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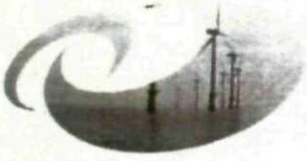
Sheephouse Heights Windfarm



Design and Access Statement

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PREFACE

This Design and Access Statement has been prepared by TNEI Services Limited for Arcus Renewable Energy Consulting Ltd to support an application by Evelop UK Ltd for the construction and operation of the Sheephouse Heights Windfarm. The Sheephouse Heights Windfarm proposal is located approximately 10km south west of Barnsley and 2km north west of Stocksbridge in Barnsley Metropolitan Borough Council, South Yorkshire.

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1 INTRODUCTION

This document is the Design and Access Statement to accompany an Application for Planning Permission for the proposed Sheephouse Heights Windfarm, located 10km south west of Barnsley.

Section 42 of the Planning and Compulsory Purchase Act 2004 substitutes a new section of the Town and Country Planning Act 1990 so as to provide that a statement covering design concepts and principles and access issues is submitted with an application for planning permission.

Statements should cover both design and access, allowing applicants to demonstrate an integrated approach that will deliver inclusive design, and address a full range of access requirements throughout the design process.

2 DESIGN

A design and access statement should explain the design principles and concepts that have been applied to particular aspects of the proposal - these are the amount, layout, scale, landscaping and appearance of the development.

2.1 Amount and Layout of the Development

The layout of a windfarm depends on a range of technical, economic and environmental criteria including:

- Distance between turbines - to minimise the turbulent interaction between wind turbines, turbines need to be separated by set distances. Spacing requirements may vary between turbine manufacturers and are also subject to wind conditions.
- Proximity to occupied dwellings - wind turbines have to be located sufficiently far away from houses to protect local amenity in terms of noise and shadow flicker.
- *Environmental constraints - features and areas of environmental sensitivity* (ecology, archaeology, hydrology etc) are identified and their implications considered.
- Economic Constraints - sufficiently high wind speed to provide economic generation on site.
- Landscape and visual design consideration are taken into account and the layout modified accordingly.
- Existing land use - whilst the wind turbines and their associated infrastructure occupy around 16% of the site, the existing use of the land is considered in the layout of tracks and turbines. For example, existing track lines are used where practicable.
- Proximity to obstructions - such as tall trees or buildings which can create *turbulence in the air flow and reduce the power generated from the site.*
- Proximity to other infrastructure such as pipelines, radiocommunication links, roads, public footpaths, bridleways and electricity lines.
- Proximity to a road network suitable to allow the transport of construction plant, equipment and wind turbine components to the site.

The various design iterations that defined the final location of the turbines, accounting for the identified environmental constraints, are summarised in Table 2.1 below.

Table 2.1 Summary of Design Iterations

Iteration	No. of Turbines	Comment
Layout 1	14 wind turbines	Preliminary layout - this assessment was based on turbines of 125 tip height. It was created as a means to investigate the potential of the site for wind development. However, the turbine locations follow the landform and took no account of environmental constraints.
Layout 2	5 wind turbines	This layout gave a 400m buffer from any dwellings. However it did not account for any other site conditions or constraints.
Layout 3	5 wind turbines	This iteration assessed 2 different layouts, the aim being to maximize the sites energy yield and account for site conditions or constraints.
Layout 4	5 wind turbines	This layout assessed the site in more detail by identifying a number of on-site constraints such as microwave links, noise constraints, underlying geology and areas of ecology.

2.2 Scale

The final selection of turbine is likely to be subject to a competitive tendering exercise should permission be granted. The site has been designed to accommodate turbines of 3 Megawatts in size. The turbines will be of the horizontal axis type, with a rotor consisting of three blades.

2.3 Landscaping

The landscape and visual impact of wind energy proposals are important issues for consideration when planning new developments. The proposal has been subject to a detailed landscape and visual impact assessment and the following design principles have been considered:

- Develop the "most suitable windfarm design" for this site, with the windfarm and associated infrastructure designed to respond top the local landscape character and provide acceptable design solution in terms of scale, layout and visual composition.
- Achieve a simple, balanced, rational and coherent image that may be viewed as an acceptable and positive component of the visual composition.
- Minimise adverse landscape and visual effects on views from local communities.
- Minimise adverse landscape and visual effects on views from main transport routes.

No formal landscaping scheme is proposed for the wind turbine development.

2.4 Appearance

It is not possible to provide an accurate description of the exact model of the turbines to be installed at the site as the final selection will be established through a competitive tendering process should planning permission be granted.

However, for design and appraisal purposes, a generic design has been defined; namely the wind turbines would be of horizontal axis, three bladed design, with a rotor diameter of around 90m and a tower height of approximately 80m. The overall height of the turbines has been limited to 125m above ground level.

The turbines are proposed to be coloured pale grey with a semi-matt finish to reduce their contrast with the background sky. The final colour finish will be agreed with Barnsley MBC and would be uniform in colour. An indicative wind turbine is shown on Figure 3.4

3 ASSESSMENT AND EVALUATION

An environmental impact assessment (EIA) of the proposal has been undertaken further to the agreement of the scope with the local planning authority. The EIA is reported in an Environmental Statement, which include Volume 1 main text, Volume 2 technical appendices and Volume 3 figures and drawings.

A number of individual assessments have been undertaken by specialist consultants:

- Landscape and visual assessment;
- Ecological Assessment;
- Ornithological Assessment;
- Cultural heritage assessment;
- Noise assessment;
- Access and Traffic assessment and;
- Shadow flicker assessment; and
- Infrastructure assessment

The overall conclusion of the landscape and visual impact assessment is that there will be significant localised effects as a result of the introduction of the five wind turbines and a significant cumulative effect when viewed in conjunction with the windfarm development at Spicer Hill. However, effects on the wider area from other viewpoints would not be significant.

Strict noise limits will be adhered to throughout the operation of the windfarm to prevent any significant noise effects during site operation.

No ecological or ornithological areas of interest exist within the application boundary. Hence, the site design will not have a significant effect on such areas.

The site has been designed to avoid any direct effects on known features of cultural heritage importance, a buffer of 50m to prevent any accidental damage to these features, although there is a possibility that there may be potential effects on previously unrecorded features, mitigation measrures such as a watching brief are proposed to avoid this. There may also be a very small indirect impact on a number of nearby Scheduled Ancient Monuments; however, these will be temporary for the lifetime of the proposal and are, in any event, not considered to be significant.

Construction traffic would be carefully managed to minimise adverse effects on road users and those living in the immediate area.

Constraints identified by a ground conditions assessment have been avoided and no adverse effects on hydrological, hydrogeological or geological features are predicted.

Shadow flicker has been predicted to occur at a very small number of properties surrounding the site. Predictions have been made using worst case assumptions but in reality meteorological conditions and windfarm operation will reduce the likelihood of shadow flicker by a considerable order of magnitude. However, a control system would

4 INVOLVEMENT AND CONSULTATION

The Applicant and appointed team of consultants consulted with a number of organisations for their comments on the proposal. These included Barnsley MBC, the Highways Agency, Civil Aviation Authority, Robin Hood Airport, Sheffield City Airport, the Ministry of Defence, Yorkshire Water, RSPB and various radiocommunication operators.

Public exhibitions were held on 7th April 2008 at Cubley Hall Hotel (Penistone) and on the 8th April 2008 at St. John's Community Centre (Penistone). Another exhibition and dedicated meeting was held in Stocksbridge (Sheffield) on the 23rd April 2008. These events have been held in order to outline the proposals, answer questions and to receive comments from local residents and general public. In addition to the public exhibitions, a dedicated telephone hotline and an interactive website have been set up to allow the public to field questions and gain more information regarding the proposal.

5 ACCESS

The windfarm site is located on agricultural land owned by local farmers.

A public right of way crosses the site from north to south. Barnsley Planning Department have requested that turbines are not sited directly on this right of way. During layout design the turbines were placed to avoid this right of way. The access track leading to Turbines 2-5 runs parallel to the right of way but is segregated by a dry stone wall, shown on Figure 5.1.

Barnsley Countryside Team prefer contractors to work around any existing footpaths however the access track would require one crossing of the right of way. A crossing facility will be created, in consultation with Barnsley Countryside Team and Barnsley Metropolitan Borough Council, to allow safe access to the right of way at all times during the construction phase. Part of the proposed windfarm access track runs along the field boundary where the public right of way is also located. Service staff would be informed of the possibility of ramblers and if considered necessary signs could be erected on the footpath approaching the windfarm to warn ramblers of occasional moving vehicles. The Applicant is also seeking to improve the network of footpaths within the vicinity of the site.

Turbine components will be delivered by sea to a suitable port such as Immingham, Hull or Goole and transported via the regional motorway network to Junction 36 or 37 of the M1.

Abnormal loads will use Routes 1 and 2, as outlined below: -

Route 1 - Turbine Blades

- From M1 Junction 37 proceed west on A628
- Left turn (south) onto A629
- Right turn (south) onto Bower Hill
- Proceed along Roughbirchworth Lane and Back Lane
- Right turn (west) onto Cranberry Road proceed to site.

Route 2 - Other Components

- From M1 Junction 36 proceed west on A61 and A616
- Right turn (north) onto A629
- Left turn (south) onto Bower Hill
- Proceed along Roughbirchworth Lane and Back Lane
- Right turn (west) onto Cranberry Road proceed to site.

General construction traffic will use Route 3, which will approach the site from the west, thereby avoiding Penistone and Oxspring. Details of this route are as follows:

Route 3 - General Construction Traffic

- From M1 Junction 36 proceed west on A61 and A616
- Right turn (east) onto A628
- Proceed west onto Hartcliff Road
- Turn right (west) onto Hartcliff Hill Road
- Continue onto Mossley Road and proceed to site.

To access and service the windfarm, new access tracks will be constructed to link the turbines to the public road network. Existing farm access tracks would be upgraded and used as far as reasonably practicable to provide access to the turbines, construction compound and meteorological mast. Existing tracks would be upgraded and new access tracks would be built to provide construction access to the individual turbines. An estimated 2.2km of site access tracks would be required for the windfarm. The site tracks would generally have a 5m wide running surface and will be constructed of compacted stone, which is intended to be sourced from local quarries. Materials would be transported by heavy goods vehicles (HGVs) to the site. Routes from these quarries will converge on the A616 and A628. It is likely that, where possible, local contractors will be employed during the construction of the windfarm and will approach the site from using route three, outlines in chapter 11 of the ES.

The details of a Traffic Management Plan governing vehicle movements in and out of the site would also be developed and agreed with the highways authorities and police as necessary, prior to the commencement of the development. A construction timetable would also be agreed with the relevant authorities prior to construction commencing.

Vehicles will be required to bring construction staff, construction equipment, materials and the turbines to the site. Abnormal loads would be normally timed during off-peak periods in order to avoid delays to other road users at times to be agreed with the police and Barnsley MBC.

The total number of off-site vehicle movements[1] generated during the construction of the windfarm is estimated as 9,528 over a 10 month period. This figure takes account of all construction vehicles generated by the above works during the construction period and assumes an average of 1 construction personnel per vehicle.

Of the 9,528 movements generated, 5,528 are as a result of deliveries of equipment and materials to site (HGVs), the remaining 4000 trips are generated from the movements of site staff (cars).

HGV vehicle movements are not uniform throughout the construction period with the peak number of HGVs occurring during month 5 with 1,102 HGV movements generated. This equates to approximately 55 HGV movements a day.

The peak overall monthly traffic movements also occur during month 5 with 1693 traffic movements generated, around 85 vehicle movements per day (including site personnel in cars and light vans). It is unlikely that there will be significant increases in traffic during the AM and PM peak periods as routing agreements would seek to reduce the movement of construction vehicles at this time.

[1] One movement equals one arrival or one departure

The increase in overall volume is not considered to be significant in either sensitive or non-sensitive locations. However, it is expected that the traffic along Mossley Road would be considered to be significant due to the existing low levels of traffic. Mitigation measures outlined within Chapter 11 of the ES would aim to reduce the impact of these movements.

During the operation phase, only infrequent maintenance traffic is expected to visit the site. Due to the high reliability of the plant, requirements for maintenance will be minimised, limiting the number of site visits necessary by maintenance staff.

This will involve very few vehicular movements. Impacts on traffic levels during operation are therefore expected to be negligible.

Tourism induced traffic, including visits to the site by interested locals, may be expected during the construction and operational phase. However, the number of vehicle trips would be expected to be low to negligible.

6 CONCLUSIONS

The proposed Sheephouse Heights Windfarm will contribute to the UK government's target of reducing CO_2 emissions by 20% by 2010 and make a significant contribution to the South Yorkshire and Barnsley target for renewable energy production stated in the approved and emerging Regional Spatial Strategy.

The proposed wind development is strongly supported by local and national policies and targets to promote sustainable development in general, and renewable energy in particular. The proposed windfarm accords with planning policy at both a regional and local level.

The EIA of the proposed windfarm has addressed a wide range of potential effects on different aspects of the environment. The emerging findings of the assessment process were integral to the iterative site design process and the final site layout, and the identification of a range of mitigation measures preventing any residual negative environmental effects resulting from the proposed windfarm.