HPK/2013/0658

evancewind

HIGH PEAK
23 DEC 2013
BOROUGH COUNCIL

Design and Access Statement and Planning Statement / Application for the siting of two Evance R9000 5kW Wind Turbines at

Long Hill Farm,
Manchester Road,
Buxton,
Derbyshire.
SK17 6SU

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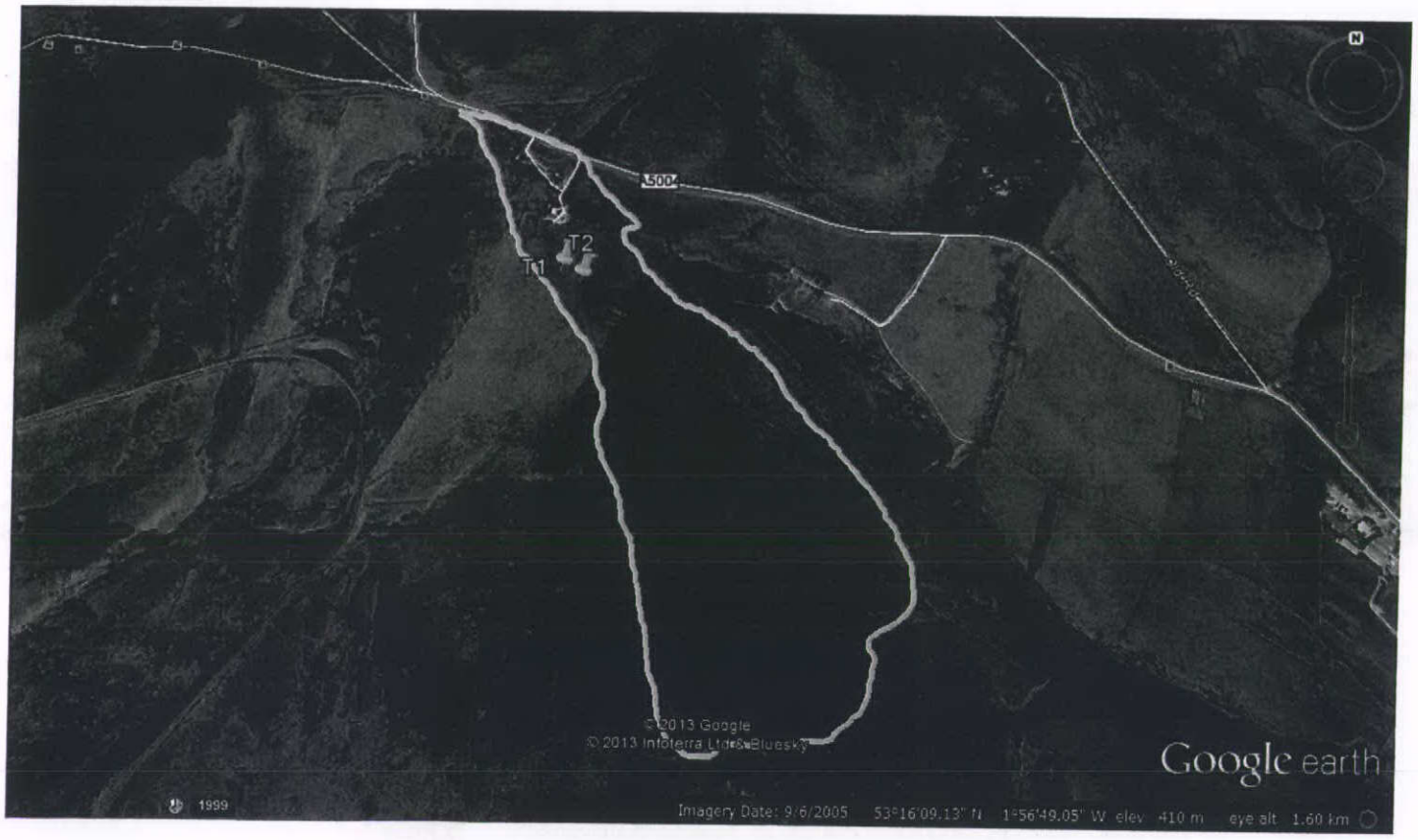
1. Application Description

Planning permission for two 5KW Evance R9000 wind turbines at Long Hill Farm is sought to enable the applicant to reduce the carbon emissions and energy bills of their property, and to increase their self-sufficiency in terms of electricity production.
The site's predicted annual average wind speed at 15m of 7.8 m/s is higher than the national average wind speed for rural locations of 5.0m/s, and would indicate the proposed location could be a good site for wind turbines. It is estimated that both turbines of the type proposed here in this location could generate an estimated output of 36860kWh, which will make a significant contribution to the energy used per year by the property. This represents an annual CO2 saving of approximately 19.33 tonnes of carbon dioxide per annum. This saving contributes towards national and regional for renewable energy generation for 2020 as outlined in the Governments Renewable Strategy.

2. Site location

The immediate surrounds of the application site comprise open fields. The wider surrounding area is rural in nature and is characterised by extensive open fields. The town of Buxton is located to the South East of the site and the closest public road runs approximately 150m from the site.

Figure 1: Aerial photograph of site with highlighted proposed turbine location



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3. Proposal

3.1. Turbine Specification

The installation consists of two 5kW Evance R9000 turbine, mounted on free-standing 15m galvanized steel tower. The turbine is a three-bladed horizontal-axis propeller design, with a rotor diameter of 5.5m. All none galvanized elements of the turbine will be coloured grey.

Figure 2: Colour of proposed turbine



RAL 7000
Dark Squirrel Grey Test Panel

Figure 3: Evance R9000 Characteristics

Generator rating	5 kW at 11 m/s
Rotor speed	200 rpm nominal (variable)
Cut-in wind speed	3 m/s (6.7 mph)
Survival wind speed	60 m/s (134 mph)
Rotor diameter	5.5 m (114")
Rotor orientation	Upwind
Number of blades	3
Blade material	GRP composite
Control system	Passive blade pitching
Gearbox	None
Brakes	Electro-dynamic
Generator	Permanent magnet alternator
Yaw control	Tail vane
Tower height	10,12,15,18m Site depending

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Figure 4: Image 15M Evance R9000





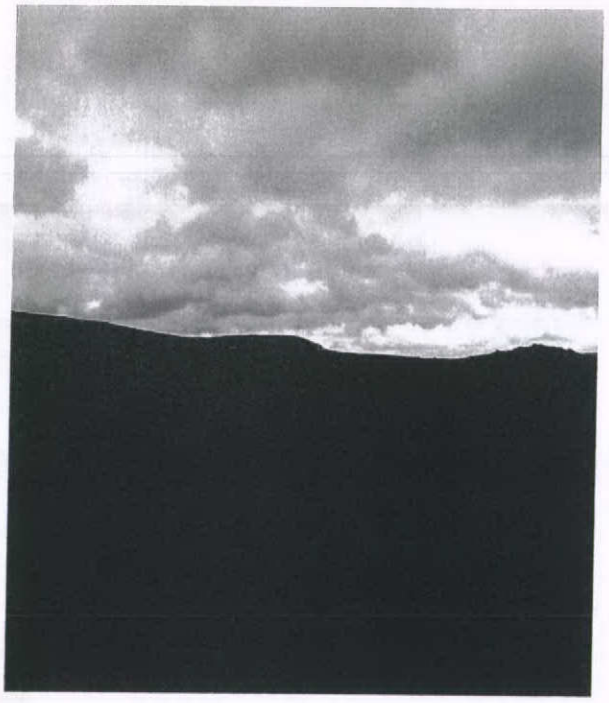
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Figure 5: Directional view from proposed turbine location

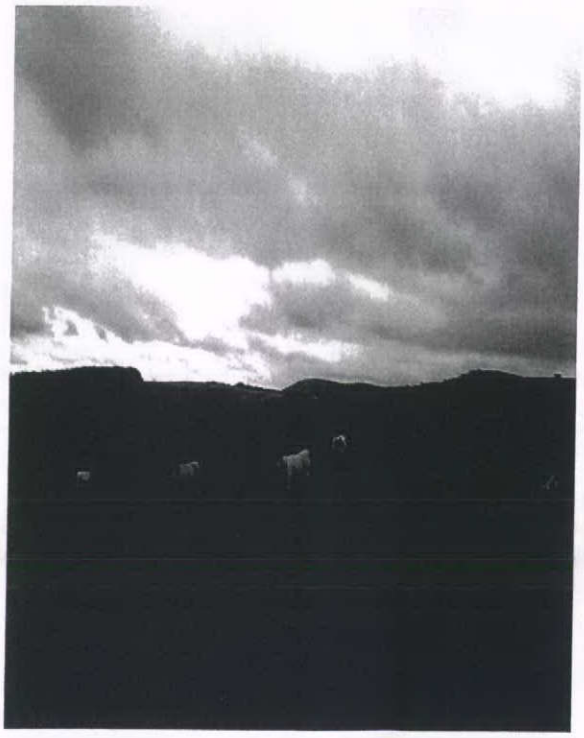
Install site looking North.



Install site looking East



Install site looking South.



Install site looking West.



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The pictures show the landform and landscape features in the immediate vicinity of the turbine. From the images it is clear that the proposed location for the turbine is remote from neighboring properties. Due to its scale, no strategic views across the area will be harmed. Since there are no other turbines in the immediate vicinity, there is no cumulative impact.

The Evance R9000 turbine model was chosen because the form of this turbine is considered to be best suited to this landscape setting in that it is particularly slim-line in design, demonstrated by the tapering mast top and small turbine head, which reduces the bulk of the turbine thus helping it to blend more effectively with the surroundings and providing reduced visibility over distance. Also the proposal does not involve any ground based equipment housing or compound fencing. As a consequence the proposal would have a limited, non-material impact on the character of the landscape.

After taking into account the existing landscape characteristics as well as the energy generating capacity and efficient functioning of the turbine 15m towers was chosen. The applicant feels that to use this technology correctly, he should opt for the most efficient turbine possible in order to achieve the greatest possible energy generation and carbon saving. The energy production from a 15m mast makes the wind turbines economically viable and environmentally sound in this location as they will cover more of the energy bills of the applicant and will provide a greater saving of CO2 which in the longer term will be of greater benefit to the countryside.

4. Cumulative Impact

The cumulative impact of the turbine is none. The proposal is for one small wind turbine which will appear as insignificant in the wider landscape. Local authority searches show that there are no other wind turbines in the immediate vicinity.

5. Noise

The Evance turbine has been designed to be very quiet. The rotor design and in particular, the low rotor tip speed, coupled with the direct drive system (no gearbox) all ensure the turbine operates as quietly as possible.

Contained within the supporting documentation is a noise report which provides a general noise specification for an Evance R9000 wind turbine. The specification provides typical noise readings at varying distances from an R9000 turbine.

Consequently, the closest non-associated residential property, which is over 560m from the site, will be below 40db (A).

In conclusion, the noise levels of this wind generator is low and under most operating conditions it is likely that the micro wind generator noise would be completely masked by the background noise of wind blowing through the trees and buildings nearby.

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6. Shadow flicker

Properties greater than 55m (10 x rotor diameter) will remain unaffected. In this case the separation distances between the turbines and any properties are well in excess of the recommendations above. Shadow flicker will not adversely impact any properties on or offsite.

7. Access

Access to the site will be gained via the existing road network and site accesses. The components will be moved into position by mini-digger which is already onsite. Excavations for the foundation and cable trenches will be carried out by mini-digger.

As a small wind turbine installation the foundation and trench digging is all completed within 1 day.

All excavations, protection, cable laying, builders work, holes through existing walls etc. will be carried out in accordance with relevant health and safety requirements.

Excavations for the foundation and cable trenches will be carried out by the small digger onsite. All excavations, protection, cable laying, builders' works, holes through existing walls, etc., will be carried out in accordance with relevant health and safety requirements and good construction practice and the safe use of tools and equipment.

8. Ecology and Conservation

The greatest threat to all living species is climate change resulting from carbon emissions. Whilst there is little data available on the risk to wildlife by small wind turbines and the Evance small turbine specifically, it is too easy to impose requirements appropriate to industrial scale machines.

The land immediately surrounding the application site for the proposed turbines is rural / agricultural. From the initial site survey no features of particular wildlife interest have been identified in the immediate vicinity of the site of the wind turbine and there are no adjacent sites that are designated as having any local, regional, national or international ecological interest.

The British Wind Energy Association Website (http://www.bwea.com) States "Experience and careful monitoring by independent experts shows that birds are unlikely to be damaged by the moving blades of micro wind generators. More information about this can be found from BWEA Best Practice Guidelines and the Royal Society for the Protection of Birds, whose view is that "Climate change is the most significant, long-term threat to biodiversity worldwide. To help meet this threat, the RSPB also strongly supports moves to increase energy efficiency, reduce energy demand and supply more of our energy needs from renewable sources, including wind power, provided they do not harm birds or their habitats." Studies of birds increasingly show that the risk from wind turbines to most species is very low, far greater risk exists from overhead cables and moving cars. The RSPB have installed a small wind turbine at their visitor centre at Rainham Marshes and are reported to be considering turbines for other sites including turbine for a site near to Carlisle. The RSPB position on wind turbine installations is illustrated here: http://www.rspb.org.uk/news/details.asp?id=tcm:9-213213.

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General advice from the United Kingdom Bat Conservation Trust and the Wildlife Trust regarding domestic scale installations on other similar turbine applications states is that it is good practice for the siting of turbines to avoid close proximity buildings that could be used as roosts, or groups of mature trees, hedge lines and water bodies such as ponds and lakes, which could be used as foraging and commuting routes. They recommend siting of domestic scale turbines 50m away from any such feature. This advice is backed up by English Nature in their 2009 publication Technical Advice note TON051.

An examination of aerial photographs of the site has confirmation that all water bodies, trees and building present in the locality are in excess of 50m from the site.

9. Health and Safety

The site is located within a field so no issues with safety have been identified. Training for the safe use of the equipment will be provided to the end use. All the components are designed for a trouble free long life with minimum maintenance. An annual inspection of the turbine head is required to comply with the warranty requirements and to ensure efficient operation.

Experience indicates that properly designed and maintained wind generators are a safe technology. The very few accidents that have occurred involving injury to humans have been caused by failure to observe manufacturers' and operators' instructions for the operation of the machines. There has been no example of injury to a member of the public. The minimum desirable distance between wind turbines and occupied buildings calculated on the basis of expected noise levels and visual impact will often be greater than that necessary to meet safety requirements. Fall over distance (i.e. the height of the wind turbine to the tip of the blade) plus 10% is often used as a safe separation distance. The wind turbine erected in accordance with manufacturer's instructions is a stable and safe structure. In accordance with good practice the proposed location has been chosen to achieve a setback of at least fall over distance from nearby roads, buildings, paths and public access routes.

10. Decommissioning

The design of the wind turbines and the choice of location have been consciously made to facilitate ease of dismantling of the equipment and restoration of the site at the end of its useful life - 20/25 years. Scheduled maintenance will be required; measures will be taken to ensure this is carried out in accordance with health and safety requirements and to protect the safety and security of the public.
The applicant has no objection to the imposition of a planning condition requiring removal of the turbines at the end of its operational life and reinstatement of the land to its former condition.

11. Conclusion

The site for the proposed wind turbine has been chosen carefully to ensure that it can be absorbed by the local landscape and is largely indistinguishable in the landscape from most mid and distant viewpoints. Where it is distinguishable from close vantage points, from the road and from other public rights of way, the design, scale, form and appearance has been selected

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to ensure that the construction and operation on the proposed site will not be intrusive on the landscape, and are far outweighed by the economic, social and environmental benefits of the proposal outlined above. In addition, this proposal should be viewed as a piece of modern farming technology in a largely agricultural area that will, in the long term, help to maintain the viability of the landscape by reducing carbon emissions. This taken along with demonstration of no harm, it is considered that this development is appropriate for the location and purpose for which it is intended.

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