

DESIGN AND ACCESS STATEMENT

PROPOSED INSTALLATION OF 1 NO SMALL SCALE EVANCE 5KW WIND TURBINE ON A 12M MAST

CARRIED OUT BY:

INVESTMENT RENEWABLES LTD
UNIT 19
THE GALLERIES
42 WAKEFIELD ROAD
DEWSBURY
WF128AT

T: 0800 644 6986

ON BEHALF OF:

MR & MRS LONSDALE

HEY SLACK FARM
HEY SLACK LANE
COMBERWORTH
HUDDERSFIELD
HD88YD

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INTRODUCTION

This statement is submitted in support of a full planning application for the installation of 1 No small scale 12m 5kw wind turbine on land attached to:

Hey Slack Farm, Hey Slack Lane, Cumberworth, Huddersfield, HD88YD.

This statement explains the background to the proposed development, describes the scheme and, in the context of relevant planning policy, sets out the case for the proposal.

SUMMARY

The Evance 5 kW small scale wind turbine is designed for grid – connected electricity generation and will be mounted on a 12m mast. The tower is galvanised steel and finished in grey with the blades and nacelle constructed of composite material finished in matt grey. The turbine has a maximum rotor radius of 2.75 metres and will be connected to the national grid so the surplus electricity that is generated can be fed back into the system.

The Evance turbine is designed for extremely low noise operation and minimal visual impact and are a leader within their class. They are a class II turbine ideal for typical UK wind conditions and operate optimally at average annual wind speeds of 5m/s – 8 m/s. They have a survival wind speed of 60 m/s.

The applicant is proposing the development to become more sustainable, and to reduce their high annual electricity usage. They are also keen to support our national and regional targets to generate 20% of our energy through renewables by 2020. The farm and group of properties have an exceptionally high usage of approx 26,000 kWh / Annum. This is just under 7 x times the average UK home.

Planning has been granted for a 10 kW unit but due to tight conditions put on the approval, the applicant has made the decision to reduce the unit size from an Evoco to an Evance, as the Evance is known for its exceptionally low noise emissions. This will allow the applicant to install with full confidence that the unit will not cause a nuisance to other parties who live in close vicinity.

The turbine is expected to generate a high yield of energy of around 18,000 kWh/Annum calculated from an estimated 7.2 m/s average annual wind speed at 10m above ground level (AGL). The property is likely to use around 60% -80% of generation on site due to the higher than average load of 3 kW's. This generation is expected to save approximately 8 Tonnes of CO₂/Annum, 160 Tonnes over the 20 year life expectancy of the turbines.

The turbine's location offer a sympathetic siting, taking into account neighbouring parties who may be affected. The applicant has consulted with neighbours and has

received a positive response, supporting the project. The turbines are sited to the Southeast of the farm buildings at a distance of 130m. At this distance it is clear which property the turbines are serving.

This particular location has been chosen to receive a clean flow of wind towards the turbines. The turbines are set at the bottom of the customers land at a point, which keeps the turbines as far from neighbours as possible whilst ensuring their efficient operation. The site is also slightly lower than the surrounding land, reducing the turbines prominence further.

The topography of the land helps to enclose the turbine, reducing the visual impact from long distances. We have also considered the ecological impact and do not believe that the proposal will cause any detrimental affect to the local wildlife.

Attached with this application and this 'Design And Access Statement' are various supporting documents including OS scaled maps showing the precise location of the turbine and the scale of a typical turbine, as well as a 'Green Belt Impact Assessment'. There are also design details showing the scale of the turbine. The application addresses national planning policies, regional planning policies and the Kirklees local policies.

WIND RESOURCE

The proposed site has been evaluated in line with the NOABL wind speed database for the UK and the average annual wind speed established for the site Eastings 418393, Northings 406413 has been recalculated to the turbines proposed elevation of 12m (7.4m/s). The local wind speed is above the UK average and offers an exceptional site within the guidelines of good wind turbine siting.

SITE BACKGROUND

The applicant uses approximately 26,000 kWh of electricity on site per Annum. The land is laid to fallow and the grass is cut regularly.

The applicant is located in an area of high wind allowing for a high average wind speed. This would allow the customer to generate a high yield of electricity that, for around 60% - 80% of the time can be used on site, dramatically reducing the small farms requirement to rely on fossil fuels and making the farm more sustainable.

With a high annual oil usage of approx 2,200 litres the applicant intends to increase electrical usage and reduce oil usage where possible by installing oscillating heaters and by using the emersion heaters as much as possible.

The customer is aware of our obligations to reduce our use of fossil fuels and wishes to support the UK's regional and national targets for renewable energy generation for 2020. It is believed that the site offers an excellent location whilst bearing as little

impact as possible on the surrounding communities. The visual impact has been weighed up against the need to reduce the farms dependence on fossil fuels and clearly shows justification for its installation of the turbine.

Due to the high wind resource on site and available land, wind turbines offer the best solution to the high energy usage on site against solar PV or other technologies.

Continuous increases in energy prices each year and their desire to promote themselves as green and energy efficient, really demonstrates an excellent reason to install this renewable technology.

After assessing various options the decision has been made to install 1 No small scale wind turbine to take full advantage of this prime location. The primary reasons for this over other renewable technologies are the abundant, good quality wind resource in and around the Cumberworth area, and the more than sufficient spare land. The site in question has uninterrupted open land in the West and South West, and from 360 degrees around the proposed location. South West is the Prevailing wind direction, where approx 80% of the UK's wind comes from, which is ideal for maximising energy generation.

The applicant is keen to mention that their choice to apply for ONE Evance 5 kW turbine was made very carefully. Due diligence was paid to ensure that the various complaints received during the previous application have been addressed to ensure that noise will NOT be an issue to neighbours. Although the Evoco 10 kW was calculated directly in line with their energy needs, the applicant felt it was important to avoid further unnecessary complaints causing issues. The installation is not purely designed as a profiting scheme; it is very much designed to provide the farm buildings with a secure source of clean electricity for the next twenty years.

JUSTIFICATION FOR THE DEVELOPMENT

The United Kingdom has a target to reduce its greenhouse gas emissions by 20% below 1990 levels by 2020.

The UK is under strict obligations to meet targets of 20% of energy requirement to be generated by renewable energy by the year 2020, with 50% by 2050. Although relatively small, the Evance 5 kW plays a significant role in reaching our important targets of carbon reductions.

The current Feed-in tariff effective April 2010 is a government backed initiative similar to those found in Europe designed to encourage the installation of microgeneration technologies by the domestic and SME sectors.

Cumberworth benefits from an excellent wind resource with a 7.2 m/s 10m agl wind regime on site. The Evance 5kW turbine is expected to generate approximately 18,000 kWh of electricity each year. This is equivalent to a saving of approximately 8

Tonnes of carbon dioxide/Annum & 160 Tonnes over 20 years. With a maintenance programme the life expectancy of the turbine could be exceeded, increasing the value of 160 Tonnes saved.

The turbine is expected to provide the farm with around 60% - 80% of its annual electricity requirement, aiding greatly towards national and regional targets.

SITING

The turbine is to be sited to the Southeast of the property, with approximately 120m from the main supply and around 130m to the nearest neighbouring property in a Northwest direction. The location was chosen to take best advantage of the topography of the site and to best utilise the prevailing winds typically from the South West, at the same time minimising noise impact on surrounding neighbours and keeping visual impact to a minimum.

It was decided to install 1 small scale wind turbine, to maximise on the high winds available at the location but not causing too greater impact to visual amenity or noise amenity. The proposed turbine is far smaller in both head bulk or tower than many of the other turbines around the Cumberworth area.

There are several turbines in the local area, but due to their small scale it is not believed that the turbine will have a detrimental impact on the landscape. The site has already received approval for an Evoco 10 kW which is far bulkier than the Evance, for this reason there should be no reason that the Evance can't take the Evoco's place.

The applicant chose to make an application for a single Evance as there was some objection to the larger Evoco. It was felt that a further complaint would be imminent once the 10 kW was installed. Although we have confidence that the Evoco would omit acceptable noise levels in line with Etsu guidance, there was still the possibility for incurred costs through the requirement for noise assessments to be carried out.

The single Evance will help greatly towards reducing the onsite carbon emissions, allowing the applicant to use electricity more freely to run the property.

SITE PHOTOS

ARIAL OF SITE LOCATION



PROPOSED TURBINE LOCATIONS



360 VIEWS FROM LOCATION



SOUTH WEST



NORTH WEST



SOUTH EAST



NORTH EAST

PHOTO VIEW POINTS



DESIGN

The Evance 5kw turbine has a rotor radius of 2.75 metres (max) and is mounted on a freestanding 12 metres (max) tower, comparable to a telegraph pole. The turbine nacelle and blades are manufactured from high tech materials, coated and painted matt grey, with the tower being grey in colour and galvanised steel.

The colours were chosen, as they are believed to blend well with the skyline in most situations offering as little visual impact as possible. The finish of the turbine is matt to reduce reflection.

ACCESS

There is no public access required to the turbine at Hey Slack Farm. Access for maintenance is annual and can be gained along existing tracks and vehicles can be parked on the customers land, away from the road. There will be no disruption to the pedestrian access or vehicular access to the site during installation and maintenance.

ENVIRONMENTAL IMPACT ASSESSMENT

BACKGROUND AND POLICY CONTEXT

Government policy on renewable energy is contained within the Energy White Paper 'Our energy future - creating a low carbon economy' (2003).

The Northwest of England Plan Regional Spatial Strategy to 2021, sets out the regional targets for renewable energy, acknowledging that policies and proposals should be included within development plans to help achieve regional targets. Policy EM17 – Renewable Energy highlights the direction and key criteria that must be followed in order to achieve set targets.

Wind energy is an abundant natural resource. It is non-polluting, clean and sustainable. The UK has one of Europe's windiest climates and therefore wind energy is expected to be an important element in achieving the UK government's commitment to reduce CO₂ emissions to 12.5% below 1990 levels by 2010. More specifically it is Government policy to achieve 20% of the nation's electrical requirements from renewable sources by 2020.

Planning Policy Statement 22, published in 2004 replaces PPG22 - Renewable Energy, the statement and supporting notes cover all aspects of renewable energy including considerations for the siting of wind turbines and encourages favourable views towards small scale renewable power sources.

It states 'local planning authorities and developers should consider the opportunity for incorporating renewable energy projects in all new developments. Small scale renewable energy schemes utilising technologies such as solar panels, biomass heating, small scale wind turbines, photovoltaic cells, combined heat and power schemes can be incorporated both into new developments and some existing buildings. Local Planning Authorities should specifically encourage such schemes through positively expressed policies in local development documents'.

SINIFICANTLY PARAGRAPH 18:

SMALL SCALE RENEWABLE ENERGY DEVELOPMENT

“ Local planning authorities and developers should consider the opportunity for incorporating renewable energy projects in all new developments. Small-scale renewable energy schemes utilising technologies such as solar panels, biomass heating, small-scale wind turbines, photovoltaic cells, combined heat and power schemes can be incorporated both into new developments and some existing buildings. Local planning authorities should specifically encourage such schemes through positively expressed policies in local development documents.”

PARAGRAPH 20 STATES:

"Of all renewable technologies, wind turbines are likely to have the greatest visual and landscape effects. However, in assessing planning applications, local authorities should recognise that the impact of turbines on the landscape will vary according to the size and number of turbines and the type of landscape involved and that these impacts may be temporary if conditions are attached to planning permissions, which require the future decommissioning of turbines."

KEY POLICIES

PPS7 – Sustainable Development In Rural Areas:

PPS7 is supportive of the exploitation of renewable energy sources in rural areas. It encourages and provides policy support for agricultural operations to be sustainable and environmentally friendly. The proposed 5kW turbine at Hey Slack Farm will greatly reduce the applicant's dependence on fossil fuels allowing them to operate a more sustainable lifestyle and reduced carbon footprint.

PPS22 – Renewable Energy:

PPS22 recommends a supportive and positive approach to renewable energy generation where viability is demonstrated and the Environmental and social impacts can be sufficiently addressed.

The Government has advised that, although small scale renewable projects provide limited value, they do still play a role in meeting our renewable energy targets both locally and on a national level. Each farm that adopts the use of renewable energy should be considered in a supportive manner.

The separate Green Belt justification document submitted with the application demonstrates that very special circumstances exist to justify the development within the Green Belt and that the very limited impacts of the proposal would be far outweighed by the environmental benefits of the proposal. The development is therefore considered to comply with both national and local planning policy.

The turbine and its siting have been carefully evaluated in line with Kirklees local policies, and adheres to the boundaries set out. By installing this renewable technology and utilising the high wind speeds found in around the locality, the wind turbine will provide social benefits by preserving the landscape and air quality due to its provision of clean electricity. We have also mitigated the visual impact by siting it close to the farm buildings and at a lower point in the farms land. This clearly demonstrates compliance to all policies.

These policies have also been considered when choosing the turbines' site, and has taken care to cause as little impact on any neighbouring parties as possible. It clearly serves the farm, which has a high electricity requirement, and the size of the units have been carefully chosen to provide a high-energy yield, but at a scale that is in keeping with the existing landscape.

ENVIRONMENTAL IMPACT

PPS22 Renewable Energy (August 2004) and/or PPG22 (Feb 1993) - Annex on Wind Energy, recommend the consideration of the following factors in the assessment of the planning implications of proposals for wind turbine developments:

SITING AND LANDSCAPE

PPS22 and PPG22. It has been normal practice to site utility scale wind turbines on elevated and exposed ground in order to achieve the highest possible energy capture and optimise the economics of the project. This has led to considerable opposition to wind power projects wherever they have been proposed.

It is important to appreciate that the Evance turbine is of a completely different scale to the now familiar utility scale turbines, which may have tower heights of 100m and rotor diameters of 80m.

By comparison the Evance turbine, with a tower height of 12m (max) and rotor radius of just 2.75m (max), is nearer in scale to a typical telegraph pole or power transmission pole, a familiar aspect of our rural landscape.

However it is accepted that the main difference between such installations and the Evance turbine is that the turbine involves moving parts. The Evance turbine has been specifically designed to have low visual impact, with slender blades and minimal visual bulk at tower height. Care has been taken to select appropriate materials that are sympathetic to as many situations as possible.

The turbine is to be situated at a lower point on the applicants land; this should not affect the capture of wind but does ensure the turbine is as far from neighbours as possible. The visual impact can be seen in the additional images provided with the application documents, and the chosen location is believed to mitigate the visual impact as greatly as possible, given the land characteristics.

STANDARDS AND CERTIFICATION

There is currently no compulsory standard for wind turbine design, however the Evance 5kW has been designed in line with and complies with the IEC 61400 -2 standard for small wind turbine design.

The turbine is designed to survive wind speeds of 60 m/s, which is considerably in

excess of those experienced in West Yorkshire. Indeed, if such winds were to be experienced inland in the UK there would be very widespread damage to buildings and power lines with considerable destruction. The maximum recorded wind speed during the notorious 1987 gales was 47.8 metres per second.

The turbine has been assessed under the rigorous of MCS 006 Microgeneration Certification Scheme product accreditation scheme under which Evance was the first sub 10 kW wind turbine to be given full accreditation. MCS accreditation ensures the turbine adheres to all required quality & efficiency specifications, and guarantees the customer will receive FITs Payments for the duration of twenty years.

SAFEGUARDING

PPG22, not applicable in this case as, due to its small scale, it is not felt appropriate that the installation should be safeguarded by the planning authorities against potentially conflicting future developments.

PRECEDENT

PPG22 states that since the merits of particular cases vary widely, fears that granting of planning permission may be seen as setting a precedent is not sufficient reason for refusal. Each application must be dealt with in its own right as the variables and impacts of each potential site can vary dramatically.

SAFETY

PPG22 identifies little or no risk arising to the public and states that properly designed and maintained turbines are a safe technology.

ICING

PPG22. Icing up of the GRP composite blades is not seen as a risk in the proposed location.

PROXIMITY TO POWER LINES

There are no large overhead power cables in the vicinity of the proposed site but care has been taken to ensure the turbines are suitably sited, clear from phone lines with at least falling distances allowed for. Whilst the turbine is considerably lower than the overhead lines; following YEDL's guidelines we have avoided the lines by a minimum of falling distance plus 9m.

PROXIMITY TO AIRPORTS

PPS22 and PPG22. The nearest airport is Leeds Bradford airport 37 km away. This scale of turbine will not have any impact on air traffic, as it is lower than surrounding buildings. The topography of the land demonstrates higher points in between the airport and the proposed location therefore will not affect the airport traffic.

There are numerous installations of a similar size in close proximity to this proposal and it is deemed that there will be no adverse affects on air traffic signalling or compromise on safety.

PROXIMITY TO RAILWAYS

The nearest railway line will be in Shepley, 6.5 km from the property. PPG22 says it may be advisable for a turbine to be set back from roads and railways by a distance equal to at least the height of the turbine. Clearly in this case the turbine is at a far greater distance than this from the railway track and is set with ample falling distance from the road.

SHADOW FLICKER

PPG22. Shadow flicker is a rare event which sometimes can occur when the shadow of the turbine blades play on nearby buildings at certain times of day and days of the year. It most commonly would affect nearby buildings to the East or West of the turbine at dusk and dawn. The distance from the turbine to neighbouring properties mean this would not be an issue as a distance of 10 x rotor diameter away is seen as sufficient to eradicate any chance of this. On site we can easily achieve a distance of 23 x rotor diameter.

SCATERING SIGNAL

PPG22. This is a phenomenon that very occasionally may affect large turbines. It is not considered to be relevant to a turbine as small as the Evance turbine.

SPECIALIST CONSULTATION

PPG22. This is not believed to be appropriate for a small turbine such as the Evance in the proposed location.

NOISE LEVELS

It is generally accepted that if the wind turbine noise is less than 5dB(A) below background noise levels, this will not cause a nuisance to neighbours. On a typical site in the countryside, it is expected that this condition can be met at distances greater than about 80m from the wind turbine base. Therefore as a general rule where possible, the nearest residents to the wind turbine should be 100m or more away.

The noises from the wind turbine are however gentle and it would be quite reasonable to locate the wind turbines less than 80m from your home in some circumstances. The turbine is to be sited over 100m plus from any non profiting dwellings.

The turbine uses a brushless, permanent magnet alternator, specifically designed for low noise unlike large scale turbines that use gearboxes, usually the source of noise.

The table below gives a guide to average noise levels as a comparison:

EXAMPLES OF TYPICAL NOISE LEVELS

Source/Activity Indicative noise level	[dB(A)]
Threshold of hearing	0
Rural night-time background	20-40
Quiet bedroom	35
Busy road at 5km	35-45
Car at 65km/h at 100m	55
Conversation	60
City Traffic at 5m	75-85
Pneumatic drill at 7m	95
Jet aircraft at 250m	105

Source of data - <http://www.sleafordrep.co.uk/info/ESVol2/APPENDIX%2010.1.pdf>

There is much opposition to large wind turbines and often this focuses on noise issues, not all of which is entirely justified and most of which does not apply to small wind turbines. One specific issue that is often raised is that of so called 'low frequency noise'.

This is a factsheet from the BWEA on this issue:

<http://www.bwea.com/pdf/briefs/lfn%20summary.pdf>

1. This is an issue, which only affected some early large wind turbines in the USA back in to early 80's.

2. No small wind turbine would ever produce a low frequency noise due to their small size.

Please see the accompanying noise Data, which details the noise levels emitted by the turbines.

In summary, the noise levels generated by small wind turbines is normally masked by background noise when located at least 150m from other permanently occupied dwellings.

ECOLOGY

It is not believed that the proposed site is in any way a protected habitat or area of outstanding natural beauty. As planning approval has already been granted the site has already been screened for such issues and was found to be an appropriate siting.

PPG 22 suggests that the risk of collision between birds & moving blades is minimal.

The RSPB state *"...the RSPB favours a broad mix of renewables, including solar, wind, and marine power, wherever they are used in ways that minimise unnecessary damage to wildlife and the natural environment. We particularly support solutions that enable individuals and communities to generate their own power close to their homes and businesses."*

The land at Hey Slack Farm is kept for silage production, offering relatively poor habitation for wildlife.

The Natural England Technical Information Note TIN051 Bats and Onshore Wind Turbines states *"The Eurobats guidance proposes that the buffer surrounding woodland areas should be 200 m."*

In our experience a buffer of 50m is more than acceptable. A distance of 50m has been achieved at Hey Slack Farm, with the farm buildings at 130m plus away.

LISTED BUILDINGS, ARCHEOLOGICAL SITES & CONSERVATION AREAS

There are not believed to be any known archaeological remains at the proposed location. In any case, the foundations required for each Evance turbine involves minimal disturbance with a maximum excavation depth of 1.2m. Each anchoring point is easily removable in the event of future decommissioning of the turbines.

There are no listed buildings in close proximity to the proposed location. There are no Conservation areas of significance around the proposed turbine location.

CONSTRUCTION DISTURBANCE

The amount of additional traffic and need for construction machinery to erect the turbines is negligible. No road closures are required and there will be no disturbance to the footpath during the ground works period and construction.

CONDITIONS

Due to the minimal foundations required for the turbine, restoration of the site following possible de-commissioning is particularly simple.

All of the electrical components and controls will be housed in the customers' property.

If planning officers would like to visit an installed turbine locally to take readings on sound levels or to gain a good firsthand appreciation of the scale of the turbine, Investment Renewables would be happy to arrange this.

CONCLUSION

This statement has been produced to support the planning application for the installation of 1 No Evance 5kw wind turbine on a 12m mast at:

Hey Slack Farm, Hey Slack Lane, Cumberowrth, Huddersfield, HD88YD.

The turbine proposes the generation of electricity, with 60% - 80% used on site. The surplus will be sold back to the energy supplier for redistribution as clean electricity. The development is in line with central and regional government guidance and adheres to the policies of Kirklees MBC.

The impact of the proposed development has been considered carefully and Investment Renewables believe there is enough justifiable evidence to allow the installation of the 1 No small scale wind turbines on this site.