



Little Raith Wind Farm

Non - Technical Summary

Volume 5



Introduction

Fife Wind Energy Limited, is subsidiary company of West Coast Energy Limited and has been set up in association with Colin Telfer, the tenant farmer at Little Raith Farm. A planning application has been submitted to Fife Council for the development of a wind farm to generate electricity on land at Little Raith Farm, near Lochgelly.

Early discussions with Fife Council indicated that the development should be subject to a formal Environmental Impact Assessment (EIA) and therefore, Fife Wind Energy Limited has prepared an Environmental Statement (ES) to accompany the planning application. This Non-Technical Summary is the fifth and final volume of the Environmental Statement.

The scope of the ES was agreed in discussion with Fife Council, and other Statutory and Non-Statutory agencies. The ES provides environmental information to assist the Local Planning Authority in the process of the determination of the wind farm proposal.

The following documents have been submitted to Fife Council to support the application for the development of the wind farm.

- Volume 1 - Planning Application
- Volume 2 - Environmental Statement (Written Text)
- Volume 3 - Environmental Statement (Figures)
- Volume 4 - Appendices
- Volume 5 - The Non-Technical Summary (This volume)

Copies of the Planning Application and full ES can be purchased from West Coast Energy Limited for £120 (paper format) or £20.00 (CD format) plus post and packaging at the address listed below.

Copies of the Non-Technical Summary are available free of charge from West Coast Energy Limited. Contact Neil Exton, West Coast Energy Ltd, The Long Barn, Waen Farm, Nercwys Road, Mold, CH7 4EW, tel: 01352 757604, email info@westcoastenergy.co.uk



Wind - Clean Energy for a Sustainable Future

There is now clear evidence that global warming and climate change are a reality and have the potential to cause major adverse effects on sea levels, water supply and agriculture in the coming decades. One of the major causes of global warming is the emission of carbon dioxide from power stations burning fossil fuels (coal, oil and gas) to generate electricity. There is therefore a need to obtain clean, diverse and sustainable supplies of energy from renewable sources such as wind.

Wind Energy in Europe

Within Europe, virtually all member states are seeking to generate electricity from wind energy. Germany leads the way with 14,609 MW of installed capacity, with Spain at 6,202 MW of installed capacity, and Denmark at over 3,110 MW of installed capacity. However, while the UK is recognised as having the best wind resources in Europe, it is currently lagging in 6th place when compared with the installed capacity of other European countries.

Wind Energy in the UK - Sustainable Power

The Scottish Executive, the Welsh Assembly Government and the UK Government are all strongly committed to developing wind power and other renewable technologies. A market-based support mechanism for renewable energy has been introduced and this places an obligation on electricity suppliers to buy an increasing proportion of electricity from renewable energy sources. In Scotland, this mechanism is called the Renewables Obligation Scotland (ROS) and in England and Wales, it is called the Renewables Obligation (RO).

Renewable energy has a key role to play in the UK Government's Climate Change Programme. Renewable energy sources generally produce low or negligible levels of pollutants such as carbon dioxide and other 'greenhouse gases', and so by displacing conventional sources of energy, they can help the UK meet its climate change targets.

By October 2004, a total wind energy capacity of 772 megawatts (MW) had been installed in the UK meeting the average electricity needs of 430,000 homes from 90 onshore wind energy sites. In Scotland there are currently 21 wind farms with an installed capacity of 301.5MW. There are no wind farms currently operational in Fife.

Renewable Energy in Scotland - 18% target and beyond

The Scottish Executive has a target of 18% of Scotland's electricity to be generated by renewable sources by 2010. This commitment will aid in attaining the overall UK target of 10% of electricity to be generated by renewable sources by 2010. Achieving the 10% UK target is expected to result in annual savings of around 2.5 million tonnes of carbon emissions by 2010. The Scottish Executive has also signalled its intent to achieve a 40% contribution from renewable energy by 2020. Scotland currently generates approximately 13% of its electricity from renewable sources, the majority of which is generated from the large hydro schemes (42) that have been operating since the 1950s and 1960s, together with smaller hydro schemes which account for around 10% of Scotland's electricity generation. At present only 2-3% of electricity is generated from wind farm developments.

To meet the aspirational target of 40% by 2020 it is anticipated that Scotland would require at least 2,000-2,500MW of new renewables generation by 2020. This represents a constant build rate of around 120-150MW per annum between now and 2020.

Little Raith Wind Farm

The proposed site for the Little Raith Wind Farm is located approximately 1.3km to the east of Cowdenbeath and some 1.3km to the south of Lochgelly and directly to the north of the Fife Ethylene and NGL Plant (Mossmorran complex). The site forms part of an agricultural unit.

The Little Raith site was initially identified as potentially suitable for a wind farm after consideration of the following criteria:

- Good wind resource;
- Availability of an economically priced connection to the electricity grid;
- National and local planning policy;
- No nature conservation, archaeological and landscape designations;
- No detrimental effect on transmission and microwave signals crossing the site;
- Suitable access from the local highway;
- Landowner participation.
- Close proximity to Mossmorran complex

Further detailed assessment and consultations with the Council, consultees and interested parties have tended to confirm these initial conclusions.

Little Raith Wind Farm



Key
Application Boundary



Not to Scale



Figure 1:
Site Location

Drawn by IE
Date 09/11/2004
Drawing Number 0784 SL0936/03



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Project Description

The wind farm will comprise 9 wind turbines, each having a three bladed rotor of up to 80 metres in diameter supported on a tapered cylindrical tower to give a height of up to 60 metres to the rotor hub and up to 100 metres to the blade tip. Each turbine will have a power output of between 2-3 megawatts (MW). The generation capacity of the wind farm will therefore be between 18-27 MW.

Topographical, technical and environmental considerations have resulted in the wind farm design as shown on the site layout plan. The wind turbines are spaced so as to minimise energy loss due to wind turbulence, to avoid sensitive local areas and to minimise impact on neighbouring properties.

On-site access will be via existing and newly constructed hardcore access tracks approximately 5m wide. The turbines will be connected by underground cables, which will take power from each turbine to a substation at the site.

The wind farm substation will be connected to the existing Scottish Power Distribution 33kV "Glenniston" substation, located to the east of the site, via approximately 1.8km of new wooden pole overhead line or underground cable. This connection would be the subject of a separate application under section 37 of the Electricity Act 1989.



Wind Farm Construction and Operation

The wind farm will take approximately 6 months to construct. To provide access to the site, improvements will be made to the existing farm entrance at its junction with the unclassified Lochgelly to Auchtertool road, to the east of the site. All vehicles leaving the site will be required to turn left towards the A92. The route is judged to be of a suitable standard to accommodate the construction traffic.

During the construction period, there will be three types of traffic accessing the site, exceptional loads, conventional HGVs, and the vans and cars of construction staff.

There will be around 60 exceptional loads, 59 of which will deliver the tower sections, blades and components of the turbines and the associated electrical equipment. The remaining one will deliver the mobile cranes and other construction plant. With the exception of the cranes, some of the long vehicles delivering the large loads will reduce in length for their return journey, thus reducing their impact.

Aggregate material for track construction, crane hardstandings, substation hardstanding and the temporary site office area will be imported to the site from local quarries during the six months of the construction period. These elements will require approximately 1,000 HGV loads of aggregate material. If importation of this material is evenly spread throughout this period, it will equate to approximately 10 HGV loads of aggregate per day. Concrete for the foundations will be delivered from local ready mixed batching plants; each turbine foundation will require approximately 38 lorry loads. In addition there will be approximately 100 deliveries of plant, machinery etc.

There will be approximately 20-30 people working on site at any one time during the period of construction and there will be various light vehicle deliveries. These vehicles will approach the site from various directions and will not create any noticeable impact during the construction period.

Benefits

The cost of the wind farm is expected to be around £14 million, this will provide significant investment in Fife. Local companies will be able to bid for construction contracts worth around £2 million. Additional indirect expenditure is also expected in local shops, service stations, etc.

Once built the turbines would generate in the region of 59,000Mwh of electricity each year, sufficient for approximately 12,581 homes from a clean and sustainable energy source. This represents the domestic electricity needs of almost all the homes in Cowdenbeth, Lochgelly, Kelty, Auchterderran and Cardenden, or almost 8.5% of the households in Fife.

Furthermore, the Little Raith Wind Farm could, as a minimum displace approximately, 50,852 tonnes of carbon dioxide, 591.30 tonnes of sulphur dioxide and 177.39 tonnes of nitrogen oxide during each year of its operational life, which would otherwise be produced from conventional fossil-fuelled power stations. Little Raith Wind Farm will therefore make an important contribution to the Scottish Climate Change programme to increase the use of electricity from renewable sources in Scotland to 18% by 2010 and the aspirational target of 40% by 2020.

To provide additional benefit arising from the wind farm development, Fife Wind Energy Limited is presently investigating the opportunities to establish a community wind farm trust. This will enable support to be given to local social, educational and environmental initiatives. Discussions will take place with the local Community Councils and Fife Council on the mechanism for the legal delivery of the trust.

Environmental Impact

Early consultations with Fife Council identified the key environmental and amenity issues to be considered in determining the planning application. These are fully addressed in the Environmental Statement which includes reports on landscape and visual amenity, noise, ecology, cultural heritage, safety, and the effects of the proposal on TV and other communication systems. Where appropriate these reports have been commissioned from independent expert consultants. The main conclusions are summarised in this document.

Cultural Heritage

Independent archaeologists were engaged to undertake an assessment of the Little Raith Wind Farm site. A desk based study was completed.

The Fife Council Archaeological Unit who advise the planning authority on archaeological matters, has provided guidance on the structure of archaeological investigations appropriate in determining the potential impacts from the proposed development.

The baseline assessment has identified that there were no archaeological sites of national significance identified within the study area. However, there were some thirty three archaeological sites of potential significance within the study area identified. The assessment of significance clarified that only nine of the sites should be considered as of local or regional significance.

The character of the physical impact of the proposed development was such that it does not directly impact on any archaeological site of Local or Regional Importance. Consequently no mitigation was recommended other than ensuring that the activities and developments ancillary to the turbines do not impact on the known archaeological sites.





Predicted view from: Rear of properties along Watters Crescent, Lochgelly
Distance to nearest turbine: 1.38kms



Predicted view from: Footpath/Public open space off Park Street, Cowdenbeath
Distance to nearest turbine: 1.7kms

Landscape and Visual Impact

An independent Landscape and Visual Assessment (LVA) of the wind farm was undertaken, involving a review of landscape character and designations, and evaluating a range of viewpoints around the Little Raith site. Computer generated images of the wind farm were superimposed on photographs to create photomontages which give an accurate impression of the scale and location of the turbines.

The LVA identifies that the Little Raith Wind Farm is outside areas of national and local landscape designations. The assessment concluded that the direct effects on the landscape fabric and character of the site will be minimal in extent and reversible when the development is decommissioned and, therefore, acceptable in landscape terms.

It is acknowledged that there will be a degree of local visual impact. However, the wind turbines at Little Raith will have an obvious, and directly functional relationship with the nature of the local landscape, and the size of the development will respect the scale and composition of the landscape. Therefore, the significant effects will be very localised and the proposed development should be acceptable in this location.

The turbines at Little Raith will be of a modern 3 bladed design and will be painted an appropriate matt colour, to be specified by the Local Planning Authority. A matt colour reduces the distance over which the turbines are visible, especially in dull weather conditions or low light conditions.

A typical turbine, similar to that which will be used at Little Raith, is shown within this document. Two predicted views (photomontages) of the wind farm are shown in the central pages.

Nature Conservation

An independent specialist consultant has undertaken a review of the ecology of the proposed development site and its surroundings.

Phase 1 Habitats and Protected Species

There are currently no statutory protected habitats within the survey area, nor is there any evidence of species such as badgers, otters or bat roosts. It is therefore concluded that subject to minor mitigation and recommendations the impact of the proposed development on the protected habitats and species is expected to be very low. Furthermore there are opportunities for habitat improvements such as hedge planting, buffer zones around field margins, the loch and the Gelly Burn and stock fencing.

Breeding Bird Survey

The results of the breeding bird survey indicate that the development of the proposed wind-farm site will have a minimal effect on overall breeding bird assemblages. Most of the species encountered were primarily utilising the habitats around the periphery of the site, rather than the improved grassland on which most of the access tracks and turbines will be sited. The loss of these habitats as a result of the construction process will also be minimal, leaving the breeding and foraging areas intact.

Further survey work is currently being carried out on the use of the site by wildfowl. This will be the subject of a separate report to Fife Council.

Loch Gelly is presently a favourable site for moulting and over-wintering wildfowl. However it is only since water-sports and other disturbing activities stopped that numbers have begun to increase. The wind farm proposal may provide an opportunity to protect the site from further potentially disturbing activities and improve the habitat for moulting and over-wintering wildfowl. With the correct management some of the species recorded may even be encouraged to breed on the site.



Little Raith Wind Farm



Key

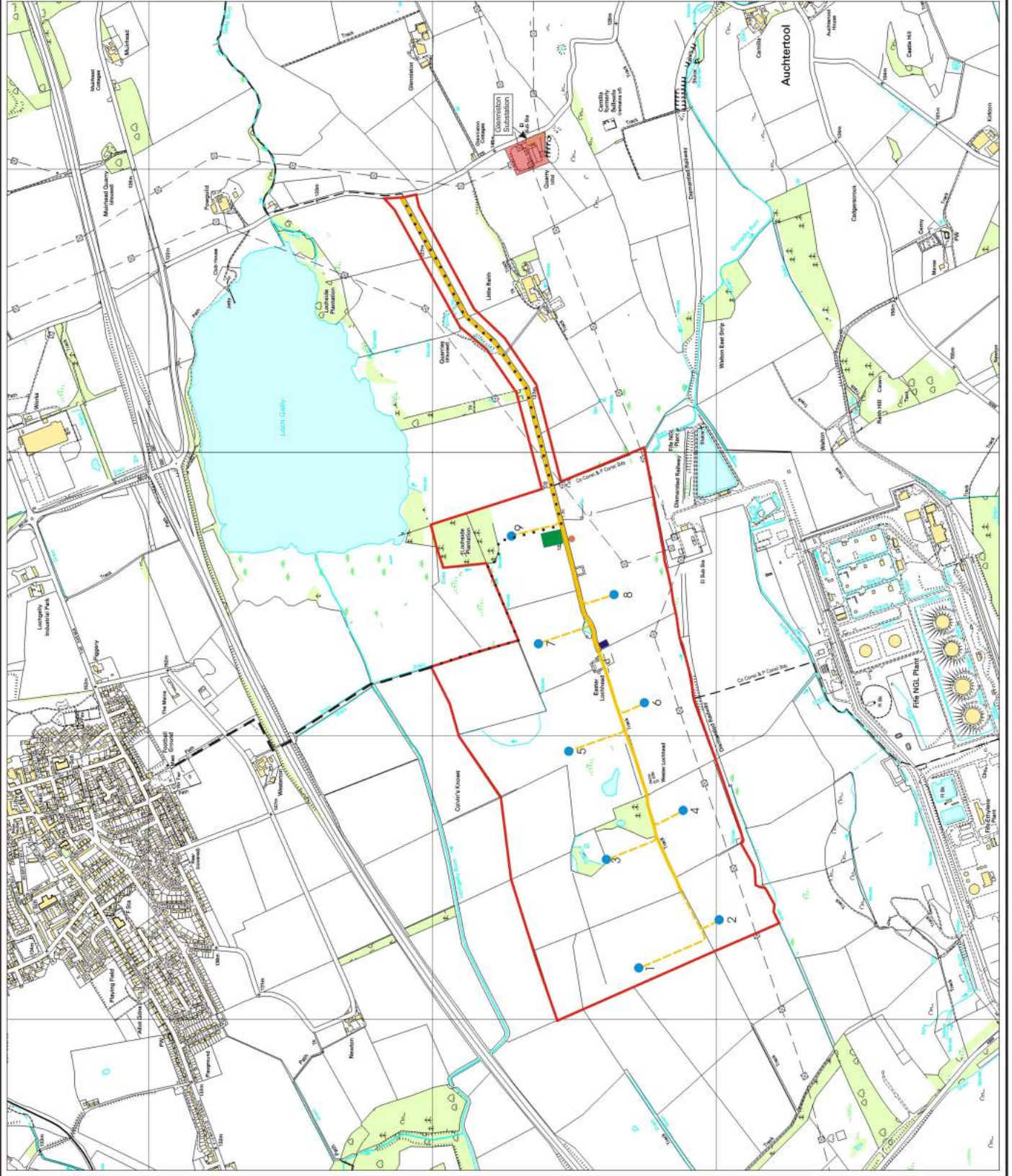
- Application Boundary
- Turbine Location
- Existing Access Tracks
- - - Proposed Access Tracks
- - - Existing Footpath
- - - Proposed Footpath
- Permanent Anemometry Mast
- Control/Substation Building
- Temporary Storage Compound

Not to Scale



**Figure 3:
Site Layout Plan**

Drawn by LE
 Date 09/11/2004
 Checked by LE
 Date 09/11/2004
 Drawing Number 0784 SP/037/03



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Noise

An independent assessment of the likely noise impact of the proposed Little Raith Wind Farm has been carried out. Baseline noise levels were measured at 4 locations representative of the nearest dwellings to the proposed development, and worst case turbine noise levels at these locations were predicted based on warranted sound power level data for the proposed Nordex N80 2.5MW wind turbines.

The assessment has been carried out by comparing the predicted noise levels with noise limits described in ETSU-R-97, *Assessment and Rating of Noise from Wind Farms*, as referred to in PAN 45, *Renewable Energy Technologies*.

The assessment indicates that the predicted noise levels at the nearest residential locations to the site clearly meet the amenity hours and night time noise limits, or the noise limit for financially involved properties, where relevant, under all conditions.

Interference with Television, Radio and Microwave Paths

Following consultation with communications agencies, it is predicted that there will be no disturbance to communication systems, including those used by the emergency services and mobile telephone services providers.

Hydrology and Geology

No evidence has been found to suggest there are any utilised surface water or groundwater resources on or in close proximity to the proposed development and therefore due to the nature of the development this would preclude any impact on any water resource. Similarly access to each of the turbine locations from the existing track means that pre, during and post construction, no water courses will have to be traversed, and will therefore not be impacted.

There is no long-term risk to the quality of surface water resources, as wind generation of electricity is essentially a clean technology, anchored to concrete bases and accessed via hardstanding areas.

It is recommended that no turbine foundation be constructed within 20m of any identified drain or watercourse. This is to limit any potential for sudden runoff or spillage during construction impacting on a watercourse that can permit rapid connection to the local burns, Lochgelly and Dronachy. The proposed turbines are located away from any surface water features.

It is recommended that careful attention be paid to the Pollution Prevention Guidelines 5 (PPG 5), for works in, near or liable to affect watercourses.

Assuming due care and attention is exercised during the construction phase:

The development of a small number of wind turbines at Little Raith should cause no adverse impacts on stream water quality during the construction phase.

There are no identified longer-term threats of pollution to watercourses as a result of this proposed development.

There are no identified threats to the water resources of the area in the short or longer term.



Public Safety

There is no recorded incident of a member of the public being injured by a wind turbine. The UK Government considers wind energy to be a 'safe' technology, requiring no special safety provisions. Experience has shown that livestock are undisturbed by the movement of the blades and will graze underneath them as well as using the towers for shelter in bad weather. Farming at Little Raith Farm will not be affected by the development.

The wind turbines are designed and manufactured to withstand weather conditions at least as extreme as those occurring in the United Kingdom, in terms of wind speed, turbulence and temperature. The wind turbines are equipped with safety systems which will automatically shut down the machine should a fault occur

Turbine blades have been designed to discourage any build up of ice as this would cause the rotor of the turbine to go out of balance and the wind turbine would have to be automatically shut down. In the event that ice should accumulate on the turbine components the turbines would be stopped to allow time for the components to be pre-heated. There is a remote possibility that small particles of ice or snow would fall from the turbines when the turbines begin to rotate, but it is not considered to be a risk to public safety as the turbine blades will be moving slowly.

Shadow flicker can arise from the passing of the moving shadow of the turbine rotor over a narrow opening such as the window of a nearby residence. Various conditions need to be met to create a shadow flicker effect. These have been evaluated and it is concluded that shadow flicker is unlikely to cause a nuisance at any residential properties as a result of the development.

The turbines will not appear suddenly to any motorist travelling at speed on roads close to the site, and therefore driver distraction is not considered to be an issue.

Although there are currently no marked or specific rights of public access via a public footpath on the site, appropriate steps will be taken to ensure the safety of members of the public during the construction process and operation and maintenance of the wind farm.

An extension to the existing footpath from Westerton to the Auchtertool road is also proposed to increase the recreational usage of the site.



Conclusion

National and local planning policy currently provides for a presumption in favour of renewable energy projects unless a particular proposal would cause demonstrable harm to interests of acknowledged importance.

In this particular case, the main issue to be considered is the benefits to be gained from exploiting a clean sustainable energy resource weighed against any perceived impact on changes to views, landscape character, ecology or residential amenity.

It is clear from the individual assessments set out within the Environmental Statement and summarised within this document that there will be no significant impacts from the development in relation to noise, ecology, cultural heritage, safety and physical (including highways) effects of construction and operation.

In landscape and visual terms it has been concluded that the nine wind turbines at Little Raith will have an obvious and directly functional relationship with the nature of the local landscape, the size of the development will respect the scale and composition of the landscape and existing built development such as the Mossmorran complex. The significant landscape and visual effects will be localised as a result of the local topography. In accordance with Policy R7 in the Fife Structure Plan, this site is located within the broad search areas based on the lower hill and less sensitive coastal landscape areas. The impact on the skyline has been minimised by locating the wind farm in a location where the skyline is already characterised by vertical features and the significant effects on views from residential properties will be limited. Accordingly, the proposed development is considered to be acceptable in this location.

Planning policy within Fife Council's Structure Plan and the Cowdenbeath Local Plan contain policies which support the development of renewable energy schemes subject to there being no adverse effects. It is considered that the proposal for the wind farm at the Little Raith site complies with the relevant policies of both of these documents.

The proposed Little Raith Wind Farm development is clearly in accord with the principals of sustainability and will provide significant environmental, economic and social benefits to the local community. Taking account of the National and Scottish policy context and the environmental assessments as set out in this Environmental Statement, it is submitted that when all material planning factors are taking into account, the balance lies in favour of the desirability and benefits to be gained from the generation of clean renewable energy from the Little Raith Wind Farm.

Further Information

If you would like to find out more about the Little Raith Wind Farm proposal, you can read the full Environmental Statement at

Fife Council,
Planning & Building Control (West)
New City House,
1 Edgar Street,
Dunfermline,
KY12 7EP

For further details about this project, please contact Neil Exton at West Coast Energy Ltd, The Long Barn, Waen Farm, Nercwys Road, Mold, CH7 4EW, tel: 01352 757604 or e-mail neil.exton@westcoastenergy.co.uk.



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