire should consider when drafting criteria based policies on stand alone renewable energy developments.

RECOMMENDATION 7: STAND-ALONE RENEWABLE ENERGY DEVELOPMENTS

Development plans should:

- positively encourage the development of all forms of renewables and give support to the 2010 and 2020 sub-regional targets for renewable energy;
- set out how the local authorities anticipate they will contribute towards the sub-regional target.
- require the need to consider the social, environmental and economic benefits of proposals at a national, regional and local level as material considerations that should be given significant weight in the decision making process.
- set out the criteria in which renewable energy proposals will be permitted, covering issues such as:
  - appropriateness of the location and scale of the proposal in relation to:
    - its impact on visual amenity and the character and sensitivity of the landscape (state that size, location and design of proposed development should be informed by landscape character assessment);
    - the potential for cumulative impacts;
    - accessibility by road or public transport.
  - need to avoid unacceptable environmental or amenity impacts (such as noise, dust, odour etc.);
  - need to ensure that the proposed development does not compromise the 'openness' of the green belt;
  - need to ensure that the proposal does not compromise the objectives of nationally designated areas;
  - need to ensure that the proposal does not compromise the integrity of internationally designated areas and features and/or species of nature conservation importance.
- express positive support for developments of an appropriate scale within National Parks and AONBs. State that size, location and design should be informed by landscape character assessment;
- express positive support for the development of community renewable energy schemes.

3.95. At the consultation workshops which were held to discuss the preparation of the planning guidance, it was suggested that a criterion should be included addressing aviation issues. PPS 22 states that local planning authorities should not make assumptions about the technical or commercial feasibility of renewable energy developments (i.e. identifying generalised locations based on mean wind speed or aviation), as technological change may mean that sites currently excluded for development may be suitable in the future.

3.96. Not all of the criteria set out under **Recommendation 7** will apply to every type of renewable energy proposal. It is recommended that separate policies should not be developed for different technology types, as following the planning reforms, local planning authorities are required to streamline their policy proposals.

3.97. Finally, it is important to note that although preparation of planning policy is the prime responsibility of local planning authorities, its preparation needs to actively engage and gain the support of all key stakeholders who will assist with its delivery.

COMBINED HEAT AND POWER

3.98. The Government has set a new target to increase the installed capacity of combined heat and power generation to 10,000 MW by 2010. Combined heat and power plants and associated district heating systems use excess heat from electricity generation (including from renewable fuels) or industry to heat or cool buildings in the locality. CHP is highly fuel efficient, with primary savings of 25%-35% compared to conventional heating and electricity generation.

3.99. Article 5 of the *EU Energy Directive on the Energy Performance of Buildings* (2002/91/EC) states that developers of new buildings with a floor area of over 1000m^2 should consider the technical, environmental and economic feasibility of integrating CHP and district or block heating or cooling systems (along with renewables).

3.100. It is recommended that local planning authorities should include positive support within their development documents for Combined Heat and Power (CHP) projects.

3.101. Deployment of CHP is most effective where the generation plant is relatively close to the users of the heat, where this includes mixes of uses to even out the pattern of demand through the day, and where density and layout of development reduces costs of installation of the necessary infrastructure and distribution of heat. This implies that suitable locations for large-scale CHP developments are likely to be urban or in association with new development. It may also have the potential for use in remote rural areas that do not have access to the mains gas supply. Micro-CHP is also now technically feasible and its uptake in individual dwellings and small developments is likely to increase significantly in the near future.

3.102. **Recommendation 8** sets out the policy recommendation which local authorities should consider when drafting of their LDD policies on CHP.

RECOMMENDATION 8: COMBINED HEAT AND POWER

Local authorities should include policies and proposals within their LDDs encouraging the development of CHP schemes. Developers should be required to assess the feasibility of integrating CHP and district/ block heating or cooling infrastructure (along with renewable energy technologies) into new developments of over 1000m^2.

INTEGRATION WITH OTHER POLICIES AND STRATEGIES

3.103. All development will have implications for energy supply and use, either through direct demand or through influencing transport requirements. It is therefore important that energy is seen as an issue which is integral to other policy areas. Clear synergies exist between the development of sustainable energy sources and other strategies and initiatives including:

- economic development - opportunities for developing new markets, industries and employment;
- rural development - encouraging development of biomass production and local food initiatives;
- regeneration and local environment - improving the quality of built environment through the use of sustainable energy measures as part of high quality design;
- transport - limiting traffic growth by reducing the need to travel and improving public transport systems; and
- fuel poverty and health - improving thermal performance in housing.

RECOMMENDATION 9: INTEGRATION WITH OTHER POLICIES AND STRATEGIES

It is recommended that local authorities should seek to ensure that other policies that are complementary to, and mutually supportive of, sustainable energy use are included in wider council strategies and initiatives, especially Community and Local Agenda 21 strategies.

Further guidance on this is contained in the accompanying *Recommended Guidance on developing Energy Action Plans and Strategies (2005).*

FURTHER INFORMATION

GOYH (2004) *Government Office for Yorkshire and Humber: Guidance for Local Authorities in Taking Forward Renewable Energy Developments*

London Renewables (September 2004) *Integrating Renewable Energy into New Developments: Toolkit for Planners, Developers and Consultants*

ODPM (2004) *PPS 22: Renewable Energy*

ODPM (2004) *Planning for Renewable Energy, A Companion Guide to PPS 22*

Planning Officers (July 2005) Society *Policies for Spatial Plans A Guide to Writing the Policy Content of Local Development Documents*

Regen SW (2004) *Guide for Local Planning Authorities: The Appropriate Development of Wind Energy*

Yorkshire Renewable Energy Network Tel: 0845 3304930, E-mail: info@yren.org.uk

Further support can also be obtained from the Renewable Energy Enquiries Bureau. The DTI funds a renewable energy enquiries bureau and offers a range of detailed renewable energy publications online www.dti.gov.uk/energy/renewables Tel: 0870 190 6349, E: nre-enquiries@aeat.co.uk

Energy Saving Trust initiative provides advice to local authorities and housing associations www.practicalhelp.org.uk Tel: 0870 241 2089 E-mail: info@practicalhelp.org.uk

4. IMPLEMENTING SUSTAINABLE ENERGY POLICY

INTRODUCTION

4.1. If the sub-regional targets are to be met, the policy support outlined in **Chapter 3** will need to be backed up by appropriate development control decisions and implementation mechanisms. This chapter identifies the key issues of relevance to development control officers and describes the range of implementation mechanisms which may assist in the delivery of sustainable energy policy.

ASSESSING RENEWABLE ENERGY APPLICATIONS

4.2. The development control process provides a significant opportunity to shape renewable energy developments. According to the Companion Guide to PPS 22 (2004), there are seven key issues that should be taken into account by development control officers:

i) that local authorities should be explicit in setting out what information they require to be included in an application for a renewable energy scheme and that pre-application consultation is recommended. Even before an application is made, informal discussions between an applicant and the local planning authority can help to ensure that the potential impacts of a renewable energy development are explored, reduced or mitigated.

ii) for some projects an Environmental Impact Assessment may be required. Certain applications for renewable energy schemes will need to be accompanied by an Environmental Impact Assessment in accordance with *the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations* 1999 (SI no 293). This regulation lists development types within Schedule 1 and Schedule 2 which will and may require EIA respectively. Circular 02/99: Environmental Impact Assessment (DETR – March 1999) also gives detailed advice on whether EIA is likely to be required.

iii) issues of landscape and visual impact (and any cumulative effects) should be addressed at the scheme-specific level. Further information on this issue is provided in **Chapter 6.**

iv) local planning authorities should recognise that the landscape and visual impacts are only one consideration to be taken into account in assessing planning applications and that these need to be assessed alongside the wider environmental, social and economic benefits of renewable projects.

v) applications should be determined with reference to criteria-based policies (as set out in **Chapter 3**) and supplementary planning documents where applicable.

vi) member training is important as councillors will need to make informed judgements when determining applications.

vii) community involvement is essential as there is likely to be an increased level of public interest in renewables schemes.

4.3. In determining applications, development control officers and elected members will need to have a good understanding of the renewable energy technology that is being proposed and the potential issues associated with its development. Comprehensive information on all of the main renewable energy technologies is set out in the technical annex of the Companion Guide to PPS 22. It includes: an introduction to each of the main technologies outlining the characteristics of each, their appearance and mode of operation; implications for the planning system; impact assessment issues; sample planning conditions; and any other consents that may be required.

4.4. The GOYH *Guidance for Local Planning Authorities on Taking Forward Renewable Energy Developments* (2004) also provides information on a broad range of renewable energy technologies and the key issues that need to be considered by development control officers.

4.5. It is not the intention of this guidance to replicate the information set out in the documents outlined above, rather development control officers are advised to directly consult these documents when assessing applications for specific renewable energy developments.

IMPLEMENTATION MECHANISMS

4.6. A key test of soundness of Development Plan Documents is in relation to delivery mechanisms and implementation. **Box 4.1** sets out proposed requirements[16] to demonstrate "clear mechanisms for implementation and monitoring" in Development Plan Documents.

BOX 4.1: PROPOSED CRITERIA FOR DEMONSTRATING CLEAR MECHANISMS FOR IMPLEMENTATION IN DEVELOPMENT PLAN DOCUMENTS

- The plan must contain targets and milestones which relate to the delivery of policies.
- Clear methods of measuring targets, and how they will be linked to the monitoring report, should be shown.
- Timescale and delivery mechanisms for implementation should be clearly shown.
- The body or organisation responsible for implementing each policy should be identified.
- The plan should set out the key factors for successful delivery of the policy objectives.

4.7. The following section sets out the various tools which are available to local planning authorities to help in the delivery of sustainable energy policy. These include:

- site selection and allocation;
- permitted development;
- local development orders;
- planning conditions and obligations;
- site acquisition and investment;
- supplementary planning documents; and
- public awareness and support.

[16] Planning Inspectorate (February 2005)*Local Development Frameworks: Assessing the Soundness of Development Plan Documents and Statements of Community Involvement. Consultation document.*

RECOMMENDATION 10: IMPLEMENTATION MECHANISMS

It is recommended that where appropriate local authorities should seek to maximise the use of these implementation mechanisms set out below to assist in the delivery of sustainable energy policy.

Site Selection and Allocation

4.8. The selection and allocation of sites for renewable energy in Local Development Documents can encourage developers to pursue these types of projects by providing greater confidence that they will receive favourable consideration. However, according to PPS 22, site specific allocations for renewable energy should only be included in local development documents where a developer has:

- indicated an interest in the site;
- confirmed that the site is viable; and
- confirmed that it will be brought forward during the plan period.

Permitted Development

4.9. Local planning authorities should promote sustainable energy generation by raising public awareness of those renewable energy installations which are regarded as 'permitted development', for example via leaflets and websites.

4.10. Annexes 6 and 7 of the Companion Guide to Planning Policy Statement 22[17] indicate that some small-scale renewable energy infrastructure may be regarded as 'permitted development' for the purposes of Part 1, Class B1(b) of the Town and Country Planning (General Permitted Development) Order 1995. This includes photovoltaic (PVs) and solar water heating (SWH) installations provided the installation is not of an unusual design[18], does not involve a listed building, and is not in a designated area. PV and SWH are particularly well suited to the urban environment and are clean and silent in operation.

4.11. According to the Companion Guide to PPS 22, the installation of a PV array or SWH on a building listed for its special architectural merit or historic interest – or on another building or structure within its curtilage – is likely to require an application for listed building consent, even if specific planning permission is unnecessary. If an application for a PV or SWH module is submitted for a building close to a conservation area, or close to a listed building, its proximity to such areas or buildings may be a material consideration for the local planning authority in deciding the application.

4.12. The Companion Guide to PPS 22 also indicates that permitted development rights to clad the walls or alter the existing roofline of a dwelling do not necessarily apply in Areas of Outstanding Natural Beauty, Conservation Areas, Sites of Special Scientific Interest, or National Parks. When considering applications in these areas, the potential impact on the character or appearance of the area should be considered. Further guidelines on the design and siting of solar installations within North Yorkshire are provided in **Chapter 6**.

[17] ODPM (2004) *Planning for Renewable Energy – A Companion Guide to Planning Policy Statement 22*.

[18] Unless panels are of an unusual design, they should be treated as being within the plane of the existing roof slope for the purposes of the Part 1, Class B1(b) of the Town and Country Planning (General Permitted Development) Order 1995.

Local Development Orders

4.13. The Government is currently considering introducing Local Development Orders. If introduced, local planning authorities may be able to use Local Development Orders to create 'permitted development' rights, either across the whole of a local authority area, across parts of a local authority area, or for a particular site. These could include rights for a range of smaller-scale renewable energy infrastructure such as single turbines associated with industrial developments or school sites in urban areas, small hydro installations, PV and SWH installations which do not already fall within the category of 'permitted development', and Combined Heat and Power (CHP) installations.

4.14. LDOs that extend across an entire authority area could apply to development that is relatively minor and to which permission is invariably granted (e.g. small-scale householder development). LDOs could also be used to provide permission for certain types of development in parts of a local authority area (e.g. larger PV and CHP installations, small hydro installations) and to bring forward development of a particular site (e.g. renewable energy proposals on allocated sites). LDOs that are designed to bring forward development of a particular site may need to be more prescriptive.

4.15. However, LDOs would not be applied to development:

- affecting listed buildings or in conservation areas;
- that could have an effect on a European site (within the meaning of regulation 10 of The Conservation (Natural Habitats, &c.) Regulations 1994 - 'the Habitats Regulations'); or
- of the type specified in Schedule 1 of the Environmental Impact Assessment Regulations ('EIA development').

Planning Conditions and Obligations

4.16. The power to impose conditions when granting planning permission is very wide. If used properly, conditions can enhance the quality of development and enable many development proposals to proceed where it would otherwise have been necessary to refuse planning permission. Conditions can cover a range of issues such as: setting time limits being on hours of working, requiring wind turbines to rotate in same direction, setting limits on noise emissions and requiring post construction monitoring. However, conditions should only be imposed where they are both necessary and reasonable, as well as enforceable, precise and relevant both to planning and to the development to be permitted. Guidance on the use of planning conditions is contained in Circular 11/95 (ODPM)[19]. Further information on the types of conditions that are most likely to be appropriate for different forms of renewable energy, are included in the technical annex of the Companion Guide to PPS 22.

4.17. Section 106 of the Town and Country Planning Act makes provision for planning authorities to negotiate developer contributions (Obligations) in order to make acceptable, development which would otherwise be unacceptable in planning terms. Planning obligations can be used to prescribe the nature of a development (e.g. by requiring that a given proportion of housing has SWH or PVs installed); to secure a contribution from a developer to compensate for loss or damage created by a development (e.g. visual impacts or loss of open space); or to mitigate a development's impact (e.g.

[19] ODPM (1995) *Circular 11/95: The Use of Conditions in Planning Permission*.

installation of renewable energy to mitigate increases in demand for travel resulting from development).

4.18. Local planning authorities should set out in their Local Development Documents all developments for which it will require planning contributions to be made, what form contribution will take, how any funds obtained will be utilised, and how the level of contribution will be calculated.

4.19. Planning obligations should be used as a way to deliver renewable energy in cases where conditions are not sufficient. For example, Fenland District Council used section 106 planning obligations to secure funding from wind-farm developers for the formation of a district climate change strategy as a condition of their planning approval. Fenland also reached an agreement with a housing association developing 53 new properties to grant land for children's play-space in return for the housing association installing technologies such as ground source heat pumps and solar hot water as part of the development.

4.20. It is important to note that the Government is currently considering modifications to the section 106 of the Town and Country Planning Act in response to the Barker Review of Housing Supply, *Delivering stability: Securing our future housing needs* (17 March 2004). Possible changes to the current system may include: optional planning charges which will enable developers to contribute to facilities and services without the need to negotiate with the local planning authority; and introduction of a Planning-gain Supplement accompanied by a 'scaled-back' system of planning obligations. Further work is also being conducted by the Department of Trade and Industry on the potential for local communities to secure more of a benefit from wind power developments through 'community benefits' measures. Changes to the system of planning obligations and introduction of community benefits measures may provide new opportunities for promoting renewable energy. Further guidance on the use of planning obligations is set out in Circular 05/05 (ODPM)[20].

Site Acquisition and Investment

4.21. Local authorities can play a significant role in securing investment in renewables development. For example, local authority economic development officers can help promote renewable energy development through liaising and working with the renewables industry. Due to budgetary constraints, site acquisition is rarely a feasible option for local authorities. There may be cases, however, where local authorities can help to secure land assembly for renewable energy developments by purchasing land.

Supplementary Planning Documents

4.22. Supplementary Planning Documents (SPDs) can be used to elaborate on the policies and proposals in LDDs. They cannot however be used to implement new policy and must be consistent with national and regional policy. There are two main types of SPD: development briefs and design guides.

4.23. Development briefs can be used to set out plans for the provision of renewable energy on certain sites. Where possible, local planning authorities should include a statement within site development briefs that they will expect the developer to explore the feasibility of incorporating sustainable energy infrastructure (including combined heat and power and community heating systems).

4.24. Design guides can include general or specific design guidance on sustainable energy issues. There are number of examples of

[20] ODPM (2005) *Circular 05/05: Planning Obligations.*

Supplementary Planning Guidance (SPG) addressing sustainable energy design such as the Leicester City Council SPG on energy efficiency and renewable energy in new developments (2001). The City of Bristol also published a sustainable design and construction guide alongside its sustainability appraisal system in March 2003. Both of these examples provide practical advice on how to incorporate energy conservation measures and opportunities for the use of renewable energy into new development. They set out the need for new developments to follow the principles of the energy hierarchy and provide guidance on what can be done in both a domestic and non-domestic context to reduce demand, use energy efficiently, and incorporate renewable energy and CHP into new developments. The Leicester document also outlines the planning considerations that are most likely to affect each type of renewable energy technology.

Public Awareness and Support

4.25. Increasing public awareness of the need for sustainable energy generation and support for specific infrastructure plays an essential role in the implementation of renewable energy development both through encouraging the incorporation of renewable energy provisions within Local Development Documents as well as through support of renewable energy projects. To this extent, education and awareness raising can be regarded as an implementation mechanism for planning.

4.26. On-going community involvement in the preparation of Local Development Documents presents an excellent opportunity to increase public awareness of the potential benefits and possibilities for sustainable energy generation. Similarly awareness raising activities should be included as part of the preparation of Local Agenda 21 plans and Community Strategies. Developers should also be encouraged to promote community awareness of the benefits of sustainable energy generation through public consultation on development proposals.

4.27. The Action Plan accompanying this guide will recommend approaches to raising public awareness and support for renewable energy generation.

MONITORING

4.28. Local planning authorities should monitor progress towards meeting their indicative renewable energy targets. Such monitoring should include tracking planning applications which include renewable energy proposals and identifying which have been approved or refused. The Department of Trade and Industry's renewable energy planning monitoring database is likely to be a useful source of information on renewable energy applications and which have been approved or refused. Further information of this database is contained in **Box 4.2.**

BOX 4.2: DTI RENEWABLE ENERGY PLANNING MONITORING AND REVIEW PROGRAMME

The Renewable Energy Planning Monitoring and review Programme aims to provide the DTI with regular data with which to track the progress towards achieving the 2010 target for electricity generation from renewable energy sources. These data are made publicly available via the following website: http://www.restats.org.uk/2010_target.html

The monitoring programme (undertaken by Land Use Consultants under contract to DTI) collects information from local planning authorities and renewable energy developers on the status of all renewable energy projects at each stage of the planning process - from intended applications through to construction and commissioning.

Details on key planning and environmental issues are also recorded. All local planning authorities in the UK are contacted once every three months, along with a minimum of 50 renewable energy developers. Information gathered includes:

- the name, location and generation capacity of renewable energy projects over 0.01MW;
- the relevant district, county and regional planning authority;
- any environmental designations applying to development sites e.g. AONB, National Park, SSSI, SPA etc;
- the planning status of projects - in terms of whether applications have been submitted, approved, refused or are at appeal etc;
- the construction status of any approved projects.

The results of the monitoring work are recorded each month on an MS Access database. An extract (in spreadsheet form) from this database is available via the website. The key findings are also summarised in four quarterly reports covering England, Scotland, Wales and Northern Ireland. These reports provide details on the progress of renewable energy projects according to funding source, technology type and location. A GIS map is provided illustrating any emerging trends in the spatial distribution of the projects.

4.29. Local planning authorities may also wish to conduct their own surveys of renewable energy installations within their areas, to identify renewable energy installations which are regarded as 'permitted development', and to identify any small renewable energy projects which have been built that are not connected to the grid.

5. LANDSCAPE SENSITIVITY ASSESSMENT

INTRODUCTION

5.1. North Yorkshire is potentially a viable area for many forms of renewable energy, although clearly the demand for renewables needs to be balanced against the quality and character of the landscape. Renewable energy technologies, specifically wind turbines, can, if inappropriately located, have a major impact on valued landscapes. This chapter presents the findings of a landscape sensitivity assessment that was undertaken to evaluate the sensitivity of the landscape in North Yorkshire to wind, biomass, hydro and solar developments.

5.2. This chapter outlines:

- the aims of the assessment;
- how this document and the results of the assessment should be used;
- the methodology by which the assessment was carried out; and
- the results of the sensitivity assessment.

5.3. This chapter should also be read in conjunction with **Appendices 4 and 5**, which contain more detailed information and results of the sensitivity assessment.

AIMS AND OBJECTIVES

5.4. The overall aim of the assessment was to evaluate the sensitivities of different landscape areas within North Yorkshire to various types renewable energy development. This also led to the production of guidance in **Chapter 6**, which can be used to assess specific proposals in relation to the impact on landscape character.

5.5. The detailed objectives of the study were:

- to review the existing landscape character assessments that cover North Yorkshire and to report on consistencies and inconsistencies in the baseline information available;
- to identify the likely appropriate scales of renewable development for consideration; and
- using the landscape character typologies across the county, to identify sensitivity[21] of landscapes to the different types of renewable energy schemes such as wind turbines, biomass power plants, hydroelectric schemes and solar schemes.

USE OF THE STUDY

5.6. The study provides a basis for strategic guidance on the landscape factors influencing the location of renewable energy developments within North Yorkshire. Clearly, all landscapes are to a degree sensitive, although not all landscapes are sensitive for the same reasons or to the same extent. This study aims to articulate which specific characteristics of the landscape are sensitive to different forms of development and to inform the overall understanding of constraints to renewable

[21] As defined in the Companion Guide to PPS22.

energy development across the different landscape areas of North Yorkshire.

5.7. It is envisaged that the results of study will have a number of potential applications:

- provide objective baseline information which allows **developers** to:
  - consider landscape sensitivity issues when identifying areas of search for renewable energy developments; and
  - understand the likely sensitivity attributes of the landscape and how to design their proposals to best fit the scale and pattern of the landscape.
- provide objective baseline information for **local planning officers** which can be used to:
  - guide developers away from the most sensitive areas of the county;
  - advise developers on the likely size of developments that might be appropriate within each landscape area; and
  - assist in making decisions on individual applications by setting out the characteristics of the landscape that are likely to be most sensitive to development within each landscape area.
- provide a basis for further **stakeholder consultation** to widen public understanding of renewable energy development and landscape sensitivities.

Limitations of the study

5.8. **Please note that the landscape sensitivity study cannot be prescriptive at a site level, it is intended to provide broad guidance on the relative sensitivity of different areas of North Yorkshire. It cannot be used to indicate whether a specific development site is suitable or not. For specific developments a site based landscape character assessment would need to be undertaken, and guidance is provided in Chapter 6 on the key criteria that should be considered when carrying out such an assessment.**

5.9. **The landscape sensitivity assessment does not take account of technological or resource assessments, nor does it consider other environmental concerns such as nature conservation or hydrological issues.**

5.10. **It is also important to note that whilst the areas of lower sensitivity may have greater capacity for wind or biomass developments in terms of landscape character and scenic quality, this does not mean that locations within areas of higher sensitivity will be unsuitable, or indeed that individual sites within areas of lower sensitivity will be suitable.**

5.11. In summary, the following points should be noted:

- the study provides strategic guidance to inform decision-making at the landscape type level and help focus the approach of officers. Local variations in character (within a landscape type) will also need to be considered in relation to individual applications;

- the study does not negate the need for detailed considerations of landscape and visual impact on a case-by-case basis in relation to individual applications or as part of an environmental statement;
- this study only considers landscape and visual considerations. Clearly there are many other factors which will also influence decisions (such as national and regional policy considerations, impacts on biodiversity, archaeology and cultural heritage etc); and
- the results of the study need to be interpreted with care as it should not be inferred that areas with high sensitivity are not suitable for any wind energy developments or vice versa.

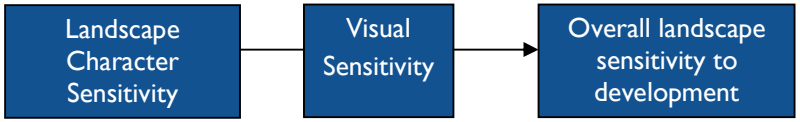
SENSITIVITY AND CAPACITY

5.12. Considerable care must be taken to clearly define what is meant by the terms 'sensitivity' and 'capacity', and to clarify the differences between a sensitivity study and a capacity study.

5.13. Sensitivity studies focus on drawing out the inherent sensitivities of the study area to any 'development', e.g. renewables, highlighting those areas most vulnerable or 'sensitive' to changes in character. In contrast, capacity studies take this sensitivity information, and judgements about landscape value, and draw out the potential opportunities for a specific development type under consideration, e.g. windfarms of 30 turbines of 95m tip height. As a result, sensitivity studies tend to present information on avoiding key sensitive or vulnerable areas, whereas capacity studies present a more proactive approach to guiding developments to less sensitive or vulnerable areas.

5.14. For this study it was considered more appropriate to carry out a sensitivity study to highlight those areas of North Yorkshire that may be particularly sensitive to different types of renewable energy developments, and to provide guidance as to the constraints and opportunities for development within each landscape character area considered.

5.15. The overall landscape sensitivity of a character area to development is a function of landscape character sensitivity and visual sensitivity of the landscape (see diagram below).



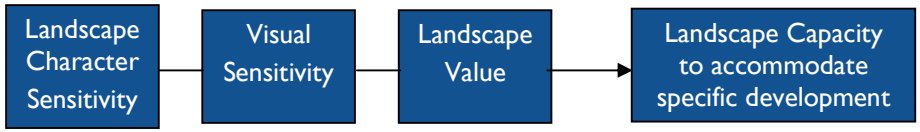
5.16. Landscape sensitivity is defined in this study as:

Landscape Sensitivity is the degree to which a particular landscape character type or area is vulnerable to change with potentially adverse effects on its character.

5.17. Visual sensitivity is defined in this study as:

Visual Sensitivity is the degree to which a particular view or visual experience is vulnerable to change with potentially adverse effects on its character.

5.18. A capacity study is typically a more detailed and concentrated study, considering a specific form of development, e.g. residential housing or 95m turbines. The judgement of capacity requires consideration of not only landscape character and visual characteristics, but also landscape value to help inform the more complex judgements of capacity (see diagram below).



5.19. Landscape value can be taken from the designation status of the landscape, e.g. National Park, AONB, and ideally considers stakeholder consensus on landscape values, including cultural and heritage values.

5.20. This landscape sensitivity study therefore does not consider landscape value as part of the assessment. However, in **Chapter 6** the relationship of the designations to the results of the sensitivity assessment are discussed, and some guidelines are provided in response to this.

METHODOLOGY

5.21. This section sets out method for undertaking the study. The method adopted aims to be transparent, robust and defensible.

5.22. There is clear guidance on landscape assessment as set out in the publication *'Landscape Character Assessment: Guidance for England and Scotland, The Countryside Agency and Scottish Natural Heritage'* (2002). The subsequent *'Topic Paper 6*[22]*'*: sets out further guidance on approaches to evaluating landscape sensitivity and capacity. Our approach to the North Yorkshire study builds on current best practice and LUC's considerable experience from previous and ongoing studies.

Review of Existing Landscape Character Assessments

5.23. In order to undertake the landscape sensitivity assessment, in the first instance it was necessary to identify and define the detailed landscape types or areas within North Yorkshire. The initial desk study revealed that there are three main levels of information about the character of the landscape across North Yorkshire. These are:

- Countryside Character Areas;
- Local Landscape Character Assessments; and
- Character Typologies.

Countryside Character Areas

5.24. The largest scale landscape character assessment in England is the 'Character of England' map, which provides a broad characterisation of the English landscape. There are 158 Countryside Character Areas (CCAs) used to describe the regional character across the whole of the country. The study area is covered by 13 CCAs, including:

- 21 Yorkshire Dales;
- 22 Pennine Dales Fringe;
- 23 Tees Lowlands;
- 24 Vale of Mowbray;
- 25 North Yorkshire Moors and Cleveland Hills;
- 26 Vale of Pickering;
- 27 Yorkshire Wolds;
- 28 Vale of York;
- 29 Howardian Hills;
- 30 South Magnesian Limestone;

[22]The Countryside Agency and Scottish Natural Heritage (2004) *Landscape Character Assessment Guidance for England and Scotland, Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity.*

- 33 Bowland Fringe and Pendle Hill;
- 34 Bowland Fells;
- 35 Lancashire Valleys;
- 36 Southern Pennines; and
- 39 Humberhead Levels.

5.25. Whilst countryside character areas were used for the AEAT (2004) study, it was considered that they were of too large a scale to be suitable for the purposes of this study.

Local Landscape Character Assessments

5.26. Local landscape character assessments have been carried out by some local authorities, providing descriptions and characterisation of landscapes at a local scale. Local landscape character assessments for the study area are listed below, but do not cover the whole of the study area.

- Landscape Appraisal for Craven District outside the Yorkshire Dales National Park and Forest of Bowland AONB, 2002;
- Harrogate Landscape Assessment, 1993 and 2004;
- The Nidderdale Landscape, 1991;
- Howardian Hills Landscape, 1995;
- Landscape Assessment of Selby District, 1999;
- The Landscapes of Northern Ryedale, 1999;
- Scarborough Borough Landscape Appraisal, 1994; and
- Yorkshire Dales Landscape Appraisal, 2002.

5.27. It was considered that these local assessments are of too small a scale and have potentially incompatible findings to be appropriate as a base for this study, although the descriptive information they provide was used to inform the assessment of landscape sensitivity.

Character Typologies

5.28. The national landscape typology has been devised by the Countryside Agency in collaboration with English Nature and English Heritage (with support from Defra[23]). It further supports and subdivides the natural landscape framework of 'The Character of England'. The Typology is promoted in The Agency's Landscape Character Assessment Guidance *Topic Paper 1: Recent Practice and the Evolution of Landscape Character Assessment – An explanation of the development of Landscape Character Assessment*, together with details of national approaches and other recent initiatives.

5.29. The typology classification was derived from map analysis of the main physical, biological and cultural characteristics of the English landscape, using GIS manipulation of digital data sets. Three key determinants of character that can be derived from national data sets were mapped, namely physiography, ground type and cultural pattern, on the basis of manual interpretation and combination of a variety of national data sets. Physiography, for example, was derived from interpretation of

[23] The work has been published by the Countryside Agency in a series of eight regional volumes which hold printouts of the data from the electronic database for the CCAs falling within each of the CA's regions. The mapping is available from the Countryside Agency (Cheltenham) and is freely available via the MAGIC website. The boundaries are mapped at a scale of 1:250,000. The work was carried out on behalf of the Countryside Agency by Entec UK Ltd in association with Steven Warnock, Parker Diacono, The University of Reading and Smart Data UK Ltd.

the relationship between geological and contour data; ground types were derived from a combination of geological, soils and agricultural census information; and cultural attributes through analysis of data such as ancient woodland maps, common land information and maps of historical and land use patterns. The individual mapping units created by overlaying and digitally combining all these map layers were then classified, on the basis of shared common characteristics, into landscape types (referred to in this document as 'typologies').

5.30. The resulting typology work lies at an intermediate level between the broader national characterisation of the 'Character of England' map, and the more detailed characterisation carried out at the local authority level. It can inform work at both these levels. Firstly, typologies can help to refine the boundaries of the CCAs by allowing them to be related more clearly to changes from one landscape type to another. Secondly, they can provide a valuable starting point for more detailed local authority assessments.

5.31. The national landscape typology work is therefore a recognised second tier (subdivision) of the national CCA's. The typology is promoted by the Countryside Agency as a consistent baseline or starting point for local assessments. The typology is wholly based on character and provides a 'generic' type subdivision of the national CCAs.

5.32. It was considered that the scale of the typology (i.e. a subdivision within the natural countryside character areas) was appropriate for this regional study. The sensitivity analysis was therefore based on these landscape character types.

5.33. The study area can be described with 23 different typologies, as shown on **Figure 5.1**. However, each typology can occur in more than one location. As a result of the variation in sensitivity of different occurrences of the typologies, some typologies were subdivided. This study therefore considers 50 landscape units based on the typologies (see **Figures 5.2** and **5.3**). Where the typology extends outside the study area, the assessment only considers the part that falls within North Yorkshire.

5.34. As the landscape typology does not come with descriptions as the Countryside Character Areas do, field work was undertaken to gather specific information on key characteristics of the landscape that would be sensitive to renewable energy schemes. Please note that urban areas were not included within the broad landscape sensitivity assessment.

Scales of Renewable Energy Development

5.35. The following section defines a series of scales of renewable energy development that were used by this study in order to assess sensitivities and constraints to development within North Yorkshire. The definitions of scale are not intended to suggest that these are the types of development that are considered appropriate within North Yorkshire. The purpose is simply to set out generic parameters against which sensitivities and constraints can be assessed. The scales of technologies that were considered in the sensitivity analysis and the guidance are outlined below:

Wind

5.36. For wind, a three tier approach was taken to the assessment as follows:

5.37. The overall landscape sensitivity was assessed as sensitivity to wind turbines with a tip height of 100m. This is the size of a typical commercial wind turbine of 2-2.5MW, which are the turbines which are most likely to come forward for development in North Yorkshire in the near future. Larger

turbines are also being used for some development proposals, guidance on the consideration of larger turbines is given in **Chapter 6**.

5.38. For the purposes of developing the guidance, three potential scales of development were considered in terms of appropriateness and sensitivity. These three scales of development were adapted from the AEAT 2004 study[24]:

- a small scale development – 1-5 turbines (100m to tip);
- a medium scale development – 6-25 turbines (100m to tip); and
- a large scale development – more than 25 turbine (100m to tip).

5.39. The sizes of current windfarm developments within the UK vary from one or two turbines to over 100 turbines. The likely number of turbines for wind development proposals in the North Yorkshire area was considered, and three scales of windfarms, as set out above, were deemed to be the most likely to be developed in the area.

5.40. The definitions of small, medium and large windfarm developments used here have been selected on the basis of scales of windfarms used in other regional sensitivity and capacity studies, on the basis of current windfarm proposals across the UK, and in agreement with the Steering Group.

5.41. There are clear caveats that need to be made with regard to these somewhat arbitrary boundaries. The difference in potential visual impact between proposals of 25 and 26 turbines is clearly different from those between proposals of 5 and 6 turbines, or between 1 and 2 turbines. For this study the definition of a 'small' windfarm development has been taken as 1 to 5 turbines of the standard commercial turbine of 100m high, and has been used to draw up general sensitivity assessment and guidance for small scale windfarms. This is distinct from developments of small turbines.

5.42. There has been considerable debate as to the concept of 'small scale' with respect to windfarm development, reflecting the need to define the appropriate scale of both development (number of turbines) and size of turbines for a given landscape. What may be considered a small scale development in, for example, an industrialised landscape, may be considered large, or too large in a narrow, enclosed valley landscape. In addition, the definition of small scale can be linked to the concept of thresholds of acceptability – which is particularly affected by values placed on the landscape. As such, what may elsewhere be considered small scale, may be considered large and unacceptable in a designated landscape such as a National Park or AONB. This is particularly pertinent where PPS22 refers to 'small scale developments', but does not attempt to define them. Bearing this in mind, it is important to stress that this landscape sensitivity study does not include an assessment of value placed on the landscape, such that the concepts of value and acceptability are not considered, and that a definition of 'small scale' best fitting to North Yorkshire as a whole, has had to be used.

5.43. It should also be made clear that while this study has defined small scale developments as 1 to 5 turbines of 100m to tip, those landscapes in which sensitivity to even small scale commercial developments was considered to be high, have been considered further with regard to smaller turbines. For this, smaller scale, domestic scale wind energy developments, i.e. turbines of up to 50m tip height, have been considered.

[24] AEA Technology (2004) *Planning for Renewable Energy Targets in Yorkshire and Humber 2004.*

Appendix 4 contains the discussion of sensitivity of the landscape areas to large, medium and small scale commercial developments, and, where appropriate, further notes and discussion regarding the potential sensitivity and capacity of the area for domestic scale turbines. Notes are also included on where the value placed on the landscape (through designation), may affect the capacity of that landscape to accommodate turbines. This discussion is not a capacity study, but aims to highlight potential issues that should be noted when considering capacity.

Biomass

5.44. The overall landscape sensitivity was assessed on the basis of one to three buildings of the scale of a modern agricultural style shed of approximately 30m x 10m x 6m, and a chimney of 25m being introduced to the landscape. This equates, roughly, to a 1MW plant[25].

5.45. Smaller scale biomass plants, those designed to heat individual buildings such as schools and other public buildings, have not been considered, as, with dimensions of approx. 4 x 3 x 2m, these could be placed carefully adjacent to most buildings without landscape impacts.

5.46. No scale assumptions were made regarding the extent, planting pattern or height of biomass crops, or the size of hardstanding yards or storage areas required.

[25] This size of development has been taken, as a representative size only. The different types of biomass technology, based on different fuels, require different sized plants. For example, solid fuel 'gasifier' plants will require more space, both for the engine and fuel storage, and a relatively small chimney, while landfill gas plants require larger chimneys but take up a smaller space, as there is no fuel storage space required.

Hydro

5.47. For hydroelectric schemes, the study reviewed 40 potential hydro sites which were used in the AEAT 2002 and 2004 studies to calculate the indicative targets for hydro development in the county. The 40 sites were identified by the University of Salford study 'Small Scale Hydroelectric Generation Potential in the UK' (ETSU SSH – 406 Parts 1-3, 1989). These sites are deemed to have the greatest potential for development within North Yorkshire.

5.48. Six local authority areas identified were as having the potential for hydroelectric schemes. These local authorities include: York, Craven, Harrogate, Richmondshire, Selby and Scarborough. The overall landscape sensitivity was assessed on the basis of medium scale river based hydro schemes, up to 1MW, as recommended by the companion guide to PPS22. These would be housed in structures of approximately 1.5 x 2 x 1.5m in size. Smaller schemes of 1.5m maximum dimension of housing have also been considered where these would be more appropriate.

5.49. While associated structures such as pipes and weir structures were considered, the main aspect in terms of scale of development was the size of the turbine housing.

Solar

5.50. The size of an active solar or PV array required to provide hot water or electricity for a typical home or business varies, depending on load requirements and the type of panels/cell used. Typical domestic PV systems have a peak output of around 1.5kW (on a sunny day), enough to provide around a third of the average family's annual electricity demand (assuming gas is used for heating requirements and there are no energy efficiency savings). This array would typically cover 10-15m^2 of roof area. For a domestic active solar hot water heating

system, the overall area of the collector array would be typically 3-4m^2.

5.51. No assessment has been undertaken of the broad sensitivity of the landscape areas to solar panels, as the small scale of solar developments prohibits this being possible. Instead, guidance is provided on the key issues that need to be considered in the siting of solar developments. No consideration has been given to stand alone solar energy developments, as developments of this type are not likely to come forward for development within North Yorkshire before 2021.

Sensitivity Analysis

5.52. As previously outlined, *Topic Paper 6* states that judgements on overall landscape sensitivity should be based on two aspects:

- landscape character sensitivity; and
- visual sensitivity.

5.53. For the purposes of this study the particular attributes of the landscape likely to affect the sensitivity to renewable energy developments have been identified under the following headings:

Landscape Character	*Visual*
• Landform	• Visual Connections with Adjacent Landscapes
• Landscape pattern	• Views
• Land Cover/ Land Use	• Skyline
• Enclosure and scale	
• Sense of Remoteness and Tranquillity	
• Settlement Pattern/ Transport Network/ Modern Elements	
• Landmarks/Landscape Features/ Visual built Structures	

5.54. These headings are closely linked and, to an extent, interchangeable, for example information on scale and enclosure and land cover will influence the extent that any development is visible within the landscape.

5.55. Not all of these criteria are relevant to all technology types. A summary of the criteria used in the assessment for each form of renewable energy technology are set out below:

Wind

5.56. The main components of a wind energy development that may have an impact on the landscape and on visual amenity are the wind turbines, access roads, electrical sub-station, pylons and control building. In relation to wind turbines, key characteristics relate to factors such as:

- landform and topography;
- landcover patterns;
- scale and enclosure;
- remoteness and tranquillity;
- settlement density and pattern;
- key landscape elements and features;
- landmarks and visible built structures;
- views; and
- skyline.

Biomass

5.57. The main components of biomass schemes that may have an impact on the landscape and on visual amenity are the buildings associated with the energy plant and the growing crops. Key landscape characteristics that can be used to identify sensitivity to the introduction of biomass plant buildings include:

- landcover patterns and woodland patterns;
- scale and enclosure;
- remoteness and tranquillity;
- settlement density and pattern; and
- views.

Hydro-electric schemes

5.58. The components of hydro-electric schemes that may affect landscape character are the weir, turbine house, tailrace, pipes and power lines. Some landscapes will be able to accommodate hydro schemes more easily than others. For example, where rivers are lined with trees it would be possible to conceal hydro schemes. It may also be possible to restore old water mill sites.

5.59. Key landscape characteristics that can be used to identify sensitivity to this type of energy development include:

- river patterns and sizes as well as other water bodies;
- landcover patterns and woodland patterns along the river valleys;
- scale and enclosure;
- remoteness and tranquillity;
- settlement density and pattern and presence of mill buildings and structures; and
- views across and around river valleys.

Assignment of sensitivity levels

5.60. The sensitivity of each of the landscape characteristics considered important for each development type was considered in terms of the effect on the landscape of the potential loss or change to that characteristic. In this assessment, judgements about sensitivity of each characteristic were not scored in such a way as to give judgements based on a matrix of high, medium and low for each criterion, but were taken as material considerations that influenced the judgement of the significance of impacts.

5.61. It should be noted that an assessment of sensitivity is a judgement and not a scientific absolute, and recognises that some attributes of the landscape may therefore be more important in defining character than others and may be more sensitive.

5.62. The judgement was expressed in terms of five degrees of sensitivity, as set out below. **Table 5.1** explains the meaning of each of these sensitivity levels, but does not define the thresholds between them.

High sensitivity – key characteristics of the landscape would be adversely affected by this type of renewable energy development. Such development would result in a significant change in character.

Medium-high sensitivity – landscapes in which the development would generally adversely affect the character of the landscape. Sensitivity lies between high and medium.

Medium sensitivity – key characteristics of the landscape are relatively robust, though would potentially be adversely affected by this type of renewable energy development. The landscape may have some ability to absorb this type of renewable energy development without significant change in character.

Medium-low sensitivity – landscapes in which the development would generally not adversely affect the character of the landscape. Sensitivity lies between medium and low.

Low sensitivity – key characteristics of the landscape are robust and would not be adversely affected by this type of renewable energy development. The landscape would be able to accommodate this type of development without a significant change in character.

5.63. **Please note that the landscape sensitivities identified in this study are relative within North Yorkshire. What is classed as medium sensitivity in North Yorkshire may well be classed as of higher or lower sensitivity in other sub-regions of the UK.**

RESULTS OF THE SENSITIVITY ASSESSMENT

Introduction

5.64. This section includes the results of the landscape sensitivity assessment for wind, biomass and hydro energy developments.

5.65. Landscape sensitivity to wind and biomass developments was considered using the typology landscape units as set out above. Through the individual assessment of different occurrences of typologies, the 23 typologies that occur across the study area were broken down into smaller landscape units. The assessment for sensitivity to wind and biomass developments therefore resulted in 50 landscape units.

5.66. Landscape sensitivity to hydro developments was considered using 40 selected river sites, taken from the AEAT (2004) study, as set out above.

Wind

5.67. The key issues associated with the development of wind energy in North Yorkshire are:

- the openness and exposure of the landscape;
- the degree of existing development of the landscape;
- the nature and clarity of skylines; and
- the scale of landform and potential for domination by tall turbine structures.

5.68. The results of the sensitivity assessment are shown on **Figure 5.2**, and the key findings are set out below:

- upland areas e.g. North York Moors and Pennines – high sensitivity;
- smaller scale valleys within upland areas, e.g. Wensleydale and Eskdale – high sensitivity;
- distinct/ recognisable landforms e.g. Howardian Hills – high sensitivity;

- transitional[26] landscapes/landforms – medium-high or medium sensitivity;
- lowland areas with strong visual connections with hill scarp slopes – medium-high to medium sensitivity;
- lowland wooded agricultural areas and those with influence of settlement and industry – medium low to low sensitivity;
- some more settled coastal areas – medium to medium-low sensitivity;
- settled areas with strong industrial influence, e.g. south of Selby – low sensitivity; and
- there are number of key skylines within the study area that, if developed, would affect the character of surrounding landscapes – these lie within high sensitivity areas.

5.69. **Appendix 4** sets out the assessment of the sensitivity of study area landscapes to wind developments. In this appendix, tables are included for each landscape unit providing:

- descriptive information on the key characteristics of the landscape type;
- assessment of the overall sensitivity to windfarm developments; and
- guidance on the sensitivity of the landscape to different scales of windfarm development.

[26] Transitional areas are areas that are dominated in character by other landscapes around them, and often show a gradation of features typical of other landscape types either side. They therefore form a transition between these other landscape types, with a subtle transition of characteristics such as walls gradually being replaced by hedges as typical boundaries.

Biomass Installations

5.70. The key issues associated with the introduction of large biomass buildings in North Yorkshire are:

- the precedent of large agricultural/industrial buildings in landscape;
- the presence of a woodland or forestry structure into which a biomass plant could be integrated; and
- the sense of accessibility as opposed to remoteness.

5.71. The results of the sensitivity assessment are shown on **Figure 5.3**, and the key findings are set out below:

- upland remote treeless areas – high sensitivity;
- transitional areas – generally high to medium - high sensitivity;
- tranquil/remote rural areas – medium-high sensitivity;
- smaller scale rural valleys – medium-high sensitivity;
- areas of intensive agriculture – medium-low to low sensitivity;
- areas around modern/large settlements and areas influence of industry – low sensitivity;
- North York Moors, Pennines and Howardian Hills and Yorkshire Wolds have the highest sensitivity, with the lowest sensitivity through Vales of York and Pickering.

5.72. **Appendix 4** sets out the assessment of the sensitivity of study area landscapes to biomass developments. In this appendix, tables for each landscape unit include an assessment of

sensitivity to biomass developments, and notes on potential issues relating to crops and access for biomass plants.

Hydro

5.73. The key issues associated with the development of small scale hydro in North Yorkshire are:

- presence of weir/mill race structures in river;
- presence of buildings – mills/urban/ industry adjacent or nearby; and
- potential for locating elements sensitivity with suitable integration into existing structures.

5.74. The results of the sensitivity assessment are shown on **Figure 5.4**, and the key findings are set out below:

- rural locations in villages – medium to low sensitivity;
- industrial/business parks – low sensitivity; and
- converted mills – some locations may have difficulties with integration – medium-high to medium sensitivity;
- gorges/ upland streams – high sensitivity;
- isolated weirs – high sensitivity; and
- most of the identified sites have medium to low sensitivity, four are located in remote narrow wooded valleys which are of high sensitivity and six of the sites were inaccessible and as such no assessment could be undertaken.

5.75. **Appendix 5** sets out the assessment of the sensitivity of the 40 hydro sites. Information is provided on:

- the landscape setting of the sites;
- presence of any existing man-made features;
- potential issues associated with the integration of hydro schemes;
- the overall sensitivity of the site; and
- any further guidelines notes.

6. LANDSCAPE GUIDANCE

INTRODUCTION

6.1. This chapter contains guidance drawn up on the basis of the sensitivity study in **Chapter 5**.

6.2. The objectives of this chapter are:

- to provide generic and specific guidance for development in landscape areas (wind and biomass), river locations (hydro) and generic guidance for built areas (solar);
- to consider the results of the landscape sensitivity study with respect to designated areas;
- to compare the findings of the landscape sensitivity study with the results of the landscape study that was undertaken as part of the Sub-Regional Renewable Energy Targets Study[27]; and
- to provide guidance on assessing incoming individual applications for renewable energy developments.

METHODOLOGY

Guidance

6.3. Guidance is provided on:

- generic and specific guidance for each character area for wind and biomass development and for each river location considered for sensitivity to hydro developments; and
- generic guidance for built environments for solar panel development.

6.4. Specific guidance in relation to wind and biomass development is found in **Appendix 4**, and location specific guidance for hydro development is in **Appendix 5**.

6.5. Using the results of the sensitivity assessment of the landscape character areas, broad guidance was also produced on issues relating to the potential cumulative effects of the different types of development.

6.6. Further guidance is also provided on how to assess the landscape sensitivity of individual proposals for renewable developments.

Consideration of Designated Areas

6.7. The designation of landscapes as National Parks or AONBs was not considered as part of the sensitivity study for wind and biomass developments, as this is a measure of landscape value. Instead this designation information was overlaid on the results of the sensitivity study and, based on the pattern of sensitivity across each designation, observations have been made regarding the suitability of wind and biomass developments within the designated areas. The sensitivity levels of landscapes within the designated areas were not altered as part of this review.

[27] AEAT (2004) Planning for Renewable Energy Targets in Yorkshire and Humber, December 2004. (www.goyh.gov.uk/goyh/menvrur/energy/247547/?a=42496).

Comparison with AEAT 2004 Study

6.8. The AEAT 2004 study[28] was a broad study aimed at identifying the potential resources and targets for renewable energies across the Yorkshire and Humber region. As part of that study, technical assessments were undertaken broadly equivalent to capacity studies as defined earlier in this chapter.

6.9. Within the technical assessment for wind energy, an exercise was carried out similar to that found in the '*Strategic Locational Guidance for Wind Energy Development In Respect of The Natural Heritage*' carried out by Scottish Natural Heritage in 2002[29]. In this exercise, designations for landscape and biodiversity were used to assign sensitivity levels across the study area, leading to a combined map of capacity (described as 'zones of sensitivity' on map 5 of that report).

6.10. A landscape sensitivity study was carried out for the '*Strategic Locational Guidance*' exercise, and is reported on in Volume 3 of the AEAT 2004 report, and illustrated on map 2 of that report. It is this landscape sensitivity study that can be compared to the results of this study. This comparison is set out later in this chapter, and considers map 2, section 4.0 in Volume 3 (methodological approach, identical to section 4.4 of Volume 2) and the Supporting Information: Landscape Character Area Descriptions in Volume 3.

6.11. The results of the AEAT 2004 study set out in map 5 are incomparable to the current study as they contain information about biodiversity and natural heritage values that this study does not.

GUIDANCE

Wind

6.12. Guidance on the siting of windfarms can take a number of different forms. This is because there are wide ranging views and opinions on wind energy developments in the landscape. A guideline that is relatively independent of subjectivity is to avoid 'pristine' landscapes which are undeveloped by man and that form a resource in terms of 'wild' land;

6.13. Regarding the location of windfarms in relation to settled areas, opposite views are a) that windfarms should not be visible, and b) that windfarms are a necessary feature of modern and future life, and that this should be recognised. Under the latter view, windfarms should be visible.

6.14. The landscape of North Yorkshire and the results of the sensitivity study indicate that windfarms should be avoided in areas such as the Moors area and the Pennines, including the fringes of these areas which form key skylines for many other landscape areas.

6.15. Other areas that are particularly sensitive to windfarm development include the Yorkshire Wolds fringe, which forms a key skyline for the Vale of Pickering and areas around York, and the Howardian Hills ridge, which forms a subtle wooded ridge which would no longer stand out as such if tall turbines were placed on it.

[28] AEAT (2004) *Planning for Renewable Energy Targets in Yorkshire and Humber*.
[29] Scottish Natural Heritage (2002) Policy Statement 02/02: *Strategic Locational Guidance for Wind Energy Development In Respect of The Natural Heritage*.

6.16. For lowland areas sensitivity is generally lower due to the settled nature of the landscapes. For these regions, general guidelines include:

- the scale of the landscape should be considered when deciding on the scale of the development, including turbine number, size and to some extent spacing[30];
- avoid areas that would affect key skylines or views, such as views to historic landmarks; and
- avoid windfarms within historic and designed landscapes such as estates.

6.17. More proactive guidelines include:

- use should be made of the existing landscape pattern for windfarm layout;
- relationships of turbines and windfarms within existing business parks and industrial complexes should be made or areas particularly where the energy generated can be used by the adjacent industries;
- the positive sculptural qualities of well designed windfarms should be considered, particularly where a bold design of, for example, a line of turbines along a ridge, railway or field boundary would be better than a random group not relating to the landform or pattern; and
- environmental and landscape improvements should be incorporated into the development to avoid potential losses to the quality of the environment. These may include restoration of natural habitats, or the development of management plans for the environment of the site.

[30] There are safety limits to the proximity of turbines to each other, but greater spacing between turbines may be more appropriate in some landscapes.

Larger and Smaller Scale Developments

6.18. The sensitivity study has used standardised scales of development to draw up broad guidelines for sensitivity. It is important to recognise that most actual applications will vary from these standards. In particular, as discussed above, the trend is for increasing sizes of turbines (heights and blade diameters) to be proposed. Some current applications propose turbines of up to 125m to blade tip, and this may increase with the further development of technology.

6.19. In distant views of windfarms on open landscape, the increase in size of the machines may not be noticeable, but for smaller scale landscapes where the size of the turbines can be related to recognisable elements in the landscape such as trees and houses, the larger turbines are more likely to have an effect on the perceived scale of the landscape, potentially dwarfing other features.

6.20. In contrast, smaller turbines will be more appropriate in situations such as in designated landscapes, and landscapes judged to have higher sensitivity. In particular, single turbines or small groups (up to about five) of turbines of a small size (less than 50m high), associated directly with farmsteads or local settlements, may be appropriate for locations within National Parks and AONBs, where the sensitivity to 100m high turbines has been considered to be high.

Cumulative issues relating to windfarm development

6.21. Windfarms are highly visible elements in the landscape, and as such, are likely to be visible in combination if there is more than one windfarm in the area.

6.22. The potential cumulative effects of multiple windfarms should be considered. The assessment of cumulative impacts should consider:

- the arrangement of windfarms in the view, e.g. in one direction or part of the view, or seen in all directions;
- the relationship of scale of the windfarms, including turbine size and number of turbines;
- the relationship of the layout of the windfarms, e.g. where one windfarm may be a grid layout, and another may be a group or a line of turbines;
- the position of the windfarms in the view, e.g. on the skyline, or against the backdrop of land;
- the sense of distance from the viewer, and whether the proximity gives a sense of being overshadowed. This will also relate to the scale of the landscape;
- the sense of distance between the windfarms - windfarms may appear to merge when seen from certain angles, or may be legible as discrete entities; and
- the relationship of the windfarms to other aspects of the landscape as this may determine how prominent the cumulative impact will be, e.g. multiple windfarms will be more obvious on an open undeveloped landscape, than several windfarms amongst industrial towers in a built up landscape.

6.23. The assessment of cumulative impacts should be considered in terms of impacts on the character of the landscape (based on the criteria used in the current landscape sensitivity study), and visual effects on views seen from static locations or 'viewpoints', as well as the sequential experiences of routes through the landscape.

6.24. Planning can be used to guide windfarm proposals so as to either keep them apart to avoid cumulative issues, or to cluster them in certain parts of the landscape to avoid development in more valued areas. In the latter scenario, cumulative effects will be more prominent, but can be manipulated to relate windfarms to each other and provide a coherent sub-regional strategy.

6.25. Further information on cumulative impacts of windfarms can be found in:

- PPS22: Planning For Renewable Energy (2004);
- PPS22: Planning For Renewable Energy – Companion Guide (2004);
- Cumulative Effect of Windfarms, Scottish Natural Heritage (August 2003);
- Cumulative Effects of Wind Turbines; A Guide to Assessing the Cumulative Effects of Wind Energy Development, Department of Trade and Industry (2000); and
- Guidelines for Landscape and Visual Impact Assessment, Landscape Institute and the Institute of Environmental Assessment (2nd edition, 2002).

Biomass

6.26. The key features of a biomass plant are:

- plant buildings including furnace and chimneys;
- yards and buildings for delivery and storage of fuel;
- road access suitable for lorries;
- a source of fuel crops (nearby); and
- a grid connection[31].

6.27. These characteristics raise a number of key planning issues relating to potential impacts on landscape and visual amenity. This study has considered the landscape sensitivity to the introduction of biomass buildings. Issues relating to crops and access are noted but not assessed.

General Guidelines

6.28. The following guidelines for siting biomass plants in North Yorkshire have been developed on the basis of the sensitivity assessment in **Chapter 5**:

- individual proposals should be assessed in detail with respect to the potential impacts and integration issues relating to them;
- avoid locations with no large or modern buildings nearby. Areas with small stone built vernacular farmsteads and villages will be unsuitable;
- make use of existing screening features such as trees, shelterbelts and woodlands;
- buildings that do not protrude above tree top level can be effectively screened by trees;
- avoid areas where access will be a problem;
- avoid areas where the growing of fuel crops locally will affect the character of the landscape;
- suitable materials should be used to facilitate the integration of structures with the surroundings, for example cladding of buildings and finish colour;
- use should be made of existing business parks and industrial yards, particularly where the energy generated can be used by the adjacent industries; and
- environmental and landscape improvements should be incorporated into the development to avoid potential losses to the quality of the environment. These may include restoration of natural habitats, or replacing hedges and tree plantations in the vicinity of the proposed developments.

Cumulative Issues relating to Biomass Plants

6.29. Cumulative effects of multiple biomass plants will arise when multiple plants are visible in the same view, or when they are visible at different locations along a route such that they become a noticeable sequence of plants. Cumulative effects will relate to:

[31] Please note that a grid connection may not always be required if the scheme is a heat only biomass project.

- the massing and relationship of buildings within and between plants;
- the relationships of plant buildings to their surroundings, including screening vegetation;
- whether the plants give an industrialised character to the landscape;
- the relationship of the plants to other aspects of the landscape, e.g. multiple plants will be more obvious in a rural landscape than in a built up landscape; and
- the cumulative issues related to the increased requirement for crops and access should be considered.

6.30. Further information on biomass developments can be found in:

- Biomass - All You Need to Know Woodfuel Heat & Power Solutions http://woodfuelwales.org.uk/biomass/;
- Woodfuel heating for public Buildings, Booklet by National Non-food Crops Centre and GOYH, http://www.nnfcc.co.uk/nnfcclibrary/publications/.

Hydro

Key issues associated with small-scale hydro

6.31. Hydro power is perhaps the most long-established renewable energy technology. Continuous improvements in small turbine and generator technology mean that 'Micro' (under 100kW) and 'Small-scale' (up to 5 MW), hydro-schemes are an increasingly attractive means of producing electricity. Useful power may be produced from anything upwards of a small stream.

6.32. The key features of a small hydro scheme are:

- a hydraulic "head" (i.e. the vertical distance from the reservoir or river above the weir to the turbine);
- a water intake above a weir or behind a dam;
- a pipeline or channel to transport the water from the reservoir or river to the turbine;
- a turbine, a generator and associated buildings;
- a grid connection; and
- an outflow, where the water returns to the main water course.

6.33. These characteristics raise a number of key planning issues relating to potential impacts on landscape and visual amenity.

6.34. Small-scale hydro schemes can have an impact on landscape character and visual amenity, although this will vary depending on the design of the scheme and whether it will involve the impoundment of water or the construction of structures above ground. In North Yorkshire it is likely that most schemes will involve the use of a weir to raise the head and direct flow into a hydro scheme.

6.35. Scottish Natural Heritage have prepared a comprehensive list of criteria which can be used to assessed the potential impact of small scale hydro schemes on landscape and visual amenity. These are set out in their publication *Guidelines on the Environmental Impacts of Windfarms and Small-Scale*

Hydro- Electric Developments, (February 2001)[32]. This guidance notes that sensitive and imaginative design of the scheme and ancillary buildings and facilities can successfully minimise some of the effects, but careful site selection is required at the outset.

General Guidelines

6.36. The following guidelines for siting hydro schemes in North Yorkshire have been developed on the basis of site visits to the 40 potential river sites that are identified in the AEAT (2002) study[33]:

- individual proposals should be assessed in detail with respect to the potential impacts and integration issues relating to them;
- avoid locations with no built elements adjacent to the river or nearby;
- in some locations it is important to screen the modern structures associated with hydro schemes from view, while in other locations the hydro scheme could be emphasised as a feature of tourist or industrial interest, perhaps relating to the history of an old mill, or to the modern use of an industrial site;
- development and structures relating to hydro schemes should be located on banks with existing development or built structures, rather than on undeveloped sides;
- hydro schemes are unlikely to be suitable in undeveloped rural locations due to the difficulties in integrating modern structures including pipes and pylons. 'Micro' scale hydro schemes providing local power may be acceptable if well integrated with the river banks in association with bridges or existing buildings and not visible from public roads;
- use should be made of existing features such as weirs, sluices, locks and mill buildings to create a head of water and to house hydro plant and pipes etc:
- old filled-in leats, could be opened up and restored, or used to carry a covered pipe by excavation and backfill;
- locate hydro plant within, adjacent to or associated with existing buildings;
- plant should be housed in an existing building or in a building of the same construction style as those surrounding the site. If this is not possible, there may be opportunities to house 'micro' scale plant adjacent to walls or screened from view by shrubs and trees;
- schemes should incorporate the restoration of historic water features such as weirs, mill ponds, millraces or leats, sluice gates, tailrace outlets and derelict mill buildings;
- integration with converted mill buildings under residential use should consider issues such as noise, private access, maintenance access, safety and conflict of land use with pipes crossing private gardens;
- hydro scheme integration could be combined with the creation of footpaths along millraces;

[32] Scottish Natural Heritage (2001) *Guidelines on the Environmental Impacts of Windfarms and Small-Scale Hydro- Electric Developments.*
[33] AEA Technology (2002) *Development of a Renewable Energy Assessment and Targets for Yorkshire and the Humber.*

- schemes should consider the location of hydro plant either adjacent to the weir or mill structures, or, where appropriate, further downstream or away from the watercourse;
- many sites have high walls beside the watercourse. If hydro plant cannot be located within existing buildings, consideration should be made of locating plant against the wall, with a cladding of similar building material for careful integration;
- North Yorkshire has a wide range of building materials and styles, often reflecting the availability of local stone. These variations contribute to the landscape character and distinctiveness of areas within the county and should be reflected in new hydro related structures;
- there may be the potential for the use of hydro plant development to reinforce eroded banks;
- some rivers are split into more than one channel, usually for a weir and a boat lock. There is generally some potential to integrate hydro schemes with structures on the islands;
- modern materials are present in some locations, and as such integration of plant buildings may not cause problems if carefully sited;
- industrial landscapes generally lend themselves to hydro scheme development, especially where the adjacent industrial units or companies can be involved;
- attention should be paid to the likelihood of flooding around the river and potential hydro site; and
- environmental and landscape improvements should be incorporated into the development to avoid potential losses to the quality of the environment. These may include restoration of natural riverside habitats, or replacing hedges and riparian woodlands in the vicinity of the proposed developments.

Cumulative issues relating to hydro schemes

6.37. Given the small scale of hydro developments considered, cumulative visual impacts are unlikely to occur unless two or more developments are visible from a single location. In most cases, even developments a few hundred metres apart may not be intervisible, given the often wooded nature of the watercourses of North Yorkshire. However, should intervisibility occur, some of the issues that should be considered in relation to potential cumulative visual impacts area listed below:

- whether the schemes are visible from a large area; and
- whether the character of the area is changed more by the multiple schemes being present than by a single scheme being present.

6.38. Other impacts not considered here, may occur due to multiple hydro schemes being developed on a watercourse. These include ecological and noise impacts.

Solar

6.39. The key issues associated with the introduction of solar panels on roofs are:

- architectural style of the buildings;
- character of the settlement; and

- precedent of other roof structures such as chimneys, masts, aerials and satellite dishes.

6.40. The most suitable sites for the development of solar panels in North Yorkshire include:

- new build and modern buildings, renovations;
- modern buildings (C20);
- industrial buildings;
- modern school buildings;
- agricultural buildings; and
- some conversions where carefully integrated – depends on quality of conversion.

6.41. The least suitable sites may include the following:

- old, vernacular style buildings;
- inward facing roofs of picturesque rural village main streets/squares;
- churches and other buildings not normally having skylight windows;
- stone field barns; and
- estate buildings unless carefully placed and not interrupting building style/ appearance.

6.42. The following general guidelines for identifying potential locations for solar installations in North Yorkshire have been developed on the basis of field observations. They do not relate to assessment of individual buildings:

- consideration should be made of building materials, in particular colour, texture, and reflectivity of roofing materials, which may contrast with shiny black solar panels;
- the style of existing buildings may provide opportunities or dictate constraints for the location of solar units;
- flat roof buildings may provide opportunities for solar units, either laid flat or supported at an angle;
- locations with no or limited visibility to ground level streets may be more suitable than sites with high visibility, although views from adjacent buildings should also be considered;
- scale should be considered – scale of units in relation to the roof area;
- the aspect of the building and its orientation with respect to the road or village grain should be considered, especially where roofs are visible from the main public areas;
- some traffic signs are now available with small solar panels to power lights, these should be used where possible; and
- in some situations solar units should be clearly visible. For example, putting visible solar units on public buildings will illustrate that a proactive approach to renewable energy is being taken by the community.

Notes on potential locations

6.43. The following notes consider different types of buildings and their likely suitability for solar installations:

- generally, old, vernacular style buildings such as cottages, farmhouses and field barns will be less suitable for solar because of the contrasts between the old buildings and the new elements;
- public buildings such as community halls and schools may be suitable, except where they are of old stone of vernacular style architecture. As noted in the guidelines, solar installations may illustrate the community's or school's proactive approach to renewable energy;
- newly built or modern buildings (20th century) are likely to be suitable, as the modern appearance of the solar units may fit well with the architectural style;
- industrial or business buildings are likely to be suitable, given modern architecture. In addition, companies can promote a renewable energy approach to sourcing electricity from solar;
- modern agricultural buildings may be suitable, as they have large roof areas of metallic materials. Reflectivity of solar units should be considered. Old stone field barns are less suitable, due to the contrast in age, material and style;
- some converted buildings such as barns or mills may be suitable for solar installations, but this will be site specific and will depend on the nature of the old building, and the style in which it is converted;
- churches and other buildings not normally with skylight windows are less likely to be suitable for solar, although careful siting to hide the units may be more suitable;
- the inward facing roofs of picturesque rural village main streets or squares may be more sensitive to the introduction of solar units which alter the character of the settlements;
- solar units on buildings have a similar 'modernising' effect on character to satellite dishes, although they are located on roofs and do not protrude out of the silhouette of the building; and
- some estate buildings may have opportunities to carry solar units, but these should not interrupt the building style or appearance, and its relationship with the rest of the estate. Some opportunities may be found where solar units can be hidden from view.

6.44. Further information can be found in:

- '*Photovoltaics in Buildings: Town Planning Considerations*' Terence O'Rourke – ETSU S/P2/00304/REP (1999);
- '*Photovoltaics in Buildings: A Design Guide*' Max Fordham & Partners – ETSU S/P2/00282/REP (1999); and
- '*Photovoltaics in Buildings: Safety and the CDM Regulations*' BSRIA – ETSU S/P2/00313/REP (2000).

Cumulative issues relating to Solar Panels

6.45. Multiple solar panels may create cumulative effects when sited on the same roof, or when on different roofs.

6.46. Multiple panels on the same roof can be accommodated on large roofs, hidden roofs, or on roofs which have a number of roof light windows present. However, in other cases they may be of scale with the roof, and may appear to smother it. The position of the panels with respect to other roof features and the windows in the walls should be considered.

6.47. Multiple panels on some or all of the roofs in a street or settlement may form an interesting character link between the buildings (particular modern buildings), or may become a noticeably obtrusive feature of the settlement, where one panel could have been absorbed discretely.

6.48. In assessing potential cumulative issues, the location, position and size of panels on neighbouring buildings should be considered.

DESIGNATED AREAS

6.49. The landscape character assessment and sensitivity analysis were carried out on the basis of the county's intrinsic landscape character. National designations, notably National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts, were not included as inputs to this process, though it was recognised that it would be important to compare the results of the sensitivity analysis with the pattern of designation across the county. The principal reasons for this approach were as follows:

- it would have implied an automatic degree of landscape sensitivity irrespective of each area's landscape character and qualities. This would have been difficult to defend in the formulation and application of development plan policies and would not have reflected the approach set out in PPS 22. This policy guidance confirms that renewable energy developments within nationally important designated areas are likely to be more constrained and that care should be taken to ensure that the reasons for which the area was designated are not compromised. The analysis of landscape character and sensitivity completed in this study provides a basis for considering these qualities;
- inclusion of the existence of national designations alongside other baseline characteristics (e.g. geology, landform, settlement patterns, skylines etc.) would have introduced a value based criteria into an otherwise objective process of analysis and description of landscape sensitivity; and
- National Parks, AONBs and Heritage Coasts, whilst having landscape at the core of their designations, reflect a range of other factors and influences, including cultural heritage and recreation values.

6.50. Separating the assessment of landscape character and sensitivity from designations also provides a means of checking the results of the assessment and, more broadly, the reasons for designation. All other things being equal, the designated areas should emerge as having generally higher levels of landscape sensitivity than other areas.

6.51. For these reasons, National Parks, AONBs and Heritage Coasts have been mapped as a further layer of information in order to:

- review the patterns of landscape sensitivity relative to the extent of designated areas;
- identify the areas where particular care is required to ensure that any renewable energy developments do not compromise nationally important landscape qualities; and
- identify the areas where the intrinsic landscape sensitivity is lower than expected of a designated landscape, and therefore where the value placed on that landscape serves to decrease the capacity of that landscape to accommodate renewable energy developments.

6.52. The following paragraphs review the results of the landscape character and sensitivity analysis with:

- The Yorkshire Dales National Park;
- The North York Moors National Park;
- Nidderdale AONB;
- The Howardian Hills AONB;
- Forest of Bowland AONB;
- North Yorkshire Heritage Coast;
- Flamborough Headland Heritage Coast.

6.53. These designated areas are shown on **Figure 6.1** and are overlain on the maps of landscape sensitivity (wind energy and biomass related development) in **Figures 6.2** and **6.3**.

The Yorkshire Dales National Park

6.54. The Yorkshire Dales National Park comprises areas of upland moorland, some of which is underlain by limestone, and distinctive upland dales with characteristic settlement patterns and field systems, together with fringes of lower ground, particularly along the northern side of Wharfedale. There are extensive views from higher ground and uninterrupted skylines make an important contribution to the experience of the landscape on the moors and within the dales. The moors form a smooth and widely visible skyline when viewed from within the Vale of York, though are visible over shorter distances to the north and south, due to the continuation of the Pennine chain.

6.55. The wind sensitivity map (**Figure 6.2**) indicates that almost the entirety of the National Park within the county has been identified as having a landscape that is of high sensitivity to wind energy development. This reflects a number of the factors described in the previous paragraph, including the importance of uninterrupted views and skylines, the lack of scale features in many of the moorland areas and the small scale and historic patterns of settlement and landcover within the dales. The designated, upper sections of the dales were judged to be more sensitive than their undesignated, lower sections. The only parts of the National Park within North Yorkshire judged to be of lower sensitivity were some of the fringe areas along Wharfedale. These areas were judged to be of medium-high sensitivity.

6.56. The biomass sensitivity map (**Figure 6.3**) indicates a very similar pattern, reflecting the potential difficulty of accommodating large buildings on the moors or within the dales.

6.57. The implications of these findings are that given the overall high sensitivity of the landscape across the area, and the values placed on the landscape through its designation, it is likely that these commercial scale wind and biomass developments would be inappropriate in this landscape. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures), should therefore be considered, particularly around the southern fringes of the area.

The North York Moors National Park

6.58. The North York Moors National Park comprises areas of upland moorland which have been cut by a series of branching dales. To the west and north the moors are defined by dramatic and sinuous escarpment. South facing slopes are by contrast more gentle. The National Park runs up to the North Sea coast and includes a series of bays and steep sea cliffs. As in the case of the Yorkshire Dales National Park, there are extensive views from higher ground and uninterrupted skylines make an important contribution to the experience of the landscape on the moors and within the dales. The moors form a dramatic and widely visible skyline when viewed from within the Vale of York and Teeside to the north. They are less prominent in views from within the Vale of Pickering.

6.59. The wind sensitivity map indicates that almost the entirety of the National Park has been identified as having a landscape that is of high sensitivity to wind energy development. This reflects a number of the factors described in the previous paragraph including the importance of uninterrupted views and skylines, the lack of scale features in many of the moorland areas, and the small scale and historic patterns of settlement and landcover within the dales. Fringe areas to the south and west, at the foot of the scarp, were judged to be of medium-high sensitivity, and the area immediately around Scarborough was judged to be of medium sensitivity, reflecting the influence of the built up area on the character of the landscape.

6.60. The biomass sensitivity map indicates a similar pattern of high sensitivity of the high moors and dales with lower sensitivity around the fringes, reflecting the potential difficulty of accommodating large buildings on the moors or within the dales. The exception to this pattern lies in the north eastern part of the National Park, to the north, south and west of Whitby, where the analysis indicated a medium-high sensitivity to this type of development, reflecting the higher level of settlement and agricultural activity in this area.

6.61. The implications of these findings are that given the overall high sensitivity of the landscape across the area, and the values placed on the landscape through its designation, it is likely that these commercial scale wind and biomass developments would be inappropriate in this landscape. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered.

Nidderdale AONB

6.62. The Nidderdale AONB shares some of the characteristics of the Yorkshire Dales National Park, including moorland ridges and dales. However, the designated area also includes some lower lying, transitional areas along the boundary between the moors and the Vale of York. These

latter areas comprise lower hillslopes with relatively small fields, narrow lanes, a scatter of villages and a number of historic designed landscapes. The character of these areas changes with elevation, with settlement and tree cover decreasing and field boundaries increasingly marked by walls rather than hedges.

6.63. The wind sensitivity map reflects this more varied character. Much of the area, including the high moorland and the upper part of Nidderdale, are indicated as being of high sensitivity to wind energy development. The lower part of the dales, together with lower areas of moorland are classed as being of medium-high sensitivity, while the transitional slopes along the eastern edge of the area and Forest Moor are classed as being of medium sensitivity, due to the greater presence and perception of built up areas and man made features in the landscape.

6.64. The biomass sensitivity map indicates that the high moorland and upper dales are identified as being of high sensitivity, the lower moorland and dales including Forest Moor classed as medium-high sensitivity and the transitional slopes along the eastern edge of the area being classed as medium sensitivity.

6.65. The implications of these findings are that although there are areas of medium sensitivity identified within the AONB, it is likely that these commercial scale wind and biomass developments would be inappropriate due to the values placed on the landscape, through its designation as an AONB. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered as alternatives, particularly in the lower parts of the dales and along the area's eastern fringe.

The Howardian Hills AONB

6.66. The Howardian Hills AONB comprises a gentle ridge of hills extending north-westwards from the edge of the Yorkshire Wolds towards the North York Moors. The AONB includes the Kirkham Gorge in the south-west. The AONB comprises a rich mixture of designed landscapes, woodlands, arable and pastoral fields and small villages. It contrasts with the other nationally designated areas in North Yorkshire, which are more upland in character, and provides mainly local skylines when viewed from neighbouring areas. It is also more limited in physical extent, largely comprising a single landscape character area when analysed at a county scale.

6.67. The wind sensitivity map indicates that almost the entire AONB is judged to be of high sensitivity to wind energy development. This reflects the small scale and historic character of the ridge landscape. Both these characteristics could be undermined by the introduction of large, modern structures. A small area of lower ground in the northern part of the AONB (west of Gilling East) was judged to be of medium-high sensitivity, and the area around Nunnington was judged to be of medium sensitivity.

6.68. The biomass sensitivity map indicates that most of the AONB is of medium-high sensitivity to biomass related development. The area around Nunnington was judged to be medium-low sensitivity, and the Crayke area was found to be of low sensitivity. This reflects the more settled and agricultural character of this area (compared to other designated areas in the county), and the constraints represented by the small scale and historic character of the landscape along the ridge. It also reflects the differences in boundary between the typologies used to carry out the sensitivity assessment and the boundary of the AONB, as

the Crayke area is included as part of the LCN area, which as a whole is considered to be of low sensitivity, rather than as part of the UBA of high sensitivity.

6.69. The implications of these findings are that although there are areas of medium sensitivity identified within the AONB, it is likely that these commercial scale wind and biomass developments would be inappropriate due to the values placed on the landscape, through its designation as an AONB. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered as alternatives, particularly in the flatter parts of the Vales of Pickering and York further from the hill ridge.

The Forest of Bowland AONB

6.70. The Forest of Bowland AONB comprises an area of the Pennines hill range that largely lies outside the study area. The part of the AONB within the study area covers the southern side of Wenningdale, where the AONB extends down from the Pennine plateau to include the lower moorland fells and slopes and part of the valley floor between Giggleswick and Clapham. The AONB therefore includes upland landscapes, transitional slopes and lowland valley landscape types.

6.71. The wind sensitivity map reflects this varied character. The more upland part the AONB within the study area, including the high moorland of Burn Moor is indicated as being of high sensitivity to wind energy development. The transitional, lower slopes and valley floor are indicated as being of medium-high sensitivity, reflecting the greater influence of settlement and transport corridors.

6.72. The biomass sensitivity map follows a similar pattern, but with areas of high sensitivity extending further down the slopes, reflecting the transition between upland open landscapes and more enclosed landscapes at lower elevation with a greater influence of field boundaries, woodlands and settlement.

6.73. The implications of these findings are that although there are areas of medium-high sensitivity identified within the AONB, it is likely that commercial scale wind and biomass developments would be inappropriate due to the values placed on the landscape, through its designation as an AONB. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered as alternatives, particularly in the lower parts of the valley.

North Yorkshire Heritage Coast

6.74. The North Yorkshire Heritage Coast comprises the coastal strip north of Scarborough extending to Whitby and north, out of the study area to Saltburn. On the inland side, the Heritage coast is defined in some places by the main roads that run along the coast, but in other places the boundary is defined in other ways. The coast is generally of steep sea cliffs, with a series of bays occupied by settlements. Whitby occupies one such bay. From the cliff tops of this coast, there are extensive views out to sea, and also along the coast. Views also often extend inland to the North Yorks Moors.

6.75. The wind sensitivity map indicates that most of this coast has been identified as having a landscape that is of high sensitivity to wind energy development. This reflects the importance of uninterrupted views and skylines, and the

lack of modern tall industrial features along this coast. The area immediately around Scarborough was judged to be of medium sensitivity, reflecting the influence of the built up areas of Scarborough and Scalby on the character of the landscape.

6.76. The biomass sensitivity map indicates that most of this coast has been identified as being of medium-high sensitivity to biomass plant development. This is due to the general lack of modern farmsteads and tree cover along this coast, reflecting the potential difficulty of accommodating large buildings in this landscape. The area to the north of Scarborough has a higher level of settlement and agricultural activity in this area, and the analysis indicated a medium sensitivity to this type of development.

6.77. The implications of these findings are that given the overall relatively high sensitivity of the landscape along this coast, and the values placed on the landscape through its designation, it is likely that these commercial scale wind and biomass developments would be inappropriate in this landscape. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered.

Flamborough Headland Heritage Coast

6.78. The Flamborough Headland Heritage Coast comprises the coast around Flamborough Head, extending into the study area as far as Reighton. This designated landscape therefore lies largely outside the study area, with only approximately 5km of coast within the study area. This short section of coast has steep cliffs, and includes the Speeton Hills. From these hills, there are extensive views out to sea, and also along the coast to Scarborough. Views also extend inland to the Vale of Pickering, the North York Moors beyond, and the Yorkshire Wolds.

6.79. The wind sensitivity map indicates that this section of coast has been identified as having a landscape that is of medium-low sensitivity to wind energy development. This reflects the influence of man-made structures and settlements, including caravan and holiday parks along this coast.

6.80. The biomass sensitivity map indicates that this section of coast is of medium sensitivity to biomass plant development. This is due to the general lack of tree cover to screen biomass plants, but the presence of modern farmsteads and other settlement features with which biomass plants could be integrated.

6.81. Although the sensitivity of the landscape along this coast is judged to be medium to low overall, the values placed on the landscape through its designation means that it is likely that commercial scale wind and biomass developments would be inappropriate in this landscape. Alternatives, including individual, domestic scale wind turbines, smaller biomass plants and small scale hydro schemes (using existing structures) should therefore be considered.

COMPARISON OF RESULTS WITH AEAT (2004) STUDY

6.82. When the results of this study are compared with the results of the landscape sensitivity study reported in the AEAT study (Volume 3 and map 2), there are both similarities and differences. These are set out in **Table 5.2** below.

Table 5.2: Comparison of Study Results with AEAT 2004 Study

Similarities	Differences
High sensitivity areas covering North York Moors and Yorkshire Dales; and Lower sensitivity areas include the Vale of York and Selby District	Some aspects of methodology Scale of landscape units considered Number of sensitivity levels Sensitivity judgements in four broad areas: - Teesdale lowlands - Vale of Pickering and Yorkshire Wolds - Harrogate Area - Weningdale and Ribblesdale

Discussion of Differences

6.83. The main differences between the current study and the sensitivity study carried out within the AEAT 2004 study are discussed in the following paragraphs.

Methodological Differences

6.84. The assessment of sensitivity undertaken through the AEAT 2004 study is of broadly similar methodology to the current study. The differences lie in:

- the selection and definition of criteria used to assess the sensitivity of the landscape, although these are broadly similar and cover both physical and perceptual aspects of the landscape;
- the number of sensitivity categories used. There are three categories used in the AEAT 2004 sensitivity study, but five in this study. This means that discrepancies between, for example 'high' and 'medium-high' may be due to the number of categories used, rather than a conflict of results; and
- professional judgement was used for both assessments, to arrive at a sensitivity to wind development for each landscape unit. In the AEAT 2004 sensitivity study the sensitivity of each landscape criterion (e.g. landform, pattern etc.) was assigned a sensitivity level for each landscape unit, and these were brought together to form the overall sensitivity of the landscape unit. In this study, however, individual landscape criteria have not been assessed individually but collectively, with particular consideration to those criteria particularly important to the landscape unit. This approach was used to avoid the numerical approach of 'scoring' and weighting criteria to obtain sensitivity judgements.

Differences in Scale

6.85. The assessment of sensitivity undertaken through the AEAT 2004 study is of a broader scale than the current study. The AEAT study covered North Yorkshire and the Humber area, and used the Countryside Character Initiative landscape areas (CCI areas) as units for the assessment (24 CCI areas were used as landscape units). Because the current study focuses on North Yorkshire, and the CCI areas considered to be of too broad a scale for the purposes of it (as explained in the methodology section of **Chapter 5**), this study is based upon landscape units smaller that CCI areas (typologies, of which 23 cover the study area, but these have been divided into 50 landscape

units). As a result, and because there are variations within any landscape unit (whatever the scale), there are locations in which this study has differentiated between higher and lower sensitivity typologies within the broader CCI areas. These variations do not mean that there is conflict with the results of the sensitivity study in the AEAT 2004 report, but rather that this study has picked up on variation at a more local scale, as suggested in the final paragraph of section 4.0 in Volume 3.

Differences in Sensitivity Assignment

6.86. The differences in the assignment of sensitivity of different areas largely result from the differences in methodology discussed above, principally the difference in size of landscape unit, and also the number of sensitivity categories. There are however, four areas which merit further discussion. These are shown on **Figure 6.4**.

6.87. **Teesdale Lowlands** – This area is shown as low sensitivity in the AEAT sensitivity study, but is found to be of medium or medium-low sensitivity in this study. The current study therefore suggests somewhat higher sensitivity than predicted by AEAT. This is perhaps due to the fact that, when considered on a more local scale, this study has found that this strip of land (which does not extend out of North Yorkshire across to Darlington and Middlesborough) has a stronger visual relationship with the scarp slopes of the Cleveland Hills than with the distant industrial towers of Teeside, although these are noticeable on the skyline. As a result, the sensitivity of the landscape to development that will affect the skyline to the south, and the perception of the relationship of gently undulating to flat land with the prominent scarp slopes, is considered to be higher than 'low'.

6.88. **Vale of Pickering and Yorkshire Wolds** – This area, covered in the AEAT 2004 sensitivity study by two landscape units, is covered by eleven landscape units in the current study. It is not surprising therefore that there is variation found in the current study. For the eastern part of the Vale of Pickering and the plateau of the Yorkshire Wolds, found to be of medium-high sensitivity in this study, the difference may be one of the number of sensitivity categories used. In the western part of the vale, the landscape is more open, and of larger scale, with a less distinctive relationship with the hills to north and south. The coastal areas are more settled, with more evidence of man's activities and a busier character than the more tranquil inland areas. For these different reasons, the western part of the Vale of Pickering and the coastal area around Scarborough and Filey are considered to be of lower sensitivity than the CCI areas 26 and 27 as a whole.

6.89. **Harrogate area** – The area around Harrogate, from Harrogate to Otley and Blubberhouses is considered to be of lower sensitivity than the rest of CCI area 22 which extends north along the eastern fringe of the Yorkshire Dales. This is because there is a stronger settled influence in this area, with a more historic industrial character and more influence of existing masts, pylons and man-made structures than in areas further north, which are more rural, of finer grain, and with a stronger influence of historic estate landscapes.

6.90. **Weningdale and Ribblesdale** – This area has been identified as being of medium-high sensitivity to wind development in this study, but of high sensitivity in the AEAT 2994 study. This is due to the number of sensitivity categories used, and the fact that, with five categories rather than three, it is possible to indicate that this area is

of slightly lower sensitivity than the open moors or narrow remote dales, but higher than 'medium' sensitivity.

6.91. Overall it can be concluded that the findings of the two studies are similar, but with some variation due to the differences in scale at which they are carried out.

GUIDANCE ON DEALING WITH INDIVIDUAL APPLICATIONS

6.92. As noted in the introduction to this chapter, the broad landscape sensitivity assessment cannot be used to assess whether a specific site is appropriate or not for the development of a renewable energy project. The following section provides specific guidance for local authorities and developers on how to assess the landscape and visual amenity impacts associated with specific development proposals.

Wind

6.93. The Second Edition Guidelines on Landscape and Visual Impact Assessment[34] provides an accepted methodology for undertaking landscape and visual impact assessment of development as part of an Environmental Assessment. It also provides the definitions of magnitude, sensitivity and significance that should be adhered to when describing impacts as part of an Environmental Statement. However, the guidance does not contain detailed information on criteria that should be used in assessing impacts of specific developments, such as windfarms. For this reason, a set of criteria has been developed to:

- assist development control officers in appraising planning applications for wind energy developments in relation to landscape character and visual amenity; and
- assist developers in seeking appropriate locations for wind energy developments with minimum impact on landscape character and visual amenity.

6.94. Criteria for locating windfarms include both physical and perceptual criteria. There may well be conflicts where one site will result in a reduced impact on one criterion, but an increased impact on another. These will need to be weighed up through a site specific landscape and visual impact assessment. Impacts on landscape character and visual amenity may be positive as well as negative.

Physical criteria

- **Landform, shape and scale** – the landscapes of North Yorkshire tend to be relatively large in scale in relation to the UK as a whole. The landform, shape and scale is critical in evaluating whether the landscape can accommodate large scale features such as windfarms. For example, in theory a large scale strong landform may accommodate large scale features because the turbines will be in scale with the landscape. Landscape pattern can affect the overall landscape scale. For example, areas with a large scale landform may be inappropriate for large scale wind turbine development if the landscape is characterised by an intricate landscape pattern, for example as a result of ancient field systems. The Countryside Agency guidance on

[34] ·The Landscape Institute and Institute of Environmental Management and Assessment (2002) *Guidelines for Landscape and Visual Impact Assessment: Second Edition.*

landscape character assessment[35] provides useful guidance in defining landform and landscape pattern. In addition, Scottish Natural Heritage's *Guidelines on the Environmental Impacts of Wind Farms*[36] also provides some useful explanation on landform and how it may relate to wind turbines.

- **Nature of the skyline** – Open skylines may provide an opportunity to accommodate a well placed windfarm that may act as a visual focus. However, prominent skylines are highly visible thus making any windfarm highly visible. Skylines that have important focal features such as landform features or historic buildings are less likely to be able to accommodate windfarms. It is important to ensure that wind turbines do not detract from, or compete with, important focal points.

- **Landscape pattern and foci** – Landscape pattern results from a combination of landcover and land use patterns - field boundaries, distribution of woodland, settlements and transport infrastructure can all contribute to landscape pattern. The characteristic landscape pattern will inform the most appropriate configuration of turbines. For example, areas characterised by geometric patterns (such as rectilinear field boundaries, liner ditches/shelter belts and straight roads) may be most suited to turbines located in rows or on a grid, whereas areas characterised by amorphous patterns (such as irregular fields or unenclosed areas) may be suited to more irregular groups of turbines. Focal points, for example church towers or other prominent elements, contribute to landscape pattern and are important visual elements in the landscape. It is important to ensure that wind turbines do not detract from important focal points or compete with such elements.

- **Openness/enclosure** – The sense of enclosure provided by topography or vegetation may indicate the ability of a landscape to provide screening for ground level buildings or infrastructure associated with windfarm developments. Open areas, such as moorland areas, would provide little screening for access tracks and these may result in adverse impacts. The sense of enclosure may also inform the spacing needed between adjacent windfarms or turbines. For example, areas with a sense of enclosure (undulating or wooded areas) may be able to accommodate turbines at a higher density than open and exposed areas (such as open moorland or marshland), because inter-visibility between adjacent structures will be reduced.

- **Character of the built environment** – the presence of settlement may influence the location of windfarms. For example, if a windfarm is too close to a settlement it may overshadow the settlement or dominate the character of the settlement which may be much smaller in scale. Significant contrasts of scale may occur between turbines and buildings. However, where settlement is extensive and built form large in scale, it may provide more opportunity for turbine development. There may be brownfield sites on the edges of large settlements that could accommodate turbines without detrimental impacts on tranquillity or natural features. However, it should be noted that sites close to settlements may result in increased impacts on

[35] The Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment: Guidance for England and Scotland CAX 84.*
[36] Scottish Natural Heritage (2001) *Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydroelectric Schemes.*

visual amenity – this balance of impacts will need to weighed up through assessment.

- **Transport network** – The transport network will indicate where access tracks associated with windfarms may be most easily accommodated. For example, in moorland areas, the absence of transport infrastructure means that any new access tracks are likely to result in significant impacts on the landscape.

- **Landscape features** – Direct effects on specific landscape features could result in adverse impact on landscape character where those landscape features are key characteristics of that landscape. For example, the loss of an old mine building in a landscape characterised by industrial archaeology related to mining would result in adverse impacts on landscape character. On the other hand development may present opportunities to enhance degraded areas and landscape features. For example the development of a windfarm may provide opportunities to clean up despoiled land or restore derelict features and bring redundant land back into use.

- **Cumulative impact** – Cumulative impact may occur where the visual envelopes of more than one windfarm overlap. This may result in a dominance of windfarms in one area and these may alter the intrinsic character of the area. Although the cumulative impact of locating numerous windfarms may change the landscape character of a particular area, this can form part of a strategic planning policy which enables other areas less suitable to this type of development to remain devoid of windfarms.

Perceptual Criteria

- **Sense of remoteness/wildness** – North Yorkshire has many rural areas and some remote areas. The introduction of moving elements such as wind turbines may significantly affect the sense of remoteness and solitude that are key elements of some landscapes. Landscapes that have experienced some degree of modification and reduced naturalness may be able to accommodate turbines more comfortably than more remote areas.

- **Impacts on visual amenity** – The Zone of Visual Influence (ZVI) is the area from which a development is potentially visible as determined by topography. The large size of wind turbines means they are likely to have a large ZVI. Topography and other intervening features on the ground may also affect the extent of the ZVI. For example, in areas where the topography is very flat and there are few screening elements, the ZVI is likely to extend over a great distance. 'Receptors' may experience impacts on visual amenity as a result of a development. `Receptor' is defined as a representative individual or group of people, for example residents, visitors or walkers, or an area used by people for a certain use, for example a footpath, garden, house or recreation ground. The *Second Edition Guidelines on Landscape and Visual Impact Assessment*[37] provides many examples of ZVIs and provides an accepted terminology in assessing impacts on visual amenity. Scottish Natural

[37] The Landscape Institute and Institute of Environmental Management and Assessment (2002) *Guidelines for Landscape and Visual Impact Assessment: Second Edition.*

Heritage's *Best practice guidance on the visual assessment of windfarms*[38] is also a useful reference.

- **Inter-visibility with adjacent landscapes** – It will be important to consider views of the windfarm from adjacent landscapes. For example, sites that are adjacent to designated areas such as National Parks, Heritage Coasts or AONBs may be visible from these landscapes. The critical factor will not be how far the development is from the designated area boundary, but the *significance* of impact on views from the designated area.

- **Landscape value** – Some landscapes are valued for their scenic quality. They may be valued at the national scale (National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts), or at the local scale (local landscape designations in the Structure and Local Plans). These landscapes may be particularly sensitive to large scale elements such as wind turbines, which would alter the perception of that landscape. The impact of the windfarm on landscape value will depend on whether the characteristics of the windfarm relate to the characteristics of the landscape which are valued. It will be important to assess the potential impact of a development on the characteristics for which the landscape is valued.

Biomass

6.95. Guidelines for assessing suitability of individual proposals are as set out in the guidance section above. Fundamentally, it is the relationship of the biomass plant buildings with their surroundings (both built structures and vegetation), and the interaction of the different elements of the plant (yards, access, sources of fuel, grid connection) that will play a key role in the acceptability of a biomass plant.

6.96. This section presents a number of criteria that may assist development control officers in appraising planning applications for biomass plant buildings in terms of their impact on landscape character and visual amenity. Criteria for locating biomass plant buildings include both physical and perceptual criteria. There may well be conflicts where one site will result in a reduced impact on one criterion, but an increased impact on another. These benefits and disbenefits will need to be weighed up through a landscape and visual impact assessment. Impacts on landscape character and visual amenity may be positive as well as negative.

Physical Criteria

- **Landscape pattern** - Landscape pattern results from a combination of landcover and land use patterns. Field boundaries, distribution of woodland, settlements and transport infrastructure can all contribute to landscape pattern. Landscape pattern can affect the overall landscape scale. For example, areas that are characterised by an intricate landscape pattern may not be appropriate for large scale built features such as power plants. Focal points, for example church towers or other prominent elements, contribute to landscape pattern and are important visual elements in the landscape. It is important to ensure that power plants do not detract from important focal points or compete with such elements.

[38] Scottish Natural Heritage (2002) *Visual Assessment of Windfarms: Best Practice Report No. F01AA303A.*

- **Openness/ enclosure** - The sense of enclosure provided by topography or vegetation may indicate the ability of a landscape to provide screening for buildings and infrastructure associated with power plant developments. Open areas, such as moorland areas, would provide little screening and this would result in adverse impacts on landscape character.

- **Character of the built environment** - The presence of settlement may influence the ability of a landscape to accommodate additional built elements. For example, landscapes that are characterised by built development or large scale buildings will be less sensitive to a biomass power plant than landscapes that are devoid of settlement or where settlement is of a small scale. There may be brownfield sites on the edges of large settlements that could accommodate power plant development without detrimental impacts on tranquillity or natural features. However, it should be noted that sites close to settlements may result in increased impacts on visual amenity – the benefits and disbenefits will need to be weighed up through assessment.

- Transport network - The transport network will indicate where access roads to power plants may be most easily accommodated. For example, in moorland areas the absence of transport infrastructure means that any new access tracks are likely to result in significant impacts on the landscape.

- **Landscape features** - Direct effects on specific landscape features could result in adverse impact on landscape character where those landscape features are key characteristics of that landscape. For example, the loss of an ancient hedgerow in a landscape characterised by ancient hedgerow boundaries would result in adverse impacts on landscape character. Development of a power plant may also have a beneficial effect on landscape features by providing opportunities to clean up despoiled land or restore derelict features (such as buildings) and bring redundant land back into use.

Perceptual Criteria

- **Sense of remoteness/wildness** - North Yorkshire has many rural areas and some remote areas. However, where remote landscapes have survived, they are often small in extent and any erosion of remote landscapes will result in a significant loss of resource. The introduction of built elements would significantly affect the sense of tranquillity and solitude that are key elements of these landscapes.

- **Landscape value** - Some landscapes are valued for their scenic quality. They may be valued at the national scale (National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts), or at the local scale (local landscape designations in the Structure and Local Plans). These landscapes may be particularly sensitive to large scale elements such as biomass power plants which would alter the perception of that landscape. The impact of the power plant on landscape value will depend on whether the characteristics of the power plant relate to the characteristics of the landscape which are valued. It will be important to assess the potential impact of a development on the characteristics for which the landscape is valued.

- **Visual amenity** - The Zone of Visual Influence (ZVI) is the area from which a development is potentially

visible as determined by topography and other intervening features on the ground. For example, in areas where the topography is very flat and there are few screening elements, the ZVI is likely to extend over a greater distance than in areas of undulating topography. 'Receptors' may experience impacts on visual amenity as a result of a development. `Receptor' is defined as a representative individual or group of people, for example residents or walkers, or an area used by people for a certain use, for example a footpath, allotment garden, house or recreation ground. The Second Edition Guidelines on Landscape and Visual Impact Assessment[39] provides an accepted methodology and terminology in assessing impacts on visual amenity. Residential receptors are generally considered to be the most sensitive receptor group owing to their proprietary interest and their potential prolonged exposure to new development. Recreational receptors and local road users are also considered to be sensitive to the visual effects of new development. The least sensitive groups are passers-by on main roads who have passing or momentary interest in their visual environment. It will be important to assess the significance of impacts on the visual amenity of receptors within the zone of visual influence of any power plant. Significance is a function of receptor sensitivity and impact magnitude. Impacts on visual amenity may be illustrated effectively through the production of photo-realistic photomontages.

- **Intervisibilty with adjacent landscapes** - It will be important to consider views of the power plant from adjacent landscapes. For example, power plants that are adjacent to designated areas such as National Parks, Heritage Coasts or AONBs may be visible from these landscapes. The critical factor will not be how far the development is from the designated area boundary, but the *significance* of impact on views from within the designated area.

Hydro

6.97. The guidelines given in the guidance section above relate to sites already selected for hydro schemes. In the selection or consideration of additional sites, those guidelines above should be considered, as well as the following issues:

- Suitable sites should generally include some existing features such as weirs or locks to create a head of water. Locations without these features may require weirs to be built, which may cause landscape and visual impacts, and may also have impacts on the ecology of the watercourse. Impacts other than landscape and visual impacts are not considered in this document.
- In general, industrial or urban landscapes lend themselves to hydro scheme development more than rural or small village locations. However, if there are mill buildings and a history of use of the watercourse, it is likely that there will be some potential for reuse of the watercourse for hydro power.
- Reservoirs for drinking water are likely to be suitable locations for hydro schemes, using outlets for maintaining downstream water flow, for example.

[39] ·The Landscape Institute and Institute of Environmental Management and Assessment (2002) *Guidelines for Landscape and Visual Impact Assessment: Second Edition.*

Reservoirs also usually have a suitable head of water for generating hydro power.

Assessing the suitability of sites

6.98. The assessment of suitability of proposed hydro sites should consider all of the aspects outlined in the guidelines, in particular:

- the presence of existing watercourse features such as weirs, locks or channels that could be used for the hydro scheme;
- the presence of suitable locations for housing hydro plant;
- the presence of a sufficient head of water to make the scheme viable without additional water raising structures;
- the landscape character and potential conflicts with landscape character in terms of the sense of scale and remoteness, the built character and the transport network;
- the landscape pattern and vegetation cover, particularly the presence of landscape features such as vegetation or structures that could be used to screen the development from view; and
- whether, in response to the landscape setting, the scheme should be hidden, or whether there is the potential to use the scheme to create a feature of tourist or educational interest.

Solar

6.99. Guidelines for assessing suitability of individual proposals are as set out in the guidance section above.

REFERENCES/BIBLIOGRAPHY

AEA Technology (2002) *Development of a Renewable Energy Assessment and Targets for Yorkshire and the Humber.*

AEA Technology (2004) *Planning for Renewable Energy Targets in Yorkshire and Humber*

BSRIA (2000) *Photovoltaics in Buildings: Safety and the CDM Regulation* ETSU S/P2/00313/REP

Cobham Resource Consultants *(*1995) *Howardian Hills Landscape*

Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment: Guidance for England and Scotland CAX 84*

Countryside Agency *Topic Paper 1: Recent Practice and the Evolution of Landscape Character Assessment – An explanation of the development of Landscape Character Assessment*

Department of Trade and Industry (2000) *Cumulative Effects of Wind Turbines; A Guide to Assessing the Cumulative Effects of Wind Energy Development*

Entec UK Ltd (2001) *National Countryside Character Decision-Support Database* Yorkshire and the Humber Volume

Estell Warren Landscape Architects (2002) *Yorkshire Dales Landscape Appraisal*

Gillespies *(*1999) *The Landscapes of Northern Ryedale*

Harrogate Borough Council (2004) *Harrogate District Landscape Character Assessment*

Landscape Design Associates *(*2002) *Landscape Appraisal for Craven District outside the Yorkshire Dales National Park and Forest of Bowland AONB*

Landscape Institute and Institute of Environmental Management and Assessment (2002) *Guidelines for Landscape and Visual Impact Assessment: Second Edition*

Land Use Consultants (1991) *The Nidderdale Landscape*

Max Fordham & Partners (1999) *Photovoltaics in Buildings: A Design Guide* ETSU S/P2/00282/REP

Office of the Deputy Prime Minister (2004) *PPS22: Planning For Renewable Energy*

Office of the Deputy Prime Minister (2004) *PPS22: Planning For Renewable Energy – Companion Guide*

Scarborough Borough Council *(*1994) *Scarborough Borough Landscape Appraisal*

Scottish Natural Heritage (2001) *Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydroelectric Schemes*

Scottish Natural Heritage (2002) *Policy Statement 02/02: Strategic Locational Guidance for Wind Energy Development In Respect of The Natural Heritage*

Scottish Natural Heritage (2002) *Visual Assessment of Windfarms: Best Practice Report No. F01AA303A*

Scottish Natural Heritage *(*2003) *Cumulative Effect of Windfarms*

Terence O'Rourke (1999) *Photovoltaics in Buildings: Town Planning Considerations* ETSU S/P2/00304/REP

Woolerton Dodwell Assoociates *(*1999) *Landscape Assessment of Selby District*

Woolerton, Truscot (1993) *Harrogate Landscape Appraisal*

7. NEXT STEPS

7.1. In its present form, this document constitutes non-statutory, informal guidance on planning for sustainable energy in North Yorkshire. Although it has not been endorsed individually or jointly by the regional and local authorities, the document was prepared with significant inputs from them and from other stakeholders.

7.2. To maintain the momentum and level of debate that the preparation of this guidance has generated, we recommend that a sub-regional Sustainable Energy Planning Working Group be established. The Group could comprise the steering group that was set up to oversee the production of this guidance and other stakeholders, as appropriate. The aim of the Group should be to secure a high level of consensus or 'Memorandum of Agreement' between local authorities in relation to the guidance as a whole or aspects of it. This would help to ensure a consistent approach across the county, and could be used as a step towards adopting the Guidance as council policy in each authority.

7.3. Having secured consensus between the authorities on the guidance to be followed, the Sustainable Energy Planning Working Group should focus on promoting key aspects of the guidance in the emerging RSS. The RSS could also refer to the guidance as an example of a sub-regional partnership approach which could be replicated across the region.

7.4. The Working Group could also promote the use of guidance by local authorities (and the National Park authorities) in the preparation of their Local Development Frameworks. This should include both the policies of the Core Strategy DPD and other DPDs as appropriate, and the preparation of Supplementary Planning Documents (SPD). As part of this process of policy development, the Group could provide a valuable a forum for exchanging information and best practice on sustainable energy planning.