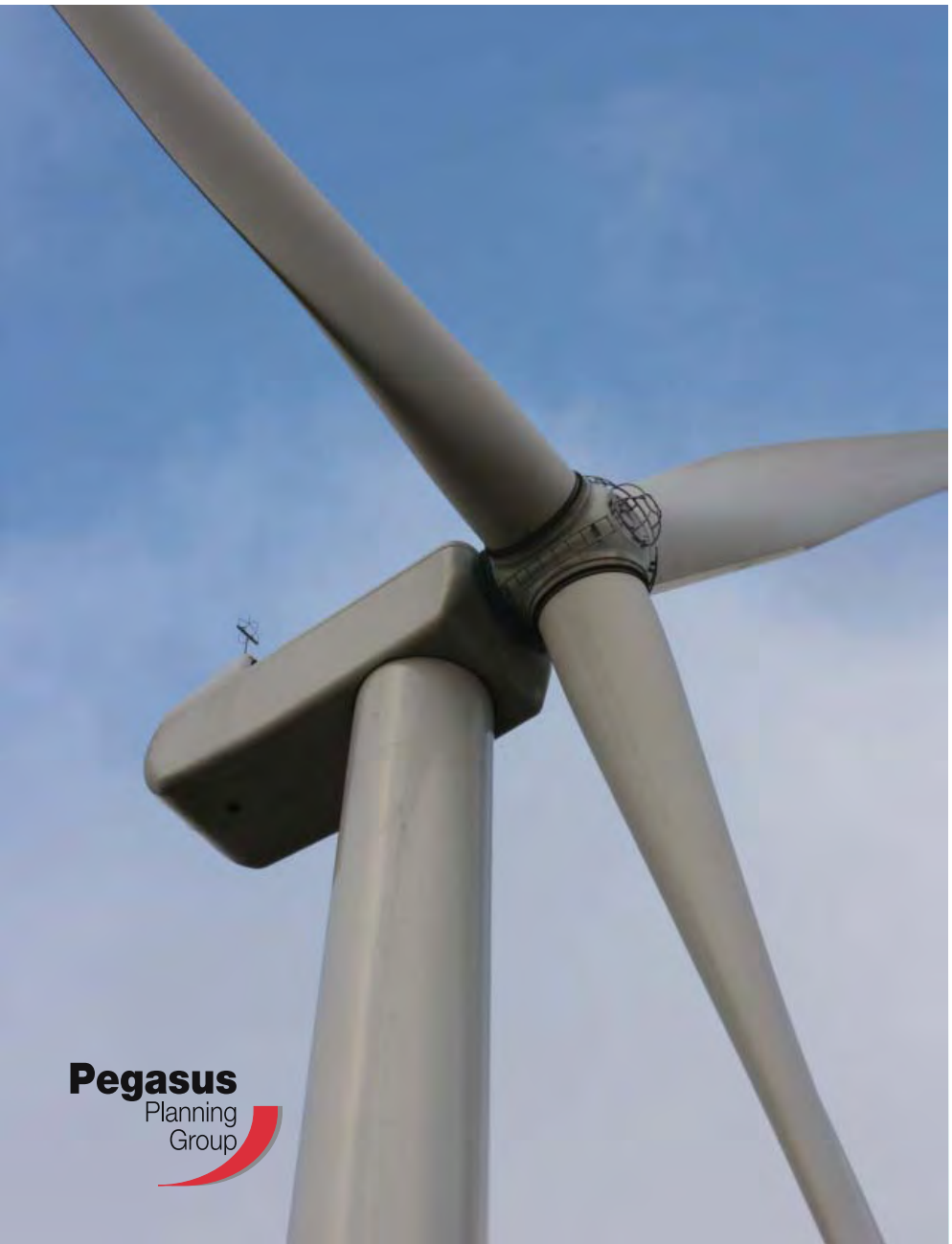
Heydon Grange Windfarm

VOLKSWIND



Environmental Impact Assessment: Scoping Report

Pegasus Planning Group

March 2010

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1. Introduction

1.1 Overview

This Scoping Report has been prepared by for the proposed Heydon Grange Wind Farm development on land to the north of Heydon, Cambridgeshire, SG8 7PZ. The site is located to the immediate north of the village of Heydon, and approximately 5km to the east of Royston, with an approximate grid reference for the centre of the site of TL 337 751.

The site and its surrounding area are shown in a Site Context Plan, Figure 1.

Volkswind UK Ltd is proposing to construct and operate a Wind Farm, comprising up to 11no., 2.3MW wind turbines with a generating capacity of up to 25.3 megawatts (MW).

This Scoping Report considers the proposed content of the Environmental Statement which will cover the Environment Impact Assessment of the development.

1.2 Why Wind Energy Development?

The Intergovernmental Panel on Climate Change has concluded that warming of the climate system of the planet is now evident from their observations of increases in: global average air and ocean temperatures; widespread melting of snow and ice; and rising global average sea level. (*Source: IPCC (2007) Fourth Assessment Report Climate Change 2007 - Synthesis Report)*

The principal contributor towards global warming is the emission of greenhouse gases. These include carbon dioxide (CO2) which is produced by the burning of fossil fuels. There are many processes which result in the production of greenhouse gases, including the generation of electricity in coal, oil, or gas fired power stations and the burning of petrol or diesel in motorised vehicles.

In the UK, every unit of electricity produced by wind power displaces a unit of electricity, which would otherwise have been produced by a power station burning fossil fuel. The production of electricity from coal, oil or gas fired power stations produces greenhouse gases. Therefore, each unit of electricity produced by the proposed wind farm would displace an amount of greenhouse gases that would

otherwise be released and contribute to climate change. Furthermore, the scheme would make a noticeable contribution to the energy security of the UK and the greenhouse gas reduction targets of the local region.

1.3 Volkswind UK Ltd.

Volkswind GmbH was established in Germany and is a privately-run developer and operator of wind energy projects across Europe. The company's aim is to achieve an economically viable use of renewable energy through professional expertise and experience. Volkswind wind farms currently have an installed capacity of over 200MW throughout Europe, which is the equivalent to generating electricity for nearly one million households every year. The headquarters of Volkswind GmbH are located in Ganderkesee, in Lower Saxony, Germany and branches also exist in France, Bulgaria and Poland, as well as the UK.

Volkswind UK Ltd is a subsidiary of Volkswind GmbH and has been established since 2006. The company's sole focus is the UK where it is believed that the wind resource is available to provide an abundant form of sustainable energy. Volkswind currently have projects in various stages across the UK, from the hills of Scotland to the South coast of the UK.

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1.4 Pegasus Planning Group LLP

This Scoping Report has been prepared by Pegasus Planning Group LLP. Pegasus have been appointed to project manage the preparation of the Environmental Impact Assessment (EIA) and planning application for the proposed scheme on behalf of Volkswind UK Ltd.

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2. EIA Scoping

2.1 Scoping Overview

The requirement of the European Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by the Council Directive 97/11/EC, are transposed with regard to the proposal in question by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. These are referred to as the 'EIA Regulations' hereafter.

The EIA Regulations require that any development which is listed in Schedule 2 and which exceeds specific thresholds or meets certain criteria as defined in the schedule, be subject to EIA where such development is likely to have 'significant' effects on the environment by virtue of such factors as its nature, size or location (Regulation 2(b)).

The proposed development falls within the definition of Section 3(i) of Schedule 2, *'Installations for the harnessing of wind power for energy production (wind farms)'*. The proposed development exceeds the threshold of 2 turbines as defined in Column 2 and hence the proposal qualifies as a Schedule 2 development and it was decided that an EIA should be undertaken.

The EIA Regulations permit for a developer to request a 'Screening Opinion' from the Local Planning Authority (LPA) to determine whether the EIA process should be followed. Given the nature and scale of the proposal, it was considered that an EIA should be undertaken and therefore Volkswind UK did not seek a formal Screening Opinion from the LPA.

The EIA Regulations provide for obtaining a Scoping Opinion from the Local Planning Authority regarding the potential environmental impacts to be considered in the EIA (Regulation 10(1)). The purpose of this Scoping Report is to accompany the request for such a Scoping Opinion.

This Scoping Report includes a plan identifying the context and location of the site (Figure 1), a brief description of the nature and purpose of the development and of its possible effects on the environment as required under this Regulation.

3. Project Overview

3.1 Site location

The Heydon Grange site lies on land to the north of Heydon, Cambridgeshire, SG8 7PZ. The site is located on land adjacent to either side of Fowlmere Road to the north of the village of Heydon, with an approximate grid reference for the centre of the site of TL 337 751.

The context and location of the site is shown on Figure 1. The site has an area of approximately 1.8km^2 and levels across the site range from 55m to 120m AOD. The site is currently farmed for arable crops. Two small named wooded areas are located within the site boundary, known as Long Plantation and Anthonyhill Plantation. A covered reservoir is also located within the site boundary in the arable field adjacent to the east of Fowlmere Road.

The M11 is located approximately 6km from the site in an easterly direction and the A505 runs 1.5km to the north of the site. The nearest large settlement to the site is Royston which is located approximately 5km to the west.

The Icknield Way Path/ Harcamlow Way Long Distance waking routes pass together through the site on a way-marked footpath through the centre of the arable field adjacent to the west of Fowlmere Road.

3.2 Project Description

The proposed development would comprise the following elements which are described in more detail below:

- 11no. turbines (each with a generating capacity of up to 2.3MW);
- Ancillary infrastructure including: access tracks, transformers, a control building/substation, underground cabling;
- A temporary construction compound; and
- A temporary meteorological mast (for the first year of operation only).

It should be noted that the final number of turbines and their generating capacity may change during the iterative design process. At this time, however, it is understood that 11no. turbines would be a maximum number.

Individual Components of the Scheme

An indicative layout of the proposed development of the site is provided as Figure 2. It should be noted that this is a preliminary layout based primarily on engineering constraints. The wind farm design will evolve through an iterative process during the scoping, EIA and design process, taking into account environmental constraints identified through baseline studies and consultations. The final proposal will be described in detail in the ES.

Turbines

It is proposed that there will be up to 11no. 2.3MW wind turbines with a combined installed generating capacity of 25.3MW. Each of the turbines will be a pitch regulated, upwind turbine with active yaw (a device which allows the blades to turn towards the prevailing wind) and a rotor connected to a central 'nacelle' which is located at the top of a tubular steel tower.

The rotor consists of three blades, the hub, the pitch bearings and drives to change the pitch angle of the blades. The rotor blades are made of glass fibre-reinforced plastic. Each rotor blade is controlled and driven independently of the other blades. The blades are equipped with a lightning protection system including lightning receptors deflecting the lightning into the rotor hub.

The turbines will have a maximum tower hub height of up to 80m and a rotor diameter of up to 93m, giving a maximum of up to 126.5m to blade tip height. The structures will be a pale grey colour, similar to International Colour Reference RAL 7035, to blend into the skyline, whilst other parts may be lit to meet safety requirements.

The locations of the turbines as illustrated in Figure 2 have been established following desktop studies. Onsite soil surveys and trial pits will be required to determine the soil structure and suitability for turbine bases. As such a micro-siting allowance in all directions from each turbine position shown may be required to accommodate ground conditions.

Turbine Foundations

Each turbine will require foundations which provide sufficient support to reduce dynamic amplification. A circular concrete base will be used with a diameter of 17.30m and an area of 235m². The foundation depth will be adapted to site conditions considering the ground water level, however it is likely to be up to 3.5m. This area is thought to be adequate for the proposed turbine specifications although the detailed design of each foundation will depend upon site-specific investigations.

For tower anchorage, an anchor cage is integrated into the concrete body of the foundation. The anchor cage consists of 2 x 80 anchor bolts, 1 load-spreading plate and 1 anchor plate. The T flange of the tower is screwed to the foundation using anchor bolts.

Each turbine foundation will require an excavation of up to 3.5m in depth to allow construction of the base. It is expected that the vegetation layer and topsoil will be stripped and stored separately next to the working foundation area. The material beneath the topsoil will also be excavated to form a pit in which the foundation will be constructed. This material will also be stored beside the excavated pit.

It is expected that after construction of the turbine foundations, a layer of previously excavated earth will be re-instated around the turbine base.

Crane Pads

To enable the crane to position each turbine in place, an area of hardstanding, often referred to as a 'crane pad', is required. Firm ground conditions consisting of stone will be required for the crane pads. Underlying material will be excavated to a suitable level and then built up to form a solid platform with suitably graded stone.

Prior to the excavation of the crane pads, the top soil will be stripped and stored separately next to the crane pads for use in the reinstatement following the construction phase, with any excess soil removed off site as necessary.

The typical crane provision for construction of the site will comprise two road-going cranes to lift the turbine parts. It is expected that these would comprise of a main crane with a variable radius, a telescopic jib 47.3m and a lattice jib of 42m, capable of lifting of 500 tonnes. This would be assisted by a pilot crane with a variable radius and a telescopic boom of 60m, capable of lifting 200 tonnes.

Grid Connection

Electrical energy is generated by a wind turbine when movement of the air turns the blades creating kinetic energy, which in turn is converted to electrical energy in a generator in the nacelle of the turbine.

The electricity generated by each turbine will be transferred to the national grid. In order to connect each turbine to the grid it is necessary for each turbine to have a transformer which is in turn linked by underground cables to a control building/substation. From the control building/substation the electricity is then transferred into the local electricity distribution network by overhead cables. This is described further below.

Transformers

A transformer will be located either within the turbine, or at the base of each turbine within a separate transformer station building. The transformer is required in order to convert the electricity produced by the turbine to an appropriate voltage. From the transformer, the electricity will be transferred along underground cables to the control building/substation.

Cabling

Underground cabling will be installed on-site to connect the transformers at the base of each turbine with the control building/substation. This is likely to consist of three separately insulated cables laid together along the length of the site access tracks. The cabling in the trenches will be protected by a maximum of 200mm of soft sand (up to 450mm wide) and backfilled with material from the excavations.

Control Building/Substation

The underground cables from the transformers run to a dedicated control building/substation within the site. This building is required to house the equipment for the connection to the local electricity distribution network, including the main switch and metering section. The area provided for the control building is up to 225 m^2, however the dimensions of the building itself will be determined after the contract for the provision of the grid connection is awarded.