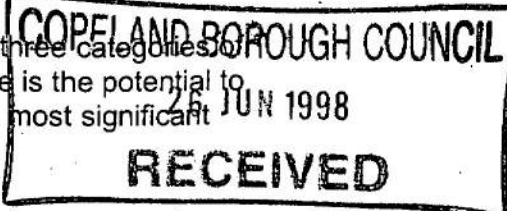


3.4.11 The Written Statement in relation to Policy EGY1 identifies three categories of renewable energy sources, and indicates that within Copeland there is the potential to exploit many of these, but in particular "wind energy represents the most significant renewable energy source in the Borough".

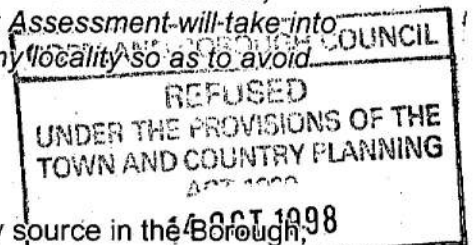


3.4.12 The Written Statement indicates:

"Unfortunately renewable energy proposals can often generate their own environmental problems. The best wind energy sites are open to constant high wind speeds usually on the coast or on exposed hillsides and usually, therefore, in wild and unspoilt landscapes open to views from a wide area. The Council considers that the generally elevated open nature of the areas designated as County Landscapes (Policy ENV6) and the St. Bees Heritage Coast (Policy ENV7) make them particularly unsuited to this form of development and even small-scale wind energy proposals (ie. up to 10 turbines) are unlikely to be acceptable if the character or appearance of these areas are to be safeguarded. Protection of other sensitive sites such as SSSIs, sites of wildlife interest, RIGS (see ENV1, 2 and 4) together with Scheduled Ancient Monuments and sites of local archaeological or historic importance must also be borne in mind along with affects on wildlife and the potential impact on residential amenity. Generally the Council will not sanction larger scale developments, ie. more than 10 turbines unless it can be shown that there is an overriding national need for a project and that the criteria in Policy EGY1 can otherwise be met. Small clusters of turbines outside the special landscape areas and other sensitive areas will be favourably considered subject to satisfactory detailed siting and so long as they meet the Policy EGY1 criteria. In Copeland the most appropriate sites are likely to be coastal. Indeed, the Council has already approved a cluster of five wind turbines on the coast at Haverigg. The Council will have regard to the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 and the requirements for Environmental Impact Assessment will take into account the cumulative effects of wind turbine developments in any locality so as to avoid adverse affects".

3.4.13 It is evident that the Local Plan acknowledges that:

- wind energy represents the most significant renewable energy source in the Borough;
- in Copeland the best and most appropriate wind energy sites are likely to be coastal;
- larger scale wind energy developments are defined as more than 10 turbines;
- renewable energy proposals can often create their own environmental problems, but it is areas designated as County Landscapes and Heritage Coast which are particularly unsuited to wind energy development irrespective of scale;
- regarding other 'sensitive sites' a less rigorous approach is adopted requiring them to be "borne in mind".



3.4.14 Policy EGY1 is divided into two 'clauses'. The first addresses large scale wind energy development of more than 10 turbines, and operates a presumption against such developments subject to the 'balance test' between environmental impacts and national benefits.

3.4.15 The second 'clause' of Policy EGY1 refers to proposals for small-scale wind energy development (ie. 10 turbines or less) and applies to the proposed Lowca windcluster. It operates a different approach to 'small-scale developments'. First, there is a presumption in favour of such development subject to the satisfaction of criteria. Second, the 'balance test' is not expressly invoked. Where, however, proposals for small-scale developments have "significant adverse impacts", the 'balance test' would be invoked via Structure Plan Policy 56 and in applying normal planning principles. One of the criteria to Local Plan Policy EGY1 requires that there is a scheme for the removal of the turbines, and the restoration of

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the site. This is a feature of the proposed windcluster which is addressed at Section 18 of the Environmental Statement.

Non-Statutory Policy

3.4.16 There are three non-statutory policy documents which do not comprise part of the statutory development plan, but which are also relevant to the proposed Lowca windcluster:

"Planning and Renewable Energy in Cumbria" (1994);

"Wind Energy Development in Cumbria" (July 1997);

"Wind Energy Development in Cumbria - Landscape Assessment Specification" (January 1998)

3.4.17 Again details are set out at **Appendix 2** to this Environmental Statement.

3.5 OVERVIEW OF LOCAL PLANNING POLICIES

3.5.1 Structure Plan policy for the landscape and for renewable energy development, and Local Plan policy for wind energy (interpreted in the light of the Structure Plan) requires developments which will have significant adverse impacts to be balanced against the benefits of electricity operation from a renewable resource, in accordance with Government policy.

3.5.2 The weight to be given to any adverse impacts increases according to the magnitude of impact, but also where proposals are located in areas which are statutorily designated for their landscape, wildlife or historic qualities, where Government planning policy gives greater priority to restraint.

3.5.3 The interrelationship between Structure Plan Policies 56 and 54 reflect its emphasis.

3.5.4 The adopted Local Plan, however, operates a presumption in favour of wind energy proposals of 10 turbines or less, subject to the satisfaction of criteria, regarding such schemes as 'small scale'. The Local Plan acknowledges that in Copeland the best and most appropriate wind energy sites are likely to be coastal, and that whilst renewable energy proposals can often create their own environmental problems; it is areas designated as County Landscapes and Heritage Coast which are particularly unsuited to wind energy development, irrespective of scale.

3.5.5 The proposed Lowca windcluster is not located within an area statutorily designated for its landscape, wildlife or historic qualities. The site is coastal, and the scheme will be small scale - comprising less than 10 turbines.

3.5.6 The following sections of this Environmental Statement examine the implication of the proposed windcluster, and provide the basis for weighing the balance contained in planning policy; by addressing the need for the development, and its land-use, landscape, nature conservation, archaeological and other conservation (cultural heritage), recreational, noise, and other implications.

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THE NEED FOR THE DEVELOPMENT

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4.1 INTRODUCTION

4.1.1 Government policy provides for the encouragement of energy generation from renewable sources, in order to reduce harmful atmospheric emissions and to meet future demand for energy with diverse and secure supplies. This section examines the environmental consequences of fossil fuel and nuclear methods of energy generation, and the commitments made both nationally and internationally to limit damage to the environment, which together underpin the case for the development of the Lowca windcluster.

4.2 ENERGY GENERATION USING FOSSIL AND NUCLEAR FUELS

4.2.1 The standards of living which the developed world enjoys, and to which the developing world aspires, are made possible, to a large extent, through the supply of energy, for which there is an apparently ever increasing demand.

4.2.2 At present, much of this energy is generated through the burning of fossil fuels, and through nuclear fission, both of which have serious impacts on the environment. In simple terms, these impacts result in :

- **Global Warming** mainly caused by the increasing quantities of carbon dioxide and other gases released into the atmosphere through the burning of fossil fuels. Long term, this could result in rises in sea level and climatic change.
- **Pollution** caused by acid rain which forms as a result of sulphurous emissions from the burning of fossil fuels, and which leads to widespread damage to forests, lakes and buildings. Accidents sustained during the transportation of petroleum products by sea, and overland by pipeline have caused major pollution, particularly to marine and coastal environments. The transportation, use and ultimate storage of radio-active material is also potentially hazardous, and has resulted in the sterilisation of wide areas.
- **Irreversible damage to the countryside** through insensitive surface or open-cast extraction of energy minerals, particularly coal.

4.3 NATIONAL AND INTERNATIONAL INITIATIVES

4.3.1 The United Nations " Earth Summit ", held in Rio de Janeiro in 1992, established the need to control greenhouse gases and other emissions, in the light of rising levels of global warming and pollution referred to above. The Summit provided the driving force behind various European and UK initiatives:

- **European Union:** Initiatives to limit emissions, and to increase the contribution made to energy supplies from renewable sources from 4% to 8% by the year 2005.
- **UK Government:** Initiatives to encourage the development of 1500 megawatts of renewable based electricity generation, (Declared Net Capacity) to be operational by the year 2000. The mechanism selected to implement this commitment was the Non-Fossil Fuel Obligation (NFFO) established under the Electricity Act of 1989, which provided for

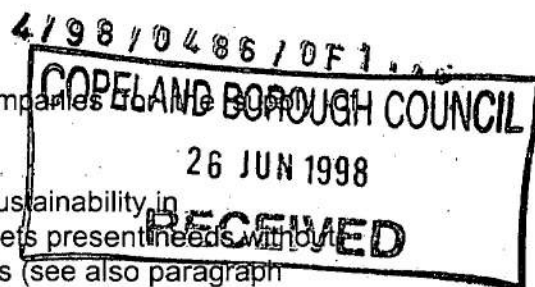
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premium prices to be paid by the regional electricity companies for contracted amounts of electricity from renewable sources.



4.3.2 The then UK Government also endorsed the principle of sustainability in development, which has been defined as development which meets present needs without compromising the ability of future generations to meet their needs (see also paragraph 3.2.1).

4.3.3 The NFFO initiative built upon the previous Government's White Paper on the environment, *This Common Inheritance*, published in 1990, which recognised the important contribution that renewable energy could make towards reducing carbon dioxide emissions. In this report, wind energy was said to have potential to supply up to 10% of the UK's electricity requirements.

4.3.4 The present Government has not only carried these policies forward but has additionally strengthened both targets and commitments.

4.3.5 In its manifesto, the Labour Party stressed its desire to play a leading role in climate change negotiations and its intention to set a target to reduce UK emissions of carbon dioxide by 20% by 2010, well ahead of proposed international commitments of 12 % reductions. More recently and following the Kyoto Conference, on 17 June 1998 the Government agreed to a target of emission reduction of 12.5% by 2010 as the UK's contribution to the overall EU target.

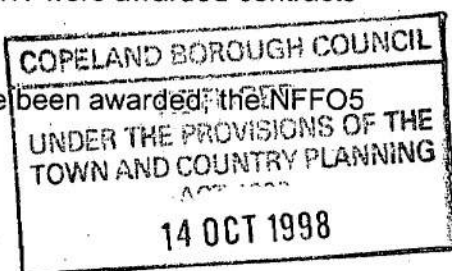
4.3.6 Meanwhile, on 25 November 1997, John Battle, Minister for Science, Energy and Industry, announced the fifth Non-Fossil Fuel Obligation for renewables in England and Wales, NFFO5. He stated "*The Government is committed to a new and strong drive to promote renewables....*" He went on to say: "*I am currently carrying out a review of what would be necessary and practicable to achieve 10% of UK's electricity needs from renewables by the year 2010.*"

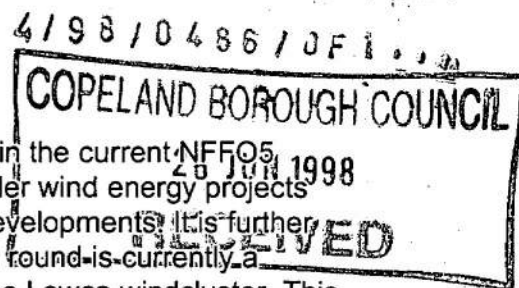
4.3.7 The present Government is therefore considering how the potential for renewables to supply 10% of UK demand can be translated into a clear policy objective, while continuing to work within the enabling framework created by their predecessors. It is important to note that such a target is very ambitious and demanding, and would require a substantial and sustained implementation of proven renewable technologies, especially wind power. It translates into approximately 5000 MW dnc by 2010, as compared with the previous target of 1500 MW dnc by year 2000.

4.4 NON-FOSSIL FUEL OBLIGATION ORDERS

4.4.1 Following two previous rounds of NFFO contracts in 1990 and 1991, the Government announced the third Non-Fossil Fuel Obligation order on 20 December 1994. This order, which covers the period from 1995 to 2014, requires the electricity industry of England and Wales to take up 626 megawatts of new generating capacity (DNC) from renewable sources, so contributing towards the 1500 MW target for renewable forms of energy. Some 55 wind energy schemes with a contracted capacity of 165 MW were awarded contracts under the order, including the proposed Lowca windcluster.

4.4.2 Since then one further round of NFFO4 contracts have been awarded, the NFFO5 process is currently in hand.





4.4.3 It is to be noted that in the NFFO3 and NFFO4 rounds and in the current NFFO5 round, the government has explicitly recognised the value of smaller wind energy projects by reserving a special tranche of contracts specifically for small developments. It is further to be noted that the definition of such small projects in the NFFO5 round is currently a maximum capacity of 2.33 MW installed, around half the size of the Lowca windcluster. This clearly indicates that the Government attaches importance to even the very modest production of "small" projects and emphasises the value in the Government's eyes of the contribution to national and international targets which larger projects can make and which must be weighed in the balance in reaching decisions on planning applications.

4.5 ELECTRICITY PRODUCTION

4.5.1 The absolute level of production of electricity from a windcluster depends on a number of factors, principally the average wind speed of the site, the size and efficiency of the turbines, the capacity of the grid and the site layout.

4.5.2 Commercial and national policy considerations dictate that any developer seeks maximum site output, both to make a significant contribution towards national renewable energy targets and to enable the electricity to be generated as cheaply as possible.

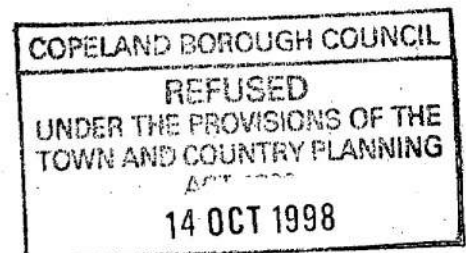
4.5.3 The Lowca site represents an attractive opportunity to meet these requirements. The seven turbines will generate on average enough electricity to meet the needs of 3,800 homes, equivalent to nearly 40% of the homes in Whitehaven.

4.6 SUMMARY AND CONCLUSIONS

4.6.1 The development of the proposed Lowca windcluster would result in the generation, by wind power, of significant amounts of electricity for supply to the north-west regional electricity grid. It would contribute to the government's target of 10% of electricity to be generated from non-fossil fuel sources. As a result, less energy would require to be generated using fossil fuel sources, so reducing emissions of 'greenhouse' and other gases and therefore assisting in achieving the UK's international obligations to control harmful atmospheric emissions.

4.6.2 The Lowca site offers an attractive combination of wind resource and grid capacity which would enable the development of a compact and efficient site which will provide power for about 2800 homes and represents a significant contribution to national renewable energy targets.

4.6.3 It is also to be noted that a typical wind turbine produces the equivalent of the energy required to manufacture it in approximately 6 months of operation, after which it is a net producer of 100% renewable and clean energy.



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5. PLANNING THE DEVELOPMENT

5.1 INTRODUCTION

5.1.1 This section describes the evolution of the Lowca windcluster proposal, which has involved planning, design and appraisal work at two distinct levels or scales :

- **Site Selection** at a broad scale, in order to identify, through the analysis of a wide range of technical and environmental criteria, a discrete study area within which proposals for the site could be developed.
- **Detailed Site Design** of the windcluster, involving the design of the site layout, access arrangements, type and finish of the turbines and all ancillary structures, in order to best respond to various technical, operational, and environmental constraints to development within the identified study area.

5.1.2 The development has been planned, consultations conducted and the Environmental Impact assessed in accordance with the Best Practice Guidelines for Wind Energy Development of the British and European Wind Energy Associations.

5.2 SITE SELECTION

5.2.1 Wind Prospect Ltd have over a period of years conducted a thorough investigation of the potential of West and South Cumbria for the development of windclusters, which would generate electricity for distribution via the regional electricity distribution network.

Selection Criteria

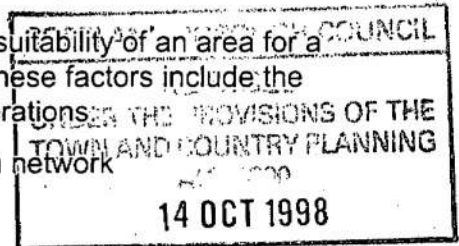
5.2.2 A range of factors have been considered, which affect the suitability of an area for a windcluster and which could potentially constrain development. These factors include the following technical, planning, land use and environmental considerations:

- capacity within and ease of connection to the REC distribution network
- suitable wind resource
- access and general ground conditions
- proximity to residential properties and the character of surrounding land uses
- designated areas of national and local importance and all aspects of landscape, nature conservation, archaeology and heritage

5.2.3 Major designated areas of national importance, including the Lake District National Park and the St Bees Heritage Coast were considered to be fundamentally constrained on landscape and environmental grounds.

5.2.4 Areas very close to settlements were rejected on the grounds of sensitivity of numbers of dwellings to potential environmental impacts, and areas apparently without reasonable access by road were also discounted.

5.2.5 It is clearly impossible to measure wind at a large number of sites in an area such as Copeland Borough in order to precisely establish their relative merits. However, some general principles can be applied. Wind speeds are likely to be adequate in areas which are either:



- directly exposed to open water to the west and Southwest. These will receive a very smooth air flow with a high energy content. The existing windcluster site at Haverigg is such a location, as is the site at Lowca. For this approach to be effective the turbines need to be close to the water and for there to be no intervening obstructions (buildings, landform, trees etc.).

- on significantly elevated locations, again exposed to the west and southwest, surrounded by a smooth and gently rounded landscape. Again Lowca benefits from such a location.

5.2.6 Capacity within and ease of connection to the REC grid is also difficult to assess, given the commercially confidential nature of certain information concerning the electricity distribution network and the complexity and variety of connection options which may be available, particularly at 11 kV. However on a broad scale, areas remote from overhead transmission lines or from individual dwellings or settlements are unlikely to offer feasible opportunities for grid connection.

5.3 DETAILED SITE DESIGN

5.3.1 Individual site opportunities were then appraised against these criteria. The Lowca site was identified as meeting them in all major respects. A study area was then defined and wide ranging surveys of existing environmental conditions undertaken in order to establish a base-line against which the windcluster could be designed in detail.

5.3.2 **Figure 2** records the landscape survey of the study area in its setting. Further information concerning each aspect of the survey can be found in the relevant 'subject' sections of this document.

5.3.3 A description of the elements of the proposed development which together comprise the windcluster may be found in **Section 2**.

Operational Requirements

5.3.4 A number of the elements of a windcluster have operational requirements which influence their siting, as follows ;



- **Turbines** should not be located on land reclaimed following the current opencast coal mining, as it would not be sufficiently stable.
- **Turbine** intervals should be equivalent to approximately 10 times the length of the rotor blades proposed for use, in order to ensure that each turbine may operate in undisturbed wind.
- **Switchgear House** should be located adjacent to the point of export of the electricity from the site into the REC distribution system.
- **Site Access** should be gained from the farm access track. Each access point should be 4 metres wide with an appropriate splay in order to accommodate turbine deliveries and site construction vehicles.
- **Internal Access Tracks** should interlink each turbine, and be constructed to 4 metres in width and at a gradient suitable for use by heavy plant. They should be of local stone

construction.

Environmental Requirements

5.3.5 In addition to the strictly technical requirements of the windcluster, the following environmental requirements which bear directly on site design were identified:



- **Separation from Dwellings.** The turbines should be located so that no dwelling could suffer noise nuisance or shadow flicker effects. Three hundred metres is recognised as a suitable separation distance for design purposes, recognising that a separate study of noise issues is required to ensure no risk of noise nuisance. In fact it proved possible to secure separation distances of more than 400 metres.
- **Colour.** An appropriate colour for the turbines towers and blades should be identified in the light of the main views and backgrounds likely to be experienced.

Analysis

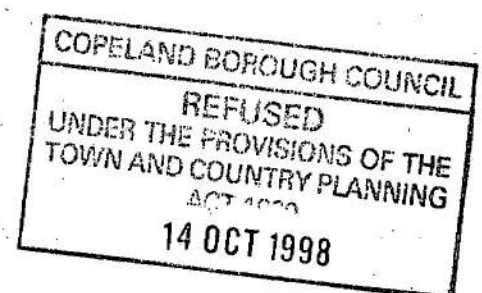
5.3.6 The survey information was then analysed in relation to the operational, environmental and safety requirements of each element of a windcluster development. This process led to a process of design development as the relevant factors were taken fully into account and detailed knowledge of the site accumulated. The series of layout designs referred to below are illustrated on **Figure 5**.

5.3.7 **Design 1** represents the original desk design for the site. It consists of eight 600 kW turbines, with 40 metre towers and 22 metre blades, 6 located along the cliff top and 2 set back on the southern boundary of the site.

5.3.8 After consultation with Lowca Parish Council, the design was reviewed to take account of the views expressed and with the aim of moving the two turbines nearest the village further away and reducing their visual prominence. This resulted in **Design 2**. However, given the constraint of not locating turbines on the reclaimed land, the separation distances proved unsatisfactory.

5.3.9 However, turbine technology and models are constantly evolving, and consideration was therefore given to alternative machines. A number are now available with the same height towers but which, with the advantage of new blade designs between 23 metres and 24 metres, produce significantly more output. Using machines of this general type it is possible to achieve the same output with only 7 turbines. This led to **Design 3**, where Turbine 8 is no longer required, leading to a considerable reduction of visual impact on the northern extremities of Lowca village, while maintaining adequate separation distances between the turbines.

5.3.10 **Design 3** is therefore considered to be the optimal design for the site and forms the basis of the planning application.



9. LAND USE

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6.1 INTRODUCTION

6.1.1 This section describes the existing land use of the windcluster site and surrounding area, the likely impact of the windcluster and associated facilities on land use, and the measures proposed to mitigate impacts.

General features and landform

6.1.2 The application site is located within a narrow strip of agricultural grazing land which lies immediately inland of the sea cliffs at Lowca. It is part of the holding of Park House Farm, and is used as grazing land, primarily for sheep. Much of the holding of Park House Farm is not currently in agricultural use, but instead forms part of the Lowca open-cast mine.

6.1.3 The cliffs at Lowca rise abruptly from the foreshore to a height of approximately 30-40 m AOD, above which the land rises eastwards to form the western flanks of the Lowca ridge. The pastures which fringe the coast slope steeply at a gradient of approximately 1:10, with land becoming progressively flatter towards the top of the ridge.

6.1.4 The application site lies within a study area comprising several fields of improved grassland, semi-improved marshy grassland, flushed rough pasture and gorse scrub which fringe the cliff edge between Foxpit Gill in the north and Andrew's Gill in the south. Until recently, the fields extended inland to meet the alignment of the former mineral railway, but presently they terminate at the western boundary of the Park House Farm open-cast mine.

6.1.5 Stock-proof fencing defines the field boundaries in the northern part of the study area, where the pastures are agriculturally improved. However there is no effective subdivision of the southern part of the area, where neglected stone walls remain as remnants of the previous field pattern.

Land Quality

6.1.6 The study area is underlain by relatively soft shales and sandstones of the Lower and Middle Coal Measures, with surface deposits of Quaternary glacial till. The land is not of high agricultural quality, due to its severe exposure, steep slopes and poor soils, and is variously Agricultural Land Classification (ALC) Grade 4 or Grade 5.

The Lowca Open Cast Mine

6.1.7 Copeland Borough contains extensive reserves of coal, and open-cast extraction has been a feature of the area for many years. The Lowca Open cast mine is located between the proposed windcluster site and the C4001 road, and extends to some 106 hectares in area. Planning approval for the extraction of coal was granted in 1996. Approval was also granted for the temporary diversion or closure of a number of rights-of-way which crossed the site. Mining ceased in 1997 after unforeseen adverse geological conditions were encountered within the site, and restoration works are currently in progress. When these works are complete, the restored landscape should look very similar in landform and general appearance to the pre-extraction landscape. It will be enclosed within a pattern of large regular fields defined by hawthorn hedging, and returned to use as grazing land.

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6.2 PLANNING POLICY CONTEXT

6.2.1 National policy concerning development of agricultural land is set out in the Government's Planning Policy Guidance Note PPG 7 'The Countryside - Environmental Quality and Economic and Social Development'. County policy seeks to protect grade 2 and 3 agricultural land from development under Policy 19 of the adopted Cumbria and Lake District Joint Structure Plan 1991-2006. These policies and guidance are examined in **Section 3** and set out in more detail in **Appendix 2**.

6.3 THE IMPACT OF THE WINDCLUSTER

6.3.1 The seven turbines of the Lowca windcluster would extend in a staggered line over a distance of approximately 950 metres. The area of land-take would consist only of that required for the footprints of each of the seven turbines, for the switchgear building, access tracks, and for the wind monitoring mast. Together these amount to approximately 0.8 hectares of grazing land.

6.4 MITIGATION

6.4.1 Land surrounding each of the turbine towers which would be disturbed in the course of construction of the turbine bases would be reinstated for future agricultural use. This would involve the application of retained soil and either retained grass turves or an appropriate pasture grass seed, in order to encourage the growth of grass cover and so reduce land-take for the 'life' of the windcluster by approximately 500 square metres. The surface of the access tracks would be allowed to re-colonise naturally with pasture grasses, a process which may take a several years to achieve.

6.5 RESIDUAL IMPACTS

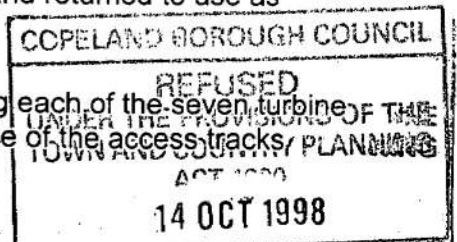
6.5.1 Following re-reinstatement and renewed establishment of the grass sward residual loss of land from grazing use would be generally confined to the areas occupied by the seven individual turbines, by the switchgear house, and by the access tracks would amount less than 0.75 hectares, an area which would reduce to less than 0.05 hectares when grass cover is successfully re-established over the site access tracks. This magnitude of loss of grazing land within the agricultural holding would not be significantly adverse, and would be restricted to the duration of the economic life of the windcluster, following which the land would once again be available for agricultural use.

6.6 SUMMARY AND CONCLUSIONS

6.6.1 The windcluster would be developed on land at Park House Farm, Lowca which is currently in use primarily for sheep grazing. The land is steeply sloping and is no better than Grade 4 or 5 in quality.

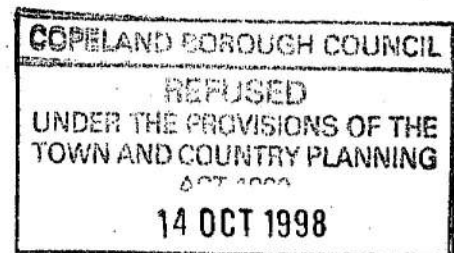
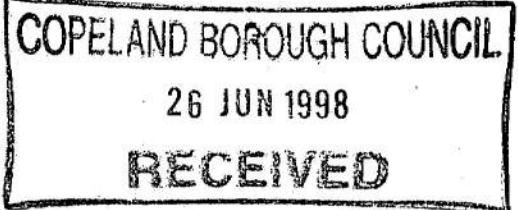
6.6.2 Other land within the farm holding is not currently in agricultural use, but forms part of the Lowca open-cast mine. Mining operations have now ceased, and when planned site restoration works are complete, the area should look very similar in landform and general appearance to the pre-extraction landscape. It will be enclosed and returned to use as grazing land.

6.6.3 Following construction of the windcluster, land surrounding each of the seven turbine towers would be reinstated for future agricultural use. The surface of the access tracks/



would be allowed to re-colonise naturally with pasture grasses, a process which may take a several years to achieve.

6.6.4 Less than 0.75 hectares of grazing land would initially be lost to agricultural use for the duration of the economic life of the windcluster, an area which would reduce to less than 0.05 hectares when grass cover is successfully re-established over the site access tracks. This magnitude of loss of grazing land within the agricultural holding would not significantly affect stocking rates or farm productivity. The windcluster would not therefore have a significant adverse effect on land use.



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7. LANDSCAPE

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7.1 INTRODUCTION

7.1.1 This section considers the landscape in the vicinity of the proposed Lowca windcluster, the likely impact of the windcluster and associated facilities on the landscape, and the measures proposed to mitigate impacts.

7.2 THE EXISTING LANDSCAPE

Site Context

7.2.1 The windcluster site is located on a narrow strip of grazing land immediately inland of the sea cliffs at Lowca. It lies almost mid-way between Whitehaven and Workington, the two principal urban centres of the West Cumbrian coast. The A595(T) trunk road passes nearby, adjacent to which is the Lillyhall industrial estate.

7.2.2 The former mining village of Lowca is the closest settlement to the windcluster site, and lies approximately 1km to the south. Distington is approximately 2 km to the east, and High Harrington and Harrington approx 1.8 km to the north. Workington and Whitehaven are both located on the coast at a distance of approximately 4 km north and 4.5 km south of the site respectively.

7.2.3 The windcluster site lies outside of the Lake District National Park, the boundary of which lies approximately 10 km to the east. The St Bees Head Heritage Coast, also a nationally designated landscape lies 8 km to the south, beyond Whitehaven. The application site also lies outside of any areas of local landscape importance, which are designated by Cumbria County Council as 'County Landscapes'. (See Figure 1)

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Existing Studies

7.2.4 The Lowca windcluster site is located within the West Cumbria Coast Regional Character Area, which was jointly defined by the Countryside Commission and English Nature as part of the Character of England: Landscape, Wildlife, and Natural Features' (1996). The character description (see Appendix 3) notes that

"The West Cumbria Coastal Plain is an area of contrasts with its open agricultural landscape, varied coastal scenery and extensive views to higher fells in the east. The area has a strong industrial history, formerly connected with coal and iron ore mining industry and, more recently, with the chemical, power generation and nuclear re-processing industries. Many of the structures associated with these industries have a strong visual affect on the landscape."

7.2.5 A number of documents have been published by Cumbria County Council which also assist in an appreciation of the landscape character and relative quality of the application site. The **Cumbria Landscape Classification** (October 1995) categorises much of the West Cumbrian coastal landscape as type 5 'Lowland', with sub-divisions which distinguish between subtype 5a 'Ridge and Valley', and subtype 5d 'Urban Fringe', areas of which lie adjacent to Whitehaven and Workington, and include Lowca, Parton, Distington, High Harrington and the Lillyhall industrial estate. The Lowca windcluster site is categorised within subtype 5a 'Ridge and Valley', for which the following summary description applies:

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| Altitude/Geology | 50-130m AOD. Boulder clay, with some alluvium and coal measures. |
| Landform | Long slopes and wide ridges but locally rolling or undulating with small river valleys. |
| Features: Natural/man-made | Managed hedges, fences, roads, villages, shelterbelts, small plantations, broad-leaved woods. |
| Cultural/Historic | Farms/hamlets in local stone, Roman road (A595) and forts. |
| Views / Detractors | Long pleasant views particularly over Solway. Detractors on urban edges include pylons, masts, coal workings and MOD land, neglected hedges and walls. |

7.2.6 The subjective impression of the 5a Ridge and Valley landscape recorded in the Cumbria Landscape Classification notes that

7.2.7 *"These are medium scale landscapes generally enclosed or more open depending on the proximity of woodland or limiting topography. Generally well-managed, balanced, bland and unspectacular with few unusual features. Some parts are interesting or pleasant but there are a number of detractors."*

7.2.8 The Classification notes, under the category 'Vulnerability to Change', that *'The main changes to this sub-type stem from both agricultural change and development. Symptoms of agricultural change including neglected farmland, new uses, unmanaged woodland, neglect of hedges and walls, field enlargement and replacement of hedges by fencis are having a minor effect on the character of the landscape. Developments like roads, wind turbines, masts and pylons are having a more obvious impact. Some areas are affected by opencast coal mining and there are further reserves of coal capable of exploitation. Restoration of opencast sites provides an opportunity to develop new landscape features such as woodland or wetland areas.*

These landscapes could be sensitive to open ridge line development or major changes in agriculture.'

7.2.9 2.5 – 3 km inland of the site, the lowland landscape gives way to more elevated ground classified as landscape type 9 'Intermediate Moorland and Plateau', which is divided into subtype 9a 'Open Moorland' and subtype 9d 'Ridges'. Relevant extracts from the Cumbria Landscape Classification are included in **Appendix 4**.

Technical Paper No. 4 'Assessment of County Landscapes', published in July 1992 by Cumbria County Council in support of the Cumbria and Lake District Joint Structure Plan, also aids appreciation of the character and quality of landscapes within the county.

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7.2.10 Government guidance concerning the landscape is set out in PPG 7 "The Countryside - Environmental Quality and Economic and Social Development" published in February 1997. The County Council has a hierarchy of policies applicable to landscapes within Cumbria. Policy 13 of the Cumbria and Lake District Joint Structure Plan 1991-2006 entitled 'The Rest of the Countryside' is applicable to the application site. Relevant local policies concerning the local landscape include ENV 15, which concerns development in the coastal zone are included within the Copeland Local Plan, which was adopted in July 1997. **Appendix 2** provides a commentary on each of these policies as they apply to the Lowca windcluster site.

7.2.11 Cumbria County Council have also published a document "**Wind Energy Development in Cumbria**" (July 1997) which has been adopted as a statement of supplementary planning guidance. It provides guidance concerning the potential acceptability, in principle, of wind turbine developments within each of the landscape types and sub-types identified in the Cumbria Landscape Classification. The 5a 'Ridge and Valley' subtype is categorised in terms of visual interruption as a rolling landscape, within the G10 wind energy guidance area. The guidance statement and explanatory text for G10 areas reads:

"G10 In much of this rolling landscape, there may be scope for development up to the scale of a small cluster. Exceptionally a larger cluster might be considered where the scale of the landscape can absorb such development.

The generally broad scale, and the presence of a variety of screening features in this landscape, means that small clusters, although visible, may be able to be absorbed without great difficulty."

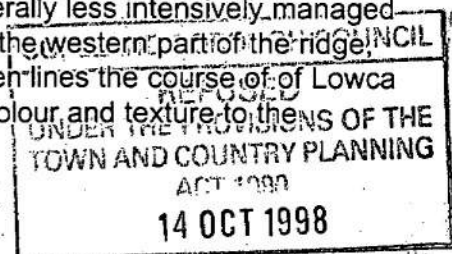
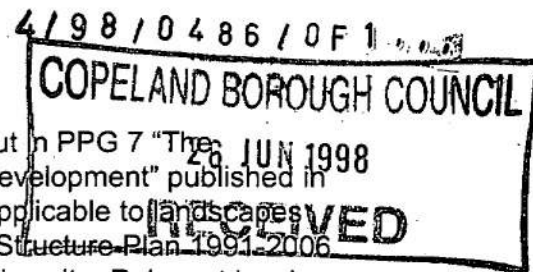
7.2.12 For the purposes of this document, a small cluster is defined as 2-5 turbines, and a large cluster as 6-9 turbines in a single installation. Relevant extracts from "Wind Energy Development in Cumbria" are included in **Appendix 5**.

7.2.13 In January 1998 the County Council published further, non-statutory guidance entitled "Wind Energy Development in Cumbria: Landscape Assessment Specification".

The Character of the Local Landscape

7.2.14 The local landscape is characterised by a distinctive linear lowland ridge which runs roughly parallel to the coast. It forms part of the ridge and valley subtype (5a) of lowland landscape defined by the Cumbria Landscape Classification. The Lowca ridge rises from undulating coastal cliffs approximately 30-40m high, and reaches 101m AOD at 1km inland before falling away eastward to the incised valley of Lowca Beck. The eastern side of the valley forms a steep west facing slope which rises to abruptly meet the plateau-like Moresby Moss at approximately 150-160m AOD. Lowca ridge is terminated where Lowca Beck turns westward to meet the sea.

7.2.15 Much of the area is rolling or undulating ridge and valley farmland of permanent pasture which is typically enclosed by a regular pattern of hedgerows and stone walls. Land on the western side of the Lowca ridge is windswept, open and medium-large in scale, with fragmented hedges and partially broken down walls and generally less intensively managed than land elsewhere. Tree cover is almost entirely absent on the western part of the ridge, but is an important feature of Lowca Beck valley, where it often lines the course of Lowca Beck and its numerous tributary streams, and adds variety, colour and texture to the landscape.



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landscape. Various transmission masts and lines of pylons are prominent 'built' features of the area, which also contains a number of new non-agricultural land uses including the golf course recently developed near Harrington, the garden centre/nursery at West Ghyll Farm, and the caravan storage compound on Whinmill Farm, High Harrington.

7.2.16 The A595 (T), which runs along the lower slopes of the Lowca Beck valley, is the principal road in the area. The Lillyhall industrial estate lies adjacent to it, at a distance of 2.7 km from the windcluster site. A number of settlements also lie adjacent to the A595(T) including the small town of Distington (1.9 km from the closest turbine), and properties at Howgate (1.9 km from the closest turbine), and Common End (2.2 km from the closest turbine). Other local settlements include Lowca (0.8 km) and Parton to the south of the site, and Harrington and High Harrington to the north.

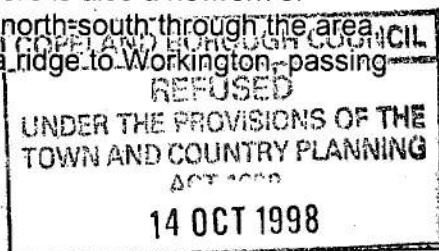
7.2.17 Further small communities and scattered farmsteads and residential properties are located on the valley sides of Lowca Beck and across the Lowca ridge, including Roseneath, Low Moresby, Ghyll Brow, Green House, Micklam, Syke Whinns, Harrington Parks, Foxpit House and Jubilee House. These are interlinked by a network of minor 'C' class and unclassified roads, including the C4001 road which runs along the top of the ridge linking Lowca, located on its southern end, with High Harrington to the north. There are also a number of footpaths and bridleways in the area, some of which form part of local long-distance routes.

7.2.18 Lowca is small discrete settlement of 280 households which is sited on steeply sloping hillside at the southern end of the Lowca ridge, with most properties located in relatively sheltered positions below the crown of the ridge. Unlike the more traditional agricultural villages of the local area, it has a distinctively urban character, having developed at the end of the 19th century and early part of the 20th century as a 'pit village' associated with the Lowca coal mine.

7.2.19 Most of the properties within Lowca lie to the east of the C4001 road, with open restored land, formerly the industrial site, to the west. West and East Croft Terrace face each other across the C4001 road which runs through the village, and properties here have principal outlooks towards the east and west. Other older terraced houses in the eastern part of Lowca are arranged in rows to face towards the north and south. At the northern end of Lowca, a line of properties including Lowca primary school, Micklam Cottages and Micklam House are located on the eastern side of the road, with open views towards the west and east.

7.2.20 Moresby Hall, Moresby Farm and the Church of St Bridget form a small cluster of properties located adjacent to the C4001 to the south of Lowca, between Lowca Beck and the A595(T) road. The church is a Grade II Listed Building constructed on the site of a Roman fort, and Moresby Hall is a Grade I Listed Building. These are considered in more detail in **Section 9**.

7.2.21 The West Cumbria Coastal plain in general, and the local area in particular has a long industrial tradition. This has resulted in a legacy of engineered features within the landscape including the extensive open-cast workings at Weddicar, to the east of Whitehaven, together with restored spoil heap on the southern edge of Lowca and the buildings which remain on the Micklam brickworks site. There is also a network of dismantled former mineral railway lines which run roughly north-south through the area including the one which runs northwards across the Lowca ridge to Workington, passing through the windcluster site.



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7.2.22 The most recent phase of local rural industry is represented by the Lowca open-cast coal mine, which is located on the Lowca ridge adjacent to the windcluster site and within the land holding of Park House Farm. Its disturbed ground, spoil heaps and settlement lagoons currently appear almost as a moonscape, devoid of natural features. The mine was operational until recently and the site is currently the subject of restoration works, which are due for completion by the end of 1998. Further details of the mine extraction and restoration works are included in **Section 6**.

The Landscape of the Application Site and adjacent area

7.2.23 The application site is located on the western coastal part of the Lowca ridge within fields of semi-improved pasture, rough pasture and gorse scrub which slope steeply down to the cliff edge. The site is limited on the landward (eastern) side by the workings of the Lowca open-cast mine, which extends eastwards as far as the C4001 road. The landscape is medium-large in scale, and open or exposed along the coastal margin. Contrasting areas of improved pasture, rough pasture and scrub provide a diversity and textured quality to the landscape. Agricultural fencing with fragments of hawthorn hedgerow define fields within the northern part of the application site, but in the southern area, where rough grazing predominates, the land is now unenclosed for all practical purposes, with neglected stone walls as remnants of the previous field pattern. Gorse scrub has become established in parts of the area.

7.2.24 Minor streams or gills, including Andrew's Gill, Cat Gill and Foxpit Gill have cut narrow deeply incised valleys into the coastal fringe. These valleys are sufficiently sheltered to allow the establishment of sparse broadleaved woodlands, which are protected as Sites of Nature Conservation Value (refer to Section 9). Andrew's Gill limits the southward extent of the windcluster site.

7.2.25 A dismantled mineral railway line runs from the former Lowca works northward, roughly parallel to the coast. It now forms an informal track across farmland, except within the boundary of the open-cast mine, where it has been entirely removed during site excavation works. It is intended that the alignment of the railway will be restored as a farm track. Cumbria County Council are currently negotiating with the landowner for use of the track as a permissive footpath which will form part of the route of the Cumbria Coastal Way. The Cumbria Cycleway is aligned at present along the C4001 road, but will shortly be re-routed to follow another dismantled former mineral railway line which runs close to Distington. Further details of these routes are included in section 11.

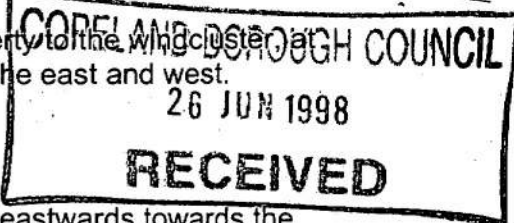
7.2.26 Several rights-of-way also cross the area, providing links from the C4001 to the coast (**Figure 2**). At present a number of these footpaths have been diverted for the duration of mining activities, and opportunities for public access to the windcluster site are consequently limited. The various routes, tracks and rights-of-way within the area are considered in more detail in **Section 6**.

7.2.27 Park House Farm lies close to the proposed windcluster, at a distance of approximately 500 metres from the nearest turbine (T1) position. The farmhouse is located on the eastern side of the building group, with principal outlooks to the east and west. A new farm access road will be constructed between Park House Farm and the C4001 road as part of the mine restoration works.

7.2.28 Micklam Farm lies to the south of the windcluster site at a distance of 540 metres from the closest turbine (T6). It comprises a range of outbuildings and a main farmhouse which has a principal west - east outlook. To the north of the site, Fox Pit House lies



adjacent to the former mineral railway line and is the closest property to the windcluster at a distance of 430 metres from Turbine 1. It has principal views to the east and west.



Visual Character

7.2.29 Long views are available westward towards the coast and eastwards towards the mountains of the Lake District National Park from many locations within the local area. The Lowca ridge interrupts views of the application site itself from almost all locations to the east, including from more elevated ridge land such as Moresby Moss, and from the intervening Lowca Beck valley. The site is however visible in some views up and down the coast from other coastal locations, including from parts of Whitehaven and Workington.

7.2.30 The coastal situation of the windcluster site, and the open character of the surrounding landscape provides opportunities for wide views from the site out to sea, including views, in conditions of clear visibility, across the Solway Firth towards Galloway. In views from the site northwards along the coast, Harrington, Salterbeck and the extensive urban and industrial development of Workington (2-5 km) are also visible in the middle distance, over open pastures and the spoil heaps of the Lowca open cast coal mine which currently occupy the foreground. Southward, views towards Whitehaven (5 km) are also characterised by foreground farmland, with urban and industrial development in the middle distance, including the tall chimneys and smoke plumes of the Marchon complex. St Bee's Head (9.5km), which lies within the Heritage Coast, is visible in clear conditions as a feature on the distant horizon.

7.2.31 Views inland from the windcluster site and adjacent coastal edge are generally restricted by the rising ground of the ridge which forms the near horizon. These views are currently interrupted by the spoil heaps, working areas and soil bunds of the Lowca open cast coal mine.

Landscape Evaluation

7.2.32 Landscape evaluation involves the assessment of the quality of the landscape. The Countryside Commission recommend (CCP423 'Landscape Assessment Guidance' six main criteria for assessment (landscape as a resource, scenic quality, unspoilt character, sense of place, conservation interests and consensus of opinion regarding importance), making it clear that evaluation is undertaken on a relative basis. The Commission advises that

"essentially, the quality of the landscape is judged against that of surrounding landscapes, whether at national, regional county or local scale".

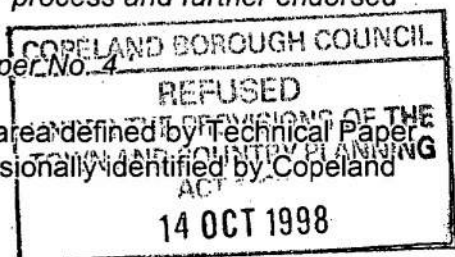
7.2.33 The recent guidance provided by 'Wind Energy Development in Cumbria: Landscape Assessment Specification' indicates that

5.2 Local

Evaluation of landscape quality should be based on the following document which underpins the statutory development plan definition of County Landscapes which was tried and tested through the Structure plan EIP process and further endorsed through Local Plans:

'Assessment of County Landscapes' Technical Paper No. 4

7.2.34 The application site lies within the landscape type area defined by Technical Paper No. 4 as 'Open Ridges and Slopes'. It had not been provisionally identified by Copeland



Borough Council as draft AGLV, and did not meet the criteria for designation as a County Landscape.



7.2.35 The landscape in the vicinity of Lowca is not recognised as being of particular landscape value or quality at either national county or borough scale. Nor does it lie adjacent or close to an area which is designated such a way; the closest area with a county landscapes designation lies 5 km distant, while the boundary of the Lake District National Park is 11.5 km to the east.

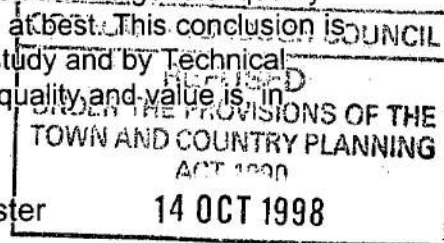
7.2.36 The ridge and valley subtype within which the application site is located is typical of much of the lowlands of West Cumbria, and is regarded as pleasant but rather ordinary scenery, with a number of detractors. The Lowca ridge cannot be considered to have an unspoilt natural character, for it has been influenced by the distinctively urban development of Lowca, and has been further eroded by a number of urban fringe land uses, including caravan storage, a garden centre and golf course, and by the introduction of transmission masts and pylons. In common with other areas there has also been a decline in the condition of landscape features including stone walls and hedgerows which in many places have a neglected appearance or have been replaced by utilitarian agricultural fencing.

7.2.37 More significant has been the impact on landscape character of the open cast coal mine on land at Park House Farm located immediately adjacent to the proposed Lowca windcluster. The mining site is at present a highly discordant feature which greatly degrades the character and quality of the landscape. However there is scope for significant enhancement of the existing mining site landscape in the medium and long term. If site restoration proposals are implemented successfully, the restored landscape should be broadly similar in character and appearance to surrounding agricultural land, as was the case prior to commencement of mining activities.

7.2.38 The application site itself comprises steeply sloping fields of rough or semi-improved grazing land with scrub which are open, and generally lack distinctive landscape pattern. Its scenic qualities are difficult to assess at present, due to the immediate and degrading presence of the open-cast mine. However its open cliff-top location and associations with sky and sea are important aspects of the character of the site which enhance its scenic quality and sense of place at a very local level.

7.2.39 Despite the scenic quality that its elevated coastal location conveys, within the wider context of the Lowca ridge, the local landscape is relatively bland and unspectacular. Nature conservation is of local interest only, and the features of cultural heritage present generally reinforce a long history of non-agricultural or industrial uses within a rural area. The condition of some landscape elements is declining, and there are a number of detracting features, including transmission masts and pylons, which degrade the quality of the landscape. Overall, when considered in relation to other areas of local (County) or national importance within the borough of Copeland, this assessment considers the general quality and value of the local landscape to be moderate-low or moderate at best. This conclusion is generally supported by the findings of the Copeland AGLV draft study and by Technical Paper No. 4, providing a level of consensus that local landscape quality and value is in relative terms, at the lower end of the scale.

Sensitivity of the landscape to the proposed Lowca windcluster



7.2.40 Assessment of landscape character and relative value or quality of the landscape lead on to judgements concerning the likely sensitivity of the landscape to the proposed development. The following aspects are considered relevant in assessing the sensitivity of the Lowca landscape:

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- the relatively lower quality and value of the Lowca landscape, generally assessed at only moderate-low or moderate levels at both the county and local scale;
- the medium-large scale and characteristically rolling ridge and valley landform, which would help to absorb the wind turbines within the landscape, and would screen or interrupt many potential views;
- the absence of features or sites of nature conservation importance at either a national, regional or county level
- the relatively few properties located close to the development site at which residential amenity could potentially be affected;
- the cliffs and coastal edge which are of higher scenic quality than the surrounding area, and are open to views from other coastal locations

7.2.41 Combined consideration of these aspects leads to a subjective judgement that overall, the Lowca landscape is only moderately valued and is reasonably tolerant of changes, and that it has a medium or medium-low sensitivity to the windcluster development.

7.3 THE IMPACT OF THE PROPOSED WINDCLUSTER

Approach to the Assessment of Landscape and Visual Impacts

7.3.1 The approach to impact assessment adopted in this appraisal is based on the "Landscape and Visual Impact Assessment: Guidelines", published in June 1995 by the Institute of Environmental Assessment and the Landscape Institute.

7.3.2 This approach aims to

- identify potential landscape and visual impacts (both direct and indirect)
- predict and estimate the magnitude of impacts and the sensitivity of landscape and visual 'receptors' to potential impacts
- assess the significance of potential impacts through an appraisal of the combined effects of receptor sensitivity and impact magnitude

7.3.3 Impacts resulting from the construction and eventual decommissioning of the windcluster are considered separately in **Section 15** of the Environmental Statement.

7.3.4 Assessments of the likely impacts of the windcluster on local landscape character and quality have been made on the basis that the restoration works for the Park House Farm open-cast mine are implemented as proposed.

7.4 LANDSCAPE IMPACTS

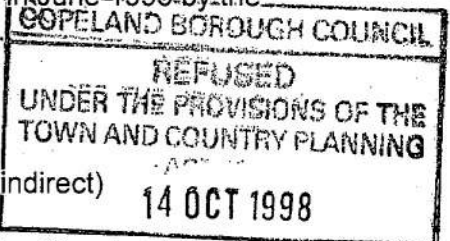
Direct Impacts on the Landscape Resource

7.4.1 The construction of the proposed windcluster, comprising 7 wind turbines, a wind monitoring mast, a small switchgear building, an underground cable network and

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connections to a power export cable would, following post-construction restoration, result in the loss of approximately 0.75 hectares of grazing land and a small area of gorse scrub (see section 7) for the operational life of the windcluster. The loss of small areas of pasture and scrub is not considered to represent a significant impact on local landscape resources.

7.4.2 Wider, **indirect impacts** of the windcluster could potentially include changes in landscape character and in landscape quality due to the introduction of the wind turbines and of the monitoring mast and ancillary development within the existing coastal landscape.

7.4.3 Further **indirect secondary impacts** would occur as a result of the export of the electricity generated on site by means of a new overhead pole-mounted electricity line. This line would extend from the windcluster site to the Lillyhall industrial estate, where the connection point into the regional electricity grid is located. The precise route of the overhead line is a matter to be decided by the regional electricity company NORWEB in a subsequent and separate application. However it is considered both likely and practical that the poles and line will follow the C4001 and other roads in the vicinity as far as possible.

Impacts on Landscape Character and Quality

7.4.4 Wind turbine developments inevitably and unavoidably result in some impacts on the character and quality of the landscape, due to their nature and design. The 7 turbines of the Lowca windcluster would add further to the existing range of non-agricultural features which characterise both the local area and the wider West Cumbria Coastal plain.

7.4.5 However the landscape of the West Cumbria Coastal Plain is already characterised by a range of substantial and extensive urban and industrial developments which include the towns of Whitehaven (5 km distant) and Workington (4 km distant), the Lillyhall industrial estate (2.7 km distant), and the wind turbine sites at Workington Oldside and Siddick. On a more local scale, the established presence of other large non-agricultural features and land uses on the Lowca ridge would also tend to reduce the degree of impact on local landscape character. In addition the generally broad scale of the landscape and the strong linear landform of the Lowca ridge would help to accommodate the turbines and the overhead line, would assist in obstructing or interrupting many direct views.

7.4.6 As with all wind energy developments, the development of the Lowca windcluster would result in a major change in the character of the landscape within and immediately adjacent to the application site. However, when considered in relation to its sensitivity to the windcluster development (assessed at medium or medium-low) impacts on landscape character and quality over a limited local area are likely to be of no more than substantial-moderate significance, reducing to moderate significance within the local ridge and valley landscape.

7.4.7 At a broader scale, within the context of the West Cumbria Coastal plain, the wind turbines would lead to only minor changes in the character of the area and given medium-low levels of sensitivity, impacts on the regional character and quality of the landscape would be of no more than slight significance.

7.5 VISUAL IMPACTS

7.5.1 The seven wind turbines proposed, which consist of 40 m towers with 23.5 m blades (63.5 m high in total), would theoretically be visible over long distances. They cannot easily be hidden, and it is inevitable therefore that the construction of windfarm will result in visual

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