

LANDSCAPE SENSITIVITY TO WIND ENERGY DEVELOPMENTS IN LANCASHIRE

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1.0 EXECUTIVE SUMMARY

- 1.1 Lovejoy were commissioned by Lancashire County Council together with Blackpool and Blackburn with Darwen Borough Councils in November 2004. The brief sought the preparation of strategic guidance on the sensitivity of Lancashire's landscapes to wind energy developments. This complies with the requirements of 'Planning Policy Statement' 22 (PPS 22) which advocates criteria based policies to identify broad areas at the regional/sub-regional level where development of particular types of renewable energy may be appropriate. The context for this study is set by various Central and Regional Government documents that set targets for energy generation from renewable sources.
- 1.2 This study addresses landscape parameters only and excludes consideration of other issues (e.g. impacts on ecology, hydrological regimes, soil resources, grid connections etc) which also merit careful consideration when seeking to locate wind energy developments.
- 1.3 This study of the landscape sensitivity to wind energy developments in Lancashire has been undertaken in the light of the current planning policy framework. The Government's national policy for land use planning in respect of this issue is contained within PPS 22. The Countryside Agency position on renewable energy developments is set out in the Agency statement AP 99/50. In Lancashire to date there have been a number of applications for wind energy development; there are currently 2 no. operational schemes and 2 no. consented schemes, 1 no. proposal is currently the subject of an appeal and a number have been refused.
- 1.4 The methodology developed for this study was evolved following review of other strategic assessments of landscape sensitivity to wind energy, with reference to relevant guidance and in consultation with officers of Lancashire CC, Blackpool and Blackburn with Darwen Borough Councils.
- 1.5 A set of criteria was established to consider the sensitivity of landscapes to wind energy developments; the criteria selected reflect the attributes of a landscape that influence its sensitivity to wind energy developments. These criteria are considered in four categories - Physical/ Perceptual/ Visual/ Value. The characteristics within each criteria which would suggest a higher or lower sensitivity to wind energy developments are noted.
- 1.6 Lancashire County Council have prepared a Landscape Character Assessment which defines 21no. Landscape Character Types sub-divided into 102no. Landscape Character Areas (LCAs). A Desktop review was undertaken referring to the written LCA descriptions and each LCA was considered in respect of the selected sensitivity criteria. The output in respect of each LCA is expressed as High, Moderate-High, Moderate, Moderate-Low, or Low sensitivity to wind energy development. The assessment process integrated the different components of sensitivity and the findings were tested on a sample of LCAs in the field. A summary table and plan setting out the sensitivity of the LCAs to wind energy development is included and the detailed outputs of the study are presented in assessment sheets for each of the LCAs.
- 1.7 Generally, the central portion of the county displays generally High and Moderate-High sensitivity to wind energy development. This sensitivity

includes the areas of both AONBs. The south eastern part of the county includes areas with Moderate and Moderate-Low. The western margin of the county includes areas which exhibit Moderate-Low and Low sensitivity to wind energy development.

- 1.8 It is noted that this is a broad scale study, undertaken at County level to provide strategic guidance. An identification of high sensitivity to wind energy development does not necessarily rule out all wind energy development in the denoted area. High sensitivity indicates that the characteristics of that landscape will generally be such that wind energy developments will not be appropriate within that LCA. Similarly a finding of low sensitivity does not imply that all of the LCA concerned will be equally appropriate for wind energy development. This study does not replace a comprehensive on-site investigation and analysis in respect of any specific development proposal.
- 1.9 Further consideration was undertaken to identify the appropriate scale of wind energy developments that may be appropriate within each LCA, notwithstanding the findings of sensitivity. Four scales of development were identified for the purposes of this study. The scale of development that may be appropriate is not directly related to the sensitivity of the landscape to wind energy development, although this is influenced by many of the same considerations.
- 1.10 An indication of the scale of wind energy development that may, potentially, be appropriate in each LCA from considerations of landscape sensitivity is included on plan. The identification of appropriate scales for wind energy development within each LCA may, like sensitivity, be subject to exceptional local circumstances. As with sensitivity, this issue may only be resolved through detailed assessment of specific proposals. Single turbines are not considered in the context of this broad strategic study.
- 1.11 Cumulative impacts from existing wind farms and current applications for wind energy developments are also considered and broad guidance is provided with regard to potential cumulative impacts. Operational and consented wind farms are recorded on plan together with refused and appealed applications.

2.0 INTRODUCTION

- 2.1 Lovejoy were commissioned by Lancashire County Council together with Blackpool and Blackburn with Darwen Borough Councils in November 2004. The brief sought the preparation of strategic guidance on the sensitivity of Lancashire's landscapes to wind energy developments.
- 2.2 The brief identified that the study should "*provide strategic guidance to the local planning authorities and agencies within Lancashire as well as to industry, community groups and other interested parties involved with the development and implementation of wind energy projects.*"
- 2.3 This brief complies with the requirements of 'Planning Policy Statement' 22 (PPS 22) which advocates criteria based policies to identify broad areas at the regional/sub-regional level where development of particular types of renewable energy may be appropriate.
- 2.4 It is understood that the study will inform the LCC Supplementary Planning Guidance on Landscape and Heritage and the Supplementary Planning Document on Renewable Energy. It is intended that the resulting Supplementary Planning Guidance will assist promoters, both public and private, in the forward planning and implementation of wind energy developments. The brief notes that the guidance is not intended for the assessment of individual applications where site specific landscape and visual impact assessments will still be required.
- 2.5 The context for this study is set by the Energy White Paper (1998) which proposes that by 2010 10% of electricity should be generated from renewable sources. The Energy Review (February 2002) recommends a target of 20% by 2020. 'Power to Prosperity' (Sustainability North West, 2001) suggests a target for energy capacity in the north west from renewable sources of 8.5% by 2010. This translates as 116MW from onshore renewables in Lancashire, a significant proportion of which is anticipated to come from wind energy developments. The document 'Advancing Sustainable Energy in the North West – Mapping the Way Forward to 2020' (NWDA Nov 2004) notes a target of 200.9MW for onshore renewables in Lancashire by 2020.
- 2.6 It should be noted that this study addresses landscape parameters only and excludes consideration of other issues (e.g. impacts on ecology, hydrological regimes, soil resources, grid connections etc.) which also merit careful consideration when seeking to locate wind energy developments. It will be apparent that some areas may be identified as having, for example, Low sensitivity to wind energy development as a result of consideration of landscape issues but these areas may be highly sensitive to such development in respect of other parameters not related to landscape.

3.0 CONTEXT AND POLICY FRAMEWORK

- 3.1 This study of the landscape sensitivity to wind energy developments in Lancashire has been undertaken in the light of the current planning policy framework.

- 3.2 The Government's energy policy is set out in the Energy White Paper ("Our energy future – creating a low carbon economy". February 2003). The Government's national policy for land use planning in respect of this issue is contained within PPS 22.
- 3.3 PPS 22 contains a number of "Key Principles" which are relevant to this study:
- Renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic, and social impacts can be addressed satisfactorily.
 - Regional spatial strategies and local development documents should contain policies designed to promote and encourage, rather than restrict, the development of renewable energy sources. Regional planning bodies and local planning authorities should recognise the full range of renewable energy sources, their differing characteristics, locational requirements and the potential for exploiting them - subject to appropriate environmental safeguards.
- 3.4 With regard to Regional Spatial Strategies and local development documents, PPS 22 requires that "Criteria based policies should be set out in regional spatial strategies where these can be applied across a region, or across clearly identified sub-regional areas. These criteria should then be used to identify broad areas at the regional/sub-regional level where development of particular types of renewable energy may be considered appropriate. Other criteria based policies to reflect local circumstances should be set out by local planning authorities in their local development documents. Local planning authorities should, however only focus on the key criteria that will be used to judge applications. More detailed issues may be appropriate in respect of supplementary planning documents."
- 3.5 Areas of Greenbelt are indicated on Figure 4. In this regard PPS 22 (13) notes the following: "*Policy on development in the green belt is set out in PPG2. When located in the green belt, elements of many renewable energy projects will comprise inappropriate development, which may impact on the openness of the green belt. Careful consideration will therefore need to be given to the visual impact of projects, and developers will need to demonstrate very special circumstances that clearly outweigh any harm by reason of inappropriateness and any other harm if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.*"
- 3.6 PPS 22 then considers a number of "Locational" and "Other Considerations" which will influence the development of renewable energy projects, and these are considered elsewhere within this study.
- 3.7 The Countryside Agency position on renewable energy developments is set out in the Agency statement AP 99/50 which acknowledges, in the context of wind energy, the value of regional planning exercises. With reference to PPS 22 the statement AP 99/50 notes that there is a presumption against commercial wind energy developments in designated areas (National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts). It also notes that the character of the countryside in some parts of designated areas may mean

that small scale commercial wind energy schemes could be accommodated, where they do not compromise the objectives of the designation and they respect the local countryside's character.

- 3.8 The above text is reflected in the Position Statement in respect of Windfarms in AONBs prepared by the National Association of AONBs in September 2002.
- 3.9 The Draft Regional Planning Guidance for the North West includes proposed changes within Policy ER13 - Renewable Energy and Energy Efficiency. This provides that:
- The NWRA will develop targets for the supply of electricity from grid-connected renewable installations, based on the findings of the DTI sponsored regional renewable energy scoping study.
 - Local Authorities should support local initiatives and proposals for renewable energy installations that promote self-sufficiency in energy generation and use.

Development plans should:

- Ensure that development minimises energy use through careful and imaginative location, design and construction techniques;
 - Positively encourage the use of energy efficient technologies such as energy from renewable sources in major new developments; and
 - Identify areas of search with criteria based policies for renewable energy development, which should aim to protect the Region's most valuable and sensitive environments, and areas of similar value in adjoining regions, in line with Policies DP2 and ER2, ER3 and ER5.
- 3.10 Policy 25: Renewable Energy, of the Proposed Modifications to the Draft Replacement JLSP 2001-2016 is a criteria-based policy in line with PPS 22. SPD on Renewable Energy is being prepared to explain the Policy. This will be informed by this landscape sensitivity study, along with 'Advancing Sustainable Energy in the North West: Mapping the Way Forward to 2020' and 'Advancing Renewable Energy in the North West – A Sustainable Energy Strategy for the North West.' The landscape sensitivity study has been informed by the landscape assessment contained within 'A Landscape Strategy for Lancashire'. Both the landscape assessment and the sensitivity study will inform Supplementary Planning Guidance on Landscape and Heritage to support Policy 20: Lancashire's Landscapes in the replacement JLSP, which is due to be adopted in March 2005.
- 3.11 In Lancashire to date there have been a number of applications for wind energy development; details of these applications are scheduled in Appendix 1. In summary, there are currently 2 no. operational schemes and 2 no. consented schemes in the county (one of the consented schemes relates to an increase in capacity at one of the operational sites). 3 no. further applications have been received and refused and 1 no. proposal is currently the subject of an appeal.

4.0 METHODOLOGY

4.1 Strategic assessments of landscape sensitivity to wind energy development prepared by other Planning Authorities were reviewed in the development of the methodology for the study. Furthermore, the methodology was informed by the guidance contained within the following:

- Landscape Character Assessment, Guidance for England and Scotland (The Countryside Agency and Scottish Natural Heritage, 2002)
- Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity (The Countryside Agency and Scottish Natural Heritage, 2002)
- Guidance for Landscape and Visual Impact Assessment. Second Edition (The Landscape Institute and the Institute of Environmental Management and Assessment, 2002)

4.2 The methodology developed for this study was evolved in the light of the above documentation and in consultation with officers of Lancashire CC, Blackpool and Blackburn with Darwen Borough Councils.

4.3 A set of criteria was established to consider the sensitivity of landscapes to wind energy developments; the criteria selected reflect the attributes of a landscape that influence its sensitivity to wind energy developments. These criteria may be separated into four categories, (Physical/ Perceptual/ Visual/ Value) and are discussed as follows:

Physical:

Scale:

The scale of the landscape is an important criterion in indicating where large structures such as wind turbines could more readily be accommodated. This criterion also influences what scale of wind energy development may be appropriate.

Openness:

Open, exposed landscapes may suggest lower sensitivity to wind energy developments and contrast with landscapes that are enclosed, introverted and discrete which may suggest a higher sensitivity.

Landform:

A smooth, regular, flowing landform is more likely to appropriately accommodate wind energy development than a dramatic, rugged, complex landform.

Landcover:

Extensive areas of consistent ground cover can provide a broad scale, simple context and are likely to offer greater potential for wind energy development than a landscape comprising a variety of landcover types in smaller units.

Complexity and patterns:

Simple landscapes and landscapes with sweeping lines and linear features may offer greater potential for wind energy development. It is likely to be more difficult to accommodate wind energy development in landscapes with more intimate, complex or irregular patterns. Where wind energy development is appropriate, landscape pattern will also influence the detailed siting of turbines.

Built environment:

A contemporary landscape displaying masts, pylons, industrial elements, buildings and infrastructure is more likely to accommodate wind energy development than an unpopulated or sparsely populated landscape characterised by established, traditional settlements, buildings or structures. Opportunities for wind energy development may occur where the built form is large in scale.

Perceptual:**Sense of remoteness/ wildness:**

The introduction of elements such as wind turbines into remote or wild areas may appreciably affect the sense of remoteness/ solitude that is an important element of some landscapes. Landscapes that have been modified, with evidence of human activity, may more readily accommodate wind energy development.

Perception of change:

Dynamic or modern landscapes, where change is evident, are more likely to accommodate the introduction of wind energy development than ancient, unchanged landscapes, designed landscapes or landscapes with obvious historical continuity.

Visual:**Landscapes that form settings, skylines, backdrops and focal points**

Landscapes with strong visual features and focal points that define a distinctive setting or skyline are likely to be more sensitive to wind energy development than low-lying landscapes that do not form a distinctive backdrop or context.

Views:

Landscapes that are visually contained or have limited views within/into/out of the area may provide greater opportunity to accommodate wind energy development than areas with extensive views within/into/out of area.

Value:**Rarity:**

Landscapes that are unique or limited in extent and distribution are likely to be more sensitive to wind energy development than landscapes that are commonplace.

Designated scenic quality:

Areas designated for their scenic quality such as National Parks and AONBs are likely to be more sensitive to wind energy development than areas not subject to national or regional designation. It is important to note that many non-designated areas are, however, of high scenic quality.

Cultural associations:

A specific cultural association (e.g. historical, literary or artistic) relating to a landscape may result in an elevated sensitivity to wind energy development.

Amenity and recreation:

A landscape that is well used for amenity and/or recreation may be more sensitive to wind energy development than a landscape that has little or no amenity/ recreation value.


- 4.4 The criteria considered are shown in Table 1. The characteristics within each criteria which would suggest a higher or lower sensitivity to wind energy developments are noted.

TABLE 1. TABLE OF LANDSCAPE SENSIVITY ASSESSMENT CRITERIA

Landscape Criterion	Areas with lower sensitivity to wind energy development	↔	Areas with higher sensitivity
Physical:			
Scale:	Large scale	↔	Small scale
Openness:	Open/Exposed Landscape	↔	Enclosed introverted/discrete landscapes
Landform:	Smooth, regular, flowing landform	↔	Dramatic, rugged, complex landform
Landcover:	Extensive areas of consistent ground cover (e.g. grass moorland/afforestation)	↔	Mosaic
Complexity and Patterns	Simple and/ or with sweeping lines/ linear features and patterns	↔	Complex or irregular patterns
Built Environment:	Contemporary masts, pylons, industrial elements, buildings, infrastructure, settlements	↔	Established, traditional settlements, buildings or structures
Perceptual:			
Sense of remoteness/wildness:	Busy evidence of human activity	↔	Remote and/ or peaceful. Sense of tranquillity, solitude, emptiness
Perception of change	Dynamic or modern landscapes	↔	Ancient landscapes/ designed landscapes or landscapes with obvious historical continuity
Visual:			
Landscapes that form settings, skylines, backdrops and focal points	Generally a low-lying landscape without distinctive landform or horizon	↔	Areas with strong features/focal points that define the setting or skyline
Views/inter-visibility	Visually contained. Limited views within/into/out of area near horizons	↔	Extensive views within/into/out of area. Distant horizons
Value:			
Rarity	Commonplace	↔	Rare
Designated scenic quality	No specific designation	↔	National or regional designation
Cultural associations	No specific cultural association	↔	Strong cultural association
Amenity and recreation	Little or no amenity function	↔	Well used for amenity/ recreation

- 4.5 Lancashire County Council have prepared a Landscape Character Assessment which is contained within the document entitled 'A Landscape Strategy for Lancashire. Landscape Character Assessment' (2000). This assessment was informed by the historic landscape assessment of Lancashire. 21no. Landscape Character Types are defined and these are sub-divided into 102no. Landscape Character Areas (LCAs).
- 4.6 A Desktop review was undertaken referring to the written LCA descriptions and each Landscape Character Area (LCA) was considered in respect of the sensitivity criteria identified in the Table 1 above. An assessment sheet was prepared for each of the 102no. LCA's with information drawn from both the Landscape Type and the Landscape Character Area descriptions in the Landscape Character Assessment. Information was also drawn from the Lancashire County Council Landscape Strategy document which includes reference to key environmental features. Two Areas of Outstanding Natural Beauty fall within Lancashire, (Arnsdale/ Siverdale and Forest of Bowland) and consideration of these designations was included in the assessment.
- 4.7 The sensitivity assessment sheet for each LCA was completed and the recorded text for each of the criteria was reviewed by two experienced chartered landscape architects. An overall appraisal of the sensitivity to wind energy development was determined. This output in respect of each LCA is expressed as High, Moderate-High, Moderate, Moderate-Low, or Low sensitivity to wind energy development as outlined in Table 2.

TABLE 2: LEVEL OF SENSITIVITY TO WIND ENERGY DEVELOPMENT

Level of Sensitivity	
High	Characteristics of Landscape Character Area indicate that wind energy development will not generally be appropriate. 
Moderate - High	
Moderate	
Moderate - Low	
Low	

- 4.8 In practice the sensitivity of each Landscape Character Type was initially determined and each LCA within the Type was subsequently assessed against this base. No attempt was made to numerically score the individual criteria as it was considered that any such mathematical approach would disguise the subtleties inherent in the assessment.
- 4.9 The identification of the sensitivity for each LCA was determined by consideration of the criteria identified in Table 1 and their relative contribution to the overall sensitivity of that LCA. This process integrated the different components of sensitivity to provide an overall finding. It will be apparent that the combination of criteria in respect of each LCA is unique. The assessments presented in this study represent the consensus professional

judgement of two individual landscape architects with considerable experience of undertaking landscape and visual impact assessments, particularly in respect of wind energy development.

- 4.10 In some instances, no information with regard to a particular 'Key Characteristic' is evident in the descriptions recorded in the Landscape Character Assessment or the Landscape Strategy documents. In such cases a blank entry is recorded in respect of that criteria. The principal considerations leading to a finding of sensitivity for each LCA are described in the right hand column of the sheets within Appendix 3.
- 4.11 On completion of the draft assessment, a field review was undertaken by the same 2 landscape architects who undertook the desktop assessment. The findings were tested on a sample of LCAs and the assessments were further informed and refined by this field exercise. The project steering group informed the selection of sample areas.
- 4.12 In the light of the completion of the assessment sheet for each LCA and the field verifications (where appropriate), a summary table was produced illustrating the sensitivity to wind energy development of each LCA (Appendix 2). This information is also represented in Figure 2. The outputs from these assessments are discussed in section 5.0 of this report.
- 4.13 It is noted that this is a broad scale study, undertaken at County level to provide strategic guidance. An identification of high sensitivity to wind energy development does not necessarily rule out all wind energy development in the denoted area. High sensitivity indicates that the characteristics of that landscape will generally be such that wind energy developments will not be appropriate within that LCA. It is possible however that in limited parts of these LCA's exceptional combinations of characteristics, or the absence of them may lead to opportunities for wind energy development. Similarly a finding of low sensitivity does not imply that all of the LCA concerned will be equally appropriate for wind energy development. In this context it must be remembered that this study does not replace a comprehensive on-site investigation and analysis in respect of any specific development proposal.
- 4.14 The assessment criteria do not specifically address the proximity of built areas in consideration of each LCA. The contribution of this parameter to landscape sensitivity will be dependent upon the precise relationship between any proposed development and the existing built fabric. This relationship requires detailed study of visual impact in respect of site specific proposals.
- 4.15 Wind speeds are a further factor to be taken into account in the evolution of proposals for new wind farms. Figure 5 displays wind speed data and is based on information provided by Lancashire CC (1989). This data is provided for information only; interpretation of wind speed data is not within the scope of this study.

Scale of wind energy development

- 4.16 In accordance with the brief, a further consideration was undertaken in order to identify the appropriate scale of wind energy developments that may be appropriate within each LCA, notwithstanding the findings of sensitivity. In this context the following typology for scales of wind energy development: was prepared to address four scales of development:

1. Small scales clusters (2-5 1.3MW+ turbines)
 2. Medium scale clusters (6-10 1.3MW+ turbines)
 3. Large scale clusters (11-25 1.3MW+ turbines)
 4. Very large scale clusters (26+ 1.3MW+ turbines)
- 4.17 The scale of development that may be appropriate is not directly related to the sensitivity of the landscape to wind energy development, although this is influenced by many of the same considerations. Where wind energy development is considered to be appropriate, the appropriate scale of such development will be determined by a variety of factors to include the following:
- Scale of the landscape
 - Other sensitivity parameters as identified in Table 1
 - The extent of the LCA or the potential development site within it
 - Other development constraints
- 4.18 Detailed assessment of site specific proposals for wind energy development accompanying any application will need to address the size of turbines proposed in each case as this will influence the appropriateness of a proposal for its particular location. The identification of appropriate scales of wind energy developments in each LCA are identified within the assessment sheets for each LCA included within Appendix 3. The identification of appropriate scales for wind energy development within each LCA may, like sensitivity, be subject to exceptional local circumstances. These may locally alter the recommendation for an appropriate scale of development. As with sensitivity, this issue may only be resolved through detailed assessment of specific proposals. Single turbines are not considered in the context of this broad strategic study.

Cumulative impacts

- 4.19 Cumulative impacts from existing wind farms and current applications for wind energy developments are also considered. This consideration is explored in Section 6.0.

5.0 STUDY OUTPUTS

- 5.1 A summary table setting out the sensitivity of the LCA's to wind energy development is included at Appendix 2. The detailed outputs of the study are presented in the assessment sheets for each of the 102no. LCA's which are included at Appendix 3.
- 5.2 Figure 1 records baseline information showing the distribution of the LCAs within Lancashire as described within 'A Landscape Strategy for Lancashire. Landscape Character Assessment' (2000). Figure 2 records the landscape sensitivity of each LCA to wind energy development in plan form, as determined by this study and recorded in the LCA sensitivity assessment sheets. Figure 3 records the scale of appropriate wind turbine development in respect of each LCA. Figure 4 records existing and consented wind farms together with refused and current applications. The location of the AONBs is

recorded on each of Figures 1 to 4 inclusive. Greenbelt is included on Figure 4.

- 5.3 Figure 5 indicates wind speeds in the county and is based on information received from Lancashire County Council. This plan is included for information. It is apparent that the technology associated with wind energy developments is constantly evolving. It is inappropriate, in the context of this study, to seek to define a wind speed threshold level, below which development would be impractical, as this is subject to progressive reduction.

6.0 CONCLUSIONS

- 6.1 The diversity of the Lancashire landscape is reflected in variations in the sensitivity of LCA's to wind energy development within any given Landscape Character Type. Details of the sensitivity of each LCA may be gained from consideration of the sensitivity assessment sheets included at Appendix 3. The following broad conclusions with regard to consideration of Landscape Character Types are evident from consideration of the plan at Figure 2 (Sensitivity of LCAs to wind energy development):

6.1.1 Landscape Character Types displaying generally High sensitivity

- 1 Moorland Plateaux (1b)
- 2 Moorland Hills (2b, 2c, 2d, 2e, 2g)
- 5 Undulating Lowland Farmland (5a, 5b, 5c, 5f, 5g, 5i, 5j)
- 6 Industrial Foothills and Valleys (6c)
- 8 Settled Valleys (8a)
- 9 Reservoir Valleys (9a, 9b, 9e)
- 10 Wooded Rural Valleys (10a, 10b)
- 11 Valley Floodplains (11a, 11d)
- 18 Open Coastal Marsh (18a, 18b, 18c, 18d, 18e)
- 20 Wooded Limestone Hills and Pavements (20a)
- 21 Limestone Fells (21a)

6.1.2 Landscape Character Types displaying generally Moderate-High sensitivity

- 1 Moorland Plateaux (1a)
- 2 Moorland Hills (2a, 2f)
- 4 Moorland Fringe (4d, 4e, 4f, 4g, 4h, 4i)
- 5 Undulating Lowland Farmland (5d, 5e, 5h, 5k)
- 7 Farmed Ridges (7c)
- 9 Reservoir Valleys (9c, 9d)
- 12 Low Coastal Drumlins (12a, 12b, 12c)
- 13 Drumlin Field (13a, 13b, 13c)
- 14 Rolling Upland Farmland (14a, 14b)

6.1.3 Landscape Character Types displaying generally Moderate sensitivity

- 3 Enclosed Uplands (3a)
- 6 Industrial Foothills and Valleys (6a, 6b, 6d)
- 7 Farmed Ridges (7a, 7b)
- 19 Coastal Dunes (19a)

6.1.4 Landscape Character Types displaying generally Moderate-Low sensitivities

- 4 Moorland Fringe (4a, 4b, 4c, 4j)
- 15 Coastal Plain (15a, 15b, 15c, 15d, 15e, 15f)

6.1.5 Landscape Character Types displaying generally Low sensitivities

- 16 Mosslands (16a, 16b, 16c, 16d, 16e, 16f, 16g)
- 17 Enclosed Coastal Marsh (17a, 17b)

6.2 The above grouping of Landscape Character Types displays appreciable variation in sensitivity for individual LCAs within Landscape Character Types. The LCAs within the Industrial Foothills and Valleys Landscape Character Type (no. 6) in particular exhibit significant diversity with a range of opportunities/ constraints as noted in Appendix 2.

6.3 The central portion of the county displays generally High and Moderate-High sensitivity to wind energy development. This sensitivity includes the areas of both AONBs. The south eastern part of the county includes areas with Moderate and Moderate-Low sensitivity including the Rossendale Hills (LCA 3a) and the adjacent areas of Moorland Fringe. The nearby urban areas exert influence on the perception of the character of these areas and they are judged to be somewhat less sensitive to wind energy development than the more remote moorland areas to the north. The western margin of the county includes areas which exhibit Moderate-Low and Low sensitivity to wind energy development. These areas include the Mosslands (LCA 16) and the Enclosed Coastal Marsh (LCA 17)

6.4 It will be apparent that the extent of the opportunity for wind energy development will be restricted by the extent of the LCA in question. A discrete LCA area may potentially, from considerations of landscape sensitivity, offer low sensitivity to wind energy development, suggesting that opportunities exist within this LCA. Where the extent of the LCA is limited, however, the scope for wind energy development may be further limited, or removed altogether.

Scale of wind energy development

6.5 Figure 3 provides an indication of the scale of wind energy development that may, potentially, be appropriate in each LCA from considerations of landscape sensitivity. Four categories are identified in this context as follows:

- Where site specific sensitivities do not preclude development, scale will be determined by the extent of the appropriate location and the scale of the landscape.
- Small scale
- Small and possibly medium scale
- Small, medium and possibly larger scale

6.6 For the purposes of this study, scales of wind energy development are defined in Section 4.0 above. As noted, detailed assessment of site specific proposals for wind energy development will need to address the size of turbines proposed in each case.

6.7 Figure 3 identifies the LCA's in which, generally (and subject to the identification of suitable locations), the following scale of wind energy development may, in summary, be appropriate:

6.7.1 Where site specific sensitivities do not preclude development, scale will be determined by the extent of the appropriate location and the scale of the landscape.

- 1 Moorland Plateaux (1a, 1b)
- 2 Moorland Hills (2a, 2b, 2c, 2d, 2e, 2f, 2g)
- 5 Undulating Lowland Farmland (5a, 5b, 5c, 5f, 5g, 5i, 5j)
- 6 Industrial Foothills and Valleys (6c)
- 8 Settled Valleys (8a)
- 9 Reservoir Valleys (9a, 9b, 9e)
- 10 Wooded Rural Valleys (10a, 10b)
- 11 Valley Floodplains (11a, 11d)
- 16 Open Coastal Marsh (18a, 18b, 18c, 18d, 18e)
- 20 Wooded Limestone Hills and Pavements (20a)
- 21 Limestone Fells (21a)

6.7.2 Small scale

- 5 Undulating Lowland Farmland (5d, 5e, 5h, 5k)
- 6 Industrial Foothills and Valleys (6b)

6.7.3 Small and possibly Medium scale

- 4 Moorland Fringe (4d, 4e, 4f, 4g, 4h, 4i, 4j)
- 6 Industrial Foothills and Valleys (6a, 6d)
- 7 Farmed Ridges (7a, 7b, 7c)
- 9 Reservoir Valleys (9c, 9d)
- 12 Low Coastal Drumlins (12a, 12b, 12c)
- 13 Drumlin Field (13a, 13b, 13c)
- 14 Rolling Upland Farmland (14a, 14b)
- 15 Coastal Plain (15a, 15b, 15c, 15d, 15e, 15f)

6.7.4 Small, medium and possibly larger scale

- 3 Enclosed Uplands (3a)
- 4 Moorland Fringe (4a, 4b, 4c)
- 17 Mosslands (16a, 16b, 16c, 16d, 16e, 16f, 16g)
- 18 Enclosed Coastal Marsh (17a, 17b)
- 19 Coastal Dunes (19a)

6.8 PPS 22 (17) suggests that "*Many types of renewable energy developments are capable of being accommodated in urban as well as rural areas*".

6.9 Three Urban Landscape types are defined in the Lancashire County Council Landscape Character Assessment:

- Historic Core (1100 – 1800)
- Industrial Age (1800 – 1930)
- Suburban (1930 onwards)

- 6.10 It is considered that the Historic Core and the Industrial Age classifications generally exhibit high sensitivity to wind energy development and such development would generally be inappropriate in these Landscape Character Types. There may be limited opportunities within the Industrial Age urban landscape type where relatively large scale industrial land may be present on the margins of urban areas.
- 6.11 It is noted that the Suburban Landscape Character Type contains a wide variety of architectural styles which includes areas of recent light industrial, warehousing and other commercial development. These land uses are, in many instances, located on the margins of urban areas and are frequently relatively large in scale. It is considered that there may be opportunities within these areas for Small and possibly Medium scale wind energy development.

Cumulative effects

- 6.12 Operational and consented wind farms are recorded on Figure 4 together with refused and appealed applications. It will be apparent that the visibility of a wind energy development will vary with the nature of the LCA within which it is sited and the size, location and detailed design of the development. The determination of a definitive radius within which other wind energy developments should be excluded is, therefore, not possible. In this context guidance contained within PAN 45 (Scottish Executive Development Department. Revised 2002) suggests that (89) "the nature and character of the location, and the landscape in which a development is located, will in part determine the acceptability or otherwise of siting proposals in proximity to each other". The Countryside Agency suggest an indicative separation distance in the order of 12km and notes that the effects of related infrastructure, such as grid connection, on countryside character must also be considered. (Annex 3. Renewable Energy Developments: The Role of the Countryside Agency. AP 99/50)
- 6.13 Within some landscapes, and particularly where smaller wind energy developments are considered appropriate, the relevance of this distance will be reduced. In any event, the consideration of any potential cumulative effects can only be undertaken on a case by case basis considering any proposed development in the light of the existing baseline conditions at the time of any application. This should include consideration of other wind energy developments within the planning system, at various stages.
- 6.14 The consideration of sequential views is an important component of cumulative effects. Repeated views (as observed from a route) of one or more wind energy developments may give rise to a disproportionately elevated awareness of the presence of such developments within the landscape. The restriction of such development to appropriate locations and at an appropriate scale will serve to moderate these effects.
- 6.15 The Companion Guide to PPS 22 (Planning for Renewable Energy. A Companion Guide to PPS 22. 2004) notes the following key steps to be addressed in the assessment of cumulative effects (5.24):
- Prepare a base plan of all existing windfarms, consented developments and applications received within a defined radius.

- Identify a cumulative zone of visual influence (ZVI) plans for wind farms within a defined radius, identifying areas from where one or more wind farms are likely to be seen.
- Consider local circumstances – eg. topography and likely visibility in prevailing meteorological conditions.
- Identify appropriate locations for visual impact studies – both simultaneous and repetitive visibility assessments.
- Identify sequential effects on visibility – journey scenarios.
- Prepare annotated photomontages – locations identified from cumulative ZVI plans.
- Comprehensive consideration of a wide range of landscape issues affecting sensitivity to wind energy development

6.16 The level at which cumulative impacts occur is largely dependent on the scale and proximity of the wind energy development, the sensitivity of the LCAs which are affected and the extent of visual impacts. Within individual Landscape Character Types or Areas, it is not possible to generalise and identify the exact thresholds at which cumulative effects would be sufficient to indicate that additional development would be inappropriate. The proximity of wind energy development within adjacent LCAs will also be a relevant consideration.

6.17 The above reflects PPS 22 (21) which notes that: *“Planning authorities should also take into account the cumulative impact of wind generation projects in particular areas. Such impacts should be assessed at the planning application stage and authorities should not set arbitrary limits in local development documents on the numbers of turbines that will be acceptable in particular locations”*.

Summary

6.18 In summary it will be apparent that there is marked diversity in the sensitivity of LCAs within Lancashire to wind energy development.

6.19 In general, in areas where wind energy development is considered to be appropriate, the appropriate scale of development will be determined by consideration of a number of parameters, which will include (amongst others) consideration of the scale of the landscape.

6.20 Consideration of cumulative issues is important in assessing the sensitivity of a landscape to wind energy development and this requires comprehensive assessment in the context of an individual wind energy proposal. As noted, this study presents broad, strategic guidance and does not replace the need for such detailed site specific assessment.