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PART 2

LANDSCAPE CAPACITY ASSESSMENT

CUMBRIA WIND ENERGY SUPPLEMENTARY PLANNING DOCUMENT

CONSULTATION DRAFT

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INTRODUCTION

Background

1.1 Cumbria County Council commissioned Coates Associates to an evaluation of the capacity of different types of landscape to accommodate wind energy development. The primary purpose of this study is to inform a joint Cumbria Wind Energy Supplementary Planning Document (SPD) which is to be incorporated into the District Councils' and Lake District National Park Authority's Local Development Framework. The study has been steered by officers from the Council's Environment and Spatial Planning Units who in turn have reported to a working group of planning officers representing the SPD partners. The study area encompasses the whole of Cumbria outside the National Parks totalling 4,637 km². The work was carried out between October 2004 and August 2006.

The Brief

1.2 The SPD will replace previous supplementary planning guidance entitled 'Wind Energy Development in Cumbria – A Statement of Planning Guidance' (WESPG) published by the County Council in 1997. The new SPD is intended to assist in the interpretation and application of Development Plan policies by providing local planning authorities and developers with broad locational guidance for wind energy development in Cumbria.

1.3 The objectives of this study were to:

i. Develop a new approach to judging landscape capacity to accommodate wind energy development as a crucial element in developing strategic locational guidance on wind energy development.

ii. Develop clearly defined landscape sensitivity and value criteria as a basis for judging landscape capacity.

iii. Through application of these criteria assess and evaluate the strategic landscape capacity of Cumbria's landscape types (as defined in the Cumbria Landscape Classification and Structure Plan Technical Paper 5) to accommodate wind energy development.

Application and Limitations of the Study

1.4 The study provides strategic guidance on the landscape factors influencing the location of wind turbines within Cumbria (outside the national parks) and is intended to set out a positive approach to guide development. It seeks to articulate the specific landscape characteristics that are sensitive to wind turbine development and from this together with an appreciation of how these are valued provide an overall understanding of capacity. The results should help guide the right type and size of development to the right location to ensure that the key characteristics of the landscape are not adversely affected. Additional work will be carried out as necessary following the landscape characterisation work of land within the Lake District National Park.

1.5 It is envisaged that it will have several applications:

- Inform planning policies and decision making in relation to wind energy development.
- Assist developers at the site selection and project feasibility stage in determining the suitability of sites and identifying the initial size and composition of development in relation landscape character
- Assist developers and development control officers in the scoping of landscape and visual impact issues raised by specific proposals by review of the strategic assessments and application of the landscape sensitivity and value criteria at a local level. It is envisaged that the criteria will serve as a form of checklist for site specific survey and assessment.
- Facilitate stakeholder consultation and widen public understanding of the key landscape sensitivities to wind turbine development

1.6 It should be noted that:

- This study only considers landscape and visual aspects, clearly consideration of cumulative impact, grid connection and other environmental issues such as ecology, archaeology, noise and hydrology will require careful consideration when seeking to locate wind energy developments.

- The study does not negate the need to for assessment of individual applications where detailed site specific landscape and visual impact assessments will still be required.

- The study does not cover offshore development capacity or views from the sea.

The study has assumed turbines that have a blade tip height of approximately 95 - 120m and three blades which are typical of current proposals. However in order to find the best fit with the scale of the receiving landscape developers should not exclude the possibility of using turbines smaller than the current industry standard.

METHODOLOGY

Approach

2.1 A basic principle of good practice in landscape assessment is to adopt a methodology that is transparent, systematic and replicable. As the findings from this study will inform strategic planning guidance and subsequent planning policy and decisions likely to be tested at public inquiry it was recognised that the method had to be robust and defensible. The method was developed in close consultation with the Council's Landscape and Countryside Officer and was piloted on two landscape types. The results were reviewed by this officer and reported to the JSPD working group and in the light of this the methodology was refined and then rolled out across all the types within the study area. The exhaustive consultation procedure required for the JSPD will enable feedback from wider audience including developers with the opportunity for some further refinement.

2.2 The approach adopted for this strategic assessment draws on our considerable experience of wind energy capacity assessments dating back to 1994[i] and current development control advice on wind energy schemes in Cumbria, a review of the previous approach used in the existing WESPG, a review of similar studies prepared for other planning authorities[ii] [iii]and published national guidance contained within:

- '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 (2003)

- 'Guidelines for Landscape and Visual Impact Assessment 2nd Edition' Landscape Institute and Institute for Environmental Management and Assessment (2002)

2.3 **Figure 2.1** provides an overview of the main stages in the capacity assessment process.

Establish Definitions

- Concept of landscape capacity as a function of sensitivity and value
- Key factors that need to be considered and sensitivity criteria

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Establish Wind Energy Development Typology

- Turbine type
- Overall scale of development

↓

Carry out Desk Study for each Landscape Type to:

Describe Baseline Character and Value

- Define key characteristics sensitive to wind energy development by reference to existing characterisations, local knowledge and GIS data
- Identify presence and extent of value indicators by reference to GIS data and published sources

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Assess Sensitivity and Value

- Assess sensitivity of key characteristics weighing baseline against sensitivity criteria tested by field review of sample landscape types
- Assess values in terms of relative importance, geographical scale and what qualities matter by reference to designation statutes and citations, existing landscape assessments/management plans

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Evaluate Capacity

- Make professional judgement on capacity to accommodate wind energy development based on inherent sensitivities and value profile

Figure 2.1: Methodology Overview

Definition of Landscape Capacity and Key Factors to Consider

2.4 The term landscape capacity is used to describe the ability of a landscape to accommodate different amounts of change or development of a specific type. For the purposes of this study the following definition of **capacity** has been adopted:

> The extent to which a landscape is able to accommodate wind energy development without key characteristics being adversely affected and the values attached to it being compromised.

2.5 Judgements on the capacity of different landscapes to accommodate wind energy development have been made by consideration of the following factors:

- the inherent sensitivity of the landscape to wind energy development
- the value attached to the landscape or specific elements in it

2.6 For the purposes of this study the following definition of inherent **sensitivity** has been adopted:

> The extent to which the character and visual amenity of a landscape is susceptible to change brought about by the introduction of wind energy development.

Key characteristics which most strongly define a landscape and which exhibit the impacts of a wind energy scheme have been identified as follows:

- Scale and Enclosure
- Complexity and Order
- Manmade Influence
- Remoteness and Tranquillity
- Settlement and Key views
- Visual Interruption
- Skyline
- Connections with Adjacent Landscapes

2.7 Appendix 1 provides further detail on these key characteristics and discussion of how they relate to landscape sensitivity. They embrace a combination of physical, natural and cultural characteristics, aesthetic qualities, perceptual aspects, condition, general visibility and presence of sensitive receptors likely to be affected. Some landscape types are able to accommodate wind energy development more easily than others. Often this can be governed by whether the intrinsic characteristics of wind energy development relate to the key characteristics and whether there is potential for a comfortable landscape fit; for example on a large scale, exposed or windswept hill. However there can also be potential for turbine development to contrast with key characteristics with scope for a well designed scheme to reinforce compositional qualities for example on a simple and uncluttered horizontal plane.[iv] The key characteristics are often closely linked for example information on scale and enclosure will influence visual interruption.

2.8 A set of criteria was established for gauging sensitivity (Table 1). This is structured according to the key characteristics sensitive to wind energy development and describes the attributes that would suggest a lower or higher sensitivity to wind energy development.

Table 1: Landscape Sensitivity Assessment Criteria

Key Characteristic	Attributes indicating lower sensitivity to wind energy development	⟷	Attributes indicating higher sensitivity to wind energy development
Scale and Enclosure	Large scale landform/land cover/development Featureless Coarse grained Open with broad views Exposed	⟷	Small scale landform/land cover/development Human scale indicators Fine grained Enclosed with narrow views Sheltered
Complexity and Order	Simple Predictable Ordered and hierarchical Smooth and flowing Geometric with linear features Extensive/consistent land cover	⟷	Complex Interest and unpredictable Confused and haphazard Rugged and intricate Organic with variable accents Irregular mosaics
Manmade Influence	Working, utilitarian or industrial image Contemporary structures eg masts pylons, cranes, silos, industrial sheds with vertical emphasis Functional manmade land use patterns and engineered aspects	⟷	Wild image and sense of freedom Traditional or historic settlements, buildings and structures Natural or designed aesthetic patterns
Remoteness and Tranquillity	Busy and noisy Human activity and development Prominent movement	⟷	Sense of peace and isolation Remote and empty No evident movement
Settlement and Key views	Unpopulated or sparsely populated Introspective settlement Inaccessible Ordinary or industrial settings	⟷	Densely populated especially small scale dispersed settlement patterns Outward looking settlement Landscape focused recreation routes and/or tourist/ visitor facilities Valued attractive settings, 'gateways' or public views
Visual Interruption	Rolling topography Frequent vegetative or built features	⟷	Flat or gently undulating topography Few if any vegetative or built features
Skyline	Reposeful skylines Simple predictable skylines Existing vertical focal points Discrete and well ordered verticals in coherent pattern with landscape Moderating features eg tiered horizons, low contrast with background	⟷	Distinctive landmark skylines Complicated unpredictable skylines Bare uncluttered horizons Confusion of existing verticals of variable form and function Intensifying features eg framed vistas, valley rims, channelled views
Connections with Adjacent Landscapes	Gradual transitions in elevation Weak connections Neighbouring landscapes of low sensitivity Limited views into and out of landscape Simple large scale backdrops	⟷	Sharp contrasts in elevation Part of a broader scenic composition and/ or contributes to valued settings Neighbouring landscapes of high sensitivity Prospects into and out from high ground or open edges Intricate of dramatic landmark backdrops

2.9 For the purposes of this study the following definition of landscape **value** has been adopted:

> The relative importance that stakeholders attach to a landscape for a variety of reasons including scenic quality, perceptual aspects such as wildness, remoteness or tranquillity that contribute to a sense of place, rarity, presence and influence of other conservation interests and special cultural associations.

2.10 Indicators of **value** can be considered using sustainability terms as defined under the 'Quality of Life' environmental capital approach[v], which seeks to address 'what things (including landscapes / features / characteristics / areas) provide benefits, why they matter for sustainability and why they contribute to a sense of place'. Whilst this approach is best used in an integrated evaluation alongside other environmental aspects crucial tests are embodied in it that have relevance to this guidance:

- At what geographical scale does the benefit matter and why?
- How important is it and to whom (residents/visitors/special interest groups/the wider public)?
- Do we have enough of it (i.e. rarity)?

2.11 Statutory and non-statutory designations of landscapes and elements or features within them are an indicator of importance. As this capacity assessment is to be used for strategic locational guidance reference to designations has been restricted to those of sub-regional level and above eg Landscapes of County Importance, Areas of Outstanding Natural Beauty, Registered Historic Parks and Gardens, World Heritage Sites and National Parks etc.

2.12 The objectives behind those designations and the special qualities or attributes that justified designation need to be noted in order to judge whether they might be affected by changes brought about by wind energy development. It must be clearly recognised that a highly valued landscape, whether nationally designated or not, does not automatically, and by definition, have high sensitivity. It is entirely possible for a valued landscape to be relatively insensitive to wind energy development because of both the characteristics of the landscape itself and the nature of the development. The qualities for which a landscape is designated may not be compromised by change brought about by wind energy development. However a cautious approach needs to be taken in statutory protected areas since potential impacts within these areas will have heightened significance due to their widely recognised value at an international or national scale.

2.13 A set of criteria was established for gauging value (Table 2). This is structured according to the key indicators of value and describes the attributes that would suggest a lower or higher value. Threshold criteria for landscape importance and rarity were devised to assist in the value assessment process and are set out in Appendix 2.

Table 2: Landscape Value Assessment Criteria

Key Indicator	Attributes indicating lower value	⟷	Attributes indicating higher value
Landscape designation	No specific designation	⟷	National or regional designation eg AONB, Landscape of County Importance
Designated elements or features	Few if any designations	⟷	Frequent designations of national or regional importance eg Registered Historic Parks and Gardens
Rarity	Common	⟷	Unique
Conservation Interests	Weak interest	⟷	Strong interests eg ecology geology/geomorphology, ecology, historic environment contributing to aesthetic qualities or perceptual aspects
Cultural Associations	No associations	⟷	Strong associations with particular people, artists, writers, or other media or events in history

Wind Energy Development Typology

2.14 Sensitivity assessment considers how wind energy development will potentially interact with the landscape. To do this it is first necessary to understand the form of development proposed and nature of change likely to take place. This is like describing the development in an Environmental Impact Assessment except that it is generic rather than project specific. Hence generic typologies for individual turbines and different scales of development were identified to allow visualisation of the effect within the landscape and consideration of the most appropriate scale of development within each Landscape Type.

2.15 Turbines with a hub height of 60-75m and blade length of 35 – 45m giving a blade tip height of 95 to 120m and having an installed capacity of 1.3 – 3MW have been assumed. This reflects the type of turbines now most commonly available within the industry and coming forward in current applications and enquiries within Cumbria.

2.16 The following generic typology of six different scales of wind energy development is considered to represent the types of commercial or grid connected development likely to come forward as applications in Cumbria based on current interest and the scale of the receiving landscape in Cumbria:

Table 3: Development Typology

Category	No. Turbines	Installed Capacity
Single or Twin	1-2 turbines eg Voridian Factory, Siddick Pirelli Factory, Carlisle	1.3 - 6MW
Small Group	3-5 turbines eg Hoff Moor	2.6 – 15MW
Large Group	6-9 turbines eg Lowca	7.8 – 27MW
Small Wind Farm	10-15 turbines eg Kirkby Moor	13 – 45MW
Medium Wind Farm	16-25 turbines (no current examples)	20.8 – 75MW
Larger Wind Farm	25 or more turbines eg Whinash	62.5MW+

The study does not address small domestic installations or offshore developments.

Establish Baseline Character and Value

2.17 The existing generic landscape typology and character descriptions contained in the Cumbria Landscape Classification (CLC)[vi] provide the primary basis for consideration of landscape sensitivity and subsequent evaluation of capacity for wind turbine development. This classification defines 13 landscape types and these are sub-divided into 37 landscape sub-types. It also identified the main urban areas but no character assessments were undertaken for these. Given that the current study is focused at a strategic level the main landscape types were considered to be an appropriate basis for the landscape capacity evaluation and subsequent locational guidance. An exception was made for urban areas and urban fringe types which were abstracted from the classification and grouped as a separate 14th landscape type because of their unique character and key sensitivities in relation to wind energy development.

2.18 Landscape character information was also drawn from other sources including the existing Wind Energy Supplementary Planning Guidance, Structure Plan Technical Paper No. 5[vii], Countryside Character Area descriptions[viii] and AONB management plans. Reference to published information sources was also supplemented by accumulated knowledge from professional involvement in the preparation of the CLC and development control advice on current wind energy proposals.

2.19 The County Council's Geographical Information System (GIS) and hard copy 1:50,000 Ordnance Survey Maps were used to derive baseline information on settlement patterns, tourism facilities; strategic recreation trails and transport routes (see Appendix 3).

2.20 A systematic desk top review of the above information sources was undertaken. For each of the 14 landscape types worksheets were used to collate information on each of the 8 key characteristics identified above as being sensitive to wind energy. These were then analysed in order to derive a summary description to be recorded on Capacity Assessment sheets.

2.21 A number of information sources were used to build up a profile of strategic landscape values for each type. GIS was used to identify the presence and extent and of strategic landscape designations and other designated conservation interests (see Appendix 3). Information on the objectives behind landscape designations and the special qualities for which they were designated was obtained from the Countryside Agency web site (*www.countryside.gov.uk*), consultation with AONB managers, AONB management plans, relevant development plans and Structure Plan 1991-2006 Technical Paper No.4 – Assessment of County Landscapes.[ix] The Cumbria Landscape Classification provides information on the area of each landscape type and sub-type within Cumbria. It was therefore be utilised as an indicator of rarity value of each landscape type within the county. Descriptions of associated geological, ecological, historic and cultural interests were primarily derived from descriptions in Structure Plan 2001-2016 Technical Pare No.5 – Landscape Character.[vii] These values were again summarised and recorded on the Capacity Assessment sheets.

Assessment of Sensitivity and Value

2.22 The sensitivity of each key characteristic was judged by weighing the baseline information against the criteria summarised in Table 1. In effect these provide a measure of relative susceptibility. The level of sensitivity was expressed for each landscape type according to a five point scale as outlined below:

Level of Sensitivity	
High	Key characteristic(s) of landscape very vulnerable and would be adversely affected by turbine development
Moderate/High **Moderate** **Moderate/Low**	↑↓
Low	Key characteristic(s) of landscape very robust and would not be adversely affected by turbine development

This level and a description of the particular sensitivity was recorded on the Capacity Assessment sheets together with the overall level of sensitivity for each landscape type determined by taking the average for all the key characteristics.

2.23 A field review was undertaken to test the findings on a sample of landscape types and the assessments were further informed and refined by this field exercise. The findings were also reviewed by the Council's Landscape and Countryside Officer experienced in landscape and visual impact assessment and they therefore represent a consensus of professional opinion.

2.24 A further consideration was undertaken to identify the appropriate scale of wind energy development according to the typology defined above. This was determined by reference to the key characteristics of landscape scale and settlement size.

2.25 No attempt was made to express the overall level of value for each landscape type as it was considered that any such mathematical approach would disguise the subtleties inherent in the assessment. However key indicators of value were analysed against the criteria summarised in Table 2 to build up a value profile for each landscape type.

Evaluation of Capacity

2.26 The capacity of each landscape to accommodate wind energy development was judged primarily on the basis of the assessment of sensitivities with an adjustment for any values that might be compromised thereby increasing the significance of potential impacts. Adjustments for value were based on professional judgement taking account the value profile of key indicators described above and relevance to the key characteristics sensitive to wind energy development ie those likely to be compromised by wind energy development. Capacity was expressed for each landscape type according to a five point scale as outlined below:

Level of Capacity	
High	Low landscape sensitivity and landscape or key characteristics of low value. Indicates opportunity to accommodate wind energy development at an appropriate scale without significant landscape impact.
Moderate/High	
Moderate	
Moderate/Low	
Low	High landscape sensitivity and landscape or key characteristics of high value likely to be compromised. Indicates that any type of wind energy development would be likely to have a significant landscape impact and would not generally be appropriate.

2.27 Capacity levels were recorded in a concluding statement on the Capacity Assessment sheets supported by a justification for this judgement, an indication of the most appropriate scale of wind energy development and a summary of the main factors favouring or limiting development.

2.28 It should be noted that the capacity statements refer to the capacity of the landscape to accommodate one turbine development of a certain scale. They are not intended to imply that the landscape has capacity to accept a large number of any type of development. Consideration of cumulative effects is to be dealt with separately in Part 1 of the Cumbria Wind Energy Supplementary Planning Document.

References

[i] ETSU, Cumbria County Council and South Lakeland District Council *'Planning and Renewable Energy in Cumbria'* 1994

[ii] *Land* Use Consultants for Breckland Council and King's Lynn and West Norfolk Borough Council *'Wind Turbine Development: Landscape Assessment, Evaluation and Guidance'* August 2003

[iii] Lovejoy for Lancashire County Council, Blackpool Borough Council and Blackburn with Darwen Borough Council *'Landscape Sensitivity to Wind Energy Development in Lancashire'* February 2005

[iv] Marc van Grieken etal *'Wind Farms in Scotland*' Landscape Design Journal Oct 2003

[v] Countryside Agency and Scottish Natural Heritage *'Landscape Character Assessment: Topic Paper 2: Links to other Sustainability Tools'* 2002

[vi] Cumbria County Council *'Cumbria Landscape Classification'* 1995

[vii] Cumbria County Council *'Cumbria and Lake District Joint Structure Plan 2001-2016: Technical Paper 5: Landscape Character'*

[viii] Countryside Agency *'Countryside Character Initiative: North West' (www.countryside.gov.uk/cci)*

[ix] Cumbria County Council *'Cumbria and Lake District Joint Structure Plan 1991-2006: Technical Paper No. 4: Assessment of County Landscapes*

LANDSCAPE TYPE 1: ESTUARY AND MARSH

Landscape Sub-Types	1a Intertidal Flats 1b Coastal Marsh

Key Characteristics	Sensitivity
Scale and Enclosure Large scale landscape of wide beaches and mudflats along exposed outer coastline and around estuaries mouths. Flat landform provides distant horizons, panoramic views and big skies. Enclosure behind beaches by low cliffs, sand dunes, raised beaches. Scale reducing in the sheltered inner estuaries and marshes (1b) with protecting enclosure of land and fells. Attractive estuarine vistas featuring Lakeland or Scottish peaks. Enclosure behind marshes (1b) by sea dykes, railway embankments, gorse scrub and hedges. Small details such as the winding creeks reduce the sense of scale overall.	**Moderate (3)** Within estuaries medium to large scale suggests scope for group sized development. However may appear incongruous against small scale intricacies and inner estuaries are highly sensitive due to their intimate scale and narrowed zones of visibility. Expansive scale and exposure of broader outer estuaries suggests scope for a larger development evoking a rational, functional image.
Complexity and Order Unique attraction of this landscape centres on its dynamic nature with shifting patterns of texture, colour and play of light. Shimmering water gives way to golden sands or shining silt. Wide beaches are strewn with patches of boulders (scaurs) and have upper foreshores of shingle. Estuarine mudflats are etched by a maze of minor channels. Salt marshes (1b) comprise closely grazed turf with an intricate pattern of creeks, gorse scrub and remnant hedges on higher marshes. Prolific birdlife is integral to character offering feeding and roosting ground for waders (1a) and wildfowl (1b).	**High (5)** Vertical turbine structures would provide a strong contrast with the simple flatness of this landscape. However its intrinsic beauty lies largely in the fascinating and dynamic patterns either reflected or etched across its surface. Turbine development likely to detract from this and relate poorly to irregular detail of natural patterns. Turbine development out in the broader estuary mouths may avoid such difficulties and create a simple focal point.
Manmade Influence Essentially natural landscapes spoilt only by minor or distant eyesores. Marine litter and old industrial waste can spread along the beaches. A few isolated large structures are visible around margins including power stations, terminals, sea rigs, and transmission masts. Fishing on the mudflats for cockles etc and grazing marshes by sheep and cattle. Historical drove routes of 'waths' across inner estuaries but very few modern road and rail crossings.	**High (5)** The semi-natural land cover and associated birdlife creates a strong sense of 'wildness', which may be perceived as being compromised by turbine development. There are few opportunities to relate to existing man-made features and forms. However a distant and isolated turbine grouping could form a point of focus comparable to other large structures around the margins of this landscape.
Remoteness and Tranquillity Essentially remote with disturbance limited to tourism and recreation pressures around the edges. Writers emphasise the stillness and tranquillity of the estuaries as an essential quality. Sense of remoteness attributable to absence of manmade features and open majestic scale makes viewer feel small and vulnerable and evokes a sense of freedom. Wild peaceful character of marshes reinforced by birdlife and grazing stock.	**High (5)** Noise and movement of turbines likely to compromise sense of peace, isolation and remoteness.
Settlement and Key Views Notably absent although development of coastal towns, villages and camp sites around the fringes has responded to fine vistas across the estuaries. Hadrian's Wall Trail, Cumbria Coastal Way and Cycle Way also offer extensive vantage over this landscape.	**Moderate (3)** Localised potential for over dominance and intrusion.
Visual Interruption Exposed landscape with no interrupting features. Landward edge of the marshes generally defined by dykes, beaches and estuary mouths by sand dunes, low cliffs or raised beaches.	**High (5)** Turbine development likely to be widely visible. Potential for visual confusion around low enclosure features due to partial visibility.
Skyline Coastal skyline uninterrupted and smooth –giving way to wide open skies with only a few distant isolated large structures around the margins. Inner southern estuaries dramatically enclosed by Lakeland fells and limestone escarpments.	**Moderate/High (4)** Isolated turbine grouping could form a point of focus and clear contrast with simple and subdued coastal skylines. However likely to mar or compete with skylines defined by picturesque fells or distinctive limestone escarpments.
Connections and Adjacent Landscapes Estuaries stretch well inland and strongly interact with other landscapes to form picturesque compositions. Southern estuaries have strong links with neighbouring high ground including coastal limestone (3), the Lakeland fells and their foothills (11a) and moorland extensions (9d). These create significant backdrops to Type 1 as well as prospects of it. Slight elevation of neighbouring dunes (2a) also provides extensive vantage over this landscape.	**High (5)** Picturesque compositions and fine vistas vulnerable to turbine development. Open prospects from neighbouring fells and dunes also sensitive.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 1: ESTUARY AND MARSH

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting 1b and fringes of 1a in inner Solway Estuary (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting or buffer zone
Solway Coast AONB Majority of 1b in Solway Estuary	National: Conservation and enhancement of natural beauty attributable to: wild and remote qualities due to absence of large scale industrialisation, main roads and railways; rich presence of birdlife and expansive area of saltmarshes; distinctive contrasting sequence of coastal margins/ farmland and mossland; open and attractive views to Scottish coast and Lakeland fells; small distinctive villages.
Arnside and Silverdale AONB Part of 1a and 1b at head of Kent Estuary in Morecambe Bay	National: Conservation and enhancement of natural beauty attributable to its: scenic qualities including the distinctiveness of its Carboniferous limestone; mosaic of contrasting landscape types; dramatic views over Morecambe Bay; wildlife resources; cultural, archaeological and historic heritage; intimate scale and tranquillity.
Landscape of County Importance Remainder of 1a and 1b beyond AONBs apart from sections of 1a along outer West Cumbrian coast	County: Protection of distinctive character attributable to: dramatic unobstructed views; fascinating patterns across sands or water and channels etched in marshes; absence of detractors; unique and sublime compositions with adjacent fells and simplicity creating a strong positive response.
Rarity	**Area of County**
1a Intertidal Flats 1b Coastal Marsh	7.5%: common 1.0%: rare
Associations	**Description**
Geology and Geomorphology Dynamic processes of coastal erosion and deposition Small RIGGS near St Bees	Mudflats have greatly increased over centuries following progressive siltation. Sediments derive mainly from Irish Sea. River channels are constantly shifting and thereby affecting extent of salt marshes. Long shore drift operates on open coast. Features of marsh include dendritic creeks and erosion cliffs on seaward edge, terraces related to isostatic uplift and creek migrations and isolated water known as pans or floshes.
Ecology Extensive habitats and internationally important for bird life Extensive designation of 1a and 1b in main estuaries as SPA's, SACs and SSSIs No designations on beaches of outer coastline except SAC/SSSI at Drigg	Mudflats of Cumbria some of most important habitats in UK supporting huge numbers of invertebrates such as cockles and providing main feeding grounds for internationally important numbers of wintering and passage waders and wildfowl eg shelduck, dunlin and redshank. Boulder scaurs support mussel beds providing feeding grounds for eider duck, turnstone etc. Marshes also of international importance as feeding grounds for wildfowl and roosts for waders eg pink-footed geese, Bewick swans, curlew and golden plover. Peregrine falcon and merlin hunt over marshes in winter. Other birds breed there eg redshank. Marshes also support uncommon and rare invertebrates and natterjack toads and great-crested newts.
Historic Environment Some localised interest	Number of wrecks in Morecambe Bay. Throughout evidence of historical rights of way or waths, various cultural artefacts relating to shipping and trade. Good survival of organic artefacts eg prehistoric forests; fish traps due to waterlogged conditions. On marshes remains include settlements lost to sea, former quays and salt pans.
Cultural Scenic qualities and historic routes have inspired poets, painters and writers. Solway associated with historical characters and events.	Routes across estuaries described by numerous writers eg Elizabeth Gaskell in "Sextons Hero". Estuaries also well documented through work of artists and poets eg Wordsworth, JNW Turner, David Cox, Norman Nicholson and Thomas Sutherland. Invasion of Scotland via Solway anticipated by Edward 1st in 1307 and Mary Queen of Scots fled rebellion in Scotland by boat down Solway Firth in 1568.

LANDSCAPE TYPE 1: ESTUARY AND MARSH

Capacity Statement

Overall the Estuary and Marsh landscape is judged to have **low** capacity to accommodate turbine development. Potential is limited by the high sensitivity of many of its inherent and unique characteristics, medium/high to high landscape value recognised by LoCI and AONB designations*, and strong ecological and cultural associations.

Any type of turbine development would have the potential to impinge on the natural character and strong sense of remoteness, tranquillity and wildness for which this landscape is valued. Its flat openness affords panoramic views which would be compromised, particularly where the estuaries combine with neighbouring dunes, mossland, farmed coastal plain and fells to create unique and picturesque estuarine compositions. Turbine development would also detract from the dynamic spectacle of shifting patterns of texture colour and play of light across sea, sand, marsh and sky.

There appears to be limited potential in the broad estuary mouths for isolated turbine development to create a focal point, comparable to other isolated structures around the margins of this landscape and in simple contrast with flat or subdued coastal skylines. The expansive scale and exposure here suggests that development up to wind farm size might be accommodated and benefit from a strong sense of purpose and rationality in such a location. However existing permissions for nearby off-shore developments suggests these areas are at or near capacity.

Particular sensitivities in relation to the setting of international and national designations include:

- *contribution of open sea, foreshore and salt-marshes to a sense of wildness and the sequence of contrasting landscapes in the Solway Coast AONB*

- *open sequential views from recreation and tourist routes along the coastal edge of the Solway AONB and Hadrian's Wall across the coastal plain towards the Lakeland fells most notably from Cumbria Coastal Way, the B5300, National Cycle Route 72, Hadrian's Wall Trail and from viewpoints at coastal forts associated with the Wall*

- *contribution to tranquil and picturesque compositions with fells in the Lake District NP and limestone hills of the Arnside and Silverdale AONB around the southern estuaries*

* For those areas that fall within the Solway Coast or Arnside and Silverdale Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 2: COASTAL MARGINS

Landscape Sub-Types	2a Dunes and Beaches 2b Coastal Mosses	2c Coastal Plain

Key Characteristics	Sensitivity
Scale and Enclosure Variable largely flat open large scale landscapes with big skies, long views and large rectangular fields where vertical features stand out. Hummocky dunes (2a) offer shelter and small scale interest. On glacial till farmland/mosses (2b/2c) can be undulating, more enclosed and intimate with smaller irregular fields. Some localised enclosure and scale indicators include dunes, sea dykes, rail embankments, plantations, moss woodland, gorse and willow scrub, hedges and copses (increasingly scarce and wind shaped towards coast).	**Moderate (3)** Large group would not intimidate broader scale of flat open farmland, whilst in more contained undulating terrain a small group would be more appropriate. In close range large turbines may appear incongruous against small scale landforms and land cover features of dunes, mosses and more marginal undulating areas. Exposed coastal margins of Solway Plain and Walney fringes evoke a strong design rationale.
Complexity and Order Soft organic forms and textured detail of dunes and beaches (2a) contrasts with simple flatness and rectilinear patterns of coastal plain (2c). Large square fields of improved pasture with some arable cropping are divided by hedges or fences and bordered by ditches and straight roads. Blocks of conifers common at head of estuaries. Varies to more irregular patterns and richer variety of textures and colours in undulating areas and mosses (2b) with mosaics of heath, willow/birch scrub and rough pasture with rushes/ gorse and into smaller narrow fields	**Moderate (3)** Opportunities for ordered grouping of turbines to mirror geometric regular field patterns and form a simple contrast with the horizontal plane. Sensitivity increases where landscape varies to more irregular forms and complex mosaics with natural vegetation.
Manmade Influence Mix of farmland and semi-natural areas with isolated farmsteads and small villages. Strong local vernacular of cobblestone or clay built buildings, walls and banks. Heritage of Roman wall and forts and dismantled railways. Occasional modern structures include hard sea defences, drainage channels, pylons, masts, industrial buildings and hangars near urban fringe, farm sheds and silos. Tourism development on outer coast eg caravan parks, golf courses. Land management eg intensive farming, forestry and large scale peat cutting.	**Moderate/High (4)** Limited scope to relate to similar man-made structures. Some potential to relate to 'working' character of intensively farmed areas with engineered aspects and integration with larger scale geometric manmade land cover patterns. However likely to appear incongruous against heritage and vernacular features.
Remoteness and Tranquillity Dunes and beaches (2a) enjoy a sense of peace and remoteness apart from fringes disturbed by tourism. The mosses and coastal plain (2b and 2c) are generally peaceful backwaters relatively untouched by modern development.	**Moderate/High (4)** Noise and movement of turbines could detract from peaceful backwater characteristics.
Settlement and Key Views Dispersed pattern of small villages and isolated farmsteads connected by network of minor roads across 2c and outer Solway part of 2a. Tend to be nucleated in form although becoming more linear due to recent ribbon development especially along coast. Tightly knit with stone walls for shelter on outer coasts. Can occupy higher ground: tops of hills; raised beaches and sites along Hadrian's Wall or lower lying around fringes of the mosses. Caravan sites and tourist routes around outer coast. Hadrian's Wall Trail, Cumbria Coastal Way and Cycle Way, NCR 72 and B5300 also offer extensive vantage.	**High (5)** Limited scope to site development away from settled areas or tourism facilities. Size of development constrained by small scale nature of existing settlements with potential for over dominance.
Visual Interruption Largely open, flat or undulating farmland or mosses. Some containment features increasing inland including tall windbreak hedges, engineered railway and flood defence embankments, buildings, scrub woodland and plantations.	**Moderate/High (4)** Turbine development on exposed outer margins with greatest wind resource likely to stand out. Some localised screening but also potential for visual confusion around low enclosure features due to partial visibility.
Skyline Landform generally has horizontal emphasis producing open views, strong coastal horizons and big skies. Smooth towards coast rougher inland with woodland cover and backdrops of higher ground. Attractive backdrop of fells to inner margins of southern estuaries. Occasionally villages, farmsteads, copses or masts stand out as prominent features.	**Moderate (3)** Opportunity for isolated turbine grouping to form a predictable and simple contrast with horizontal plane. However there are issues related to maintenance of clear simple horizons and conflict with more complex skylines around southern estuaries.
Connections and Adjacent Landscapes Quite complex due to configuration. Margins of southern estuaries benefit from picturesque backdrop of Lakeland fells, limestone escarpments, foothills and moorland (3, 11a, 9d). Contrast with Solway plain intertwined with low farmland ridges (5a) which interrupt views but also offer occasional prospects. Dunes (2a) offer prospects of estuaries (1) and coastal plain (2c). Elsewhere coastal plain tends to bleed into coastal urban fringe (2d).	**Moderate/High (4)** Contribution to picturesque compositions, fine vistas and setting of LDNP around southern estuaries and sequence of Solway AONB landscapes both vulnerable. Open prospects from neighbouring higher ground of ridges fells and dunes also sensitive. However visual interruption created by neighbouring ridges around Solway coastal plain may assist turbine development depending on height.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 2: COASTAL MARGINS

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting Around inner Solway fringes of 2c (site and setting) and along outer Solway 2b and fringes of 2c (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
Solway Coast AONB Dunes (2a) and seaward edges of Solway Plain (2c and 2b)	National: Conservation and enhancement of natural beauty attributable to: wild and remote qualities due to absence of large scale industrialisation, main roads and railways; rich presence of birdlife and expansive area of saltmarshes; distinctive contrasting sequence of coastal margins/ farmland and mossland; open and attractive views to Scottish coast and Lakeland fells; small distinctive villages.
Landscape of County Importance Most of 2a and b. 2c on Walney Island and around Duddon and Leven Estuaries (Solway and South Lakeland parts excluded)	County: Protection of distinctive character attributable to unusual landforms of dunes and plain with rocky outcrops; rich variety of natural textures and colours; absence of detractors; impressive views with backdrop of Lakeland fells; vernacular features eg cobble banks, early field enclosure patterns and quietness creating a strong positive response.
Registered Historic Parks and Gardens Holker Hall	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Generally absent some blocks around Leven Estuary	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
2a Dunes and Beaches 2b Coastal Mosses 2c Coastal Plain	0.2%: rare 0.9%: rare 3.8%: ordinary
Associations	**Description**
Historic Environment Diverse interest with concentration along internationally important Hadrian's Wall, on the mosses and in villages. Conservation Areas: Several villages across Solway coastal plain (2c) and Biggar on Walney Island	Volatile environment in dunes (2a) remodelled by wave and wind action, erodes have revealed evidence of prehistoric settlement. Mosses (2b) contain evidence of reclamation associated with abbeys, evidence of peat rooms in long narrow enclosures, traditional field patterns of small irregular enclosure and later larger more regular enclosure. Also important for 20th century military sites. Highly nucleated settlement pattern on coastal plain (2c) with evidence of late enclosure outfields.17th and 18th century vernacular buildings of local red sandstone in north and clay buildings on Solway Plain. Most significant archaeological feature is Hadrian's Wall and associated forts. Some villages occupy sites of former forts eg Burgh-by-Sands.
Ecology Dunes and mosses important habitats extensively designated for international or national importance, localised interest across coastal plain Most of 2a dunes designated as SSSIs sometimes as SACs and around Walney Island as SPAs. Extensive designation of 2b mosses around Solway as SACs, SSSIs and NNRs, but around Duddon only partial coverage. 2c mostly undesignated occasional small sites including outlying mosses, moss and saltmarsh fringes and LPOs on east side of Leven Estuary.	Dunes and slacks (2a) support natterjack toads, plus breeding colonies of great crested –newts eider duck, terns and gulls. Also important for rare plants eg coralroot orchid. Wetter areas of lowland raised bogs or mires that dominate mosses (2b) support sphagnum moss and cotton grass whist drier areas support heather, birch and Scots Pine and drained margins can support large areas of rush and purple moor grass pasture. Wildlife interest on mosses includes rare butterflies, lizards, dragonflies, reed bunting, skylark and redshank. Most of coastal plain (2c) agriculturally improved with interest confined to wooded remnant mires important for red squirrel, wintering wildfowl and farmland birds eg corn bunting in fields and otter, Atlantic salmon and sand martins along rivers.

LANDSCAPE TYPE 2: COASTAL MARGINS

Capacity Statement

Overall the Coastal Margins landscape is judged to have **low/moderate** capacity to accommodate a small turbine group and exceptionally a large group. Potential is limited by the overall moderate/high sensitivity of its variable landscape character, medium/high to high landscape value of parts recognised by LoCI and Solway Coast AONB designation*, rarity of dunes and mosses and strong ecological and historical associations.

The Solway Coast is distinguished by a remarkable sense of wildness and remoteness, due to the presence of extensive wildlife habitats, lack of large scale industrialisation and absence of main roads and railways. Overall scenic quality is based on a diverse sequence of open sea, foreshore, salt-marshes, dunes and heath contrasting with inland landscapes of farmed coastal plain and mossland. These are both essential qualities of the AONB and are likely to be compromised by any scale of wind energy development.

Elsewhere much of the coastal plain landscape is large scale and open with simple rectilinear field patterns that would aid the integration of a group of turbines in a geometric layout. The 'engineered' character of the drained coastal plain and mosses would provide an appropriate context for turbine development. However there are some characteristics of the landscape that are more sensitive to turbine development and which substantially reduce capacity in the landscape as a whole.

A primary constraint is the limited extent of flat coastal plain and configuration into narrow strips. In the south around the Duddon and Leven it combines with neighbouring fells and intertidal flats to form picturesque estuarine landscapes vulnerable to the intrusion of turbine development. Around the Solway it is fragmented by patches of more contained undulating terrain and irregular mosaics of semi-natural vegetation found on undulating boulder clay and remnant mosses where turbines could be over dominant and less readily integrated.

The flat coastal horizons, big skies offer opportunities for simple contrast and the outer exposed coasts to evoke a strong sense of purpose and rationality. However the protection of the open and largely undeveloped skyline, peaceful backwater character, powerful contrasts with soft organic forms and rich textures of fringing dunes are major restrictions to turbine development. Further limiting factors are the heavy but dispersed patterns of visible vernacular and heritage features and small rural settlements which would make it difficult to site development sufficiently distant so as not to compromise their scale and character.

Particular sensitivities in relation to the setting of international and national designations include:

- *contribution to tranquil and picturesque compositions with fells in the Lake District NP and fine vistas to and from them around the southern estuaries*

- *contribution to a sense of remoteness and the sequence of contrasting landscapes in the Solway Coast AONB (as mentioned above)*

- *open sequential views from recreation and tourist routes along the coastal edge of the Solway Coast AONB and Hadrian's Wall across the coastal plain towards the Lakeland fells most notably from Cumbria Coastal Way, the B5300, National Cycle Route 72, Hadrian's Wall Trail and from viewpoints at coastal forts associated with the Wall*

- *open prospects across the coastal plain from the eastern side of the Arnside and Silverdale AONB, from Farleton Fell back to the AONB and the Limestone Link recreation route between them*

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* For those areas that fall within the Solway Coast Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 3: COASTAL LIMESTONE

Landscape Sub-Types	3a Open Farmland and Pavements 3c Disturbed Areas 3b Wooded Hills and Pavements

Key Characteristics	Sensitivity
Scale and Enclosure Medium to large scale rolling hills with limestone pavement and rocky outcrops. Sometimes rising abruptly as distinctive escarpments above the surrounding countryside (3a/b S. Lakeland) with cliffs and screes. In 3c superimposed with spoil heaps and pits of former iron ore mining creating a small scale hummocky landscape (3c). Land cover varies from open commons or fell tops with wide views and farmland divided into small-medium sized fields (3a Furness) to much more intimate enclosed well wooded hills interspersed with pasture and drained mossland (3b Arnside/Silverdale). Frequent scale indicators eg historic buildings, farms, stone walls, hedges.	**Moderate/High (4)** Single or small cluster development would not intimidate broader scale and wider horizons of open hills and small fells. Lower wooded hills and hummocky land disturbed by mining highly sensitive due to intimate scale and potential for over dominance in restricted zone of visibility. Turbines likely to appear out of scale in context of small scale field patterns and frequent natural and built scale indicators. Exposed coastal summits suggest a strong design rationale.
Complexity and Order Complex with a rich variety of features and textures. Generally intricate but well balanced patterns of pasture fields divided by walls or hedges, limestone pavements and woodland - extensive in 3b but mostly restricted to steep scarp slopes in 3a. Harmony sometimes disrupted by major quarries and plantations. In contrast irregular manmade landforms and patchy naturalisation by scrub woodland in 3c creates a rich but visually confusing landscape. Features include tarns, historic buildings, parkland, and winding lanes.	**High (5)** In core limestone areas turbines likely to disrupt harmony of scenic compositions between open pastureland, pavements and woods. Likely to appear incongruous and sit uncomfortably against natural and manmade intricacies and accents. In areas disturbed by mining likely to compound visual confusion.
Manmade Influence Strong sense of history derived from prehistoric sites, medieval buildings/remnant field patterns and old mine workings. Some parts largely managed agricultural land with distinctive field patterns. Others more mixed and naturalised with rougher textures of bare rock, rough pasture, scrub and ancient woodland. Some signs of increased blandness due to loss of boundary features; grazed woods etc. Largely unspoilt by large modern developments/roads. Localised detractors eg housing, quarries, small scale industry and farm sheds.	**High (5)** Little or no scope for association with large scale modern development or regular patterns of management. Turbines likely to appear incongruous in context of historic field patterns and visible remains. Also likely to stand out as alien structures and be perceived as compromising unspoilt character and natural qualities.
Remoteness and Tranquillity Core agricultural areas remote from main roads generally perceived as quiet and calm, particularly in Furness (3a,c). Others affected by proximity of urban areas, M6 and railway generating noise disturbance and recreation pressures. Internal roads mostly lanes but often busy. Extensive network of popular paths to fell tops and through woods (3a,b).	**Moderate (3)** Noise and movement of turbines likely to reduce sense of calm and peace of rural backwaters and semi-natural parts valued for quiet recreation. Busier parts close to urban fringes and major through routes less sensitive.
Settlement and Key Views Main settlements of Grange and Arnside developed rapidly as Victorian/Edwardian seaside resorts stimulated by Furness Railway. Late 20th century expansion onto flanks of fells to meet holiday/retirement home demand. Elsewhere fairly dense pattern of nucleated villages, scattered farms and hamlets with a strong limestone built character developing around farms in valleys or on hillsides next to springs. Trails eg W2W Cycle Route, Cumbria Cycle Way, caravan sites and viewpoints present.	**High (5)** Limited scope to site development away from settled areas or tourism facilities. Size of development constrained by small scale nature of nucleated historic villages with potential for over dominance especially where arc of view is restricted between hills.
Visual Interruption Rolling relief generally offers containment. Barer fell tops and farmland of 3a relatively open with limited containment by woodland and buildings. In 3b interruption by supplemented by hedges and blocks of woodland. Hummocky and wooded nature of 3c creates local enclosure	**Moderate (3)** Variable but absorption of turbine development generally assisted by rolling topography. Dense woodland cover in parts assists further but turbines likely to stand out more on barer farmland and summits.
Skyline Distinctive craggy escarpments sometimes locally dominant eg Scout Scar, Farleton Knott, Arnside Knott. Elsewhere rolling hills create multiple horizons (3a, 3b) sometimes textured by trees. Hummocky terrain of 3c tends to produce multiple and less distinctive skylines with pylons/masts conspicuous.	**High (5)** Distinctive landmark skylines vulnerable. Potential for unpredictable relationship with complex skyline of hilly terrain, disturbing intermittent and partial turbine views, framing by hills and woods. Maintenance of uncluttered horizons is also an issue. Visual confusion with pylons/masts likely in 3c.
Connections and Adjacent Landscapes Strong connectivity to simple foil of Morecambe Bay (1a,1b) and LDNP. Contributes to setting of coastal resorts, popular public viewpoints eg Hoad and routes into Lakes eg M6, A590. Abrupt elevational changes between scarps and open lowland (8b,2c,7a) create dramatic vistas.	**Moderate/High (4)** Turbines likely to detract from scenic estuarine compositions around Morecambe Bay and picturesque views from coastal resorts, public viewpoints, and strategic route ways. Striking contrasts/vistas from adjacent lowlands particularly vulnerable. Potential intrusion on townscape settings and valley rims.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 3: COASTAL LIMESTONE

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Arnside Silverdale AONB All of sub type 3b	National: Conservation and enhancement of natural beauty derived from the special qualities of: distinctive Carboniferous limestone scenery; mosaic of contrasting landscape types; dramatic views over Morecambe Bay; wildlife resources; cultural, archaeological and historic heritage; intimate scale and tranquillity.
Landscape of County Importance All of 3a	County: Protection of distinctive character attributable to distinctive limestone landforms, scenic variety, abundance of natural/built/cultural features, views and strong historic interest creating a strong positive response.
Registered Historic Parks and Gardens Dallam Tower and Sizergh Castle	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Large parts of 3b most notably Arnside Park, Middlebarrow and Major Woods Elsewhere localised notably Brigsteer Park, Eggerslack Wood, Kirkhead Wood, Grange, Humphrey Head Wood, Dalton Crags, Hutton Roof, Clawthorpe and Curwen Woods (3a) Sea Wood and Bardsea Park (3a Furness) and Roanhead (3c)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
3a Open farmland and Pavements 3b Wooded Hills and Pavements 3c Disturbed Areas	1.5% - Unusual 0.4% - Rare 0.1% - Unique
Associations	**Description**
Historic Environment Rich and diverse interest Conservation Areas: Kents Bank/Grange/The Slack (3a) and Beetham (3b)	Nucleated settlement pattern and mixed field patterns characterised by dry-stone walls with farm buildings mainly traditional and limestone built. Much evidence of quarrying and numerous limekilns. Archaeological remains include evidence of past iron working, Iron Age and Romano-British settlement sites with well preserved extant earthworks, caves containing evidence of prehistoric occupation (3a, 3b) and medieval fortified sites, pele towers and priories. Much of the woodland is ancient coppice wood and contains evidence of former woodland management and industries. 3c comprises an industrial landscape with evidence of former late19th/early 20th century iron mining and limestone quarrying. Stately homes and parklands are also characteristic.
Ecology A richness of semi-natural habitats Designation extensive across 3b AONB and Farleton areas with SACs, SSSIs, and LPOs. Rest of 3a mostly undesignated but patches include SAC/SSSI at Helsington Barrows, LPOs around Grange and in pockets across Furness. Designations limited in 3c to small RIGGS and estuarine fringe.	Habitats largely determined by the underlying limestone geology. Open limestone pavements support a range of characteristic and rare species. Thin soils support limestone grassland, including nationally scarce blue moor-grass grassland type. In turn this supports a range of uncommon plants and rare butterflies. Woods often overlaying limestone pavement are upland mixed ashwood type and support a rich flora and fauna, including mezereon, yew, red squirrel and dormouse (3a,b). Juniper scrub and species rich hedgerows are also characteristic. Rich diversity of semi-natural habitats in 3c and valuable wildlife refuge bounded by pasture or built up areas. Habitats include open water, woodland, carr, gorse and hawthorn scrub and patches of unimproved, herb rich limestone grassland. Ponds used by mallard, moorhen, and gulls.
Cultural Diverse and related to heritage	Areas within 3a are rich in Neolithic remains, many artefacts such as bracelets and axe heads have been found. Several sacred sites are present. A stone circle exists at Birkrigg Common. Pele Tower on Arnside Knott is an old coastal beacon designed to resist sieges in the time of Edward I. Limekilns produced quick lime to improve soil fertility in 18th/19th centuries. 3c has a heavy industrial mining heritage celebrated through Norman Nicholson's poetry.

LANDSCAPE TYPE 3: COASTAL LIMESTONE

Capacity Statement

Overall the Coastal Limestone landscape is judged to have **low** capacity to accommodate turbine development. This reflects moderate/high sensitivity overall, medium/high to high landscape value recognised either by LoCI or AONB designation* of most parts, rarity and strong geological, ecological and historical associations.

Any type of turbine development would have potential to compromise the picturesque coastal limestone scenery around Morecambe Bay. This landscape is valued by both residents and visitors for its varied but generally harmonious and unspoilt character. This is attributable to intricate sometimes complex compositions between hills, pastureland, limestone pavements, woodland and winding lanes, a strong sense of history and naturalness derived from a wealth of wildlife habitats, visible archaeological remains, historic buildings and field patterns and absence of major roads or built developments. Any scale of turbine is liable to upset this sensitive balance and appear incongruous with little or no scope for visual linkage or association with comparable structures or regular land cover patterns.

Turbines would also detract from the landmark skylines of limestone escarpments featuring cliffs and screes that often add drama within this landscape. Whilst the scale of some larger hills appears favourable turbine development is likely to conflict with small to medium sized field patterns, small nucleated villages and frequent scale indicators such as dry stone walls and trees. Other issues include limited scope to site development away from residential and tourism receptors; potential to erode the sense of tranquillity in rural backwaters and semi-natural areas; over dominance in relation to restricted views from valleys and disturbing effects of partial turbine views over settlements, woods and valley rims.

Whilst internally interruption by hills and woodland would assist in visually containing turbine development the configuration of this landscape into relatively small pockets set within contrasting open estuarine, drained mossland or drumlin landscapes tends to heighten its sensitivity. Potential conflicts with inherent landscape characteristics and wider scenic compositions would be exposed in a variety of important vistas enjoyed from the coastal resorts, public viewpoints and strategic route ways around the Bay.

Particular sensitivities in relation to the setting of national designations include:

- *contribution of the open pavements and farmland to picturesque compositions between the Lake District NP and the Arnside and Silverdale AONB across the Kent estuary visible from popular public viewpoints such as Hampsfell, Scout Scar and Arnside Knott and coastal edge of the AONB*

- *open prospects across the coastal plain between the eastern side of the Arnside and Silverdale AONB and Farleton Fell and from the Limestone Link recreation route between them*

- *contribution of the open pavements and farmland to picturesque coastal limestone landscapes which extend south from within the Lake District NP and to dramatic contrasts between the imposing limestone escarpments and flat drained mosslands around the Kent and Lyth valleys as viewed from the major A590 and A591 'gateways'*

* For those areas that fall within the Arnside and Silverdale Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 4: COASTAL SANDSTONE

Landscape Sub-Types	4a Coastal Sandstone

Key Characteristics	Sensitivity
Scale and Enclosure Large scale rolling coastal hills culminating in exposed high cliffs of St Bees Head but progressively lower and undulating towards the south. Generally open character with wide views featuring focal points such as cliffs, lighthouse, caravan sites, Sellafield complex. Occasionally intimate and enclosed along incised valleys. Large bare pasture fields predominate; limited features include low hedges (sparse and poor on exposed coastal tops, prominent hedge banks to south), buildings and occasional woods on valley sides.	**Low/Moderate (2)** Large group would not intimidate large scale of broader hilltops where exposure suggests a strong design rationale. On smaller hills and lower undulating terrain a single/twin or small group development would be more appropriate. Incised valleys highly sensitive due to more intimate scale and potential for over dominance in narrow zone of visibility.
Complexity and Order Strong grain of north-south ridges in higher northern part. Drama and natural beauty of natural sandstone cliff faces, cliff top heath and species rich grassland contrasts with settled pastoral farmland. Generally simple improved pastureland with occasional arable fields divided by low hedges provides a managed ordered landscape. Frayed around urban edges and coastal developments. Occasional natural accents of woodland and wetland habitats. Strong linearity along southern shoreline reinforced by railway and coast road.	**Moderate/High (4)** Opportunities for organic cluster to relate to strong ridgelines or simple line of turbines behind southern shoreline. Turbines likely to sit less comfortably on irregular undulating terrain. Scenic natural beauty of St Bees Head highly sensitive.
Manmade Influence Generally farmland with remnants of monastic landscape around St Bees created by the 12th century priory there and medieval strip fields around other villages. Vertical and engineered elements include transmission masts, pylons, and railway. Northern fringe with Whitehaven affected by encroaching industry and southern shoreline by some tourism detractors eg camp sites and caravan parks, golf courses.	**Moderate/High (4)** Some potential to relate to 'working' character of improved farmland areas and engineered aspects such as the railway or industrial fringes. However likely to appear incongruous against vernacular and heritage features in and around villages and compromise largely unspoilt beauty of St Bees headland and rural coastline to south.
Remoteness and Tranquillity St Bees headland enjoys a sense of remoteness, freedom and wildness attributable to the absence of development, drama of the cliffs and sea, natural windswept habitats and seabird colony. Remaining area is a mix of peaceful backwaters and busier parts on the fringes of Whitehaven and around the coastal resort of St Bees.	**Moderate/High (4)** Noise and movement of wind turbines likely to compromise essential qualities of St Bees headland but could relate to busier parts.
Settlement and Key Views Beyond St Bees Head dispersed pattern of villages and hamlets connected by network of minor roads. In north these have tended to spread out along sheltered incised valleys and are now affected by urban expansion. Along undulating coastal strip tend to be more nucleated. Also scattered houses and farmsteads, some on hilltops. Many buildings are in local vernacular and built of sandstone. Views from caravan parks/camp sites along the coast and recreation routes eg Cumbria Coastal Way and C2C cycle route near Whitehaven.	**High (5)** Limited scope to site development away from settled areas or tourism facilities. Size of development constrained by small scale nature of existing settlements with potential for over dominance.
Visual Interruption Relief of rolling or undulating coastal hills offers some localised screening. However the land cover is predominantly open with only occasional vegetative or built visual containment features.	**Moderate/High (4)** Turbine development likely to stand out and be widely visible.
Skyline Open coastal hills create smooth sometimes layered horizons with intermediate ridges and incised valleys. Occasional vertical structures standout such as hilltop transmission masts and lighthouse. Sheer cliffs of St Bees Head create a dramatic landmark.	**Moderate/High (4)** Isolated turbine grouping could form a focal point in contrast with a strong ridge top or coastal horizon. However there are major issues related to potential dilution of the St Bees Head landmark, maintenance of clear uncluttered horizons, vulnerability of valley rims to disturbing effects of partial views and blade flash and setting of historic town of St Bees.
Connections and Adjacent Landscapes Strong connections with the sea. Important backdrop to open beaches (1a). Sellafield complex and industrial areas of Whitehaven (U- urban areas) are dominant features at ends of this type. Weaker connections inland tending to bleed into low farmland (5b) and urban fringes of Whitehaven (5d).	**Low/Moderate (2)** Near to coast large scale context of seascape likely to assist in absorption of turbine development. Potential for some assimilation against large scale industrial backdrops at northern and southern ends. There are issues related to intrusion on open prospects from popular beaches and extending visual clutter of urban fringe.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 4: COASTAL SANDSTONE

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Heritage Coast St Bees Head	National: Protection of natural beauty of special coastlines and appropriate enhancement of public enjoyment. Special qualities: red sandstone headland, fissured cliffs, breeding seabirds and gem strewn beach, most conspicuous natural feature on entire west coast between N Wales and Scotland, cliff edge path part of Cumbria Coastal Way and Wainwright's Coast to Coast walk.
Landscape of County Importance Remaining area beyond St Bees Head	County: Protection of distinctive character attributable to dramatic sandstone cliffs, hills and Pow Beck valley and absence of detractors (north); natural /built features; cultural features (south); wide views and overall 'attractive' impression
Ancient Woodland Linethwaite Woods near Whitehaven Small valley woods around St Bees	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
4a Coastal Sandstone	0.7%: rare
Associations	**Description**
Historic Environment Varied interest Conservation Areas: St Bees village	Remnants of monastic landscape around St Bees created by 12th century priory. Nucleated settlements surrounded by fossilised strips of former medieval field systems. Many buildings in local vernacular tradition and built of sandstone. St Bees Head lighthouse built in 1867.
Ecology Pockets of interest some outstanding Cliff edges of St Bees Head SSSI and small RIGGS. To south small site of Silver and Harney Moss SSSI and RIGGS.	Outstanding geological exposures and seabird colony of St Bees Head cliffs. Provide only breeding site on Cumbrian coast for a variety of seabirds including razorbill, guillemot, puffin and kittiwake. Cliffs here and to south also support coastal heath and species rich grassland. Inland landscape largely agricultural apart from wetland habitats associated with glacial deposits in south and valleys in north which also hold some small oak woodlands.
Cultural	Thomas Carlyle described the cliffs at St Bees Head as 'that sappyre promontary'.

LANDSCAPE TYPE 4: COASTAL SANDSTONE

Capacity Statement

The Coastal Sandstone landscape is judged to have **low/moderate** capacity to accommodate turbine development. Potential is limited by overall moderate/high sensitivity overall, the high value and nationally recognised landscape of St Bees Head and medium/high landscape value recognised by LoCI designation elsewhere and rarity value of this landscape type within Cumbria.

At St Bees Head sheer cliffs create a dramatic landmark punctuating the otherwise subdued Cumbrian coast and together with the cliff tops offering a rare sense of remoteness, wildness and unspoilt scenic beauty. These essential qualities, reflected in Heritage Coast and SSSI designations, are likely to be compromised by any scale of turbine development.

Beyond this headland there may be scope to accommodate a single turbine to small group sized development relating to the rounded coastal hills and undulations or straighter southern shoreline with engineered features. Such development should not over dominate the wide views available in this open landscape and could create a simple focal point in contrast to a strong ridge top or coastal horizon. Along the immediate coast absorption would be further assisted in the context of vast open sea backdrops and sense of exposure that would evoke a strong sense of purpose and rationality. Whilst broader ridge tops in north seem to offer potential for a larger group of turbines there are other overriding constraints on development of this size.

The dispersed pattern of small traditional settlements surrounded by remnant monastic or medieval landscapes would make it difficult to site developments sufficiently distant so as not to adversely affect their sense of scale and character. Villages in the incised valleys to the north of this type are particularly vulnerable to over dominance in a restricted zone visibility and disturbing effects of partial views over valley rims. Other issues include erosion of unspoilt rural coastline and uncluttered horizons, vulnerability of the open setting to St Bees Head and conflicts with the scale and character of natural and cultural accents such as wetland habitats, coastal heath and hedge banks.

LANDSCAPE TYPE 5: LOWLAND

Landscape Sub-Types	5a Ridge and Valley 5b Low Farmland	5c Rolling Lowland 5e Drained Mosses

Key Characteristics	Sensitivity
Scale and Enclosure Medium to large scale landform varying from undulating to rolling to ridge and valley terrain. Enclosure and interruption increasing with degree of relief but long wide views from summits. Field units generally medium to large. Some vegetative enclosure and local scale indicators through presence of occasional valley woodlands, small plantations or shelterbelts, hedges and hedgerow trees but becoming sparser in higher areas and towards coast.	**Low/Moderate (2)** Small group would not intimidate this rolling landscape and exceptionally a large group might be absorbed on a broader ridge or open flatter area. Undulating fringes and occasional narrow valleys highly sensitive due to intimate scale and potential over dominance in narrow zones of visibility.
Complexity and Order Fairly simple agricultural patterns dominated by improved pasture with limited features, variation related to grain of topography and exposure. Flatter areas and broad ridge tops - regular pattern of oblong or squarish fields often perpendicular to prevailing wind enclosed by hedges, straight roads, linear settlements along ridge tops, punctuated by farmsteads with associated tree clumps and shelterbelts. Rolling terrain and sheltered valleys – irregular fields, river/streamside woodland and trees, winding roads, more nucleated settlements and remnant mossland (5e, 5b).	**Low/Moderate (2)** Opportunities for turbine development to relate to strong ridgelines or mirror regular field patterns and create new focal points in sparser areas with strong siting rationale due to abundance of wind. More irregular patterns present fewer opportunities to link or connect turbine development.
Manmade Influence Intensively managed and heavily settled 'working' countryside. Associated development and land cover patterns generally traditional and rural in character. Some larger modern development features including existing turbines, pylons, masts, major roads and railway, farm sheds and mineral workings and on urban edges industrial buildings, housing estates and golf courses. In West Cumbria legacy of degradation through open cast coal mining, with restoration to rather bland rectilinear landscapes (5a).	**Moderate (3)** Some potential for positive association with 'working' character and integration with regular manmade field patterns. However likely to appear incongruous against traditional rural development features. Could be less conspicuous near urban edges or where related to key manmade features sharing similar characteristics. May be perceived as further despoliation on restored areas that already have a negative image.
Remoteness and Tranquillity Busy well populated working countryside especially around main settlements and transport corridors radiating out from Carlisle. However much quieter hinterland perceived as a rural backwater and pockets of remoteness/tranquillity around relic mosslands.	**Moderate (3)** Noise and movement of turbines could relate to busier areas but would be less suited to more peaceful parts.
Settlement and Key Views Heavily settled lowland crossed by major transport corridors into West Cumbria notably the A66, A69 A595. Numerous small market towns, villages, hamlets and isolated properties in a dispersed pattern right across type 5, linked by minor roads and lanes. Also crossed by Hadrian's Wall Trail, NCR 72 and C2C cycle route.	**High (5)** Limited scope to site development away from settled areas. Size of development constrained by small scale nature of existing settlements, with potential for over dominance.
Visual Interruption Generally interrupted by relief, woodlands, hedges and buildings.	**Low/Moderate (2)** Turbine development likely to be more easily absorbed in wider landscape due to presence of interruptions resulting in glimpsed or intermittent views.
Skyline Landform generally has horizontal emphasis but relief creates multiple horizons and intermediate ridges frequently broken by trees and woodland. Dissected by numerous valleys. Relatively few vertical structures, pylons sometimes locally dominant but otherwise occasional silos, existing turbines, chimneys or industrial buildings on urban edges, and transmission masts on neighbouring coast or high ground.	**Moderate/High (4)** Variable and unpredictable relationship with skyline and partial visibility likely to result in confused image. Valleys rims vulnerable to disturbing effects of partial views and blade flash. Limited opportunity to correspond to other vertical structures. Scope for confusion of form and function in proximity to pylons.
Connections and Adjacent Landscapes Strong relationships with neighbouring high ground especially where the transition is sudden eg North Pennines(13), Sandale, High Park escarpments(12). These create a large scale context and significant backdrop in terms of views out of type 5 as well as prospects of it. Neighbouring coastal landscapes have similar although more localised effects. Type 5 also contributes to the setting of important valleys eg Eden and Derwent, towns within them eg Workington, Solway Coast AONB (2) and LDNP.	**Moderate/High (4)** Whilst large scale contexts of adjacent landscapes may assist in absorption of turbine development potential for intrusion in open prospects from high ground and coast, often of national importance, are increased. Also potential for localised intrusion on townscape settings and valley rims.

Overall Sensitivity	Moderate

LANDSCAPE TYPE 5: LOWLAND

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting Carlisle to Newtown nr Brampton S part of 5b (site and setting) and seaward parts of 5a/b between Maryport and Silloth (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
Solway Coast AONB Covers small parts of 5b	National: Conservation and enhancement of natural beauty attributable to: wild and remote qualities due to absence of large scale industrialisation, main roads and railways; rich presence of birdlife and expansive area of salt-marshes; distinctive contrasting sequence of coastal margins/ farmland and mossland; open and attractive views to Scottish coast and Lakeland fells; small distinctive villages.
Registered Historic Parks and Gardens Workington Hall (5a)	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Sparse concentrations alongside the Rivers Lyne (5b) and Petteril (5b) nr Carlisle, gill woodlands in Allerdale below Sandale escarpment and sides of Broughton Moor (5a) and Greenscoe Valley Barrow (5c)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
5a Ridge and Valley 5b Low Farmland 5c Rolling Lowland 5e Drained Mosses	6.8%: common 9.3%: common 2.1%: unusual 0.4%: rare
Associations	**Description**
Historic Environment Varied interest Conservation Areas: Numerous small towns and villages across Solway Basin (5a/b), Settle Carlisle Railway and handful of small towns/villages E of Carlisle around Eden Valley (5b/c). Elsewhere only occasional villages including Geysouthen and Beckermet W Cumbria (5b/c), Longtown in Borders (5b) and Lindal–in-Furness (5c).	Evidence of Roman occupation prolific in places. Traditional field systems round settlements/fossilised strips of medieval origin (5a, 5c). Remains of former industries-iron/coal workings, quarrying (5a). Land improvement and mineral exploitation by Cistercian monks (5b). To north medieval fortified sites associated with Anglo-Scottish border (5b). Ancient hedgerows, red sandstone buildings, some stately homes and parks (5c). North of Carlisle regular field patterns characteristic of late enclosure (5b).
Ecology Largely an agricultural landscape with isolated areas of semi-natural vegetation Occasional small SSSIs, RIGGS and NNRs	Upland oak woodland (5a, 5b) Lowland raised bog (5b,5e) Rush pasture /purple moor-grass (5a, 5b, 5e) Rivers and streams (5a, 5b,5c) Species rich hedgerows and basin mire (5c)
Cultural Limited interest	Charles Dickens/Wilkie Collins 'The Lazy Tour of Idle Apprentices' (journey from Carrode Fell to Allonby) Wigton area settings for novels by Melvyn Bragg

LANDSCAPE TYPE 5: LOWLAND

Capacity Statement

Overall the Lowland landscape type is judged to have **moderate** capacity to accommodate turbine development. This reflects moderate sensitivity and low/medium value overall. A significant exception is the small area of lowland that falls within the Solway Coast AONB designation*. Here high value and sensitivity attributable to a sense of remoteness, lack of large scale development and contribution as a backdrop and contrast to wilder coastal edge landscapes indicate that any scale of wind energy development is likely to be inappropriate. Elsewhere some notable variations in the sense of enclosure created by the undulating and rolling topography and regularity of land cover patterns affect appropriateness.

Greatest potential occurs in the open flatter areas and broad ridge tops where small or, in exceptional circumstances, large turbine groups could relate to the medium to large scale landform without dominating wide views and integrate with regular field patterns. The sense of exposure in these areas would also evoke a sense of purpose and rationality. In the more sheltered and enclosed valleys or undulating fringes turbine development would feel over dominant and conflict with more irregular land cover patterns.

Whilst significant interruption by relief and vegetation would assist absorption in the wider landscape these same features are likely to result in unpredictable relationships between turbines and a variable skyline with intensifying or disturbing effects such framing or blade flash over valley rims. A key characteristic limiting capacity is the dispersed pattern of numerous rural settlements making it difficult to site developments sufficiently distant so as not to adversely affect their sense of scale and character. Other more localised sensitivities include potential erosion of peaceful rural backwater qualities and impact on valued views from neighbouring high ground or coast, important valleys and towns such as Workington within them.

Particular sensitivities in relation to the setting of international and national designations include:

- *contribution of the quieter hinterlands to a sense of remoteness and the sequence of contrasting landscapes in the Solway Coast AONB*
- *open sequential views from recreation and tourist routes along the coastal edge of the AONB and along Hadrian's Wall across the lowland ridges towards Lakeland fells most notably from Cumbria Coastal Way, the B5300, National Cycle Route 72, Hadrian's Wall Trail and from viewpoints at forts and milecastles associated with the Wall*
- *fine vistas to and from the northern and western fells of the Lake District NP and open estuarine views from the Ravenglass and Eskdale 'gateway'*
- *vistas of the north-western tip of the North Pennines AONB*

* For those areas that fall within the Solway Coast Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 6: INTERMEDIATE LAND

Landscape Sub-Types	6a Intermediate Land

Key Characteristics	Sensitivity
Scale and Enclosure Mainly broad scale open landscape of gentle ridges and wide valleys. Terrain varies from rolling highland with wide views and few hedges to undulating land enclosed by hedges and walls. Borders area dissected by deeply incised well wooded valleys and Vale of Eden features narrow gill like valleys and some more enclosed landscapes associated with villages in protected locations. Fabric defined by walls and hedges, plantation blocks, valley woodlands with details of hedgerow trees, walls, stone buildings.	**Low/Moderate (2)** Small to large turbine groups would not intimidate broad ridges of more open higher ground provided they relate to scale of fields and woodland blocks. Undulating enclosed land and incised valleys more sensitive due to more intimate scale and potential for over dominance in narrow zones of visibility. Turbines likely to appear over dominant in context of minor valleys or gills, and in close range against features such as hedgerow trees, small gill woods and traditional stone buildings.
Complexity and Order Mostly fairly bland with a few strong features but generally balanced and pleasant. Predominantly improved pasture bounded by hedges often with trees or sometimes stonewalls. Field size variable medium to large breaking down into smaller strip fields close to settlements. Plantations and semi-natural valley woodlands often important elements. Inglewood Forest has distinct simple well regulated estate pattern of rectilinear fields, straight roads, and shelterbelts divided by M6 motorway/ mainline railway corridor. More variety and irregular patterns of woods and rush pasture around narrow valleys and gills	**Moderate (3)** Opportunities for ordered turbine groupings to mirror rectilinear patterns of larger fields, plantation blocks and straight roads particularly in Inglewood Forest area. Patterning in other areas indistinct offering less scope for visual linkage. In higher rolling areas simple lines of evenly spaced turbines along contour lines could complement grain of gentle ridges. Irregular patterns of narrow valleys and remnant strip fields round settlements highly sensitive.
Manmade Influence Managed 'working' countryside with a number of visible historical elements such as planned villages of medieval origin surrounded by remnant open common and strip fields, prehistoric and medieval earthworks and Roman remains, late enclosure patterns of Inglewood. Largely unaffected by modern development pressures apart from M6/rail corridor which attracts commercial developments and increasing numbers of large farm buildings.	**Moderate/High (4)** Some potential for positive association with 'working' farmland character and integration with regular late enclosure patterns. Likely to appear incongruous in context of more irregular heritage patterns, stone structures and earthwork features. May be perceived as compromising generally unspoilt rural character.
Remoteness and Tranquillity Rural mostly settled landscape which feels balanced and calm. Busier around M6/rail corridor, A and B roads. Borders area is more sparsely inhabited and has a feeling of remoteness.	**Moderate (3)** Noise and movement of turbine development maybe appropriate adjacent to through routes. Elsewhere turbines, especially larger groupings, likely to reduce sense of calmness and remoteness.
Settlement and Key Views Fairly heavy but dispersed pattern of small settlements crossed by major through routes. Planned villages with greens and sandstone buildings frequent around Penrith, within Vale of Eden and marking foot of North Pennines. Variable form responding to shape of river or beck side settings. String of linear villages along A6 (former Roman Road) through to Carlisle. Elsewhere pattern of small hamlets and isolated properties and farms across Inglewood Forest and Borders although sparser away from Lyne valleys. Hadrian's Wall Trail close to southern boundary of Borders area. Settle/Carlisle railway and Eden Valley Cycle Route offer extensive vantage over Vale of Eden to dramatic N Pennine scarp. C2C also crosses this area and Inglewood area.	**Moderate/High (4)** Limited scope to site development away from settled areas. Size of development constrained by small scale nature of historic and distinctive planned villages with potential for over dominance. Sparser parts with isolated properties present fewer problems.
Visual Interruption Rolling farmland significantly interrupted by woods, plantations, hedges and hedgerow trees, walls, villages and undulations.	**Moderate (3)** Although there are wide views across broad valleys variety of screening features likely to assist absorption and create glimpsed or intermittent views.
Skyline Wide views across valleys to broad horizons often textured and tiered by woodland bands and intermediate ridges. Occasional vertical manmade structures include pylons and Skelton radio mast complex. Some narrow and incised valleys with distinct rims.	**Moderate (3)** Opportunity for linear turbine groupings to integrate with broad banding of tiered horizons and predictable relationship in context of broad open valleys. Scope for confusion of form and function in proximity to pylons and radio masts. Some valley rims vulnerable to intrusion and disturbing partial views.
Connections and Adjacent Landscapes Relationship with neighbouring high ground especially where transition sudden as east side Vale of Eden with North Pennines AONB escarpment and to lesser extent Inglewood with Caldbeck Fells of LDNP and Lazonby sandstone ridge (10) and Borders with Bewcastle Fells (9). These create large scale backdrops to parts of Type 6 as well as prospects of it. Also contributes to setting of Eden Valley and in Borders Irthing Valley with Hadrian's Wall along its northern rim.	**Moderate/High (4)** Whilst large scale backdrops may assist in absorption of turbine development potential for intrusion in open prospects from high ground, often of national importance, are increased. Imposing views of dramatic North Pennine scarp from Vale of Eden vulnerable. Also potential for intrusion on neighbouring major valley rims and setting of internationally important Hadrian's Wall.

Overall Sensitivity	Moderate

LANDSCAPE TYPE 6: INTERMEDIATE LAND

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting Southern fringe of Borders area (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
North Pennines AONB Small areas on fringes	National: Conservation and enhancement of natural beauty derived from the special qualities of: a unique landscape unit with a distinctive geology and unusually large extent of high, exposed semi-natural moorland which has outstanding wilderness qualities; scenic contrasts and unfolding sequence of simple moorland, sheltered dales and dramatic scarp as well as spectacular individual features; moorland landscapes valued for their long views and western scarp affords panoramic views; special interests of historic mining landscape, unique flora and fauna, unusual range of geological and geomorphological features and wealth of archaeological and historical remains which contribute to landscape character.
Registered Historic Parks and Gardens Hutton-in-the-Forest	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Numerous along R Lyne and its tributaries in Borders and concentration in NW corner of Inglewood Forest area	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
6a Intermediate Land	9.4%: common
Associations	**Description**
Historic Environment Rich and diverse Conservation Areas: Settle/Carlisle Railway Several villages at foot of N Pennines and Vale of Eden	Characterised by planned villages probably originating from 12th century, with greens, large churches, sandstone buildings, traditional farm buildings within them and surrounded by former open common fields (and remnant medieval strip fields???). Prehistoric and medieval earthworks and Roman remains eg roads, camps, forts (A6 between Penrith and Carlisle). Inglewood Forest distinct from much of rest, in part of Barony of Greystoke created in 1120 and in Norman times former Royal Forest hunting ground only enclosed in late 19th century hence rectilinear fields and straight roads and characterised by post medieval squatter settlements.
Ecology Wide range of localised ecological interest Designations limited to main rivers and becks generally SSSIs sometimes SACs Few small pocket SSSIs over woods, pastures or moss some also SACs	Improved pasture with species-rich hedgerows, occasional areas of rush pasture and purple moor grass. Couple of mire basins and occasional species rich road verges near Penrith. Small woodlands in Eden valley and more extensive ones in White and Black Lyne valleys of Borders area with range of upland oak and wet woodland communities.
Cultural	Vale of Eden supposed links to legends of King Arthur eg name 'Lyvenett' possible connection with 'last King of the kingdom of Rheged who lived at Llwyfenwydd.

LANDSCAPE TYPE 6: INTERMEDIATE LAND

Capacity Statement

Overall the Intermediate Land is judged to have **moderate** capacity to accommodate small to large turbine groups. This reflects moderate sensitivity and low/medium value overall. Notable geographical variations in character and higher landscape values within and close to international and national designations affect appropriateness.

Greatest potential occurs across the broad valleys and gently rolling areas benefiting from visual interruption by tree cover and ridges. Here groups could relate well to the medium to large scale of landform, fields or woodland without over dominating wide views. Ordered groupings would integrate well with rectilinear field patterns and plantation blocks, particularly in the Inglewood Forest area. Elsewhere simple lines of turbine could flow with the grain of topography and highlight intermediate ridgelines.

A key characteristic limiting capacity is the rich and diverse historic environment and general absence of large modern development structures. Across the Vale of Eden any type of turbine development would compromise the distinctive pattern of planned villages and surrounding fields of medieval origin. Elsewhere the widespread occurrence of prehistoric or medieval earthworks and Roman remains present problems.

Other limiting factors include the dispersed pattern of small settlements making it difficult to site development sufficiently distant without affecting their sense of scale and character, conflicts with a sense of remoteness in the Borders area, potential for over dominance and incongruity with the detailed natural variety of gills and incised valleys, visual intrusion on neighbouring upland prospects and major valleys such as the Irthing and Eden.

The close interrelationship and dramatic contrast between the North Pennines AONB scarp and the Vale of Eden indicate that any scale of turbine development would be difficult to accommodate in this area. A small area of Type 6 clips the edge of the AONB* encompassing a string of vulnerable historic sandstone villages along the foot of the western scarp.

The setting of the AONB is also vulnerable in terms of views in and out including:

- *inspiring views over the Vale towards the Lakeland fells provided from the western scarp most notably from the A686 pass, Hartside Cross viewpoint, the Maiden Way and the Coast2Coast (C2C) Cycle Route (NCR 7) and further south from the Pennine Way around High Cup*

- *views from below where the scarp forms an imposing wall above the Vale visible from the A66, A686, Settle Carlisle Railway and C2C and Eden Valley Cycle Routes (NCR 7 and 68)*

Particular sensitivities in relation to the setting of other national and international designations include:

- *sequential views of the southern fringe of the Borders area from Hadrian's Wall Trail and Cycle Route (part of NCR 72) and from viewpoints at the turrets, forts, milecastles and camps between Castlesteads and Birdoswald*

- *sequential views towards Hadrian's Wall from the south with the Borders area behind from the Pennine Way as it descends into the Irthing Valley and from the A69*

- *views to and from the Caldbeck Fells on the north-eastern fringe of the Lake District National Park and views from the C2C Cycle Route (NCR71) 'gateway' into the Park near Greystoke*

* For those areas that fall within the North Pennines Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 7: DRUMLINS

Landscape Sub-Types	7a Low Drumlins 7b Drumlin Field	7c Sandy Knolls and Ridges

Key Characteristics	Sensitivity
Scale and Enclosure Small to medium scale landscapes defined by hummocky patterns of small hills, ridges and valleys moulded by glacial processes. Pronounced relief (7b, c) creates enclosure becoming more open on edges: around Carlisle merging with rolling lowland (5c) and in South Lakeland and Furness low drumlins towards coast becoming barer, more isolated and subdued (7a). Features include streams, hedges, hedgerow trees, walls and small woods. Exposed hill tops afford long views.	**Moderate / High (4)** Single or small group development would not intimidate broad hilltops or dominate wider views on open edges of this type. Towards coast exposure also suggests a strong design rationale. More pronounced rolling terrain highly sensitive due to intimate scale and potential for over dominance in narrow zones of visibility. Potential conflicts of scale between turbines and size of receiving hills and frequent land cover features in more sheltered inner areas.
Complexity and Order Balanced well managed working countryside distinguished by topographic patterns. Consistent alignment of drumlins (7a, b) creates a strong topographic grain overlain by regular geometric grid of fields enclosed by hedges. Generally improved pastureland with occasional arable fields. Winding becks and tarns in valleys. Bare on coast (7a) increasingly varied inland with natural accents of woodland and hedgerow trees. Small mature woodlands and plantations combine with more irregular field pattern of 7c to create attractive parkland appearance. Patterns and grain sometimes disrupted by motorway and power lines.	**Moderate (3)** Opportunities for organic cluster configured in response to particular shape of hill or ridge and topographic grain. Likely to read reasonably well as a simple contrast in barer areas. In more complex but ordered parts turbines likely to disrupt harmony of scenic compositions between hills, small woods and winding valley features.
Manmade Influence Intensively farmed 'working' countryside modified by field enlargement and new farm buildings. Some historical features such as historic village cores, industrial archaeology, medieval sites and castles, Roman road (7c) and Lancaster Canal (7a/b). Development and recreational pressures associated with proximity to urban centres include village expansion, barn conversions, farm diversification, golf courses and public access. Large modern structures include isolated industrial developments, pylons, and major route ways.	**Moderate/High (4)** Some potential to relate to 'working' character of improved farmland and integration with regular field patterns. However turbines likely to appear conspicuous in absence of similar man-made structures particularly on hilltops and may be perceived as further urbanisation. Potential for localised conflict with character of heritage features.
Remoteness and Tranquillity Rural heavily settled landscape. In lower open edges (7a) noise and movement along main roads, motorway and railway intrude. Elsewhere more contained by pronounced relief. On fringe of urban centres village expansion, barn conversions and recreation generate traffic and create busier feel whilst other areas retain a sense of calm.	**Moderate/High (4)** Noise and movement of turbines may be assimilated against context of existing intrusive infrastructure development. However elsewhere could further erode sense of pastoral calm which is valued for recreation.
Settlement and Key Views Dispersed pattern of small settlements, heaviest in South Lakeland sparser in Furness and Brampton areas. Linked by network of winding lanes and crossed by major through routes. Many retain a strong historic structure either nucleated within hollows with houses grouped around squares, greens or tarns or linear along the side or hills or important route ways. W2W Cycle Route crosses Furness and S Lakeland (7b).	**High (5)** Limited scope to site development away from settled areas particularly in South Lakeland. Size of development constrained by small scale nature of existing settlements with potential over dominance especially where views are restricted between hills.
Visual Interruption Hummocky landscape significantly interrupted by variety of small hills or ridges, woods, hedges, walls, plantations and villages. Reducing towards coast where drumlins subdued and have fewer features.	**Moderate (3)** Generally absorption in wider landscape would be assisted by presence of frequent interruptions; in barer areas of subdued relief turbines would be more widely visible.
Skyline Varying from discrete bare and rolling hills to complex tapestry of interwoven ridges, woodland and trees. Vertical manmade structures limited to pylons. Occasionally hilltop woods standout as landmarks in barer areas. From enclosed valleys hills create immediate and dominant skylines whilst hilltops afford long views.	**Moderate/High (4)** Limited scope for isolated development to punctuate discrete hilltops and form a clear contrast with barer skylines. In areas of pronounced relief hilltop turbines likely to have confused image due to incoherent relationship with skyline and partial visibility; appear overbearing from enclosed valleys and hollows; be emphasised by framing effects of hills and trees.
Connections and Adjacent Landscapes Generally weak connections due to visual interruptions and gradual transitions in elevation. Inter-visibility between drumlins and neighbouring (7a/b) limestone hills such as Birkrigg and fells including Arnside/Silverdale AONB (3b), LDNP, N Pennines AONB(11/13) and Farleton (3a). Contributes to setting of important valleys of Irthing, Kent, Goldmire.	**Low/Moderate (2)** Some potential for localised intrusion in open prospects from neighbouring limestone hills or fells often of national importance, setting of Hadrian's Wall, Barrow, Furness Abbey and important valley rims.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 7: DRUMLINS

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting N tip of 7c nr Naworth Castle (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
Landscape of County Importance Sub-type 7c and South Lakeland part of 7b	County: Protection of distinctive character attributable to distinctive rolling topography; variety of attractive features such as woods, small fields, hedges and trees, streams, and tarns; varied views (7b); woodland and historic character (7c) creating a strong positive response.
Ancient Woodland Absent across 7a and only small isolated woods across 7b Concentration around Gelt Valley/Naworth Park/Talkin Tarn in 7c	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
7a Low Drumlins 7b Drumlin Field 7c Sandy Knolls and Ridges	0.4%: rare 1.8%: unusual 0.4%: rare
Associations	**Description**
Historic Environment Varied interest especially 7c Conservation Areas: Milnthorpe (7a) Burton-in-Kendal and Lindal-in Furness (7b)	Dispersed settlement pattern generally with historic core of buildings are constructed of limestone of variable form responding topographic or important route ways. Number of traditional large village market centres. Features include medieval fortified sites and castles, Roman road (7c) and some parkland/ estates eg Naworth. Recently modified traditional field patterns, some fossilised strips (7c). Industrial heritage (7a/7b) with evidence of former iron works around Barrow, corn or paper mills and gun powder works in valleys around Kendal and northern reaches of Lancaster Canal.
Cultural Landscape popular subject for artists	Sandy knolls and ridges of 7c popular location for variety of artists such as Ben Nicholson, Winifred Nicholson, George Howard, Christopher Wood and Donald Wilkinson. Drumlins with nestling farms of 7b painted by artists such as William Collingwood, Arthur Tucker and Herbert Coutts.
Geomorphology Important evidence of glacial processes	Drumlins of boulder clay (7b) and outwash sands and gravels moulded by and reflecting direction of ice sheet movements. Kettle tarn features formed in basins by melting ice. Gravel ridge east of Brampton is a 'kame' formed by glacial meltwater.
Ecology Agricultural improvement limits ecological interest Designations absent across 7a. Largely absent across 7b apart from occasional SSSIs along rivers and odd LPO and RIGGS. River Gelt SSSI/SAC/SPA and RIGGS dissect 7c.	Improved pasture with species rich hedgerows. Occasional interest in small semi-natural woodlands, tarns and rush pasture in hollows, rivers, streams and roadside verges, and in 7c frequent upland oak woodland eg Gelt valley. Lancaster Canal supports range of aquatic plants.

LANDSCAPE TYPE 7: DRUMLINS

Capacity Statement

The Drumlins landscape is judged to have **low/moderate** capacity to accommodate single turbines or small cluster sized developments. This reflects a moderate/high sensitivity overall, medium/high landscape value of parts recognised by LoCI designation and rarity. Variation within this capacity range is primarily dictated by the degree of relief, proximity to the coast and settlement density.

Pronounced relief is the defining characteristic of this landscape and a key factor limiting capacity. Turbine development is likely to intimidate the small scale nature of the component hills and ridges, not only in terms of its overall development size but individual turbines, with current heights of around 100m likely to appear out of scale. The restricted views created by this relief are vulnerable to visual dominance, an issue likely to be of heightened significance in areas such as South Lakeland which have a heavy pattern of small dispersed settlements. In sheltered areas scenic compositions of hills, woods and winding valley features similar to parkland and valued as Landscapes of County Importance are vulnerable to disruption. The outer subdued and more open hills, particularly towards the coast, present fewer problems and benefit from positive associations with exposure and opportunity to create simple contrasts with barer skylines.

Whilst significant interruption by relief and vegetation (across inland parts) would assist absorption in the wider landscape theses same features are likely to result in unpredictable relationships with a variable skyline and intensifying or disturbing effects such as framing and blade flash. Other issues include absence of similar manmade vertical features; potential erosion of rural qualities and calmness valued for recreation by residents of nearby towns and localised intrusion on open prospects from limestone hills and important valley rims.

Particular sensitivities in relation to the setting of international and national designations include:

- *sequential views from Hadrian's Wall Trail and National Cycle Route (NCR 72) and from viewpoints at the turrets, forts, milecastles and camps between Castlesteads and Birdoswald*

- *vistas to and from the north-western tip of the North Pennines AONB most notably from parkland and recreation routes such as NCR 72 as it descends from the Tindale Fells*

- *contrast at the Kendal 'gateway' into the Lake District National Park between the rich managed drumlins and the sparse, rugged and wilder limestone scars as viewed from the A591, National Cycle Route 6, the Dales Way and popular viewpoints on the scars*

- *open prospects across the low drumlins from the eastern side of the Arnside/Silverdale AONB, from Farleton Fell back to the AONB and the Limestone Link recreation route between them*

LANDSCAPE TYPE 8: MAIN VALLEYS

Landscape Sub-Types	8a Gorges 8b Broad Valleys	8c Valley Corridors 8d Dales

Key Characteristics	Sensitivity
Scale and Enclosure Variable depending on height and location. Range from intimate tightly enclosed gorges(8a) with views channelled along valley through to broad and open large scale valleys with extensive views but narrow and winding in parts (8b,c,d). Variety of scale indicators including small woods, ghylls, scrub, hedges, stone walls, plantations, individual trees and buildings. Broader valleys feature large scale infrastructure.	**High / Moderate (4)** Gorges and narrower valleys highly sensitive due to intimate scale and/or potential for over dominance in narrow zones of visibility. Broadest valleys maybe able to accommodate small or large groups on flatter floodplains or valley sides related to larger fields and plantations. Turbines often likely to appear awkward and out of scale against wide variety of small scale features. No obvious functional rationale in shelter of valleys.
Complexity and Order Generally attractive but variable in character. In gorges (8a) and narrower parts of other valleys semi-natural hanging woodlands featuring rocky outcrops and cliffs and fast flowing rivers create scenic compositions. Lower valleys (8b,c) have soft managed character derived from mixed pattern of improved pasture, small woods/plantations, parkland, hedges, frequent trees in hedges, by roads and meandering rivers. Harmony sometimes disrupted by infrastructure. Dales (8d) and Lune Gorge (8c) higher with wilder more rugged character derived from rough pasture, barns, ghylls, waterfalls, rocky scarps on valley sides and strong pattern of stone walls.	**High (5)** Scenic harmony vulnerable to disruption. Would be difficult to relate turbine groupings to variety of irregular landforms shapes, meandering rivers and complex patterns of natural and historic features. Arrangements aligning the course of meandering rivers unlikely to read clearly.
Manmade Influence Varies from largely natural landscape of Eden Gorge (8a) to semi-natural historic landscape of dales (8d) to rural mixed character of broad valleys (8b) to urbanised corridors containing frequent man-made structures such as roads, motorways, railways, pylons and scattered development (8c). Common pressures include afforestation and recreation. Heritage features widely visible including Roman remains; medieval castles/abbeys; early mining; 18th century industrial sites related to waterpower; parkland and historic houses.	**Moderate/High (4)** Variable but turbines likely to be most incongruous in gorges and dales. Elsewhere may be limited scope for positive association with intensively farmed areas in lower valleys and integration with occasional geometric field and plantation patterns or large scale infrastructure. However conflict with character and scale of historic features difficult to avoid and turbines likely to exacerbate visual confusion in more urbanised parts.
Remoteness and Tranquillity Lower valleys (8b,c) generally calm with little movement except where main roads intrude. Kent valley seen as busier. Beyond key villages Eden gorge and dales (8a,d) have a quieter sometimes remote character.	**Moderate (3)** Noise and movement of turbine development maybe appropriate adjacent to main roads. Elsewhere turbines, especially larger groupings, likely to reduce sense of calmness and remoteness.
Settlement and Key Views Lower valleys have heavy but dispersed pattern of settlements ranging from isolated farmsteads to small market towns often with historic stone built core but affected by urban expansion and accommodating major transport routes (8b,c). In Eden gorge and North Pennines concentrated into a few large villages with an industrial past (8a/8d). In southern dales settlement generally absent. Tourist facilities include riverside walks, historic sites and parks and trails along the valleys: Hadrian's Wall Trail (Irthing); Pennine Way (South Tyne), Settle to Carlisle railway (Eden); Eden Valley Cycle Route. Some valleys are crossed by the Pennine Bridleway and C2C and W2W Cycle Routes.	**High (5)** Limited scope to site development away from settled areas in lower main valleys. Size of development constrained by small scale nature of existing settlements with potential for over dominance especially where views restricted in narrower valleys. Widespread potential for intrusion on important landscape settings and sequential views.
Visual Interruption Views often frustrated by variety of features including undulations, woods, scrub, hedges, walls, plantations and individual trees.	**Moderate (3)** Generally absorption in wider landscape would be assisted by presence of frequent interruptions
Skyline Broad sometimes distant horizons in wider valleys interrupted by woods. Narrow valleys or gorges have more immediate dominant skylines that can be textured or stark. Intermediate horizons frequently created by valley bottom undulations or stepped valley sides. Vertical features scarce apart from historic castles, mansions or abbeys and occasional pylons. Cliffs and angular limestone scarps create landmarks.	**Moderate/High (4)** Turbines likely to dominate and interrupt distinctive rims and intermediate horizons of narrower valleys and feel over bearing. Wider more distant horizons of broadest valleys less vulnerable but development likely to have confused image due to unpredictable relationship with skyline and partial visibility. Turbines may also compromise or compete with natural landmark skylines and historic punctuations.
Connections and Adjacent Landscapes Sometimes dramatic backcloths of adjacent limestone escarpments (3,12), sandstone ridge(10) and fells or moors including Howgills and N. Pennines (13) with strong inter-visibility. Elsewhere views into adjacent lower farmland and hills restricted by ridge marking edge of valley. However valley rims can still feature strongly in views from surrounding ridge tops and larger valley towns (U).	**Moderate (3)** Whilst large scale backdrops of fells, moors and scarps may assist absorption potential for intrusion in open prospects across valleys and within wider compositions or dramatic contrasts with neighbouring high ground, sometimes of national or international importance. Elsewhere valley rim development could sometimes compromise townscape settings eg Workington or local vantage points.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 8: MAIN VALLEYS

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting 8b Irthing Valley (site and setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
North Pennines AONB North Pennine dales (8d)	National: National: Conservation and enhancement of natural beauty derived from the special qualities of: a unique landscape unit with a distinctive geology and unusually large extent of high, exposed semi-natural moorland which has outstanding wilderness qualities; scenic contrasts and unfolding sequence of simple moorland, sheltered dales and dramatic scarp as well as spectacular individual features; moorland landscapes valued for their long views and western scarp affords panoramic views; special interests of historic mining landscape, unique flora and fauna, unusual range of geological and geomorphological features and wealth of archaeological and historical remains which contribute to landscape character.
Landscape of County Importance All outside AONB except Derwent and Barrow (8c)	County: Protection of distinctive character attributable to distinctive landform; variety of natural and cultural features; absence of detractors and in parts mixed land cover patterns; views and peaceful quality creating a strong positive response.
Registered Historic Parks and Gardens Workington Hall, Corby Castle, Appleby Castle and Levens Hall	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Numerous in Irthing Valley (8b) and Eden Gorge (8a)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
8a Gorges 8b Broad Valleys 8c Valley Corridors 8d Dales	0.2%: unique 5.1%: ordinary 0.6%: rare 1.1%: unusual
Associations	**Description**
Historic Environment Rich and diverse interest sometimes exceptional Conservation Areas: Settle/Carlisle Railway and several villages and towns along Eden Valley. Ravenstonedale and Kirkby Lonsdale in Lune Valley. Alston and Garrigill in N Pennine dales. Heversham in Kent Valley and Furness Abbey, Barrow.	Varying building styles with sandstone in north / limestone in south. Water powered 18th and 19th century industrial sites on Kent and Eden Gorge, corn mills on others. Historic weirs and bridges. Roman sites and route ways particularly on Eden and Lune, Hadrian's Wall and forts in Irthing Valley. Medieval defensible structures eg Pendragon Castle, Mallerstang (8d) and abbeys/priories eg Furness (8c). Ornamental landscape /parks and historic houses especially in S. Lune; Kent (8b) and Eden Gorge (8a). Historic field pattern defined by drystone walls in dales (8d) featuring ring garths intakes and field barns. Rich coal quarrying and lead mining heritage and associated villages in N. Pennines (8d).
Cultural Scenic qualities often inspirational	Popular location for artists/writers/sculptors eg Ruskin, JMW Turner, Norman Adams, David Morris and Andy Goldworthy. Settle to Carlisle railway in parts runs along the Eden Valley and is regarded as most scenic railway in England.
Ecology Rich and diverse interest sometimes exceptional Designations generally limited to rivers themselves. Most rivers extensively covered by SSSI and sometimes SACs, except Lune and Esk. Gorges and rocky sections often covered by RIGGS,	Central interest in rivers eg otter; Atlantic salmon; lampreys; crayfish; bats; birdlife and shingle banks giving rise to national and international designations. Upland oak woodland also of high interest especially ancient woods in Eden Gorge where damp cliffs also support diverse assemblage of mosses etc. (8a). Wet woodland also important in other valleys together with rush pasture. Further interest in small remnants of lowland raised bog and grazing marsh in lower valleys (8b, c); species rich roadside verges and hedgerows. Dales (8d) also feature hay meadows and black grouse habitat in North Pennines.

LANDSCAPE TYPE 8: MAIN VALLEYS

Capacity Statement

Overall the Main Valleys landscape is judged to have **low/moderate** capacity to accommodate turbine development. Potential is limited by the overall moderate/high sensitivity of the valleys landscape character and because of their medium/high or high landscape value recognised by LoCI and North Pennines AONB designation*, and strong associated values.

Any type of turbine development is likely to disrupt the scenic richness and harmony for which the valleys are valued. Character varies according to height, degree of enclosure and urban influence but all valleys exhibit a variety of natural and historic features and complex irregular land cover patterns and this limits opportunity for integration of turbines. Potential for visual intrusion and dominance is also a major issue due to the pattern of frequent small scale settlements and concentration of route ways and tourist facilities in the valleys. Dominance is likely to be exacerbated by the tightly enclosed character of many valley landforms where the zone of visibility is restricted and potential for turbines sited on exposed upper valley slopes to feel overbearing.

Whilst the intimate character of narrower valleys would be threatened by turbines there may be limited scope for groups of turbines in broader valleys with sufficient wind resource such as in the uplands or near the coast. However they would still be likely to appear out of scale against the wide variety of small features typically found in this landscape type. Other issues include the absence of comparable vertical structures; intrusion and blade flash over distinctive valley rims; vulnerability of historic monument and townscape settings and landmark skylines of adjacent fells, limestone escarpments and sandstone ridges.

Within the North Pennine dales recognised qualities of enclosure, diversity, intricacy and sense of history, with a wealth of traditional built features and the scattered remains of lead mining activity, are vulnerable in terms of overall harmony, dominance, scale and character. Potential intrusion on sequential views from the Pennine Way which passes along South Tynedale, the setting of Alston and connecting A roads is a further issue. The dales also make a vital contribution to the wider identity of the North Pennines through contrast with adjacent moors, amplifying their sense simplicity, extent and wildness. These sensitivities indicate that any scale of wind energy development is likely to be inappropriate within the AONB.

Particular sensitivities in relation to the setting of international and national designations include:

- *key views across and from the Irthing Valley in relation to both Hadrian's Wall and the northern edge of the North Pennines AONB most notably from Hadrian's Wall Trail and Cycle Route (NCR 72) and from viewpoints at the turrets, forts, milecastles and camps between Castlesteads and Birdoswald, the Pennine Way as it descends into the valley and the A69*

- *contribution of the Eden Valley to panoramic views towards the Lakeland Fells across the Vale of Eden from the western scarp of the North Pennines AONB*

- *the Mallerstang (Eden Valley) 'gateway' into the Yorkshire Dales NP featuring the Settle Carlisle Railway and National Cycle Route 68*

- *contrast between the enclosed and diverse Tebay Gorge and the Lune Valley landscapes with the open and sleek Howgill Fells on the western side of the Yorkshire Dales NP as viewed from the M6, W2W Cycle Route (NCR68) and A683/4 Sedbergh 'gateway'*

- *contribution of the lower Kent and Lyth Valleys to picturesque estuarine compositions between the limestone escarpments of the south-eastern Lake District NP and the Arnside/Silverdale AONB and dramatic contrast at the Gilpin Bridge 'gateway' between flat drained mosslands and imposing limestone scars as viewed from the A590, A5074, and the W2W Cycle Route (NCR 72) and National Cycle Route 6*

* For those areas that fall within the North Pennines Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 9: INTERMEDIATE MOORLAND AND PLATEAU

Landscape Sub-Types	9a Open Moorlands 9b Rolling Farmland and Heath	9c Forests 9d Ridges

Key Characteristics	Sensitivity
Scale and Enclosure Mainly large scale moorland but varies to vast (9c) and medium (9b) at extremes. Variable landform of undulating to rolling plateaus with dissecting valleys and steep sides (9a,b,c) sometimes dividing into distinct ridges (9d). Generally open and exposed with wide views. Can be locally enclosed within valleys or detailed hummocky relief (9b) or extremely enclosed within extensive forest cover (9c). Generally open pasture or heath unfenced or divided into fields or very large lots. Limited scale indicators include walls, isolated buildings, rocky outcrops, tarns and trees.	**Low (1)** Scale and wide views generally suggest scope for large group development. However higher and broader ridges and plateaus might accommodate windfarms whilst on rolling farmland and heath small groups maybe more appropriate. In close range turbines may appear incongruous and out of scale against detailed features of relief and land cover. Upland exposure presents a strong design rationale.
Complexity and Order Generally simple sometimes monotonous. Core moorland areas retain an untamed character created by rough grassland with areas of rush, heath and bog. 9d blanketed by coniferous forest. Below transitional often disordered character with plantations, unkempt boundaries and indistinct patchy land cover patterns (lower 9c/9b South Lakeland). At lower levels smoother improved pasture fields occasionally strongly defined by stone walls (9d). Features scarce/decreasing with altitude: stonewalls; conifer plantations; rocky outcrops (9b) and crags (9a,d); broadleaved woods in valleys or small belts; reservoirs (9b);low ridges, marshy hollows, tarns and scrub (9b). Topographic grain of ridges sometimes distinctive (9b,d).	**Low/Moderate (2)** Opportunities for organic configurations in response to particular form of hills or sweep of ridges. Simple moorland canvas presents scope for a sculptural image illuminating emptiness of this landscape. In lower managed areas more ordered arrangement might relate to regular field patterns and compare visually with plantation blocks. Some areas constrained by undulating landforms where varied turbine heights likely to appear visually confusing or varied land cover patterns which offers less scope for visual linkage.
Manmade Influence General trend towards more managed character in late 20th century through degradation or loss of rough moorland due to overgrazing, drainage and conversion to improved pasture or commercial forestry. Symptoms of neglect particularly on urban edges include dilapidated walls, fencing, and grazed woods. Localised intrusion of large scale development eg reservoirs, masts, motorway, wind turbines (9b,d) quarrying and open cast mining (9a,d) and military development (9c).	**Low/Moderate (2)** Turbine development has potential to erode integrity of untamed and featureless character of core moorland areas. However a well designed isolated group could be perceived as a complementary contrast. Potential for positive association with working character of intensively farmed or afforested areas and large scale engineered aspects such as reservoirs and quarries.
Remoteness and Tranquillity Feeling of remoteness and space derived from wide horizons and absence of settlement on high plateaus and ridges. Lightly settled lower areas retain a peaceful backwater character. Occasional through routes such as the M6 intrude on edges.	**High (5)** Noise and movement of turbines likely to compromise sense of remoteness and peace.
Settlement and Key Views Absent across large areas of high moorland plateau and ridge tops. Sparse settlement of isolated farmsteads, houses and occasional hamlets/small villages occurs in valleys or along spring lines at foot of scarps (9a Bewcastle,c,d). More frequent and evenly dispersed across lower plateaus (9a Copeland, b). Views across 9b near Appleby from Eden Valley Cycle Route.	**Low/Moderate (2)** High moorland plateaus and ridges offer scope to site development well away from settlements. Localised potential to be over bearing and intrusive in relation to settlement around edges. Dispersed settlement on lower plateaus presents greater limitations on siting and size of development.
Visual Interruption Varies from prominent open moorland and ridges (9a,d) to rolling farmland and heath interrupted by relief and plantations (9b) to forested moorland with significant visual containment but also some prominent underlying hills (9c).	**Moderate (3)** Sensitivity variable. Turbine development on plateau edges and ridges likely to stand out and be widely visible. Higher degree of visual containment towards centre of plateaus and within forested areas likely to assist absorption.
Skyline Mostly simple and smooth skylines lacking strong foci or drama. Can be masked by bland forest (9c) cover or occasionally broken by plantations. Often featureless although occasional crags, isolated woods and buildings can stand out. In a few parts manmade vertical structures eg masts, poles and existing turbines are prominent (9b,c,d).	**Low/Moderate (2)** Opportunity for isolated turbine groupings to create a new focal point in clear visual contrast to simple moorland skylines although maintenance of a predominantly uncluttered skyline is an issue. Other issues relate to potential for localised confusion of form and function with other manmade verticals and competition with natural or historic punctuations.
Connections and Adjacent Landscapes Visual connections with heavily settled coastal lowlands (5,2) and broad valleys (8b) containing some important towns. Strongest for ridges (9d) due to shape and elevational contrast. Weakest for Bewcastle area (9a,c). Furness ridge important to open and scenic estuarine vistas with Lakeland fells. Views often restricted by steep ridge or plateau sides. Inter-visibility with surrounding fell tops some of which are nationally valued.	**Moderate (3)** Broader plateaus offer scope to site development away from sensitive plateau edges. Potential for intrusion on sensitive valley rims, setting of important towns, prospects from and adjacent fells and estuaries and scenic compositions with these landscapes often of national value. Potential for localised intrusion on views from Hadrian's Wall.

Overall Sensitivity	Low/Moderate

LANDSCAPE TYPE 9: INTERMEDIATE MOORLAND AND PLATEAU

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting Southern fringe of 9c and a near Birdoswald	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
Landscape of County Importance All except 9c, 9a Copeland and 9b Eden	County: Protection of distinctive character attributable to absence of detractors, natural moorland land cover, views and natural or built features of interest creating a strong positive response.
Ancient Woodland Generally sparse: few on plateau sides in Borders (9a), around Gilgarran and Branthwaite in W Cumbria (9a/d), gill woodland on W side of moors in Furness (9d), Hoff Lunn Eden and Lune Valley fringes S Lakeland (9b)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
9a Open Moorlands 9b Rolling Farmland and Heath 9c Forests 9d Ridges	1.8%: unusual 2.3%: unusual 3.6%: ordinary 1.1%: unusual
Associations	**Description**
Historic Environment Localised interest Conservation Areas: Settle/Carlisle Railway in Eden (9b) and Ireleth in Furness (9d)	Settlement pattern dispersed some clusters of 19th century industrial workers housing (9a) limestone built farmsteads (9b) dating from 17th century. Largely unenclosed 9c fields often large and formed by moorland late enclosure sometimes regular (9d). Nucleated lower areas (9d) Early enclosure field pattern containing fossilised strips (9b Eden). Earthworks including prehistoric settlements and burial cairns (9a,c,d) and medieval shielings (9a). Border remains fortified sites 16/17th century bastles (9c) Roman roads(9a Bewcastle). Evidence of coal mining (9a Copeland). 20th century heritage includes Blue Streak missile/satellite launcher testing Spadeadam (9c) and large scale quarrying (9d).
Ecology Strong widespread interest Patchy coverage of designations. Moorland tops or flows in Furness (9d) and around Bewcastle area (9a/9c beyond forests) covered by SSSIs and sometimes SACs. Designations largely absent across 9b in Eden and South Lakeland apart from SSSIs along rivers and isolated wetland pocket. Also absent from 9a/d in West Cumbria apart from a few small RIGGS.	Moorland landscape of rough pasture with areas of rush and purple moor-grass, acid grassland and upland heath, extensive blanket bog (9a,d) and small raised bogs (9b,c) characterised by sphagnum moss. Moorland important for a variety of butterflies, moths and breeding birds such as skylark, lapwing and curlew and grouse. Other habitats include species rich springs and flushes (9a,d); upland oak woodland present in steep river valleys (9a,d) and alder wet woodland (9a,c); species rich roadside verges (9b Eden); coniferous plantations supporting goshawk (9c) long-eared owl (9b).
Geology RIGGS as above.	Significant exposures of Permian rocks in Eden including Penrith Brockram.

LANDSCAPE TYPE 9: INTERMEDIATE MOORLAND AND PLATEAU

Capacity Statement

Overall the Intermediate Moorland and Plateau landscape is judged to have a **moderate/high** capacity to accommodate turbine development. This reflects low/moderate sensitivity overall, however some notable variations in character, landscape value and wildlife association affect acceptability and the appropriate size of development

This landscape type is distinguished by a moorland character typified by broad tracts of elevated, windswept and largely empty land covered by rough grass and heather. These core moorland characteristics suggest scope to accommodate a large turbine group. If isolated and well designed in response to the scale and shape of landform such a development could create a symbolic focal point in clear visual contrast to the simple moorland vegetation canvas and smooth skylines. However such development may also be perceived as cluttering open undeveloped skylines and eroding a sense of remoteness and wildness. Siting on plateau edges and narrower ridges would also raise issues of visual intrusion on adjacent heavily settled coastal lowlands and valley landscapes.

Wind farm development may be appropriate on the broader plateaus around Bewcastle. The absence of settlement and visual containment offered by large scale forest backdrops are also likely to assist absorption here.

Turbine developments would sit less comfortably in the patchy and varied character of lower transitional areas which neither offer the potential for simple contrast or visual linkage. In South Lakeland this problem tends to be exacerbated by the hummocky nature of the rolling farmland and heath near Kendal. Aside from this issue the medium scale of this landscape also suggests that small groups would be a more appropriate size of development.

In Furness and Copeland lower more managed areas offer potential to relate development to regular field patterns and plantation blocks as well as positive association with a 'working' and large scale engineered elements such as quarries and reservoirs.

Particular sensitivities in relation to the setting of international and national designations include:

- *backdrop to Hadrian's Wall provided by moorland around Spadeadam*
- *contribution to tranquil and picturesque compositions with Lakeland fells around the Duddon estuary and views from the Furness Fells and trunk road the skirting edge of Lake District NP*
- *in West Cumbria contribution of the High Park ridges and moors to vistas and coastal panoramas from the C2C Cycle Route (NCR 71), the Ennerdale and Loweswater Fells and 'gateways' to the Lake District NP off the A5086*
- *views from the western Howgill Fells in the Yorkshire Dales NP and Sedbergh 'gateway' towards the rolling farmland and heath near Kendal and back towards the Park from the A684, M6 and Killington Reservoir viewpoint*
- *contribution of the rolling farmland and heath near Appleby to panoramic views of the Vale of Eden and Lakeland fells beyond from the western scarp of the North Pennines AONB, most notably from the Pennine Way as it descends from High Cup Nick, and views back towards the imposing scarp from National Cycle Routes 68 and 71 and the Pennine Bridleway*

LANDSCAPE TYPE 10: SANDSTONE RIDGE

Landscape Sub-Types	10a Sandstone Ridge

Key Characteristics	Sensitivity
Scale and Enclosure Distinctive large scale ridge generally open and steep sided running north from Penrith. Breaks up into a series of hills at north end and Whinfell forms an outlier at southern end. Higher parts rolling with individual fell summits. Attractive long distance and expansive views west to Lake District fells and east to North Pennines. Broad elements of improved farmland, conifer plantations and heathland. Detailed features limited apart from stone walls, hedges and occasional buildings.	**Moderate (3)** Large group would not intimidate overall scale of ridge, especially in context of large fields and plantations. However in close range scale of receiving hills and individual fell tops on the ridge suggest single turbine to small group developments more appropriate. Exposure suggests a strong design rationale.
Complexity and Order Sometimes varied and picturesque in character but generally balanced and managed. Distinguished by prominent north-south grain of ridge containing some sweeping lines and angular scarps around individual summits. Overlain by a patch work of improved grassland and conifer plantations with some isolated areas of heathland. Regular patterns of late enclosure fields defined by stone walls and plantation blocks. Agricultural improvement has led to blander appearance particularly in northern half.	**Moderate (3)** Opportunities for ordered turbine grouping to flow along overall grain of ridge and relate to rectilinear elements in land cover pattern. Picturesque and balanced compositions around distinctive summits vulnerable and hilly more varied parts offer less scope for visual linkage.
Manmade Influence Substantial change to more managed character in late 20th century due to afforestation and agricultural improvement. Most of area was previously dry heathland and rough pasture. 'Open range' and more intensive farming methods have also led to removal or neglect of field boundaries and presence of detractors such as intrusive modern farm buildings. Other manmade development limited to pylons at foot of ridge and telecommunication masts on some ridge tops and Oasis holiday complex in Whinfell Forest.	**Moderate (3)** Some potential for positive association with 'working' intensively managed character and integration with regular patterns. However may be perceived as exacerbating recent deterioration of natural qualities although scope for development to contribute to restoration through appropriate land management.
Remoteness and Tranquillity Rural lightly settled landscape which feels balanced and calm.	**Moderate/High (4)** Noise and movement of turbine development likely to reduce sense of calmness.
Settlement and Key Views Dispersed low density pattern of isolated farms and houses and a few small nucleated villages/hamlets at northern end. Clipped by A6, Settle/Carlisle railway and C2C Cycle Route.	**Moderate (3)** Some areas of land sufficiently distant from settlement so as to avoid over dominance by turbines. Elsewhere development constrained to single/twin or small group size in context of small villages/hamlets.
Visual Interruption Open with a low incidence of visual interruptions. Some containment by conifer plantations, undulations/folds and individual summits within the ridge.	**Moderate/High (4)** Turbine development likely to be widely visible. Some localised screening but also potential for some disturbing effects due to partial visibility.
Skyline Strong simple flowing horizon that is either smooth or textured by forestry. Individual fell tops can stand out and ridge becomes fragmented and more complicated at hilly northern end. Pylons generally inconspicuous due to location at foot of slopes and masts restricted to ends of ridge.	**Moderate(3)** Likely to read reasonably well in simpler parts as a new focal point contrasting with the extended horizontal emphasis of ridge. More confused unpredictable relationship likely in hilly parts. Other issues relate to maintenance of an uncluttered skyline in central part and confusion of form and function in proximity to pylons and masts.
Connections and Adjacent Landscapes Relative elevation and narrow configuration produces strong and protracted connections. Forms distinctive skyline along its length to Petteril Valley and M6 corridor (6), Eden Valley and A66 (8b). Beacon Hill at southern end forms distinctive backdrop to Penrith. Elsewhere tends to bleed into adjacent low (5) and intermediate farmland (6). Important western backdrop to Eden gorge (8a).	**Moderate/High (4)** Potential for intrusion on setting of Penrith and sensitive rim of Eden Gorge and setting of villages within it. Any development likely to be prominent but not necessarily intrusive from major roads given breadth of views towards the ridge and low sensitivity of travellers.

Overall Sensitivity	Moderate

LANDSCAPE TYPE 10: SANDSTONE RIDGE

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Landscape of County Importance Small part: outlying area E of Lune Gorge	County: Protection of distinctive character, area included in 1996 through Eden Local Plan justification and main attributes unclear
Ancient Woodland Generally sparse but include Whinfell Forest (replanted), Barrock Park and Baronwood	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
10a Sandstone Ridge	1.7%: unusual
Associations	**Description**
Historic Environment Limited interest Settle/Carlisle Railway Conservation Area clips E fringes of main ridge	Part of Inglewood Forest belonging to Barony of Greystoke created in 1120 and in Norman times former Royal Forest hunting ground. Field pattern is regular of 19th century origin. Settlement is sparse but mainly nucleated.
Ecology Interest in parts and most notably heathland Designations limited to SSSIs of Wan Fell, Lazonby Fell, Cliburn Moss and small RIGGS site	Main areas of lowland heathland in Cumbria on Wan fell and Lazonby Fell. Conifer plantations south of Penrith support range of uncommon plants associated with native Scot's pine woodland eg northern bilberry and red squirrels. Also occasional interest of basin mire (south end); rush pasture; ponds and wetlands formed by mineral extraction (north end) which support swamp and fen communities.
Geology Isolated sites of interest	Scientifically important exposures of Permian sandstone occur

LANDSCAPE TYPE 10: SANDSTONE RIDGE

Capacity Statement

Overall the Sandstone Ridge landscape is judged to have **moderate** capacity to accommodate turbine development reflecting mixed characteristics and sensitivities.

The overall scale of the ridge coupled with a regular land cover pattern of large fields and plantation blocks suggests scope to accommodate a large group. However in the context of individual fell tops and hills or small villages and hamlets single turbines to small group sized development would be more appropriate. A strong skyline presents the opportunity for a linear or elongated group of turbines flowing along the main grain of the ridge and clearly contrasting with its horizontal emphasis. However picturesque and balanced compositions of heath, rocky outcrops, woods and sweeping farmland around distinctive summits are highly sensitive.

Due to the elevation and openness of the ridge any development is likely to be widely visible. A simple predictable relationship with the ridge top and logical appearance in an exposed position would assist in portrayal of a positive image whilst development sited in peripheral hilly parts, on ridge sides or in the context of existing pylons and masts is likely to appear more confusing.

A significant constraint is potential for intrusion on the setting of Penrith and rim of the Eden Gorge as well as over dominance of villages within it. Although there is some potential for positive association with an intensive land management and integration with rectilinear patterns turbine development may also be perceived as spoiling a largely uncluttered ridge, conflicting with a sense of calmness and exacerbating a trend towards blandness and deterioration in natural character.

Particular sensitivities in relation to the setting of national designations include:

- *contribution of the ridge to inspiring views over the Vale of Eden towards the Lakeland fells from the from the western scarp of the North Pennines AONB most notably from the A686 pass, Hartside Cross viewpoint, the Maiden Way and the C2C Cycle Route (NCR 7) and further south from the Pennine Way around High Cup*

- *views from the Penrith 'gateway' to the Lake District NP and M6, A592, A66 approaches*

LANDSCAPE TYPE 11: UPLAND FRINGES

Landscape Sub-Types	11a Foothills 11b Low Fells

Key Characteristics	Sensitivity
Scale and Enclosure Varies with altitude from medium scale enclosed rolling or hilly farmland to larger scale plateau farmland, open fell bottoms or moorland and outlying low fells (11b). Land cover also varies from improved pasture fields to open moorland. Field size reflects local relief, small in hilly parts but large on flatter plateaus. Variety of scale indicators emerge in lower parts including walls, hedges, conifer plantations, deciduous trees and small woods, rocky outcrops and minor valleys but higher areas tend to be featureless.	**Moderate (3)** Small group would not intimidate low fells and plateau farmland. Exceptionally a large group might relate to broad sweep of fell side or moorland. Lower more pronounced hilly terrain highly sensitive due to intimate scale and potential for over dominance in restricted zones of visibility. In close range turbines may appear incongruous and out of scale against detailed features of relief and land cover. Most likely to appear rational on windswept hill/fell tops of southern and western upland fringes.
Complexity and Order Transitional but generally balanced and calm. Simple open moorland of rough pasture with colourful patches of heather and extensive conifer plantations in parts gives way to lower farmland dominated by improved pasture. Farmland can be bland with a pattern of large square fields and small plantations with poor hedges, fences and walls or diverse in hillier parts with smaller fields and a variety of features such as streams and wooded minor valleys, wooded steep slopes, tarns and marshy hollows, rocky outcrops, boundary trees and tree clumps round farms. Low fells (11b) have NE/SW grain.	**Moderate (3)** Opportunities for organic configurations related to form of individual low fells and larger hills or sweep of lower fell sides. Simple moorland canvas offers potential for dramatic contrast. On lower flatter farmland plateau rectilinear group might mirror regular filed pattern and plantation blocks. More diverse hilly terrain highly sensitive due to potential confusion of variable heights and limited scope for visual linkage.
Manmade Influence Trend towards increased blandness due to agricultural intensification and afforestation in 20th century. Symptoms include neglect or removal of walls, hedges, deciduous woodland and loss moorland to improved pasture or conifer plantations. Largely unspoilt but harmony sometimes locally weakened by large modern quarries, pylons, conifer blocks, masts, M6 or farm sheds.	**Moderate/High (4)** Potential for positive association with working character of intensively farmed or afforested areas and large scale engineered aspects such as quarries or roads. However may be perceived as exacerbating deterioration of rough untamed qualities and compromising unspoilt character.
Remoteness and Tranquillity Rapid transition from remote open uplands to more settled farmland generally perceived as peaceful rural backwaters. Only major disturbance is the M6 motorway which carves through the low fells (11b) and to lesser extent other through routes such as A595, A6, A685, A684 and A69.	**Moderate/High (4)** Noise and movement of turbines maybe appropriate adjacent to through routes but elsewhere likely to compromise sense of remoteness in higher parts and peaceful backwater character of settled parts.
Settlement and Key Views Absent or only isolated farmsteads across higher parts but frequent scattered farmsteads, hamlets and small villages served by minor roads evenly spread across lower foothills. Concentration of villages evident along foot of North Pennine scarp and elsewhere along main through routes. Views of southern part of N Pennines from Pennine Bridleway, C2C Cycle Route (also Copeland), Eden Valley Cycle Route and W2W Cycle Route (also S Lakeland). Fox's Pulpit view (11b).	**Moderate (3)** Higher parts offer scope to site development well away from settlements whilst dispersed settlement in lower foothills presents greater limitations on siting and size of development.
Visual Interruption Varies from prominent sweeps of open fell side/moorland to lower rolling foothills where visibility is significantly interrupted by the relief, individual and clumps of trees, plantations, hedges and buildings. Low fells (11b) open but broken configuration into individual summits tends to shorten views.	**Moderate (3)** Turbine development assisted by rolling topography and frequent interruptions resulting in glimpsed or intermittent views. However likely to stand out on fell sides and moorland.
Skyline Complex skyline of interwoven hills with intermediate horizons interrupted by trees and woods gives way to emptier smooth fells or moorland. Frequently backed by higher uplands. Few points of vertical focus except occasional pylons, masts, and existing turbines. Pronounced hills can create immediate and dominant skylines relative to valleys and frame vistas.	**Moderate/High (4)** Potential for confusing and unpredictable relationship with complex skyline of lower foothills. In higher parts limited scope for isolated turbine grouping to form a predictable and clear visual contrast with barer fell and moorland skylines but may appear illogical in context of higher upland skylines. Potential for localised over dominance and visual confusion with pylons, masts and existing turbines.
Connections and Adjacent Landscapes Generally part of a wider hierarchical and uplifting scene with adjacent uplands (13) including N. Pennines escarpment, Lakeland Fells and Howgills. Often contrasting textures and colours serve as a foil. Also contribute to setting of main valleys (8b), towns such as Kendal, Ulverston and Cleator Moor and Hadrian's Wall. Furness foothills important to open and scenic estuarine views. Intervisibility with surrounding fell tops some of which nationally valued.	**Moderate/High (4)** Whilst large scale backdrops of uplands likely to assist absorption in terms of scale turbines have potential to clutter and detract from foreground of wider restful and well composed scenery. Also potential for intrusion on sensitive valley rims, setting of important towns and Hadrian's Wall as well as prospects from adjacent fells.

Overall Sensitivity	Moderate

LANDSCAPE TYPE 11: UPLAND FRINGES

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting Northern fringe of 11a N Pennines (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
North Pennines AONB Eastern fringes of 11a North Pennines strip	National: Conservation and enhancement of natural beauty derived from the special qualities of: a unique landscape unit with a distinctive geology and unusually large extent of high, exposed semi-natural moorland which has outstanding wilderness qualities; scenic contrasts and unfolding sequence of simple moorland, sheltered dales and dramatic scarp as well as spectacular individual features; moorland landscapes valued for their long views and western scarp affords panoramic views; special interests of historic mining landscape, unique flora and fauna, unusual range of geological and geomorphological features and wealth of archaeological and historical remains which contribute to landscape character.
Landscape of County Importance All areas beyond AONB	County: Protection of distinctive character attributable to natural/built features, absence of detractors, views, and sometimes landform or land cover creating a strong positive response.
Registered Historic Parks and Gardens E part of Holker Hall	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Concentrations along River Gelt in N Pennines, Ellerside and Millom Park in Furness and Gt Wood in West Cumbria	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
11a Foothills 11b Low Fells	8.5%: common 0.5%: rare
Associations	**Description**
Historic Environment Widespread archaeological remains Conservation Areas: Cumrew and Dufton in N Pennines Cartmel and Newland in Furness	Settlement pattern dispersed in foothills (11a) and few isolated farmsteads in low fells (11b). Field system product of late enclosure. Some farms originated as late as 16th century. Ring garths and intakes identifiable. Widespread upstanding remains include prehistoric stone circles and cairns, medieval shielings and droveways, remnants of late medieval deer parks and prolific industrial remains eg quarrying and lead mining. Some areas especially rich eg Warcop Common.
Ecology Many small pockets of interest Limited in N. Pennines and S Lakeland to SSSIs and sometimes SACs or SPAs over main rivers and becks or moorland extensions . Also LPOs east of Kirkby Stephen. Designations absent in Furness except for RIGGS near Millom. In W Cumbria small RIGGS, SSSI/SAC on R Ehen and few small sites.	Low fells (11b) and N/ E areas (11a) support areas of upland heath and acid grassland. Rush pasture frequent on poorly drained ground throughout and species rich hedgerows in lower parts. Many small valleys often support upland oak woods and habitat for otters and dippers. Occasional outcrops of limestone support limestone grassland and upland ash woodland. Purple moor grass, gorse scrub and small stands of wet woodland in damp hollows also found in low fells (11b).

LANDSCAPE TYPE 11: UPLAND FRINGES

Capacity Statement

Overall the Upland Fringes landscape is judged to have **low/moderate** capacity to accommodate turbine development. This reflects moderate sensitivity overall, and a medium/high to high landscape value recognised by LoCI and AONB designation*. Rapid transitions in character occur with changes in altitude which affect acceptability.

Within the North Pennines gently rolling or terraced upland fringe landscapes along the northern edge and the south west end around Stainmore Gap have a particular sensitivity because of their contribution to the contrasting sequence of landscapes valued under the AONB designation. In between foothills on the edge of the Vale of Eden run up to join the dramatic western scarp and together these form one of the most attractive parts of the AONB. Here dramatic and varied landforms, panoramic views and a string of historic scarp foot sandstone villages are qualities likely to be compromised by any scale of wind energy development.

Key constraints within this type include the potential for wind turbines to compromise the unspoilt character and sense of remoteness or peace found in these rural backwaters; general absence of comparable man-made structures; visual context against higher uplands in which turbines may appear illogical if placed below the main skyline and clutter the foreground of wider and uplifting landscape compositions.

Higher parts offer some aspects favourable to turbine development. The larger scale outlying low fells, moorlands, fell bottoms and high plateau farmland suggest scope for small group development and possibly a large group on broader topographic sweeps. This could create a focal point in clear visual contrast to a simple moorland canvas of rough pasture and heathland or relate to the regular large scale pattern of fields and plantations and associate with large scale engineered aspects such as main roads and large quarries.

The restricted views and intimacy of the lower foothills are likely to be intimidated by turbine development. A dispersed pattern of small settlements would make it difficult to avoid over dominance and a complex skyline of interwoven hills and diverse farmland exhibiting a variety of natural and historic features suggests potential for visual confusion.

Particular sensitivities in relation to the setting of national and international designations include:

- *sequential views towards the AONB from Hadrian's Wall Trail and Cycle Route (part of NCR 72) and from viewpoints at the forts, milecastles and camps between Lanercost and Birdoswald*
- *sequential views towards Hadrian's Wall from the Tindale Fells in the AONB (NCR 72), Pennine Way as it descends into the Irthing Valley and A69*
- *panoramic views from the upland edges of the AONB over the Vale of Eden towards the Lakeland fells most notably from the Pennine Bridleway around Croglin Fell and Knock Gill, the A686 pass, Hartside Cross viewpoint, the Maiden Way and the C2C Cycle Route (NCR 7), the Pennine Way around High Cup and from the Stainmore Gap A66, Coast to Coast footpath and W2W Cycle Route 'gateway'*
- *views from below where the scarp forms an imposing wall above the Vale of Eden most notably from the A66, A686, Settle Carlisle Railway, Pennine Bridleway and C2C and EV Cycle Routes (NCR 7/ 68)*
- *views from the Shap Fells and Potter Fell on the south-eastern fringe of the Lake District NP and sequential views in from the W2W Cycle Route (NCR 68), Dales Way and A6*
- *contribution to tranquil and picturesque compositions with fells in the Lake District NP around the Duddon and Leven estuaries and views from the trunk road skirting edge of Park and 'gateways' off it, National Cycle Route 72, Furness Fells and Black Combe*
- *in West Cumbria views from the C2C Cycle Route (NCR 71) and views out from the Ennerdale and Loweswater Fells and 'gateways' off the A5086 to the Lake District NP*
- *views from the western Howgill Fells in the Yorkshire Dales NP over the low fells and back towards them from the A684 and M6*

* For those areas that fall within the North Pennines Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 12: HIGHER LIMESTONE

Landscape Sub-Types	12a Limestone Farmland 12b Rolling Fringe	12c Limestone Foothills 12d Moorland & Commons

Key Characteristics	Sensitivity
Scale and Enclosure Mostly large scale rolling or undulating hills and fells with occasional steep slopes and scars. Generally open and bare with wide views sometimes exposed (12d) or more enclosed in valleys. Medium/small scale fields in settled farmland (12a) and foothills (12c south). Otherwise broad scale land cover fabric of open commons (12d), large allotments of rough pasture and remnant heath or conifer plantations sometimes extensive (12b, 12c north). Scale indicators scarce increasing in settled farmland (12a) include: walls, hedges, occasional tree clumps, relict broadleaved woods, and rock outcrops.	**Low/Moderate (2)** Scale and wide horizons generally suggest scope for a small to large scale group development. Lower improved farmland and valleys highly sensitive due to intimate scale, potential for over dominance in restricted zone of visibility and context of more frequent natural and built scale indicators.
Complexity and Order Generally pleasant and balanced. Core areas include simple moorland of rough grassland/heather mosaics with extensive limestone pavements/scars and isolated trees (12d) and rolling farmland with improved pasture divided by stone walls into a strong pattern of small fields around ancient villages softened by trees (12a). Transitional fringe areas of mixed pasture are sometimes quite bland divided into large rectangular fields with isolated plantations and occasional tree clumps with signs of neglect (12b) or more distinctive estate land with extensive plantations, parkland and some ancient woodland (12c).	**Moderate/High (4)** Turbines likely to disrupt scenic harmony of core limestone areas of rolling farmland with distinctive historic patterns and simple craggy moorland with mosaics of natural grassland and heather. Blander fringe areas less sensitive with potential for ordered turbine groupings to mirror large regular fields or plantation blocks.
Manmade Influence Strong sense of history in core areas (12a,d) with evidence of settlement as early as Neolithic. Rich legacy of visible archaeological remains including medieval field patterns. Trend towards increased blandness due to agricultural intensification and afforestation in 20th century. Symptoms include neglect or removal of walls, woods, boundary trees loss of species rich grassland/heather moorland and intrusive large farm sheds. Localised intrusion of large quarries, masts, pylons and roads with concentration by M6.	**Moderate/High (4)** Turbines likely to appear incongruous in context of historic field patterns and visible remains. Limited potential for positive association with afforestation and large scale engineered aspects such as quarries or roads. However may be perceived as exacerbating deterioration of rough untamed qualities and compromising unspoilt character.
Remoteness and Tranquillity Only major disturbance is the M6 motorway and to lesser extent other through routes such as A66, A685, A595 and A5086. Population tends to be concentrated in historic villages with surrounding agricultural areas generally perceived as quiet and calm. Higher unsettled parts remote and tranquil.	**Moderate/High (4)** Noise and movement of turbines maybe appropriate adjacent to through routes but elsewhere likely to compromise sense of remoteness found in higher parts and quietness elsewhere.
Settlement and Key Views Largely absent across 12d and other higher parts. On lower farmland population concentrated in historic villages or isolated farmsteads. Villages often linear located in minor valleys or more nucleated next to springs on edge of moors, with strong limestone built character, greens and farm buildings within them. Views from national recreation routes: Pennine Bridleway; Coast to Coast footpath; W2W and C2C Cycle Routes.	**Moderate/High (4)** Higher parts offer some scope to site development well away from settlements but can be constrained tourism facilities. Lower settled farmland presents greater limitations on siting and size of development constrained by small scale nature of historic villages with potential for over dominance.
Visual Interruption Generally open ranging from bare grazing land and limestone pavements to settled farmland with trees concentrated around villages and farms or in valleys. Low incidence of interruption although localised containment by relief and plantations.	**Moderate/High (4)** Turbine development likely to stand out and be widely visible.
Skyline Simple flowing horizons sometimes stepped in profile with (12a,d) or more rounded (12b,c). Generally bare and smooth occasionally textured by trees. Can form landmark skylines eg Hilltop/Sandale escarpment (12b) or eye catching scars (12d). Skyline complicated by trees scrub and interweaving ridges in lower areas. Pylons and masts conspicuous in parts.	**Moderate (3)** Some scope for isolated turbine grouping to form a predictable and clear visual contrast with barer fell and moorland skylines but visual clutter is an issue. Distinctive landmark skylines likely to be compromised. Potential for unpredictable relationship with complex skyline of lower farmland and visual confusion with pylons and masts.
Connections and Adjacent Landscapes Strongly connected by inter-visibility with nearby fells (13) some of which nationally valued including Lakeland Fells, North Pennines and Howgills. In Allerdale (12b north) defines the edge of the Solway Basin. Can contribute to setting of important valleys, settlements and viewpoints eg upper Lune valley and Kirkby Stephen, Caldbeck valley and Faulds Brow.	**Moderate/High (4)** Whilst large scale backdrops of uplands may sometimes assist in absorption of turbines they may clutter and detract from pleasant sometimes breathtaking views of adjacent fells. Also potential for intrusion on sensitive valley rims, settlement settings and prospects from adjacent fells.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 12: HIGHER LIMESTONE

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Landscape of County Importance 12a, c, d and parts of 12b.	County: Protection of distinctive character attributable to landform (except 12b,c Eden) natural/built features (except 12b Allerdale), absence of detractors, views, and sometimes cultural features (a,d) or land cover (b,c,d) creating a strong positive response.
Registered Historic Parks and Gardens N tip of Lowther Castle and Image Garden Reagill (12b)	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland A few notably Crosby Gill and Scandal Beck (12a), gill woods on edge of Solway Basin (12b), Hoff Lunn Eden (12a/b) and around Greystoke Park (12c)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
12a Limestone Farmland 12b Rolling Fringe 12c Limestone Foothills 12d Moorland & Commons	2.7%: ordinary 2.3%: unusual 1.3%: unusual 2.0%: unusual
Associations	**Description**
Historic Environment Rich concentration of visible remains particularly in 12a and 12d. Conservation Areas: Settle/Carlisle railway (12a/d) and several villages across 12a	In Eden nucleated villages often with greens and traditional farm buildings within them surrounded by mix of late and early enclosures with fossilised strips (12a,b Eden,c) sometimes linked to commons by droveways or outgangs. In 12d little settlement, commons unenclosed and what enclosure exists is late. Features include earthworks eg prehistoric boundary walls, stone circles and cairns (12a,d), Viking remains (12b Allerdale),Roman roads (12d,c), early medieval settlement remains and evidence of medieval deer parks (12a,c), ridge and furrow and lynchets (12a,b), abandoned quarries and limekilns (12a,b,d), and isolated barns(12a).
Ecology Rich interest especially in 12d and 12a. Limited interest in 12b. Core areas of 12d covered by SACs/SSSIs/ large LPOs and a NNR. Some of these spill over into fringes of 12a which also has patchy designation of SSSIs along rivers and grassland plus RIGGS near Nateby. Designations virtually absent across 12b except a few SSSIs along main rivers, a few RIGGS. Also very limited across 12c except small LPOs near Greystoke, RIGGS and SSSI	Internationally important limestone pavements, upland heathland and acid grassland predominate in 12d. Limestone grassland present where limestone outcrops (12a,c,d, 12b occasional) species rich springs and flushes(12a,c,d). Parts notable for species rich hay meadows and broad roadside verges (12a,c). Stands of upland ash woodland often along gills and river valleys (12a, 12b occasional, 12c) many small rivers and becks support otter and crayfish. Some interest in disused quarries eg great crested newts (12b). Wood pasture and veteran trees in Greystoke Park (12c).
Geology and Geomorphology Important exposures of carboniferous limestone. LPOs and RIGGS as described above	Till and fluvio-glacial deposits exposed along Scandal Beck provide key evidence in Quaternary stratigraphy. Glacial erratic boulders of pink Shap Granite east of Shap (12d).

LANDSCAPE TYPE 12: HIGHER LIMESTONE

Capacity Statement

Overall the Higher Limestone landscape is judged to have **low/moderate** capacity to accommodate turbine development. This reflects a moderate/high sensitivity overall, a medium/high landscape value recognised by LoCI designation in most areas and strong geological, ecological and historical associations. Acceptability is affected by marked variations in the degree to which limestone characteristics are exhibited and wealth of historic features.

A key limiting factor is the open character of this type whereby any development is likely to be widely visible with only localised containment by relief or trees. This is liable to exacerbate potential problems of over dominance and intrusion relative to historic villages, and prospects from tourist routes and viewpoints both within this type and from the nearby fells of national landscape importance. Whilst there is some localised intrusion from modern developments, especially around the M6 corridor, this landscape type is largely unspoilt. Therefore protection of uncluttered and distinctive landmark skylines and a sense of remoteness or quietness are also major issues. Most parts are also rich in visible historic remains which are vulnerable in terms of both their scale and character.

Core areas that exhibit attractive limestone features such as limestone pavements, scars and historic field patterns and others with parkland and ancient woodland are vulnerable because of their scenic richness and harmony. However there are some blander fringes that would not be intimidated by a small or possibly large sized group development especially if visually linked to large scale field patterns or forestry blocks. There is also some potential for positive association with large scale engineered components such as quarries and roads.

Particular sensitivities in relation to the setting of national designations include:

- *contribution of the rolling fringe around Ullock to coastal panoramas from the Loweswater Fells and C2C Cycle Route in the Lake District NP*
- *contribution of the rolling fringe on the edge of the Solway Basin to coastal panoramas from the northern fells of the Lake District NP including outliers such as Binsey, Green How and Faulds Brow, the Uldale and Caldbeck Fells and the Skiddaw massif, framed views out of valley 'gateways' off the A595 and sequential views from the Allerdale Ramble, Cumbria Way and Regional Cycle Route 10*
- *contribution of the lightly settled limestone foothills, which extend into the LDNP, to the quieter north-eastern fells*
- *panoramic views across the limestone foothills around Greystoke towards the Vale of Eden from the Carrock/ Bowscale fells and Blencathra massif in the Lake District NP and views back to the imposing steep eastern faces of these fells most notably from the C2C Cycle Route*
- *views from the Pooley Bridge 'gateway' to the Lake District NP and M6, A592, A66 approaches*
- *close affinity between limestone commons and farmland around Shap and the Haweswater Lake District NP 'gateway' landscape, with geological, historic and cultural connections*
- *key views out from the popular High Street range and back towards the Park from the M6, A6, Coast to Coast footpath and W2W Cycle Route (NCR 68)*
- *contribution to Vale of Eden panoramas from the Stainmore Gap North Pennines AONB 'gateway' most notably from the A66 and W2W Cycle Route (NCR 71) and towards the AONB from the same cycle route (NCR 68), the Settle Carlisle Railway, Pennine Bridleway and A685*

LANDSCAPE TYPE 13: FELLS AND SCARPS

Landscape Sub-Types	13a Scarps 13b Moorland, High Plateau 13c Fells

Key Characteristics	Sensitivity
Scale and Enclosure Exposed large scale upland. N Pennines comprise expansive undulating moorland plateau (13b) with wide horizons but distinct high fells and summits in central section and dramatic western scarp (13a) with conical shaped outliers. Fells of SE Cumbria (13c) comprise either Lakeland extensions with steep sided rounded forms and deeply incised valleys or Pennine extensions with more angular craggy outlines. Largely rough grazing devoid of trees. Occasional features eg rock outcrops, screes, waterfalls and walls, farms woods on lower slopes.	**Low/Moderate (2)** Expansive scale and wide horizons of Pennine moorland would not be intimidated by a wind farm development whilst a large group might relate to the scale of individual fells. Incised valleys vulnerable to over dominance due to more intimate scale and restricted zone of visibility. Occasionally turbines may appear incongruous and out of scale against natural and built features particularly on lower slopes. Most likely to appear rational on windswept fell tops.
Complexity and Order Essentially a simple empty landscape. Contours of land generally smooth, in places rugged especially around the scars, sills and crags of the scarps (13a), moorland summits (13b) and limestone fells (13c Pennines) or remarkably sleek and gently domed as in the Howgills with fascinating shadow patterns (13c). Unenclosed rough pasture predominates in mosaics of colour and seasonal contrast with rushes, bracken and remnant heather or more uniform expanses of blanket bog on Pennines plateau (13b). Gully features frequent on steep slopes sometimes cloaked by remnant ancient woodland.	**Moderate (3)** Opportunities for organic configurations related to individual form of fells or ridges within plateau areas. Simple moorland canvas offers opportunities for turbines to create a dramatic contrast illuminating emptiness of this landscape. However potential to conflict with irregular vegetation mosaics and detract from existing features such as rock outcrops, gills and broadleaved woodland. Elsewhere turbines may be perceived as compromising simplicity of virtual 'upland deserts' or sleek and majestic landforms.
Manmade Influence Semi- natural moorland and associated birdlife creates a strong sense of 'wildness'. Evidence of woodland clearance settlement and enclosure since prehistoric times and also visible remains of lead mining in N. Pennines (13b). Open moorland has been vulnerable to some overgrazing pressures and localised afforestation eg Whinfell. In most part unspoilt by modern development. Training and firing ranges above Warcop but most of permanent structures below scarp. Very few roads and large modern structures limited to odd communication or radar installations and pylons next to A6 at Shap (13c).	**High (5)** Little or no opportunity to relate to other modern manmade structures or regular patterns of management. Turbines likely to stand out as alien structures and be perceived as incongruous within an essentially wild unspoilt landscape.
Remoteness and Tranquillity Limited access and absence of settlement conveys a strong feeling of remoteness and tranquillity. Scale and wide horizons of landscape makes viewer feel small and evokes a dramatic sense of space and freedom. Localised noise and movement from M6 motorway and A6 (13c) and A66 at Stainmore (13b).	**High (5)** Presence, noise and movement of turbines likely to compromise sense of freedom, tranquillity and remoteness
Settlement and Key Views Scarp and high moorland/fells uninhabited with very limited road access. A few houses and farmsteads in some valleys. Occasional quiet country roads through some dales and across moors between them. Occasional farms/quarry or installation tracks. Some popular walking areas eg Howgills and national trails: Pennine Way/Bridleway; C2C/W2W Cycle Routes.	**Low/Moderate (2)** High moorland plateau areas offer scope to site development well away from settlements. However potential to be overbearing and intrusive in relation to popular walking routes and tourist trails.
Visual Interruption Exposed with very few if any non-topographical containment features. In parts some topographic containment by ridges and individual summits but flatness of moorland plateau areas and raised profile of scarp increases exposure.	**High (5)** Turbine development likely to stand out and be widely visible.
Skyline Strong bare horizons. Can be simple and wide on moorland plateau or ridges or more complex where fells/summits interlock. Limestone of Pennines (13a,b,c) produces distinctive angular stepped profiles, scarps, scars, and flat tops where capped by Millstone grit. Lakeland extensions (13c Lakes) more rounded but with glacial features eg craggy cirques and screes. Very few masts or other vertical structures.	**Moderate/High (4)** Scope for turbine development to form a predictable and clear visual contrast in relation to flatter moorland parts or simple ridges. However likely to compromise distinctive landmark profiles of markedly domed or angular fells and craggy parts. Also likely to be less predictable relationship with skyline where summits and fells interlock. Maintenance of uncluttered skylines is an issue.
Connections and Adjacent Landscapes Contribute to setting of valleys (8) and settlements eg upper Lune and Kirkby Stephen, Tynedale and Alston, Kent and Kendal, middle Lune and Kirkby Lonsdale. Pennine scarp and W summits form impressive backdrop to Vale of Eden. Prominent from major route ways eg M6, W coast mainline, A6 and A66. Inter-visibility between 13c and fell tops of national parks and high limestone around Orton (12)	**Moderate (3)** N Pennines plateau offers scope to site development away from sensitive edges. Elsewhere potential for intrusion on sensitive valley rims, settings to important towns, prospects from adjacent fells of national importance and major route ways.

Overall Sensitivity	Moderate/High

LANDSCAPE TYPE 13: FELLS AND SCARPS

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
North Pennines AONB All of Moorland, High Plateau (13b) and Scarps (13a) except southern tip at Mallerstang.	National: Conservation and enhancement of natural beauty derived from the special qualities of: a unique landscape unit with a distinctive geology and unusually large extent of high, exposed semi-natural moorland which has outstanding wilderness qualities; scenic contrasts and unfolding sequence of simple moorland, sheltered dales and dramatic scarp as well as spectacular individual features; moorland landscapes valued for their long views and western scarp affords panoramic views; special interests of historic mining landscape, unique flora and fauna, unusual range of geological and geomorphological features and wealth of archaeological and historical remains which contribute to landscape character.
Landscape of County Importance All of 13c and 13a/b beyond AONB at Mallerstang	County: Protection of distinctive character attributable to landform, land cover (Barbon and Middleton Fells), natural/built features eg steep slopes, crags, scree, wooded gills, tree clumps round farms, absence of detractors, views creating a strong positive response and remote peaceful character.
Ancient Woodland Very few. Group at S end 13a around Helbeck, none in 13b except R Gelt and isolated gill or valley woods in 13c especially Middleton/Barbon Fells on E fringes of Lune Valley.	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
13a Scarps 13b Moorland, High Plateau 13c Fells	1.4%: unusual 9.2%: common 4.1%: ordinary
Associations	**Description**
Cultural Scenic qualities have been inspirational	Central figure in N Pennines is 20th century poet WH Auden who was inspired by lead mining landscapes. JMW Turner followed the route and produced scenes along the modern-day Pennine Way through to High Cup Nick and Dufton. AW Wainright recorded the majestic beauty of the Howgills whilst Thomas Pennant writing in 1769 condemned the fells around Shap as bleak and destitute of picturesque beauty.
Historic Environment Interest in woodland clearance, settlement and enclosure since prehistoric times and lead mining remains in N Pennines Conservation Areas: Settle/Carlisle Railway on E edge of Mallerstang Valley (13c)	Little or no modern settlement apart from isolated farmsteads, often on ancient sites (13c) and some abandoned post-medieval farmer/miner small holdings (13a,b). Woodland once covered all but highest parts. Clearance for agriculture began in prehistoric times and relict prehistoric field systems and settlements occur (13a,b) and in Howgills probably caused severe gully erosion. Field systems now generally absent, lower slopes of 13a/ c sometimes enclosed by often large, though not always regular, fields bounded by walls. Historic enclosure features include droveways, pennings and bields (13c) small fields (13a north). Evidence of coal and lead mining 14th-19th century (13b) eg ruined buildings, bell pits and smelt mill chimneys. Sheiling remains common in Howgills (13c). Occasional 19th century grouse pits (13b).
Ecology Extensive tracts of moorland and heath supporting upland bird communities and often under international wildlife designations Majority of N Pennines (13a/b) covered by extensive SPA/SAC/SSSI designations and also large central NNR (Milburn Forest). Partial coverage in other areas (13c). Northern part of Birkbeck/Shap Fells covered by SAC/SSSI and central part of Howgills covered by a large SSSI, elsewhere designations absent. Small patches of SSSI/SAC designation across Barbon Fells and Wild Boar Fell.	High Pennine moorlands (13b) Shap Fells, Birkbeck Fells and Middleton Fells (13c) have extensive areas of blanket bog and upland heathland. Supports important breeding populations of upland birds eg golden plover. Also areas of limestone grassland where this rock outcrops (13a,b,c Pennines), acid grassland particularly Howgills, localised species rich springs and flushes with rarities eg gentians (13a,b) Rush pasture locally frequent on moorland edge (13a,b) supporting black grouse. Montane heath present on several summits and mine spoil supports unique lead tolerant flora (13b) Upland oak woodland present along some gills (13c). Fauna includes merlin, peregrine, kestrels, foxes, hares and red deer.
Geology and Geomorphology Significant interest in pockets especially along Pennine scarp and around limestone outcrops. International importance of AONB for geology and classic example of base metal ore field recognised by European Geopark status. LPOs at southern end N Pennines and Wild Boar Fell. Occasional RIGGS along N Pennines scarp slope (13a) Howgills, Barbon Fells and Wild Boar Fell.	Exposures of limestone and volcanic rock and dramatic landform features eg U-shaped valley of High Cup Nick along scarp edge 13a, ore field; glacial and periglacial features;caves and other karst features of Carboniferous limestone and various natural and engineered rock exposures (13c)

LANDSCAPE TYPE 13: FELLS AND SCARPS

Capacity Statement

Overall the Fells and Scarps landscape is judged to have **low** capacity to accommodate turbine development. This reflects a moderate/high sensitivity and medium/high to high landscape value recognised by LoCI and the North Pennines AONB designation* with strong ecological and geological associations.

Whilst the large scale, breadth of horizons and absence of settlement especially within plateau areas suggest scope to accommodate wind farm or large group development in contrast to simple moorland canvases there are some overriding constraints.

The key characteristics of this landscape are a strong sense of wildness, freedom, remoteness and an unspoilt nature. These are attributable to the predominance of semi-natural moorland vegetation and associated birdlife, expanse and general absence of roads, manmade structures and field enclosure. They also possess a variety of dramatic scenic qualities including steep slopes, crags and scarps; bleak and empty 'upland deserts'; awesome domed profiles such as the Howgills and distinctive angular profiles as in the Pennine fells. These essential qualities are likely to be compromised by any scale of turbine development with little or no scope for visual linkage or association with manmade patterns or forms. These problems are likely to be exacerbated by the extreme openness of this landscape where turbines would be exposed to view from sensitive receptors such as settlements and route ways in adjacent valleys, popular fell tops and national trails such as the Pennine Way.

Particular sensitivities in relation to the setting of international and national designations include:

- *sequential views towards the northern tip of the North Pennines AONB from Hadrian's Wall Trail and Cycle Route (part of NCR 72) and from viewpoints at the forts, milecastles and camps between Lanercost and Birdoswald and sequential views back towards Hadrian's Wall from the Tindale Fells within the AONB*

- *contribution of the fells to an unbroken expanse of predominantly empty natural upland landscape extending from within the Lake District NP eastwards across the Howgill Fells into the YDNP enjoyed for its sense of openness, tranquillity, freedom, wildness, solitude and panoramic views*

- *key views across the fells to and from both national parks and the southern end of the North Pennines most notably from the unrestricted access areas in the LDNP, the popular High Street range, Coast to Coast footpath, M6 'gateway', A6 , Dales Way, W2W Cycle Route, Pennine Bridleway, Wainright walks, Orton Fells, Howgill Fells, Wild Boar Fell, Middleton Fells and Barbondale*

* For those areas that fall within the North Pennines Area of Outstanding Natural Beauty Policy R45 in the Cumbria and Lake District Joint Structure Plan 2001 – 2016 applies

LANDSCAPE TYPE 14: URBAN AREAS AND FRINGES

Landscape Sub-Types	Urban Areas	2d Coastal Urban Fringe 5d Urban Fringe

Key Characteristics	Sensitivity
Scale and Enclosure Underlying landscape variable but generally medium to large scale. Urban fringes vary from flatter coastal areas with big skies and wide horizons (2d) to rolling farmland with some sheltered valleys (5d). Large scale elements include disused airfields, heavy industrial buildings and docks, power stations, gas terminals, prisons, reclaimed slag/spoil heaps (2d) and light industrial/retail estates. Smaller scale indicators include pylons, houses, plantations and hedges and trees declining towards coast.	**Moderate (3)** Scale and openness suggest scope to accommodate development up to large group size. Coastal locations and broad ridges offer greatest scope whilst sheltered valleys and undulating terrain likely to be more sensitive due to more intimate scale potential for over dominance in narrow zones of visibility. Presence of large industrial elements may assist absorption. Likely to appear out of scale in context of houses and fabric of remnant farmland. Positive design rationale on exposed coasts.
Complexity and Order Typically mixed and complicated land cover pattern with varying degrees of urban influence. Neglected farmland with run down boundaries, rough grassland and scrub, scars of former industry eg spoil heaps and disused railway lines and derelict buildings particularly in W Cumbria, encroaching housing and sporadic industrial/commercial development or institutional buildings and holiday parks (2d). Attractive aspects eg parks and wooded valleys. Some organising linear elements eg hard coastal edges, major roads/railways.	**Moderate/High (4)** Introduction of turbines likely to compound visual confusion of disordered urban fringes. Some scope for an ordered grouping to relate to key linear elements or grain of existing large scale industrial layouts. Likely to appear incongruous against form and pattern of irregular scenic aspects such as parkland.
Manmade Influence Varies from built up areas to rural areas with strong urban influences. Coastal areas most dynamic with a visible industrial heritage stimulated by coal and iron mining dating back to 18th century eg Georgian and Victorian ports, small mining villages, spoil and slag heaps, disused railways and derelict or degraded land. Tourism heritage especially in Silloth and Furness. All subject to urban expansion pressures, new road and leisure developments. Farmland often rundown due to fragmentation of holdings and public access pressures.	**Low/Moderate (2)** Scope for positive association with industrial landscapes and historic utilisation of natural resources and power generation. In urban fringes potential conflicts with scale and character of traditional rural and industrial heritage features. May be perceived as exacerbating urbanisation and run down appearance.
Remoteness and Tranquillity Mostly busy with noise intrusion from roads, railways, and industrial, commercial or leisure activities. However also includes quieter residential areas, small villages and rural backwaters, derelict or reclaimed areas and parks often rich in wildlife and valued as green refuges for quiet recreation.	**Low/Moderate (2)** Noise and movement of turbines could relate to busier parts but likely to detract from quietness in some locations.
Settlement and Key Views Edges of towns mostly suburban post 1930s characterised by spacious pattern of streets, low houses, gardens, communal amenity grassland and institutional buildings sometimes interspersed with commercial/light industrial development. Heavier industrial areas usually separate and often on coastal edge next to docks or reclaimed areas. Historic stone or brick built cores sometimes organic and winding of Medieval origin or planned grid patterns with squares formal parks and squares from Industrial Age. Holiday parks, Cumbria Coastal Way and Hadrian's Wall Trail present along coast (2d). Dense pattern of former mining villages in W Cumbria (5d), elsewhere more dispersed.	**Moderate/High (4)** Limited scope to site development away from residential edges, small villages within urban fringes or key amenity/tourism receptors. Likely to appear incongruous in terms of character, pattern and scale with potential for over dominance. Also potential for intrusion on important settings to historic cores or gateways and important open spaces eg promenades, parks, cemeteries, 'green wedges'. Some opportunities on urban edges and fringes where related to large scale industrial land, airfields, docks or major route ways.
Visual Interruption Fairly enclosed urbanised landscapes with containment offered by extensive built development assisted by ridges and woods across urban fringe (5d). Reducing on exposed coastal plains (2d) with less interruption by relief and vegetation.	**Low/Moderate (2)** Buildings and other screening features likely to assist absorption and create glimpsed and intermittent views. Turbines likely to be more widely visible in coastal plain locations.
Skyline Variable depending on topographic setting from broad plains with strong coastal horizons to valleys enclosed by hills. Frequent vertical structures including pylons, industrial sheds and silos, communication masts, chimneys, and existing wind turbines. Urban landmarks include church or town hall towers, castles and reclaimed spoil heaps.	**Moderate (3)** Flatter coastal horizons offer scope for predictable contrast. Valley settings more vulnerable due to presence of intensifying features eg valley rims, framed vistas and prospects. Scope to correspond to other vertical structures but also potential for clutter and conflicts of form and function. Historic landmark buildings and landforms vulnerable to intrusion.
Connections and Adjacent Landscapes Coastal locations have strong backdrop of open sea whilst inland often weak connections with subdued hinterland (2, 5). Nearby Heritage Coast, ridges (4, 5a, 9d - Whitehaven/ Workington) or high ground (3a, 10,11a - Ulverston/ Kendal/ Penrith) Lakeland Fells, estuaries, dunes and beaches (1a, 2a - Millom/ Barrow/Solway) create significant backdrops/prospects.	**Moderate (3)** Along coast simple large scale context of seascape likely to assist absorption. Contribution to picturesque compositions and open views in relation to estuaries, enclosing high ground and natural coastal edges may be sensitive. Some potential for intrusion on prospects from landscapes of international and national importance.

Overall Sensitivity	Moderate

LANDSCAPE TYPE 14: URBAN AREAS AND FRINGES

Value	
Landscape Designations and Planning Policies	**Scale it Matters and Why**
Hadrian's Wall Military Zone World Heritage Site and Setting N Carlisle Urban Area,2d and 5d (site and setting) Silloth Urban Area and 2d (setting)	International: Protection of core archaeological features of the Roman wall and coastal defences as well as their landscape setting
Registered Historic Parks and Gardens Workington Hall (Curwen Park) Grade IIand Carlisle Cemetery	National: Protection of special historic interest of parks and gardens and their settings
Ancient Woodland Few isolated woods in Cockermouth, Whitehaven, Barrow and nr Disington (5d)	National/Regional: Conservation of ancient semi-natural woodlands as irreplaceable nature conservation assets with associated interests including characteristic landscapes
Rarity	**Area of County**
Urban Areas 2d Coastal Urban Fringe 5d Urban Fringe	Not measured 1.3%: unusual 0.7%: rare
Associations	**Description**
Historic Environment Variable interest but common themes of ports, industrialisation and mining. Conservation Areas: Most limited to historic town centres and/or harbours: Silloth; Maryport; Workington; Whitehaven; Cleator Moor; Egremont; Dalton-in-Furness. Some extending beyond centre to edges of town: Penrith -Beacon Edge; Cockermouth-extensive and branching along Cocker and Derwent Valleys; Ulverton -Stonecross; Kendal -Fellside. Couple with dispersed pockets beyond centre and on urban edges: Carlisle -Stanwix/Rickerby to N, Botcherby to E and Caldew Valley to S; Barrow –Furness Abbey to NE, docks to S and Vickerstown Walney to W	Evidence of prehistoric habitation on Walney and outskirts of Carlisle. In Furness monks first exploited iron ore industrially in 12th/13th centuries. Barrow developed later as Victorian model town planned on grid utilising local iron ore and natural harbour for ship building. Now terminus for offshore gas. Much evidence of 18th and 19th century coal and iron mining in W. Cumbria. Stimulated early industrial development and ports including Maryport and Whitehaven a Georgian planned town second west coast port (after Bristol). High grade ore led to early growth of iron and steel making in Workington. Disused 19th century railways also legacy helped growth mining and tourism (Silloth, Roa Island Barrow, Walney), agricultural industries. 2nd WW military airfield remains feature around Silloth. Fields regular and indicative of late enclosure 5d
Ecology Pockets of interest SSSIs and sometimes SACs along main rivers through Carlisle, Cockermouth, Cleator Moor and Kendal and in Barrow Walney Channel SPA/SAC/SSSI. SSSI dunes at Silloth and RIGGS on cliffs at Whitehaven. Variety of designations eg SPAs, SACs, SSSIs and RIGGS covering old quarries/mine workings/docks/dismantled railways at Maryport, Workington, Egremont, Millom, Ulverston, and Barrow.	2d supports wealth of wildlife often associated with former industrial sites and adjoining areas eg iron slag colonised by herb-rich grassland, Hodbarrow lagoon Millom breeding and wintering birds, damp ground and pools for great crested newts and natterjack toads, mudflats and saltmarsh for waders and wildfowl. In 5d mainly species poor hedgerows and occasional small areas of woodland.

LANDSCAPE TYPE 14: URBAN AREAS AND FRINGES

Capacity Statement

Overall the Urban Areas and Fringes landscape is judged to have **moderate** capacity to accommodate turbine development up to small group size and possibly large groups in coastal contexts. This reflects a moderate sensitivity overall, however some notable variations in character affect acceptability. These relate to proximity of the coast and residential development, presence of comparable large scale structures, and complexity of the topographic setting.

Greatest potential occurs in the context of large scale industrial land, disused airfields, docks or major route ways. Existing group developments have already been satisfactorily absorbed in locations on the outer Cumbrian coast which benefit from the large scale context of coastal plain and backdrop of the open sea; relationship with other large structures; simple and predictable contrasts with flat horizons and the natural order imposed by the coastline. In addition their logical position on windswept coasts and association in these locations with a history industrialisation and power generation based on local resources tends to promote a positive image. However these areas are at or near capacity and pressure for new development or extensions is likely to generate issues of visual clutter and confusion with existing turbines or other vertical structures such as pylons. Less exposed sites further inland are now attracting interest and whilst they might share the advantages of an industrial context, the higher sensitivity of adjacent rural landscapes and/or more intimate valley settings will not be as favourable as coastal locations.

Elsewhere residential amenity is a major constraint with the edges of towns dominated by suburban housing development and the urban fringes dotted with small villages issues of visual intrusion and over dominance are likely to arise. The settings to historic town centres or gateways and open spaces such as promenades, parks, cemeteries and 'green wedges' are vulnerable. There is also potential for intrusion on key landmarks within urban skylines such as historic castles and nearby prospects from nationally valued landscapes. Problems of visual intrusion are likely to be exacerbated where towns are set within valleys or hilly terrain with potential for effects such as blade flash over valley rims, dominance of limited vistas between hills, overbearance from turbines set on adjacent hilltops, and 'gateway' prospects from valley rims.

Another key factor limiting capacity is the potential for turbines to compound problems of visual confusion. The urban fringes are typified by patterns of neglected farmland fragmented by sporadic development and cluttered by pylons etc. and hence they offer little scope for convincing visual linkage with turbine groupings. Incompatibility between proposed turbines and the form and function neighbouring vertical structures such as industrial sheds and chimneys may also be a constraint unless coherent and balanced compositions can be achieved.

Particular sensitivities in relation to the setting of international and national designations include:

- *backdrop of Maryport, Silloth and Carlisle urban areas and fringes to open sequential views from recreation and tourist routes along the coastal edge of the Solway AONB and Hadrian's Wall most notably from Cumbria Coastal Way, the B5300, National Cycle Route 72, Hadrian's Wall Trail and from viewpoints at coastal forts associated with the Wall*

- *open prospects between Whitehaven and the St Bees Heritage Coast and integrity of the dramatic sandstone cliff scenery that extends beyond the boundary of this designation as viewed from the northern approaches via Cumbria Coastal Way*

- *contribution of the West Cumbrian urban areas and fringes to the Lake District NP in relation to coastal panoramas from the Ennerdale and Loweswater Fells and vistas from 'gateways' off the A5086 and A595 and the C2C Cycle Route (NCR 71)*

- *contribution of the Furness urban areas and fringes to picturesque estuarine compositions with fells in the Lake District NP and limestone hills of the Arnside and Silverdale AONB as viewed from the trunk road skirting edge of Park and 'gateways' off them, coastal railway, National Cycle Route 72, Black Combe, Furness Fells, Hampsfell, Arnside Knott and coastal edges*

- *location of the Cockermouth, Penrith and Kendal urban areas on or near the boundary of the Lake District NP, role as major 'gateways' into the Park and integrity of limestone and foothill landscapes that extend from within the boundary of the Park up to the edge of these towns*

Scale and Enclosure

Scale and enclosure explores factors such as relative size and extent of views. Understanding these factors help in gauging how a landscape will feel and whether there is a positive design rationale. Assessment of the size of the topography and land cover elements provides an understanding of how the height and extent of turbines will appear in relation to their landscape context. Many landscape elements have sizes and characteristics which are familiar to us and the size of development may be gauged against these. In the close range the presence of vertical elements such as buildings, hedges, trees, pylons etc can indicate the relative height of turbines. At middle range and longer distances horizontal elements such as long ridges, bands of woodland or built up areas may be compared against the extent of development. Amongst other things the degree of visual dominance depends on the proportion of the view occupied by any proposed development, therefore the existing openness or breadth of typical views is relevant.

eg an intimate and enclosed landscape of a valley with hedgerows and trees is likely to be more sensitive to turbine development than a large scale open and featureless plateau where the sense of exposure to wind evokes a stronger rationale for this form of development.

eg an enclosed valley where views are channelled by topography and woodland is likely to be more sensitive than a coastal plain landscape with an overriding sense of openness because any given development would occupy a greater proportion of the zone of visibility.

Complexity and Order

Understanding the complexity of a landscape – whether it has a simple predictable composition or complex composition comprised of overlapping elements that results in constant visual surprise and interest – can help to determine how turbine development will relate or contrast with its character. It is important to consider this complexity both in relation to topography and land cover and the way the two interact. In contrast to *visual complexity* where there is some order, hierarchy and rationale to the arrangement of elements, *visual confusion* refers to a landscape that is bewildering and unclear. This occurs where there is no obvious rationale for the combination of elements and often being haphazardly placed with no direct relationship to the landscape or to each other. Balance and harmony in the overall composition are also relevant.

e.g. the introduction of large modern turbines into a scenic landscape composition of craggy mountains with related mosaic of natural vegetation cover and historic features such as cairns and stonewalls is likely to be more unsettling than their introduction into an extensive simple moorland landscape where they could create a new focal point contrasting with the horizontal plain illuminating the vast scale and emptiness of this landscape.

eg a coastal plain landscape with a simple pattern of fields and isolated farmsteads might comfortably accommodate turbine development whilst their introduction into a busy and disordered urban fringe landscape is more likely to compound visual confusion.

Manmade Influence

It is important to consider the degree of man-made influence on a landscape in order to determine how turbine development will relate to both the form and function of existing elements and how it will be perceived. The tall mechanical forms of turbines relate well to other modern man-made structures such as masts, pylons, chimneys, silos, towers, cranes, buildings etc and associate with landscapes perceived as working, utilitarian or industrial in nature. Because of their regular standardised shapes and efficiency requirements turbines lend themselves to geometric layouts. In turn these can be more readily integrated into regular man-made patterns such as geometric systems of fields and plantations.

e.g. turbines are likely to be less conspicuous in industrial landscapes dominated by built structures with a vertical emphasis whilst they would be the focus of attention within the more semi-natural and irregular forms of a limestone farmland landscape dominated by historic buildings.

Remoteness and Tranquillity

The opportunity to experience a sense of peace isolation and remoteness is valued by a growing number of people for relaxation and recreation. The number of places where this can be achieved is increasingly limited. The introduction of a strong human element can have an impact on these experiences. Interpretation of the degree of physical and/or perceived remoteness and tranquillity will assist in determining how changes, as a result of wind energy development, will be experienced.

e.g. in the fells landscape turbine development may increase the sense of human influence and detract from the remote and tranquil character of the landscape.

Settlement and Key Views

Settlement structures and patterns often have a distinctive relationship with the landscape for example linear villages on ridge tops commanding extensive views or nucleated villages nestled between hills with restricted views. Understanding settlement patterns, density and scale can help predict how turbine development will relate to the settled landscape and how they will appear in views from settlements. Visual receptors that are likely to be most sensitive to wind energy development need to be considered. These will include residents, communities and tourists or visitors whose attention or interest is focused on the landscape. Key views to consider include not only those from settlements but also those from strategic transport and recreation routes, tourist destinations and established viewpoints as well as potential changes to important landscape settings or 'gateways'.

e.g. in and around towns turbine development may be located in close range without appearing too dominant, especially in the context of similar industrial developments and provided they do not intrude on residential areas, valued landscape settings or views enjoyed by the community.

e.g. where a landscape contains small-scale dispersed settlements, turbine development may be appropriate provided it has a complementary scale and/or is sufficiently distanced from these settlements so as not to be over dominant or intrusive.

Visual Interruption

Understanding the visual containment characteristics of a landscape forms a basis of assessing the degree to which the available views referred to above might be vulnerable to wind energy development. It can also assist in assessing landscape sensitivity to cumulative effect (the most open landscapes being the most sensitive). The previous supplementary planning guidance considered this by reference to visual interruption created by topographic, natural and manmade features and grouped landscape types into five categories.

Skyline

Understanding the skyline of a landscape – whether it is defined by the presence of vertical structures or is a simple empty horizon – can help to determine how turbine development would relate or contrast with its character. The nature and form of other vertical structures will also have a bearing with cross references to the key characteristic of manmade influence. Distinctive skylines or landmarks likely to be compromised by turbine development also need to be considered. Elevation of potential developments relative to key views can effect the degree of visual dominance

in a variety of ways including background screening, the eye being drawn to a prominent skyline, or emphasising the verticality of turbines.

e.g. in a moorland landscape where there are few vertical elements, turbine development may be appropriate as it could form a point of focus in the landscape and clear visual contrast.

e.g. in an urban fringe landscape that has many vertical elements of varied sizes and form such as existing turbines, pylons, industrial buildings, chimneys and cranes turbine development could increase the sense of clutter.

e.g. in a rural landscape with dramatic local landmarks such as vertical faces of limestone scars, or sandstone cliffs or symbolic features such as lighthouses, church spires or towers turbine developments could compete with and dilute the perceived value of these elements.

e.g. in the case of Wharrel's Hill appeal the inspector considered that the landscape was able to absorb the proposed development because from the receptors within the national park viewpoints looked down on the proposed development such that it occupied a small proportion of the open and broad coastal plain landscape and that the vertical emphasis of the development was not apparent. This contrasts for example with the coastal plain and lowland ridges landscape ie the Solway Basin, where the vertical emphasis of proposed wind energy developments would be relatively more imposing upon coastal edge receptors, because the viewer is looking up at the development and often drawn to the prominent skyline behind defined by the Lakeland fells.

Connections with Adjacent Landscapes

Views of turbines usually extend well beyond the boundaries of the landscape type within which they are located. It is therefore essential to consider views into and from adjacent landscape to understand the impact of a development upon areas of different character. A neighbouring landscape may also form a strong backdrop and its characteristics may influence the sensitivity of the receiving landscape.

e.g. the location of a turbine on the edge of one landscape may adversely affect the character of an adjacent landscape of higher sensitivity to turbine development.

e.g. the introduction of turbines on a coastal strip or farmland lying below a large escarpment need to be viewed in the context of the large scale character of the adjacent seascape or landscape.

References

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'Wind Turbine Development: Landscape Assessment, Evaluation and Guidance' Land Use Consultants for Breckland Council and King's Lynn and West Norfolk Borough Council 2003

'Planning and Renewable Energy in Cumbria' ETSU Cumbria County Council and South Lakeland District Council 1994

'Visual Assessment of Windfarms: Best Practice' University of Newcastle 2002 Scottish Natural Heritage

Importance	Typical Scale	Typical Designations
High	International National	World Heritage Site, National Park, AONB
Medium/High	Regional Sub-Regional	Landscape of County Importance
Medium	Local	Area of Local Landscape Importance
Medium/Low	Local	Undesignated
Low	Local	Areas identified for recovery

Rarity	Area (%)*
Unique	<0.3
Rare	0.4 – 1.0
Unusual	1.1 – 2.6
Ordinary	2.7 – 7.2
Common	>7.3

* Area occupied by Landscape Type/Sub-type as % of all Types based on Cumbria Landscape Classification 1995 p.7

Data	Dataset	Source
Base Map	OS 1:50,000 raster	Ordnance Survey
Settlement and Views:		
Settlement Pattern	Addresspoint	Ordnance Survey
National Cycle Routes	National Cycle Routes: Coast to Coast (C2C) Eden Valley Walney to Wear	Sustrans
National Trails	Hadrian's Wall Trail Pennine Bridleway Pennine Way	
Rights of Way	Rights of Way – Cumbria Outside LDNP	Cumbria County Council
Strategic Transport Routes	Roads – Motorways – Cumbria; A Roads – Cumbria; Railways - England	Ordnance Survey
Strategic Landscape Designations		
World Heritage Sites	World Heritage Sites – Visual Impact Zones (Hadrian's Wall)	English Heritage
WHS Setting	World Heritage Sites – Visual Impact Zones (Hadrian's Wall)	English Heritage
AONBs	AONBs - Cumbria	Cumbria County Council
Heritage Coast	Heritage Coast - Cumbria	Cumbria County Council
Landscapes of County Importance	Landscapes of County Importance (LOCI)	Cumbria County Council
Registered Historic Parks and Gardens	HER – Registered Historic Parks and Gardens	English Heritage
Conservation Areas	HER – Conservation Areas	Cumbria County Council
Ancient Woodlands	NC – Ancient Woodlands	English Nature
Associated Values		
SPAs	NC – Special Protection Areas	English Nature
SACs	NC – Special Area of Conservation	English Nature
SSSIs	NC – Special Sites of Scientific Interest	English Nature
RIGGS	Geological and Geomorphological Sites	Cumbria RIGS Group
Limestone Pavement Orders	NC – Limestone Pavement Orders	Cumbria County Council
National Nature Reserves	NC - National Nature Reserves	English Nature