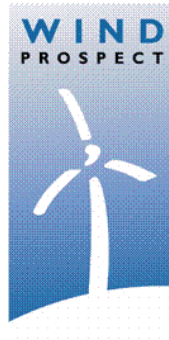


Bagmoor Windcluster



ENVIRONMENTAL STATEMENT

DEC 2004

VOLUME I: NON-TECHNICAL SUMMARY



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PREFACE

This Environmental Statement has been prepared in support of a planning application submitted by WPR Wind Ltd, a joint venture between Wind Prospect Developments Ltd and RidgeWind Ltd, to North Lincolnshire Council in December 2004 for a proposed windcluster at Bagmoor north of Scunthorpe, for the purpose of generating electricity from wind energy.

The Environmental Statement has been prepared in four volumes, and comprises:

Volume 1 (this volume)

- A Non-technical Summary

Volume 2

- The text

Volume 3

- Plans and photomontages

Volume 4

- Appendices

Inspection of the Planning Application and Supporting Documents

The application and the Environmental Statement are available for inspection at the offices of North Lincolnshire Council.

Copies of this Non-technical Summary, which explains the proposals and their environmental effects, are available free of charge from North Lincolnshire Council or from the address below, subject to availability.

Copies of the complete Environmental Statement may be purchased at a cost of £150 + VAT from:

Wind Prospect Ltd
3rd Floor
7 Berkeley Square
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Bristol, BS8 1HG

I INTRODUCTION

- 1.1 Wind Prospect proposes to erect nine wind turbines and ancillary structures on land at Bagmoor Farm for the purpose of generating electricity from wind energy. **Figure 1** illustrates the site location.
- 1.2 The windcluster, which is designed to be monitored remotely, would have an installed capacity of approximately 27MW, and would, on average, supply the domestic electricity requirements of 15,097 homes.

2 THE PROPOSED BAGMOOR WINDCLUSTER

- 2.1 The proposed development, as illustrated in **Figure 2**, consists of nine wind turbines, together with an underground cable network, access tracks, crane hardstandings, a wind monitoring mast, a switchgear building, a temporary construction compound and appropriate site signs.
- 2.2 The windcluster would be located within arable land, 1.5km east of the village of Flixborough and 4km north of Scunthorpe. It would be situated on land at Bagmoor Farm, close to the disused opencast ironstone workings. **Figure 2** shows the site with associated works.
- 2.3 The turbines proposed for the development are the 3 MW Vestas V90 or similar. They are three bladed variable speed pitch regulated wind turbines, with the rotor and nacelle mounted on a cylindrical steel tower. Each turbine is no more than 125m to tip height (when the blade is in the vertical position), with a hub height of 80 metres and blades up to 45 metres long. The turbines start to generate at a wind speed of 4 m/s and cut out in wind speeds greater than 25 m/s. The blades rotate at between 9 and 19 rpm, depending on wind conditions. The nacelles and rotors of the turbines rotate so as always to be facing the wind.
- 2.4 Access to the site would be gained from a track with an entrance, off the B1430. The construction route would exit the M180 at junction 3, onto the M181 and continue to the A1077, turning left onto the B1430.
- 2.5 Underground cables would be installed at a depth of approximately 1.2m below the ground surface to conduct the electricity from the turbines to a small switchgear building. The electricity would then be conducted underground to the proposed connection point. This connection point is likely to be the existing overhead 33kV line which runs from the Scunthorpe North substation to the Flixborough substation.
- 2.6 The point of connection will be determined by Yorkshire Electricity Distribution Limited.

- 2.7 Once the turbines are in operation, they would be monitored remotely, and would therefore be unmanned. Maintenance staff would make routine visits by car approximately once a month, with intermediate visits as and when necessary.

3 THE NEED FOR THE DEVELOPMENT

- 3.1 The need for generation of electricity from renewable resources stems from the need to combat global climate change. Renewables are internationally recognized as providing a direct and readily available means of reducing greenhouse gas emissions.
- 3.2 The latest Government thinking at the national level on renewables is embodied in the Energy White Paper, "Our Energy Future – Creating a Low Carbon Economy", published in February 2003.
- 3.3 The overriding new policy commitment is "that the UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% from current levels by about 2050" (1.10).
- 3.4 Renewables are seen as a key part of the strategy. "If we are to achieve a 60% reduction in carbon emissions by 2050, we are likely to need renewables by then to be contributing at least 30% to 40% of our electricity generation and possibly more. We therefore need to develop a framework which encourages the development of a wide range of renewable options and to make significant changes to our institutions and systems" (4.5).
- 3.5 As a result, strong and effective policies to encourage the development of renewables have emerged at European, UK and regional levels, cascading down through the planning system to specific targets for each region. The proposed target for onshore wind in the Yorkshire and Humber Region would require the development 275MW. Of this, 36MW should come from small windclusters i.e. sites of less than 10 turbines, in the Humber area.
- 3.6 In this context the proposed development represents a significant contribution to regional and national targets, meeting 75% of the target for windclusters in the Humber area. It would, on average, meet the equivalent domestic needs of 15,097 households in the area and avoid the emission of around 66,415 – 76,562 tonnes of carbon dioxide per year.

4 PLANNING THE DEVELOPMENT

- 4.1 A range of factors were considered during the development of this proposal including:

- Availability of land
 - Access and general ground conditions
 - Proximity to residential properties and the character of surrounding land uses
 - Designated areas of international, national and local importance
 - All aspects of landscape
 - Nature conservation, archaeology and heritage
 - Capacity within and ease of connection to the electricity distribution network
 - Suitable wind resource
 - Effect on the operations of the Ministry of Defence and the Civil Aviation Authority
 - Effect on the transmission of microwave and other electromagnetic signals
- 4.2 The precise size, number and layout of the wind turbines evolved from consultation with various consultees including the local community and the landowner.
- 4.3 The site was also analysed in relation to the operational, environmental and safety requirements of each element of a windcluster development, leading to a preferred design, shown in **Figure 2**.

5 CONSTRUCTION

- 5.1 The construction of the windcluster would be completed within a period of approximately 36 weeks. Prior to construction, a number of works would be undertaken, including excavation of trial pits for geotechnical investigations, construction of site access signs, and the careful stripping and storage of soils for re-use.
- 5.2 Noise impacts would be very slight during the construction phase of the development, and special mitigation measures other than good site management practice are unlikely to be required.
- 5.3 The impacts of construction traffic would be mitigated through the adoption of specific routing and control measures.
- 5.4 The most significant construction traffic impacts are likely to occur during the construction of the access roads and turbine bases. The worst-case scenario would be if pad foundations were used for all turbines, leading to a three-month period when an average of approximately 20 trucks per day would be expected to enter the site. If the concrete foundations and access tracks are laid on the same day, then a maximum of 65 truck trips to site would be expected on no more than 9 days.

6 DE-COMMISSIONING

- 6.1 The Bagmoor Windcluster is likely to have an operational life of approximately 25 years. After this time, the development would be de-commissioned in order to return the land to its former use as arable land. There would be no residual environmental effects arising from the decommissioning of the windcluster.

7 LAND USE

- 7.1 Following construction, land surrounding each of the turbine towers would be reinstated for future agricultural use.
- 7.2 Approximately 2.7 hectares of arable land would be lost to agricultural use for the duration of the economic life of the windcluster. This magnitude of loss of land within the agricultural holding would not significantly affect farm productivity.

8 LANDSCAPE AND VISUAL AMENITY

- 8.1 The nine turbines are the main elements of the proposed wind energy development that will be visible from the surroundings and have the potential to affect the landscape character of the study area and the visual amenity of receptors within the area.
- 8.2 The landscape assessment has shown that there will not be a significant effect on the landscape character of the Trent and Ouse Levels, Vale of Ancholme, Lincolnshire Wolds, Humber Estuary, or Yorkshire Wolds character areas. There will be significant effects on parts of the Lincolnshire Edge character area, which will be limited, but will not have a significant effect on this character area as a whole.
- 8.3 The windcluster is not located within any national or local landscape designations, but is located within the Landscape Protection local policy. However, it is considered that the proposed development would not affect the purposes of this policy. The proposed development would also only significantly affect a very limited part of the Area of High Landscape Value local landscape designation found within the study area.
- 8.4 The assessment has concluded that the direct effects on the landscape fabric of the site will be minimal in extent and reversible when the development is decommissioned and, therefore, acceptable in landscape terms.
- 8.5 The nine wind turbines will not have any significant effect on the visual amenity of users of any of the motorways, A or B roads in the study area, except for users of the A1077 and B1430. The proposed development will have

significant effects on the visual amenity of motorists, cyclists and walkers travelling on some local minor roads within the locality of the turbines. Where the turbines are viewed to the side of travel, behind the direction of travel, partially screened by foreground vegetation, or seen within the context of a foreground of vertical elements, the turbines will be less noticeable and so many local road users will not be significantly affected.

- 8.6 There will be significant effects on the visual amenity of a limited number of residents in parts of Scunthorpe, Winterton, Flixborough, Thealby, Burton upon Stather, Roxby, and Gunness, where open, clear and direct views of the turbines are available. A very limited number of residents in individual residential properties local to the proposed development, with open, clear and direct views of the nine proposed turbines will also experience a significant effect on their visual amenity. However, no other residents within any settlements in the rest of the study area will experience a significant effect on their visual amenity as a result of the proposed turbines.
- 8.7 The wind turbines will not significantly affect the visual amenity of users of the recreational or leisure facilities within the study area, except for some visitors to Normanby Hall Country Park and those fishing on the lakes around the site. Users of the majority of local footpaths, bridleways and cycleways in the study area will not be significantly affected by the proposed turbines. However, users of those footpaths and bridleways local to the proposed development, such as the footpaths near Flixborough and the bridleway north of the site, with open, clear and direct views of the nine proposed turbines may experience a significant effect on their visual amenity, although these effects may be limited to within the vicinity of the windcluster.
- 8.8 Shadow flicker can arise from the passing of the moving shadow of the turbine rotor over a narrow opening such as the window of a nearby residence. No residents in the vicinity of the turbines will experience a nuisance from shadow flicker.
- 8.9 Walkers on the Viking Way, Wolds Way and Trans Pennine Trail long distance footpaths through the area will not be significantly affected by the proposed development. Users of the Sustrans Cycle Route 65 will also not be affected.
- 8.10 It is unlikely that a proposal to site a new wind energy development in the UK would not result in some significant effects on the landscape character and visual amenity of the immediate locality. However, significant visual effects are not necessarily unacceptably adverse, and the significant effects that would arise as the result of the nine proposed Bagmoor wind turbines would be extremely limited in extent and would affect a limited number of local residents.

- 8.11 Wind turbines are a relatively recent addition to our environment and there is no consensus of opinion on the most appropriate types of landscape in which to site the various scales of wind energy development.
- 8.12 This proposal to site nine wind turbines on the Bagmoor site respects the scale and composition of the landscape. As a result, the significant effects on landscape character would be localised.
- 8.13 There is also no consensus of opinion on the threshold above which significant visual effects are unacceptably adverse. This will vary from person to person, with those in favour of wind energy development in their local area likely to accept much greater changes to their visual amenity than those who do not find wind turbines aesthetically pleasing.
- 8.14 Recent public attitude surveys consistently conclude that, in general, people who display a negative attitude towards an anticipated and relatively unfamiliar change to their landscape and visual amenity often, in the case of wind energy developments, acquire a positive attitude once that change has occurred.
- 8.15 The wind turbines at the Bagmoor site will have an obvious, and directly functional relationship with the nature of the local landscape. The size of the development will respect the scale and composition of the landscape. Therefore, the significant effects will be localised and the proposed development will be acceptable in, landscape and visual amenity terms, in this location.

9 NATURE CONSERVATION

- 9.1 The assessment of the potential effects of the proposed windcluster on the features of ornithological interest is summarised in **Table 9.1**. The conservation importance of each species occurring in the study area is given, together with an assessment of the magnitude and significance of collision, habitat loss and disturbance effects.
- 9.2 Overall no ornithological impacts are likely to occur as a result of the development that would be considered significant under the EIA Regulations.

Table 9.1 Summary of the Predicted Effects of the Proposed Bagmoor Windcluster on Ornithological Interests.

Species	Sensitivity	Collision risk		Habitat loss		Disturbance	
		<i>Magnitude</i>	<i>Significance of effect</i>	<i>Magnitude</i>	<i>Significance of effect</i>	<i>Magnitude</i>	<i>Significance of effect</i>
Species breeding in study area:							
<i>Mute swan</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Shelduck</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Pochard</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Grey partridge</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
<i>Lapwing</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>
<i>Black-headed Gull</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Cuckoo</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Kingfisher</i>	<i>Medium</i>	<i>Low</i>	<i>Very low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Green woodpecker</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Skylark</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
<i>Sand martin</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>
<i>Swallow</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>
<i>Duncock</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Song Thrush</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
<i>Mistle Thrush</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Willow Warbler</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Linnet</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
<i>Bullfinch</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
<i>Yellowhammer</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>Reed Bunting</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Nil</i>	<i>-</i>	<i>Negligible</i>	<i>Very low</i>
Wintering Birds:							
<i>Wintering waterfowl</i>	<i>Up to medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
Other species:							
<i>Peregrine</i>	<i>Medium</i>	<i>Low</i>	<i>Low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Low</i>
<i>Kestrel</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>
<i>House Martin</i>	<i>Low</i>	<i>Low</i>	<i>Very low</i>	<i>Negligible</i>	<i>Very low</i>	<i>Low</i>	<i>Very low</i>

Note: magnitude of effects has been assessed on a worst-case basis. Species in italics were not seen within the potential impact zone of the windcluster but were present within the ecology study area.

9.3 The assessment of the potential effects of the proposed windcluster on the features of ecological interest is summarised in Table 9.2. The conservation importance of each species/community occurring in the study area is given, together with an assessment of the magnitude and significance of collision, habitat loss and disturbance effects.

Table 9.2. Summary of the Predicted Effects of the Proposed Bagmoor Windcluster on Other Ecological Interests

	Sensitivity	Magnitude of effect	Significance of effect	Significant?
Plant communities/habitat				
Broad-leaved woodland (W7)	Medium	Nil	None	×
Scrub (W2)	Medium	Nil	None	×
Hedgerow (W21)	Low/medium	Negligible	Very low	×
Ponds	Low	Nil	None	×
Plant species				
Great horsetail	Low	Nil	None	×
Heather	Low	Nil	None	×
Common water-crowfoot	Low	Nil	None	×
Protected species				
Water vole	Medium	Low	Low *	×
Badger	Medium	Low	Low *	×

- 9.4 Overall no ecological habitat impacts are likely to occur as a result of the development that would be considered significant under the EIA Regulations.

10 CULTURAL HERITAGE

- 10.1 The character and appearance of all Conservation Areas and all but one Listed Building and their settings will be completely unaffected by the proposed windcluster development. Limited and specific planting measures could be implemented at Sawcliffe Farmhouse, if necessary, and as a result, the setting of listed buildings would be preserved by the grant of planning permission for the windcluster. The purposes of the local historic landscape designation would also be unaffected. The nature of the landscape means that the proposed turbines would be at least partially screened by built form or vegetation in the majority of cases.
- 10.2 Four Scheduled Monuments are located within 5km of the proposed windcluster. The visibility of the turbines from each of these monuments varies, as does the setting of the monuments themselves. In the case of all four monuments the proposed turbines would neither isolate the monuments from their surroundings nor obscure views of the monuments from within their landscape settings. Furthermore, neither the understanding nor the appreciation of the monuments would be compromised by the presence of the turbines. It is therefore considered that the proposed windcluster would not have a significant impact upon the settings of these Scheduled Monuments.
- 10.3 A Scoping study for the archaeological assessment study was agreed with North Lincolnshire Council (Sites and Monuments Officer) and English Heritage. It established that as a result of previous opencast mining for ironstone within the footprint of the proposed development there is no potential for the construction of the turbines or associated infrastructure to

directly affect any archaeological remains or other sites of cultural heritage interest.

11 NOISE

- 11.1 Noise monitoring took place for various periods at three locations near the site these were; Bagmoor Farm house, Bagmoor Poultry Farm and a third meter was set up 10m from the temporary meteorological mast in order to obtain a sample of the background noise away from trees or extraneous influences.
- 11.2 The wind speed dependent noise levels predicted at the properties nearest the proposed windcluster site are, at the very worst, comparable with the existing background levels at the same wind speed. Noise from the turbines at any residential property would remain within a 'flat' limit of 35dB, or 5dB above the background level, whichever is the greater.
- 11.3 The Vestas machines which are currently anticipated represent a popular and well-developed design of wind turbine from a reputable and very experienced manufacturer. They are electrically and aerodynamically very efficient, and are constructed with noise emissions in mind. The improvements introduced over the years have led to a highly developed design with minimum acoustic impact.
- 11.4 The ETSU recommendation for limiting noise from wind farms, which would restrict the noise emissions in terms of $L_{A90,10min}$ values to no more than 35dB or 5dB above background,(whichever is greater) would be met by the proposed site design.
- 11.5 It may therefore be concluded that noise from the windcluster would not be detrimental to the amenity of local residents.

12 ELECTRO-MAGNETIC SIGNALS

- 12.1 No impacts on microwave signals would occur.
- 12.2 There is a possibility of degradation of TV signals in the immediate vicinity of the site. In view of this potential risk, Wind Prospect is prepared to resolve any such problems should they arise as a result of construction of the windcluster.

13 SOCIO-ECONOMIC ISSUES

- 13.1 The development of the proposed windcluster would result in a number of socio-economic effects on the local economy, which would be largely beneficial. These include:
- Opportunity to participate in the project through investment.

- Enhanced agricultural viability of the farm through rental income from the windcluster.
- Local employment, where possible, in both the construction of the wind farm, and in its subsequent maintenance, which would be to the value of approximately £2,800,000.