HIGH POW II WIND FARM ENVIRONMENTAL STATEMENT

NON TECHNICAL SUMMARY
JUNE 2013
REPORT NO: 0008-WX44718-NHR-01
The Scheme will also require a connection to the local electricity distribution network.

In order to facilitate access to the application site for the delivery of the wind turbines, some minor modifications to the local road network would be required. All of the works that fall outside of the application site boundary will be within highway limits and no significant effects are anticipated.

Site Selection

In identifying the application site, a comprehensive constraints based search was undertaken. Out of this process, the application site has been selected for the following reasons:

- Good wind resource
- Suitable site size enabling significant benefits in terms of generating electricity and cutting climate change emissions
- Absence of significant environmental constraints (based on the feasibility work undertaken)
- Good access to the application site
- Close to a potential grid connection point
- Relatively sparsely populated
Design Strategy

The design process has involved a combination of environmental design and engineering seeking to provide an appropriate compromise between maximising energy capture and achieving acceptable design, primarily in terms of landscape and visual effects, ecology, noise and cultural heritage. In addition, a range of constraints are present on site which have shaped the final layout of the Scheme. Overall, the turbine layout has been through several changes, with the total number, position and height of the turbines altered as consultation and environmental studies progressed.

In addition to the turbines, the internal access track layout, control building and access points have also been considered to account for on-site constraints and identify the best-fit available for the application site.

The site selection process and the design process have resulted in a Scheme which:

- Avoids international and nationally designated areas (e.g. Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty)
- Minimises landscape and visual impact, whilst seeking to obtain a balance with renewable energy generation
- Is guided by industry best practice in terms of spacing turbines to reduce inter-turbine turbulence
- Considers and responds to the nature conservation interests and other environmental qualities of the application site and its surroundings
- Minimises loss of agricultural land by utilising and upgrading existing farm tracks where possible
- Considers the location of the control building in relation to flood risk
- Complies with the guidance set out in ETSU-R-97

AVIATION

The Aviation assessment has been undertaken in accordance with the procedures laid down in recognised industry guidance to identify and assess the likely aviation issues associated with the Scheme. Due to the policy of some of the key aviation stakeholders of not engaging on development at the pre-planning stage, all aviation consultation has been deferred. Of the aviation infrastructure in the area of the Scheme, only the potential impact on the NATS En-route radar network is considered to have any potential requirement for mitigation.
CULTURAL HERITAGE

The application site lies within the Inglewood Historic Landscape Character Area and comprises a larger area of Planned Enclosure and a smaller area of Ancient Enclosure. The Scheme would introduce new elements into the character area, but would not alter key elements or affect its robustness or time depth.

No significant cumulative effects with other wind farm developments in the area are anticipated.

The application site is located in an area that has seen little archaeological activity. There is a small potential for archaeological remains dating to the Post-medieval and possibly the Roman period to be impacted by the Scheme. The Post-medieval potential is related to agricultural and industrial activity that is known to have been occurring in this area at this time. The Roman potential is related to the nearby Waverbridge to Pattenfoot Roman road which passes to the north west of the application site, and slightly further away, the Old Carlisle Roman fort. Any archaeological remains that are present are most likely to be features of local significance and therefore low value. The impact assessment has demonstrated that there would be a slight adverse effect on these potential remains as a result of the Scheme, which could be adequately mitigated through an archaeological watching brief during construction. The archaeological watching brief would identify and record any remains which are present and would produce a report on its findings which would add to the archaeological knowledge of the area.

There are no built heritage assets within the application site that would be affected by the Scheme. The built heritage resource within the study area comprises mainly Post-medieval agricultural buildings and demonstrates how this area developed as a primarily agricultural one following enclosure in the 18th century. An important group of assets in the built heritage resource is the small number of fortified houses and tower houses. The built heritage resource also contains a number of assets relating to the former function of the A595 as a turnpike road.

The assessment of the built heritage resource has demonstrated that out of the 72 built heritage assets within the study area, only 20 would experience impacts to their setting. Of these assets, none would experience anything more than a minor impact and for some the impact would be negligible.
The application site and study area largely comprised improved grassland used for grazing cattle and sheep or for silage production, with a smaller number of the fields used for arable (cereal) crop production. Field systems were bordered by species poor hedgerows and / or post and wire fences. Many of the hedgerows had poor form or were defunct. An area of ancient woodland, known as Loughing Bridge Wood lies to the east, with further small blocks of woodland located within the study area and the surrounding land.

A desk study has been undertaken, together with detailed ecological surveys for habitats, breeding birds, wintering birds and bats.

There are no statutory designated sites for nature conservation on or within at least 5 kilometres of the application site. The Upper Solway Flats & Marshes Special Protection Area is located approximately 11 kilometres to the north and northwest of the site at its nearest point.

Four county wildlife sites (known locally as Cumbria Wildlife Sites) are located within a 2 kilometre radius of the application site. These are identified as Loughing Edge Bridge (part of the Loughing Bridge Wood), Hall Bank Roadside Verge, Headend Quarry and Crummock Wood and Grassland.

Bird surveys recorded a suite of breeding bird species typical of the lowland farmland in the region and habitat; dominant species were those which frequent hedgerows and farmland. No concentrations of any bird species considered vulnerable to turbines were recorded, although low numbers of curlew and lapwing were recorded on the land just outside the study area. The application site is not located within an area considered to have sensitive bird populations and it is not located in a key area for wintering geese and swans.

Bat surveys consistently recorded common pipistrelle, soprano pipistrelle and Myotis bat species although all activity was recorded in relatively low numbers. The vast majority of activity was closely associated with hedgerows, boundary features and woodland edge habitat. Noctule bat and Leisler’s bat were recorded in low numbers and a single Nathusius pipistrelle was also recorded flying over the site.

Other evidence of protected or notable species, including badger and barn owl, was recorded within the application site.

There would be a small loss of improved and semi-improved grassland within the application site as a result of the Scheme, and small breaks would be cut through the hedgerows to allow for the internal access tracks. A small section of the Hall Bank Roadside Verge County Wildlife Site would be removed during construction. It is anticipated that breeding and wintering birds would be subject to a slight increase in disturbance levels, as well as a small loss of habitat. No impacts on sensitive or vulnerable bird species are anticipated, nor are effects on wetland species associated with the Upper Solway Flats & Marshes Special Protection Area. The majority of bat species recorded are classified as being at low risk from wind turbine developments at a population level.

As a result of the mitigation and enhancement habitat management measures proposed, no adverse impacts on protected or notable species are anticipated.

No significant cumulative effects with other wind farm developments in the area are anticipated.
GEOLOGY, HYDROGEOLOGY, HYDROLOGY AND FLOOD RISK

The geology is typical and common across the area. Land within the study area drains to three rivers, namely the Pow Gill to the east and the Little Waver and Crummock Beck to the west. Existing information suggests that these rivers are generally of good quality. A series of drainage ditches flow into these rivers. Water stored in rocks beneath the ground supports river flows and also supplies water for general farming and domestic use.

There are considered to be no significant effects on geological resources associated with the Scheme and the risk of ground stability issues associated with mining legacy and topographical and land cover change is considered to be low.

With regard to the quality of surface and groundwaters and existing drainage and groundwater flow patterns, potential effects of moderate to minor significance have been identified. Approved techniques would be put in place to safeguard watercourses and groundwater from pollution during all phases of the Scheme. These techniques would be designed in accordance with best practice guidance and their effectiveness would be monitored.

The application site is not at risk of flooding from rivers or the sea. At new watercourse crossings, culverts would be designed in accordance with the consenting requirements of Cumbria County Council such that there would be no potential for increases in flood risk.

Before construction commences, intrusive investigations would be carried out to test and monitor local ground and groundwater conditions. The information collected would be used to minimise the impacts of turbine construction.

No significant cumulative effects with other wind farm developments in the area are anticipated.
LANDSCAPE AND VISUAL IMPACT

The assessment methodology conforms to the criteria set out in *The Guidelines for Landscape and Visual Impact Assessment – Second Edition* (2002) and *GLVIA 3 – Third Edition* (2013). The focus of the assessment has been on the differences that would occur as a result of the cumulative level of effect of the Scheme in association with the three existing turbines.

The Scheme is located within an existing wind farm landscape, which is of low sensitivity with regard to wind farm development. The existing wind farm landscape is situated within the larger Lowlands Landscape Character Area, and more specifically the Lowlands: Ridge & Valley (5a) Landscape Character Type, which is of a medium sensitivity. The introduction of eight wind turbines would represent a repetition of the existing landscape pattern / landscape elements in this area.

Elsewhere there would be limited significant effects on the landscape character and / or landscape designations as a result of adding the eight proposed turbines to the existing three turbines. In one sense, there would be a significant character effect in that the current significant level of effect of the three existing turbines would be extended in time beyond their decommissioning as a result of the projected presence of the three proposed turbines i.e. for a period estimated to be approximately 8 years (medium-term).

From most views, the Scheme would appear as an extension of or localised expansion from the three existing turbines. The turbines form a clustered, closely grouped, yet reasonably balanced, simple composition, set within an existing wind farm landscape. The visual assessment indicates that significant visual effects would generally occur within distances of approximately 4.3 kilometres from the application site where there are clear views of the wind turbines.

The residential assessment indicates that out of approximately 77 properties (including eight groups of properties) assessed, residents at approximately five of these would experience a magnitude of change within their views in the direction of the Scheme that would be significant and adverse, but not to such an extent that the properties would be converted into an unpleasant place to live. A further 55 properties would experience a magnitude of change within their views in the direction of the Scheme that would be significant, although it is not considered that this would negatively or significantly affect the visual amenity enjoyed at these properties overall. There would be 17 properties where there would be no significant effect on visual amenity.

There would be significant visual effects for walkers on nine of the local footpaths within approximately 2 kilometres of the Scheme, and also for local road users within approximately 4.3 kilometres of the Scheme where local tree / hedgerow cover along the roadsides does not screen / filter views. Elsewhere, and considering the wider area and national tails and cycle routes, there would be no significant visual effects, either individually or cumulatively.

There are 16 existing wind farms within 30 kilometres of the Scheme, the closest being Wharrels Hill (approximately 9 kilometres to the west). Potential cumulative effects are restricted within the area, either due to the distance of the nearest wind farm and also the visual influence of these turbines being restricted by the local tree / hedgerow cover along the roadsides. The main cumulative effect is the relationship of the eight proposed turbines with the three existing turbines. The three existing turbines (whose effects have been adjudged acceptable with regard to other existing and consented schemes in the area), when considered against the predicted landscape and visual effects arising from the eight proposed turbines, are marginal and of local rather than wider importance.
NOISE & VIBRATION

Construction noise levels have been calculated for receiver locations closest to the areas of work and compared with guideline and baseline values. Construction noise, by its very nature, tends to be temporary and highly variable and therefore much less likely to cause adverse effects. Various mitigation methods have been suggested to reduce the effects of construction noise, the most important of these being suggested restrictions of hours of working. Decommissioning of the Scheme is likely to result in less noise than that predicted during construction phase.

Noise levels from operation of the turbines have been predicted for those locations around the site most likely to be affected by noise. Surveys have been performed to establish existing baseline noise levels at seven of these properties. Predicted operational noise levels have been compared to the limit values to demonstrate that turbines of the type and size proposed can operate within the limits so derived. It is concluded, therefore, that operational noise levels from the Scheme would be within levels deemed, by national guidance, to be acceptable for wind energy schemes.

SHADOW FLICKER

Eight residential properties have been identified as having potential to be affected by shadow flicker. However, the results of shadow flicker modelling and assessment indicate that significant shadow flicker effects could only occur at three of these properties. Should such effects occur, turbine management would be employed as necessary, in agreement with affected residents, such that there would be no significant shadow flicker effects.

No significant cumulative effects with other wind farm developments in the area are anticipated.
SOCIO-ECONOMICS

The Scheme is located to the south of the settlement of Wigton (approximately 4 kilometres from the Scheme) and lies within the borough of Allerdale in the County of Cumbria. The Scheme is located within the Boltons Ward which is primarily rural. Adjacent wards include Warnell, Waver, Solway, Aspatria and Wharrels.

Full time jobs would be created during the 12 month construction phase, which would peak during the turbine erection. Once the Scheme is operational, a service crew would need to visit at appropriate intervals.

The application site comprises Grade 3 agricultural land (good/moderate quality). There would be no significant impact on agricultural land as a result of the Scheme. The implementation of a Construction Environmental Management Plan and Construction Method Statement would ensure that any disruption during construction is kept to a minimum and that careful working practices are administered and adhered to.

No significant cumulative effects with other wind farm developments in the area are anticipated.
TRANSPORT AND ACCESS

The likely impacts of the Scheme on the surrounding highway network have been assessed. The assessment has been based on the amount of heavy goods vehicles and other traffic likely to be generated by the Scheme during the construction, operational and decommissioning phases and the associated increases in traffic on the highway network.

All traffic access to the site during the construction phase would be via an unclassified road on the western boundary of the site with traffic heading to/from the A595. Traffic for Turbines 5 and 6 would pass through the site and would use a 500 metre section of an unclassified route on the eastern boundary of the site to get to a further site access point. No traffic from the Scheme would pass through Bolton Low Houses. A programme has been developed of the monthly total traffic and heavy goods vehicle movements likely to arise during the construction of the Scheme.

During the construction phase, the turbines would need to be transported to site. These vehicles would approach the site from the M6, A689 (Carlisle Northern Distributor Road), A595 and the unclassified road on the western boundary of the site. A Traffic Management Plan would be employed during the construction phase and these movements would take place outside of peak hours with movements co-ordinated with Cumbria County Council and the police. It is likely that there would be some delay associated with these vehicle movements.

During the operational phase, impacts are likely to be minimal with no personnel to be based on site and only ad-hoc visits for maintenance, repairs etc. During the decommissioning phase, the impacts are likely to be less than during the construction phase.

Minor cumulative effects with other wind farm developments in the area are anticipated during the construction phase.
CONTACT DETAILS

MattOlley@regwindpower.co.uk
http://www.regwindpower.co.uk/

REG Windpower Power Ltd
The Terrace Suite
Kelston Park
BATH
BA1 9AE
T: 01225 928000