

PREFACE

This Environmental Statement accompanies the resubmitted application by J. G. Pears Ltd. to Barnsley Metropolitan Borough Council (BMBC) to construct and operate a wind farm on land at Spicer Hill near Ingbirchworth, Penistone.

This Environmental Statement (ES) has been prepared by Arcus Renewable Energy Consulting Ltd on behalf of J. G. Pears Ltd and comprises the following:

- Environmental Statement Volume I: Text
- Environmental Statement Volume II: Figures
- Environmental Statement Volume III: Technical Appendices

Copies of the Environmental Statement can be inspected at:

Barnsley Metropolitan Borough Council
Barnsley Connects
The Civic
Eldon Street
Barnsley
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during office hours, Monday to Thursday 9.00 am to 5.00 pm and Friday 9.00 am to 4.30 pm.

Copies of the Environmental Statement including the Non Technical Summary can also be obtained from Arcus Renewable Energy Consulting Ltd. at the address provided below.

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The full Environmental Statement can be purchased for £250.00 per copy. Alternatively a CD-ROM copy can be purchased at a cost of £20.

NON TECHNICAL SUMMARY

INTRODUCTION

This Non Technical Summary (NTS) forms part of the Environmental Statement (ES) to accompany an application by J. G. Pears Ltd (The Developer) for a three turbine wind farm with a generating capacity of 6.9 MegaWatts (MW) at Spicer Hill, approximately 1 km from Ingbirchworth, South Yorkshire. The location of the development site is shown in Figure 1.1 of ES Volume II. The planning application which this ES accompanies is a resubmission of a planning application submitted in April 2008 for a five turbine wind farm.

The purpose of this NTS is to provide a summary of the main findings of the ES in non-technical language.

J. G. Pears Ltd is a long established company in this area of South Yorkshire specialising in the recycling of animal by-products for over 30 years. The company has recently been diversifying its core business to include renewable energy projects. As part of this process, renewable energy feasibility studies were carried out in respect of their landholdings and land at Spicer Hill identified as suitable of accommodating a wind farm development.

Energy underpins virtually every aspect of the economy and society. However, the use of fossil fuels such as gas and coal, which currently provide the bulk of our energy, releases greenhouse gases, such as carbon dioxide (CO₂), into the atmosphere which directly affects our climate. To help lessen the effects of climate change, greenhouse gas emissions must be reduced. One way of helping to achieve this is by generating energy from sources that emit low or even zero levels of greenhouse gases, such as renewable sources.

'Renewable energy' is that energy which occurs naturally and continuously in the environment, such as energy from the wind, waves or tides. It has the potential to displace electricity generated from fossil fuels and consequently prevent CO₂ from being released.

In the Climate Change Act 2008, the UK Government has set a binding commitment to cut the UK's carbon emissions by 80% by 2050 and requires that limits be set on the total amount of emissions in successive five year periods (carbon budgets), with a minimum 26% reduction by 2020, against a 1990 baseline. This makes the UK the first country in the world to set such a long-term and significant carbon reduction target into law.

ENVIRONMENTAL IMPACT ASSESSMENT

An application for planning permission is being made under The Planning and Compensation Act 2004 to Barnsley Metropolitan Borough Council (BMBC). The ES has been prepared to accompany the planning application, in accordance with The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended).

J G Pears Ltd appointed Arcus Renewable Energy Consulting Ltd (Arcus) to undertake the EIA. EIA is a process intended to ensure that development with potentially significant effects on the environment is only granted permission after full consideration of the likely significant environmental effects is given and suitable mitigation or management measures identified.

CONSULTATION AND SCOPING

Following the identification of the site as potentially suitable for wind energy development, detailed studies of the proposed Spicer Hill Wind Farm site were commissioned to establish the environmental sensitivity of the site. This was followed by a consultation exercise known as 'Scoping', where a wide range of consultees were asked to comment on the proposals.

The aim of the Scoping process was to identify key environmental issues at an early stage, to determine which elements of the proposals were likely to result in significant effects on the environment and to establish the extent of survey and assessment required for the EIA.

Public exhibitions were held in Penistone at the start of March 2008 to provide an opportunity for local people to examine the proposals, explore issues of potential concern and offer comments, feedback and suggestions.

Feedback from both the previous Scoping Exercise and planning submission for five turbines has been used to inform the design of this resubmitted planning submission with three turbines.

SITE SELECTION AND LAYOUT DESIGN

The suitability of the site was determined using a range of criteria, including

- Wind characteristics;
- Availability of suitable grid connection;
- Construction considerations, including access / highway capacity and ground conditions;
- Planning policies;
- Landscape and visual considerations, including landscape designations and existing characteristics;
- Sensitivity to noise;
- Likely ecological importance; and
- Existing land uses and infrastructure (e.g. service pipes, air traffic issues).

A number of different forms of wind farm development were considered for the site

- A smaller number of large scale turbines (125 m to tip);
- A larger number of smaller scale turbines (up to 85 m to tip); and
- A number of turbine layouts at a height between 125 m and 85m.

Following the withdrawal of the previous application and discussions with BMBC it was concluded that due to the decommissioning of Royd Moor Wind Farm in 2018 and applications for sites which were approved or under consideration of the planning department a turbine which respected the hub height of these approved and under consideration applications was considered to be the most suitable option. This layout was refined as environmental surveys were progressed and consultation was undertaken.

The wind farm layout evolved through an iterative design process to ensure that it represented the "best fit" for the proposed site in terms of its appearance from many locations throughout the district and beyond and in terms of other environmental considerations detailed in this Environmental Statement..

THE PROPOSED DEVELOPMENT

The proposed wind farm will comprise

- Three wind turbines and associated infrastructure including transformers and crane pads;
- Construction of site entrance;
- Construction of new access tracks;
- Construction of a control building;
- Laying of underground cabling between turbines and to the control building;
- Erection of one permanent meteorological monitoring mast; and
- Construction of a temporary construction compound.

Construction

Construction is planned to take place over a six month period.

The proposed layout of the wind turbines is shown in Figure 1.2 of Volume II of this ES. The assessment is based on a turbine with a height to blade tip which would not exceed 95 m.

The turbines would generate electricity in wind speeds between 3 and 28 m/s. At wind speeds greater than 28 m/s the turbines would shut down for safety and self-protection. Such high wind conditions occur for a maximum of approximately 1% of the year.

The proposed Spicer Hill Wind Farm will be connected to the national grid via a new electrical control building on site. The grid connection is the responsibility of the grid operator and the application for the grid connection between the site control building and the national grid will be the subject of a separate planning application.

Operation

Each turbine has a computer controller that regulates every aspect of the turbine's performance. Routine site maintenance visits would take place regularly by personnel accessing the site in a four-wheel drive vehicle to ensure that the turbines are operating at their maximum efficiency. It is anticipated that routine servicing would take place bi-annually with an annual main service and a minor service at six months.

Decommissioning

At the end of the 25-year planned life of the wind farm, it will either be removed and the site reinstated to its current use or a new planning application may be submitted to retain or modify the wind farm.

The decommissioning period for the wind farm is estimated to be around six to eight months, and will involve the removal of above-ground structures and the reinstatement to agricultural use of ground disturbed by the works.

ENVIRONMENTAL ASSESSMENTS

Energy and Planning Policy

BMBC will determine the planning application for Spicer Hill Wind Farm in accordance with planning policy set out in the relevant development plan which comprises a range of statutory planning documents. There may be other planning considerations that require to be taken into account in determining the application. The Council must therefore weigh the policy against these considerations to decide whether or not planning permission should be granted.

Currently, the development plan for this area comprises

- The Yorkshire and Humber Plan, Regional Spatial Strategy to 2026 (RSS) (May 2008);
and
- Barnsley Unitary Development Plan (BUDP) (December 2000).

Together these documents set out a range of policies covering issues such as climate change, renewable energy, landscape and visual amenity, ecology, cultural heritage, traffic and other environmental considerations. The most relevant policies relate to climate change and renewable energy which set out renewable energy generation targets for the Region, as detailed above, and provide guidance on the main issues BMBC will consider when determining applications for wind farm developments. In summary these are:

- Visual amenity;
- Noise;
- Access and Road Safety;
- Ecology;
- Archaeology;
- Impact on agricultural land uses; and
- Shadow Flicker.

The assessments contained within the ES provide information regarding the potential significant impacts on the environment that would result as a consequence of the proposed Spicer Hill Wind Farm. With appropriate design modifications, adopting good practice during construction and other environmental protection and enhancement measures, significant effects are limited to visual effects.

The assessment of visual effects resulting from the wind farm is summarised below. The assessment concludes that overall the visual effects of the proposed turbines are acceptable.

No significant effects are predicted on ecology, hydrology and hydrogeology, archaeology, noise, access and road safety, existing land use or shadow flicker.

Landscape and Visual Effects

An assessment has been carried out of the potential landscape and visual effects arising from the proposed wind farm at Spicer Hill.

The objective of the assessment has been to identify what the significant effects of the wind farm will be on the landscape and visual resource. The significance of an effect on identified landscape and visual receptors is judged against those factors which combine to determine the sensitivity of each receptor and the magnitude of effect. A higher level of significance is usually attached to large-scale effects and effects on sensitive or high value receptors.

A *significant* effect will occur where the combination of variables results in the Development having a material effect on a landscape or visual receptor, so that the landscape character or view becomes defined by the presence of the Development. A *not significant* effect will occur where the effect of the Development is not definitive and the landscape or visual receptor will continue to be defined principally by its baseline characteristics. In this instance, the Development may have an influence on the receptor and may alter its characteristics, but this influence will not be definitive.

The assessment has concluded that there will be significant effects on the following landscape and visual resources of the study area

- 'Ingbirchworth unit' of the 'Upland Farmland' landscape character type, extending for a distance of about 3 km north and east of the Development;
- Area of Borough Landscape Value, extending for a distance of about 3 km north and east of the Development;
- Some houses on the western edge of Ingbirchworth village and adjoining the A629;
- A section of the Barnsley Boundary Walk, between Upper Denby and Low Common, covering a distance of about 7 km; and
- Local views from individual houses, farmsteads and roads, primarily to the north and east of the Development, extending for a distance of about 3 km.

These effects are confined to the close vicinity of the wind farm site and arise from the addition of the turbines rather than the other components associated with the development. The effects are considered to be adverse since they will not result in specific benefits to the affected landscape or views. Beyond those significant adverse effects identified above, the

Development is likely to have an effect on some of the other landscape character areas or views within the study area but these are judged to be not significant.

Whilst those significant effects will result in material alterations to the localised landscape and visual resource in the vicinity of the wind farm site, the proposed development is considered to be acceptable in the broader context. This is due to a number of factors that relate to both the design of the wind farm and the landscape setting within which it will be seen. These factors include the small number of turbines proposed, immediate proximity to Royd Moor wind farm, the strategic choice of turbines which will be seen in the context of other wind farm developments once Royd Moor is decommissioned, the generally large scale and elevated plateau landform of much of the study area in which the wind farm will be seen, vegetated nature of other parts of the study area that limits visibility, absence of significant effects on national planning designations and the absence of any significant cumulative effects.

Ecology

An assessment of the effect of the Development on ecology was carried out based on both desk and field study.

Surveys were undertaken to assess the range of habitats and species that occur on and around the site between August 2007 and March 2008. The majority of the development site consists of improved grassland and arable fields, which are widespread habitats of negligible ecological value. The only habitat identified of high ecological value was areas of isolated dry dwarf shrub heath and acid grassland mosaic, which is likely to degrade under current management regimes. This habitat is entirely avoided by the development, and could be enhanced through a habitat management plan, which will also improve the biodiversity value of other habitats onsite.

A preliminary visit revealed activity from a range of bat species on and around the development site. Although there are no roosts known on or near the site, there are areas that may be suitable for roosting. The development avoids potential roost structures and habitat features used by bats for foraging and commuting. Due to the nature of habitat present, no significant effect is anticipated.

Evidence of badger was found in the area and various measures will be implemented to ensure that there no significant impact upon them.

Historical records indicated that there may have been otter and water vole in the area however no signs of these species were detected during field surveys.

Consideration was given to all designated natural heritage sites in the vicinity of the proposal, the closest of which was Ingbirchworth Parish Council Designated Nature Reserve, immediately to the north of the site. Neither this, nor any other designated site will be affected by the development. There are no statutory designated sites for ecological interest within or near the proposed Spicer Hill Wind Farm site.

Overall, this site is not sensitive with respect to habitats and protected species.

Ornithology

Wind farms can have an effect on bird populations as a result of construction activities, operation of the wind farm and decommissioning activities.

There are no sites designated for ornithological interests on or near the development site. The closest statutory site is the South Pennine Moors, which is designated both as a Special

Protected Area (SPA) and Site of Special Scientific Interest (SSSI), located over 4 km away. No important bird species relating to these designations were recorded during surveys.

Surveys to establish baseline bird activity, including breeding, wintering and flight activity, were undertaken at the site between May 2007 and March 2008.

No species of high conservation concern were recorded during any survey, and only small numbers of species of medium to low conservation concern were noted. These included kestrel, lapwing, curlew, oystercatcher, skylark, dunnoek, starling, linnet and yellowhammer, stonechat and willow warbler. The development is predicted not to have a significant impact on any of these species.

It is possible that the noise and visual disturbance associated with construction activities may temporarily displace a small number of breeding and foraging birds and disrupt the routines of others. Appropriate measures would be taken to avoid disturbance of any protected species during construction activities and therefore disruption to breeding attempts of species of high nature conservation value is unlikely.

The movement of the turbines blades can present a potential risk for birds in that birds may be struck and killed by their rotation. The species and levels of flight activity recorded at this site indicate that there will be a negligible collision risk to all species during the operational phase of the wind farm.

Overall, this site is not sensitive with respect to bird interest.

Hydrology and Hydrogeology

The assessment has been based on a detailed desk study, walkover, and consultations with a range of organisations, including BMBC and The Environment Agency.

The geology of the site is predominantly underlain by sandstone, siltstone and mudstone rocks, identified as Pennine Lower Coal Measures. The underlying superficial geology, gained from trial pit investigations, shows undifferentiated mudstones, silt, weathered clay. Three main surface watercourses drain the site, identified as Annat Royd Beck, Small Shaw Dyke and an unnamed tributary of Ingbirchworth Reservoir.

The site lies within the catchment area of all three of the abovementioned watercourses, which drain towards the northeast.

Potentially significant impacts on hydrology have been avoided through environmental protection measures incorporated into the design of the wind farm and through the adoption of good practice measures during construction.

A range of measures will be in place during construction to prevent silt from entering watercourses on site. Stone required for construction will be sourced from local quarries offsite which avoids potential effects on geology and hydrogeology.

A Pollution Prevention Plan (PPP) will set out measures to be employed to avoid or mitigate against potential impacts for all phases of the development, and will also include an Incident Plan to be followed, should pollution occur. A nominated person will have specific responsibility for implementation of the PPP.

Method statements will also be applied, which will follow the principles laid out in relevant Environment Agency Pollution Prevention Guidelines (PPGs).

Taking the proposed mitigation measures into account, the potential effects of the wind farm on hydrology and hydrogeology are considered to be not significant.

Cultural Heritage and Archaeology

An assessment of the potential impact of the Development upon cultural heritage resources both within and around the site boundary has been undertaken.

The baseline condition of the site was established by desk based surveys and site visits. Records were collected at 1 km from the site boundary to allow an assessment to be made of the potential for unknown, buried, archaeological remains to exist within the Development site. Data on Scheduled Monuments, Listed Buildings and other nationally designated features held by English Heritage were collected out to 15 km from the proposed site boundary, to inform assessment of the potential for indirect, that is visual effects upon the settings of such features.

The assessment shows that no Scheduled Ancient Monuments, Listed Buildings (of any Grade), Registered Historic Parks or Gardens or Battlefields lie within the development boundary in whole or in part. In addition, no feature recorded on the SMR lies within the site boundary. Although the potential for buried archaeological remains cannot be discounted, the assessment (based on the known archaeological record from around the site) indicates that the likelihood of encountering significant remains is low. This potential can be mitigated by the implementation of an appropriate programme of archaeological recording, for example by means of a watching brief during construction, leading to preservation by record.

Assessment of potential visual impacts upon the settings of cultural heritage features is based upon the distance to the feature from the nearest turbine, as well as the level of designation of the features. More detailed consideration of the setting of features (including tree cover, associated buildings, location within a built-up area, designed views etc.) has been undertaken to determine the final potential effect. Although the turbines will be visible from cultural heritage features at distance beyond the development boundary, the assessment indicates that the actual effect upon the settings of such monuments and other features is likely to be of no more than *minor* significance.

Noise

An assessment of noise resulting from the construction, operation and decommissioning phases of the wind farm has been carried out.

Noise during construction and decommissioning will be managed through the use of best practice to ensure that effects are minimised as far as is reasonably practicable.

Operational noise has been assessed in accordance with relevant guidelines and in consultation with BMBC. A noise survey has been carried out at nearby properties to establish current noise levels in the area and to set limits for the proposed wind farm using the appropriate guidelines. The noise levels likely to occur at nearby properties under worst-case conditions have been predicted and assessed against these limits.

Some minor exceedences of the ETSU-R-97 limits have been predicted to occur at certain properties in certain circumstances. Where these have been predicted, however, the majority of noise affecting the properties in question would result from the existing Royd Moor Wind Farm rather than the Development. In these rare occurrences appropriate mitigation is proposed to ensure that either the limits are complied with, or no overall increase in wind farm noise level is caused.

Socio-Economics, Tourism & Recreation and Land-Use

The assessment has been based on a detailed desk study and consultations with a range of organisations, including BMBC, Natural England, English Heritage, National Trust and the British Horse Society.

The proposed Spicer Hill Wind Farm will create an indirect economic benefit through offering construction tendering opportunities. It may also create indirect effects through employment opportunities in the supply. As a local employer, J. G. Pears Ltd will strive to source local suppliers and labour wherever practicable.

J G Pears Ltd proposes to establish a community fund to support sustainable/environmental projects throughout the operational life of the wind farm. The community fund would be established following consultation with BMBC and the relevant Parish/Town councils.

There are a few local trails and a bridleways situated around the site. There will be no direct impact on any of these recreational resources during the construction, operation or decommissioning of the wind farm. Once operational, the wind farm may offer pre-arranged educational visits for schools, as renewable energy is part of the National Curriculum in England, should BMBC or any other educational authorities be keen to pursue this.

Impacts on tourism and recreational relate strongly to the attitudes of the individual experiencing the wind farm. Many studies undertaken across the UK have shown that the public is generally in favour of generating energy from renewable sources and that although uncertainty regarding proposals can generate apprehension, fears are generally allayed when the wind farm becomes operational.

The area containing the wind farm infrastructure is currently owned by the developer. The land is currently used for pastoral sheep grazing. Spicer Hill Wind Farm will utilise 1.42 ha of the land within the planning application boundary and existing agricultural practices will continue, although they will be managed in accordance with any habitat management proposals to enhance the environment of the site.

Other Issues

Spicer Hill Wind Farm will have a positive benefit on CO₂ emission savings. Energy generated by the wind farm would have the potential to displace electricity generated from other sources such as fossil fuels and would make a contribution to the regional target established by the Yorkshire and Humber Plan.

Electricity supplied via the grid comes from a mix of fuel sources which will change over time and as such it is difficult to predict exactly how much carbon dioxide could be prevented from being released into the atmosphere.

The Business Enterprise and Regulatory Reform (BERR) Digest of UK Energy Statistics 2008¹ states that, in 2007, 405 tonnes of CO₂ were released each gigawatt hour (GWh) when generating electricity from gas; this increased to 939 tonnes per GWh when generation was from coal. The average CO₂ release from the fossil fuel mix, which also includes oil, was 643 tonnes per GWh. On this basis, Spicer Hill Wind Farm will prevent the release of between 6, 682 and 15, 495 tonnes of carbon dioxide during each year of its 25 year operational life.

Sensors and protection equipment will be fitted to turbines and operational procedures followed to mitigate any safety risks associated with extreme weather conditions.

Shadow flicker is the term used to describe the effect that occurs when the shadow of a wind turbine blade passing a narrow opening (usually a window) appears to quickly turn on and off as blades pass the opening in succession resulting in a flicker. According to the Government Planning Guidance², there are limited atmospheric conditions in UK during which shadow flicker can take place and occurrence relates to the position of the sun relative to the turbines and the window opening.

¹ BERR (2008) 'Digest of UK Energy Statistics 2008' (DUKES 2008) Pg 124 [Chapter 5 Electricity, Table 5C. Figures for 2007] (www.berr.gov.uk/energy/statistics/publications/dukes/page45537.html)

² Planning for Renewable Energy - A Companion Guide to PPS22

The guidance advises that the distance over which this effect can occur is generally within ten times the rotor diameter of the proposed wind turbines. In the case of Spicer Hill Wind Farm, this effect could occur within approximately 700 m of the proposed turbines. A computer based model has been used to predict a worst-case scenario of the shadow flicker effects on the three properties within this distance. The model has predicted the time of year and time of day when effects could potentially occur at each property. For the very short periods of time identified, turbine monitoring and control systems will automatically identify when the atmospheric conditions and position of the sun are likely to result in shadow flicker effects and turbines will temporarily shut down the turbines to avoid this phenomenon.

SUMMARY

There are strong legislative and policy drivers for renewable energy development in the UK. Minimum targets have been set for Regions across England and in the case of South Yorkshire 160 MW of installed capacity are required by 2021.

Spicer Hill Wind Farm, if granted planning permission, will be developed and operated by J. G. Pears Ltd. a long established local employer with strong links to the area and will assist South Yorkshire in reaching the required aforementioned minimum target.

The only significant effects on the environment predicted as a result of the wind farm are landscape and visual effects in and around the site, and these will not be permanent as the development will be operational for a period of 25 years, then removed and the site restored or a planning application submitted to extend the operational life of the wind farm. Should another planning application be submitted a new EIA will require to be undertaken as part of this application process.

No significant effects are predicted on ecology, ornithology, hydrology or cultural heritage. Predicted noise and traffic levels will not result in nuisance, and any potential shadow flicker effects will be prevented through turbine control measures.

TABLE OF CONTENTS

ENVIRONMENTAL STATEMENT VOLUME I

Environmental Assessment Chapters

| No. | Title | Page |
|-----|--|------|
| 1 | INTRODUCTION | 1-1 |
| 2 | ENVIRONMENTAL IMPACT ASSESSMENT | 2-1 |
| 3 | PROJECT DESCRIPTION | 3-1 |
| 4 | PLANNING POLICY CONTEXT | 4-1 |
| 5 | LANDSCAPE AND VISUAL EFFECTS | 5-1 |
| 6 | ECOLOGY | 6-1 |
| 7 | ORNITHOLOGY | 7-1 |
| 8 | HYDROLOGY & HYDROGEOLOGY | 8-1 |
| 9 | CULTURAL HERITAGE | 9-1 |
| 10 | NOISE | 10-1 |
| 11 | TRAFFIC AND TRANSPORTATION | 11-1 |
| 12 | TOURISM, RECREATION AND SOCIOECONOMICS | 12-1 |
| 13 | EXISTING INFRASTRUCTURE | 13-1 |
| 14 | SHADOW FLICKER | 14-1 |
| 15 | OTHER ISSUES | 15-1 |

A full list of accompanying figures is provided within Environmental Statement Volume II: Figures.

Technical Appendices referenced in Chapters contained within this Volume may be found in Environmental Statement Volume III.

