Birneyknowe
Wind Farm Proposal

Planning Application and Environmental Statement
Non Technical Summary • April 2014
Energy for everyone’s benefit

Background
Due to the scale of the development, the application has now been submitted to the Scottish Government for consent under Section 36 of the Electricity Act 1989, and deemed planning permission under the Town and Country Planning (Scotland) Act 1997, Section 57 (2).

The development has been through an extensive design and consultative process to ensure that it represents the optimal development for the site. The optimal development being one which considering all environmental factors makes the biggest possible contribution to the Scottish Government’s 2020 renewable energy targets. Feedback we have received from local communities, interest groups and statutory agencies has also informed the location, size and design of the proposed wind farm.

This document
This non-technical summary summarises the findings of the Environmental Statement which accompanies this application. Under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (the EIA Regulations), development that is likely to have a significant effect on the environment must be subject to an Environmental Impact Assessment (EIA) and an Environmental Statement must be provided with the Section 36 application.

It contains a description of the development, considers the potential significant environmental effects and discusses measures to prevent or reduce these effects to acceptable levels.

Banks Renewables
Banks Renewables is part of the Banks Group which has successfully developed a range of projects over 35 years and employs over 400 people.

Banks Renewables identifies suitable sites for onshore wind farms as well as looking at opportunities for other forms of renewable energy generation. The company currently has renewable energy projects throughout the UK at various stages of the development process.

Its success in delivering large scale projects has largely been attributed to the “Development with Care” approach which ensures that sites are developed in close consultation with the community, as well as carrying out extensive environmental assessments considering all likely impacts related to a proposed development. Local communities are actively encouraged to become involved at all stages of the development process.

This approach ensures that our developments have a positive long term effect on the environment and local communities.

Banks Renewables (Birneyknowe Wind Farm) Ltd is proposing to develop a 15 turbine wind farm on land to the west of the A6088, approximately four kilometres to the south east of Hawick and two kilometres to the west of Bonchester Bridge. If consented, the development would utilise the area’s natural wind resource to generate renewable electricity.

www.banksgroup.co.uk/birneyknowe
Why wind energy?

Climate change is a global issue that needs to be addressed. The need to reduce CO₂ (carbon dioxide) emissions is widely accepted due to the increasing changes to our climate and the impact it is already having on wildlife species, ecosystems, the weather and sea levels.

The UK government has signed up to a number of international agreements and has a legally binding obligation to increase its share of renewables in our energy mix to 15% by 2020 in order to address climate change. In addition to these UK targets, the Scottish Government has adopted a target for the amount of Scotland’s electricity consumption produced by renewable energy in 2020 of 100%.

Capturing the wind’s natural energy is the most proven form of renewable electricity generation in the UK. It therefore provides the opportunity for the most immediate way of reducing CO₂ emissions from our electricity use and assisting in meeting the international and national targets that have been set.

Within 14 months it is anticipated the wind farm would have paid back the carbon used in its construction. For the remainder of its 25 year operational life all electricity would be carbon neutral.

Aside from this, within the next 20 years the indigenous fossil fuels which we currently rely on to provide our energy will become scarcer and we will become ever more reliant on imports from overseas.

The Birneyknowe Wind Farm would provide a secure, reliable energy supply in line with the government’s national energy goals. The wind farm would provide, on average, enough electricity to meet the domestic needs of approximately 39,800 homes (based on an installed capacity of 60MW and onsite wind data).

Scotland has the best wind resource in Europe and capturing this to provide indigenous green energy, whilst continuing research into energy efficiency and other renewable sources is a logical step forward.

Why Birneyknowe?

The Scottish Government has set ambitious targets for renewable energy generation and in order to meet these targets, new infrastructure and generating facilities must be developed. However, such infrastructure has to be placed where the required natural resources are present and where there are no technical or environmental constraints to development.

The Birneyknowe site is not subject to any international or national landscape or cultural heritage designations. There is one ecological designation, the Backstruther Moss SSSI located within the site boundary and the Adderstonelee Moss SSSI is located west of the site boundary with a catchment area extending within the site boundary.

However the Environmental Statement demonstrates that the site has the capacity to accommodate a wind farm that would not adversely affect either of those designations. The Environmental Statement also demonstrates that the site has suitable highway access and is a sufficient distance from residential properties to protect residents from unacceptable noise and shadow flicker effects.

National planning policy states that within development plans planning authorities should provide a clear indication of areas with potential for wind farm development and that they should support wind farms in locations where the technology can operate efficiently and environmental impacts can be addressed.
Scottish Borders Council has prepared Supplementary Planning Guidance (SPG) to give guidance as to where wind energy developments are most likely to be acceptable. At the time when the SPG was prepared, the application site was located within an area of “Minor Constraint” indicating that it was potentially suitable to accommodate a wind farm development. In response to a call for simplification from the Scottish Government, the SPG map has been modified for inclusion in the “Proposed Local Development Plan 2013” to show only three classifications. The Birneyknowe site, in that plan (see below), is within an “Area of Search” for wind farms. On the basis of this emerging policy, the site is identified as having the potential to host a wind farm.

In addition to this, a detailed mapping exercise undertaken by Banks Renewables (see plan opposite), taking on board the Council’s SPG, highlights that the Birneyknowe site lies within one of the few areas suitable for commercial wind energy development.

**SCOTTISH BORDERS REGIONAL CONSTRAINTS**

![EXTRACT OF FIGURE E9A WIND ENERGY SPG SPATIAL STRATEGY FROM THE SCOTTISH BORDERS COUNCIL PROPOSED PLAN 2013](image-url)
Feedback

Wind turbines are inefficient and don’t produce enough power to justify their impact.

OUR RESPONSE: The wind farm will not produce an unacceptable level of noise. This is because one of the key considerations in designing the layout of the wind farm is the requirement to carry out a noise assessment to demonstrate that the wind farm can operate to the specified noise limits in the government’s guidance on wind farm noise (called ETSU-R-97). We would not propose a wind farm and the Scottish Government or local authority would not give consent or planning permission for a wind farm unless the wind farm could fully comply with this guidance. This guidance ensures that any noise from the wind farm is acceptable when people are in their homes and gardens.

Will the wind farm interfere with my television reception?

OUR RESPONSE: We don’t expect the turbines to affect television signals but if they do, we’d ensure a planning condition was added to make good at our expense the television signal at least to the standard it was before the wind farm started operating. We would survey the signal strength before we start construction to establish the existing situation.

**Figures are approximate and are based on calculations using the Scottish Government’s carbon calculator, using a capacity factor of 32%.

Site area: 659 hectares, of which only 10.95 hectares would be occupied by the wind turbines and their associated infrastructure such as the turbines, access tracks, areas of hardstanding and electrical infrastructure

Number of turbines: 15

Rated output of turbines: 4 megawatts (MW) per turbine

Length of access tracks: Approximately 9 kilometres

Life span: 25 years operational (plus 17 month construction and 12 month decommissioning periods)

Employment: Approximately 60 people would work on site during the construction and decommissioning phases. In addition there would be indirect economic benefits which would benefit local businesses.

Vehicle movements: An average maximum of 130 vehicle movements per day during the construction period.

Grid connection: The development would be connected to the grid via a cable carried on overhead wooden pools or underground cabling (or a combination of the two) to the preferred connection point which is likely to be at Hawick Substation
TURBINES
All the turbines would be of the same height and specification. They would be of modern design with three bladed rotors. Each turbine would begin generating power at wind speeds of around 3-5 metres per second and would shut down at wind speeds of approximately 25 metres per second. On average, wind farms generate power approximately 70 to 85 per cent of the time in the UK.

FOUNDATIONS
The turbine base would typically be a 15 metre by 15 metre square of concrete. The foundation plinth would protrude from the finished ground by approximately 0.2 metres. All of the rock and most of the excavated material is placed back on top of the foundations and a layer of peat, peat turfs and/or mineral soils that were excavated from the turbine foundation areas would be reinstated. Within these areas, any excess material would be layered into the contours of the existing topography and re-seeded as required.

WIND MONITORING MAST
A permanent anemometer mast is required to monitor the performance of the wind turbines by gathering data on wind speeds and direction. The mast would be a free standing slim-line steel lattice tower and would be a maximum of 80 metres in height. The temporary mast that is currently erected on the site will be removed prior to operation of the wind farm.

ACCESS TRACKS AND COMPOUND
To access and service the wind turbines, approximately nine kilometres of new access tracks would be required. The tracks would typically be 5.5 metres wide, widening at bends where appropriate and would be designed to allow the efficient drainage of rain water. It is expected that new stone for the new tracks would be won from two borrow pits on site.

A temporary compound would be required during the construction phase for the storage of plant and materials, and to provide site workers with welfare facilities.

TRAFFIC AND SITE ENTRANCE
Traffic travelling to and from the site would use an agreed route. The preferred access route for turbine delivery is from the A68, A698 and A6088 to the site.

During the construction phase general construction traffic would approach the site from both the north and the south on the A6088 linking from the A68 trunk road providing access to the wider strategic road network. The assessment finds that the impact of HGV traffic on the A6088 and through Denholm would be temporary with peak traffic flows equating to an increase through Denholm of four HGVs per hour and an increase of six HGVs per hour at the site access.

A new junction is proposed at the site entrance on the A6088 and would be designed to accommodate all classes of construction traffic.

A Traffic Management Plan would be produced and agreed with Scottish Borders Council prior to the construction process and delivery of wind turbine components to the site. This plan would include mitigation measures to ensure that impacts on local communities and the road network are minimised such as avoidance of key dates and times, liaison with the local communities and emergency services and provision of information on traffic movements through signage, direct liaison and press coverage.

The assessment finds that there would be no significant traffic and transport effects.

CABLING AND GRID CONNECTION
Underground cables linking the turbines would generally be laid alongside the access tracks. A control building and on-site substation would be built in a compound area from which the electricity generated by the turbines would be fed into the grid. The preferred option is to connect to an existing substation at Hawick, approximately 8 kilometres north west of the site. The route from the site to this grid connection point would be assessed under a separate application as mentioned above, although the grid connection is likely to run adjacent to existing roads wherever possible utilising underground cabling. Where over ground connections are required, it would be mounted on wooden poles of approximately 9m in height.
Design iterations

The site layout and turbine height options have been changed and refined over a 12 month period to produce the optimal layout for the site.

This process has been informed by site assessments and feedback from community and stakeholder consultation. As a result of this process, Banks Renewables believes that the proposed site layout offers the best option for development of the site. At the scoping stage the site had a maximum capacity of 20 wind turbines. The final layout comprises 15 wind turbines with a maximum height to blade tip of 132 metres. There are several reasons for the reduction in the number of turbines proposed from the initial 32 turbine layout:

- Engineering and technical constraints such as road, watercourse and woodland buffers along with required separation distances between turbines were applied.
- The completion of assessments by environmental and technical specialists resulted in the layout taking consideration of a range of issues including topography, known archaeological interest, noise levels, sites of special scientific interest, peatlands, wetlands, watercourses, woodland and other habitat features.
- Visual appearance of the turbines within the landscape. Through consultation with Scottish Borders Council amendments were made to reduce, where possible, negative visual effects by relocating turbines more centrally on the site with the removal of outlier turbines and increasing the separation distance to the boundary of the Special Landscape Character Area and Rubers Law.
Results of the environmental impact assessment (EIA)

ECOLOGY AND ORNITHOLOGY

A number of specialist ecological surveys have taken place on the site in order to gain a full understanding of the ecology of the application site and the sensitivity of the species in the area.

The application site lies outside of any internationally designated areas for nature conservation. With regard to national designations Buckstruther Moss Site of Special Scientific Interest lies wholly within the application boundary at the west of the site and Adderstonlee Moss Site of Special Scientific Interest is located approximately 180 metres west of the site with a catchment area that extends into the site. A small section of Ancient Woodland is present on to the east of the site along the Hawthornside Burn although the extent of woodland is very restricted and is not very species-rich.

The layout of the proposed wind farm has been designed to minimise disturbance on sensitive habitats and species. Sensitive habitats of high ecological value have been avoided, while buffers have been placed around relevant protected species and watercourses. The effect of the development on habitats and species during construction and operation would therefore not be significant.

A range of ornithological surveys, including summer and winter vantage point surveys, breeding bird surveys and species specific surveys have been undertaken as the development supports a range of bird species that would be expected from a site within a rural setting. No significant effects, as a consequence of the development, are predicted on the ornithological interests of the site.

A Habitat Management Plan has been drafted for inclusion within the Environmental Statement. This would be agreed with Scottish Borders Council and other stakeholders prior to the construction of the wind farm. It would include habitat enhancement measures in addition to the mitigation measures identified in the Environmental Statement as being required to minimise the impacts of the development on habitats and species.

LANDSCAPE AND VISUAL IMPACT

One inevitable consequence of constructing wind turbines is that they will be visible over a relatively large area. Their scale and man-made appearance mean that they will not naturally fit within the rural landscape. It is however recognised that certain types of landscape are more capable of accommodating wind turbines than others.

The local landscape has already been selected as having some potential for wind turbine development by Scottish Borders Council and the site is not in or adjacent to an area designated for its landscape value. The effects of the development on landscape character and the setting and landmark status of Rubers Law has been assessed.

As would be expected with a wind farm development there would be significant effects on the landscape character within close proximity of the proposed turbines. In this case, significant effects on landscape character resulting from the development would be confined to an approximate 2.5 kilometre wide corridor running from Rubers Law in the north east (4.5 kilometres from the development) to the B6399 in the south west (3 kilometres from the development), and with an additional localised area at Bunchester Hill.

The Environmental Impact Assessment has found the proposed development would have no significant effect on any designated landscape.

The likely effects of the Development on the setting and landmark status of Rubers Law have also been assessed given the concerns raised by Scottish Borders Council and Scottish Natural Heritage.

The development would result in some localised significant effects on the immediate setting and wider setting, as well as views from the summit and on the recreational value for both walkers and horse riders during the annual Hawick Common Riding Rideouts.

However it is not considered that the development would significantly detract from the landmark status of Rubers Law, or affect the wider setting of Rubers Law as a whole. The hill would remain as a landmark feature, seen separately to the development for the vast majority of those viewing it from within the local area.

Visual effects of the development on residents of properties and settlements, people using the transport and right of way networks and recreational receptors, have also been assessed. Of the residential properties within 2 kilometres of the turbines only two (both with financially interests in the scheme) would experience some significant effects although all have some intervening features that would break up views of the development. There would be views from sections of roads and footpaths in the vicinity of the site some of which would be significant but brief.

The wind farm has been specifically designed to relate well with the local landscape character and respect its scale. The significant landscape and visual effects identified would not be detrimental overall and the development is considered to be acceptable in terms of the capacity of the local and wider landscape to accommodate it. The significant effects are all reversible as they would cease following decommissioning of the wind farm.

The assessment has identified some localised significant cumulative effects on landscape character in the vicinity of the site. No significant cumulative effects on visual amenity have been identified for residential properties or settlements. Some sequential significant cumulative visual effects are considered likely for users of the A6088 in the event that the development exists alongside the Cummings Hill wind farm that is currently in planning and the Hightee Hill wind farm which is currently at the EIA Scoping stage.

MEASURES WITHIN THE HABITAT MANAGEMENT PLAN WOULD INCLUDE:

- Avoidance of impacts on the Buckstruther Moss and Adderstonlee Moss Sites of Special Scientific Interest
- Creation of buffer zones for the Buckstruther Moss Site of Special Scientific Interest
- Management measures specifically designed to benefit curlew
- Restoration of Fluther Moss
- Creation of habitat corridors within the site
Visual assessment

The following pages show what the Birneyknowe Wind Farm would look like from a selection of viewpoints within the vicinity of the site. These viewpoints have been selected and agreed with Scottish Borders Council and Scottish Natural Heritage. They have been produced for Banks Renewables by landscape architects at Wardell Armstrong, in accordance with the Landscape Institute and other guidelines.

View from: A6088 at site entrance (VP1)

View from: Hawthornside (VP2)
Visual assessment continued

View from: Bonchester Hill (VP9)

View from: Rubers Law (VP11)
Visual assessment continued

View from: Denholm (VP15)

View from: Chesters/A6088 (VP16)
Visual assessment continued

View from: A7 north of Hawick (VP22)

View from: A68 at Carter Bar (VP27)
Other considerations

CARBON BALANCE
The proposed development would result in carbon savings by displacing fossil fuel generated electricity. The wind farm would save approximately 98,235 tonnes of Carbon Dioxide equivalent (tCO2e) per year. Within approximately 14 months of construction the wind farm is expected to have ‘paid back’ the carbon that was used in its construction. After this initial period all electricity generated by the wind farm would be carbon neutral.

PEAT STABILITY
Peat probing was undertaken to investigate areas of potential peat and this identified some localised areas at Buckstruther Moss and along part of Kirkton Burn at Birneyknowe. These areas have been avoided in the site design.

GEOLOGY AND GROUND CONDITIONS
The proposed site layout has been informed by initial geological assessments to ensure that the wind turbines and other site infrastructure were located in the most appropriate parts of the site for development. A detailed intrusive site investigation along with geotechnical investigations would be undertaken during the post consent, detailed design phase to further understand the ground conditions.

No significant effects on geology and ground conditions are anticipated. To protect surface and groundwater, appropriate working practices would be included such as maintaining buffers from proposed tracks to water abstraction points and watercourses when locating infrastructure. Effects on soil quality and geology are considered to be localised and appropriate working practices and design measures would be applied so that these effects can be readily minimised or avoided.

TELEVISION, TELECOMMUNICATIONS AND RADAR
It is possible for wind turbines to cause interference to local TV reception and telecommunication links. Liaison with relevant television and telecommunication operators has been undertaken. It concluded that there are no radio-communication links within the vicinity of the development and therefore no impact on communication infrastructure is anticipated.

Regarding television broadcasting infrastructure in the vicinity of the development, the Environmental Statement finds that, whilst the potential for impact remains until the site is operational, the risk is considered to be low. However, Banks Renewables would agree to relevant planning conditions to undertake mitigation works to properties should it be demonstrated that the development has caused detriment to the property’s TV reception.

ARCHEOLOGY AND CULTURAL HERITAGE
An archaeological and cultural heritage assessment has been carried out. The assessment looked at the potential for direct physical effects and indirect effects on the setting of known features of historic importance in the vicinity of the site.

There are no scheduled monuments, listed buildings, conservation areas or other nationally designated features within the application site. The study concluded that eight scheduled monuments, one conservation area, and two listed buildings have the potential to be impacted by the wind farm.

Six significant effects have been identified, all during the operation of the proposed wind farm. These are on the iron age setting of the hillfort at Rubers Law, the roman setting of the signal station at Rubers Law and to the settings of the hill forts at Bonchester Hill, Mid Hill, Denholm Hill and Kirkton Hill. However the assessment finds that the effects would not result in a loss of heritage value to any of the assets.

SHADOW FLICKER
Under certain combinations of geographical position, times of day and year, wind speed and wind direction, the sun may pass behind the rotor and cast a shadow over neighbouring buildings’ windows. When the blades rotate, and the shadow passes a window, to a person within that room the shadow appears to flick on and off; this effect is known as shadow flicker.

The potential for the blades of the proposed turbines to cause flickering inside Birneyknowe Farmhouse and Birneyknowe Cottage (the only properties where shadow flicker could potentially occur) has been considered and mitigation options have been proposed that would be available in the event that shadow flicker effects at any property are found to be unacceptable in practice.
The potential for noise effects associated with construction of the wind farm have been assessed. The assessment has shown that noise levels at the nearest noise sensitive receptors would not be significant due to the noise levels and separation distances and temporary nature of the work. Prior to construction, details of the methods to be used, likely noise levels, and noise control measures adopted would be submitted to Scottish Borders Council for agreement.

OPERATIONAL NOISE
The potential effects of noise from operation of the Development have been assessed in accordance with ETSU-R-97: The Assessment and Rating of Noise from Wind Farms and following best practice advice as contained in the Institute of Acoustics’ Good Practice Guide.

Six locations around the site were selected in consultation with Scottish Borders Council environmental health officers and these have been used as representative locations in the area surrounding the site.

The predicted noise levels at the representative locations are less than the day time and night time limits set in accordance with the ETSU-R-97 guidance for all of the wind speeds considered. As a result it is not anticipated that there would be any unacceptable noise effects experienced by local residents as a result of the operation of the Birneyknowe Wind Farm.

Noise during decommissioning of the wind farm would be addressed through the application of planning conditions restricting hours of working and the use of good practice measures that are prevalent at the time.

SAFETY
Wind turbines have an excellent safety record. Experience indicates that properly designed and maintained wind turbines are a safe technology. There are no records of a member of the public being injured by an operational wind turbine in the UK. A number of measures would be undertaken to ensure that the site is secure during the operation of the wind farm. These include (amongst other measures) remote monitoring of the wind turbines to detect any acts of vandalism or mechanical problems, regular site visits to the site by a wind farm technician and intruder alarms in the substation building. The risk of ice shear or ice throw (ice building up on turbine blades and falling to the ground from either moving or stationary blades) resulting in damage or injury is considered to be low.

SOCIO-ECONOMIC CONSIDERATIONS
The proposed development would have a positive effect on the local economy in terms of providing opportunities for local employment during the construction phase and support for local businesses, including accommodation and services. In the long term, benefits would also be derived from operational and maintenance support work. The development would not result in any significant negative effects on tourism in general or on specific aspects of the nearby tourism resource.

If the planning application is approved, a community development fund would be established to provide tangible benefits to the local communities nearest the site. This would enable local initiatives to be funded through the proposed wind farm as discussed under the benefits of the project section.
COMMUNITY ENERGY CONTRIBUTION SCHEME

We are proposing to set up a Community Energy Contribution Scheme whereby households and businesses within approximately 4km of the wind farm development can register their interest and benefit from a subsidy to reduce energy bills, which has been highlighted as an important issue in the community.

An annual payment would be paid for the wind farm’s lifetime, made to individual properties and households in order to subsidise electricity bills.

Those properties approximately 4km from the wind farm would receive a basic annual sum, with properties within 2km receiving an enhanced payment.

Payments would commence once the wind farm is operational.

KEY BENEFITS OF THE SCHEME:

- Reduce greenhouse gas emissions by harnessing power from the wind to generate electricity equivalent to the average consumption of approximately 39,800 homes.
- The development is anticipated to result in a carbon saving of over 98,200 tonnes per year and over 2 million tonnes over a lifetime of 25 years. The development is anticipated to payback the carbon used to create it within 14 months.
- Contribute to the Scottish Government’s target of the delivery of the equivalent of at least 100% of Scotland’s gross electricity consumption being produced from renewable sources by 2020.
- Produce an indigenous energy supply, reducing Scotland’s reliance on imported fossil fuels.
- Support Scotland’s growing renewables industry. Scottish Renewables reported a 5% increase in employment in the renewables industry in 2013 which this development would contribute to.
- Generate new construction contracts which would provide jobs during the construction period. Where possible contracts would be granted to locally based companies which would also support local construction jobs.
- Create an opportunity for indirect economic benefits through local sourcing of materials and increased trade for service suppliers meeting the needs of the construction workforce.

Benefits of the project

Birneyknowe Wind Farm would contribute significant environmental and socio-economic benefits at both a national and local level.

LEARNING, WORKING, EARNING

The community has told us that tackling unemployment is an important issue to be addressed.

In response to this, we have devised the Learning, Working, Earning initiative which would create funding by revenue from Birneyknowe Wind Farm.

- Individual grants would be available of up to £5,000.
- Local employers could use the grant to fund apprenticeships and work-based learning.
- Local people could use the grant to subsidise such things as transport, childcare, PPE and training.

OTHER INITIATIVES COULD INCLUDE:

- Energy efficiency improvements to local buildings
- Wildlife and habitat improvements
- Assistance for faith groups and projects
- Improving community amenities
Conclusions

The Birneyknowe Wind Farm proposal has been subject to an extensive site identification and design process involving on-going consultation with statutory consultees, local interest groups and the local community.

Following identification of a potential wind farm site through a mapping process, Birneyknowe was then subject to an EIA, which has examined in great detail the potential environmental effects of the wind farm. The environmental statement concludes that the wind farm would have only a small number of significant adverse effects.

The Birneyknowe Wind Farm can make a local contribution to the Scottish Government’s wider 2020 renewable energy generation and CHG reduction targets, while delivering substantial local community benefits to the local economy and environment.
Further information

Further information regarding this planning application can be viewed at the following addresses:

Scottish Borders Council
Council Headquarters, Newtown St. Boswells, Melrose, TD6 0SA

Hawick Library
North Bridge Street, Hawick, Roxburghshire, TD9 9QT

Denholm Post Office
1 West End, Hawick, Roxburghshire, TD9 8LX

CD copies of the application can be obtained by contacting Banks Renewables on the details shown below