

HIBERNIAN WIND POWER LIMITED

**Tullynahaw
Wind Energy Project
County Roscommon**

**ENVIRONMENTAL IMPACT
STATEMENT
NON-TECHNICAL SUMMARY**

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Report P04E311A-R2



ESB INTERNATIONAL

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NON-TECHNICAL SUMMARY

A. 1 THE PROJECT

Introduction

Hibernian Wind Power Limited, which is a wholly-owned independent subsidiary company of ESB Power Generation, plans to develop Tullynahaw Wind Energy Project at Corrie Mountain, Co. Roscommon.

The windfarm will comprise 11 wind turbines, which will be used to harness the natural energy of the wind to generate electricity.

An examination of the likely significant impacts of the project on the environment was carried out and the results are presented in this Environmental Impact Statement (EIS). The conclusions of the EIS are contained in this Non-Technical Summary. Consultations with various interested parties took place during the preparation of the EIS.

Background

Ireland has one of the best wind resources in the world but its exploitation has lagged developments elsewhere in Europe.

By the end of 2001, approximately 20,000 MW of wind energy generating capacity had been installed globally. Growth has been particularly strong in Europe but Ireland's contribution to its installed wind energy capacity is only 1%, in contrast to 17% from Denmark, despite Ireland's better wind resource.

Renewable sources of energy, such as will result from the Tullynahaw Wind Energy Project, offer sustainable alternatives to our dependency on fossil fuels, a means of reducing harmful greenhouse emissions and opportunities to reduce our reliance on imported fuels. For these reasons, Irish and European policy supports the increased use of renewable energy.

Basis of Operation

The basis of wind turbine operation is as follows:

- A yaw mechanism turns the turbines so that they face the wind
- The blades of the turbine rotate at a rate of once every 2 – 3 seconds.
- The rotation of the blades rotates a generator within a nacelle (housing) located at the turbine hub to produce the electrical power output.
- The electricity generated is fed via underground cables to electrical transformers where it is transformed to a higher voltage for supply from the site.

Sensors are used to monitor wind direction and the tower head is turned to face the wind. Power is controlled automatically as wind speed varies and the turbines are stopped at very high wind speeds to protect them from damage.

Project Output and Design

Each turbine will have a mast height of up to 70 metres (m) and three blades, each up to 40 m long. A single-storey Control Building will be provided for electrical equipment.

The wind turbines will be selected from a range of models that have been demonstrated successfully throughout Europe and certified to the highest international standard. The

contract to supply and construct the windfarm will be open to international competition. Because sizes of wind turbines are particular to the design of individual manufacturers, the exact rating of the turbines cannot be specified at this stage without prejudice or favour to a particular manufacturer. However, the total rated electrical output of the windfarm is expected to be about 27.5 megawatts (MW). The result of the tendering process will be the award of a contract for a particular model of wind turbine.

Construction will principally involve the following:

- Provision of turbine access tracks and cranepads and excavation and construction of reinforced concrete bases with cast-in steel foundation section for towers.
- The erection by crane of the pre-fabricated turbine towers and the installation of turbines and rotor blades.
- Construction of a Switchyard containing a Control Building / Substation and installation of underground ducts and cabling from each turbine to it.
- Installation of an anemometer mast to measure wind speeds.

The grid connection that will be necessary for supply of power from the site to the National Grid does not form part of this project.

A. 2 SIGNIFICANT IMPACTS OF THE DEVELOPMENT

The possible impacts of the development were examined. This was done by assessing the environment in terms of the existing conditions, the impact of the development and the measures taken to mitigate these impacts. A summary of impacts and the proposed mitigation measures, where these are appropriate, is presented in Table NTS.1.

The most significant potential impact on the environment from the project was identified in the scoping stage as being Visual Impact/Landscape. Other issues noted as requiring detailed evaluation were Ecology and Noise.

The aspects of the environment judged to be significantly positively affected by this development were human beings, air quality and climatic factors. Other potential impacts on the environment affecting human beings, ecology, soils and drainage, material assets and cultural heritage are examined, as well as interaction between various impacts.

There are already a number of windfarms in the area.

Human Beings

The development will lead to employment during the construction stage.

Positive impacts are expected as regards input to the local economy.

The basic technology to be employed in the project is well understood and has been used successfully in many equivalent projects elsewhere, both nationally and internationally. There are no implications for health and safety.

If the sun is behind the rotor of a turbine a shadow that flicks on and off may be created through windows of nearby houses as the blades rotate. The absence of dwellings in the vicinity of the development ensures that this phenomenon will not arise.

Noise

Noise measurements were undertaken in the vicinity of this site and, as expected, recorded noise levels were low and representative of a rural location. Noise resulting from the operation of the wind turbines was predicted using computerised modelling.

There is an increase in turbine noise level as wind speed increases. However, ambient noise, the noise from wind in nearby trees and hedgerows, around buildings and over local topography, also increases with wind speed, but at a faster rate. At about 200 m distance, noise from the turbines will be masked by ambient noise, particularly at high wind speeds.

The absence of dwellings in the vicinity of the development ensures that noise impacts of significance will not arise from the construction or operation of the windfarm.

There will be no significant cumulative impacts arising from the presence of other windfarm developments in the general area.

Landscape

The principal views of the windfarm occur from a broad visual zone situated to the northeast through to south of the site and covering an area of 60 km². Outside of this zone the wind farm is largely screened by topography and intervening vegetation. There are very few views from northwest, as the topography screens the existing wind farms and this proposal. There are limited views from the west, for approximately 3 km distance, with low visual impact.

There are minor and insignificant impacts on a number of listed designated areas and recreational areas arising from the windfarm.

There are some potential intermittent views of the windfarm from regional roads, in particular from the R207 and R280. The majority of open views from third-class roads occur in an area where these are little used upland routes. Overall, opportunities for viewing from rural roads and properties are relatively few. The impact is considered low.

The cumulative effect of the Tullynahaw project with the existing Spion Kop and Corry Mountain windfarms and other permitted developments is to define the ridgeline of Corrie Mountain as a "windfarm area". The result will be that a large number of turbines will be partially visible from certain locations in the locality. However, due to the nature of the topography, it is not possible to view all windfarms at once and, therefore, their cumulative effect is diminished.

There is already a presence of wind turbines within this landscape. The Tullynahaw project will merely extend and reinforce the existing impact on the landscape character in the vicinity.

Ecology

The site consists principally of two habitats, namely blanket bog and wet heath. There are some areas of blanket bog that are damaged by overgrazing but it remains largely intact.

The development will lead to loss of relatively small amounts of habitat. This loss is not expected to have significant impacts on the bird species in the area. None of these are of high conservation importance and it is considered that all species will retain a presence in the area.

There will be some disturbance to birds within the site during the construction phase, but with species occurring commonly in the area the effect of any displacement is unlikely to have a significant impact on the overall populations of any species. During the operation phase, the presence of the turbines is unlikely to have any significant impacts on the bird species that occur within the site or in adjacent areas. Evidence from comparable modern windfarm sites elsewhere in Europe indicates that the risk of collision by birds striking wind turbines is low.

Taking into account the location of the windfarm, the extent of lands involved, the size of the development, research undertaken elsewhere, available information on bird populations in the area and site visits, there is no strong evidence to indicate that the development will have anything other than a minimal impact on birds.

Despite the sensitivity of the habitat, with the implementation of mitigation measures, the overall impact with regard to ecology is assessed as not significant.

Air Quality and Climate

The windfarm will have no direct impact on air quality in the area.

The windfarm will generate electricity without leading to additional emissions of carbon dioxide (CO₂), sulphur dioxide (SO₂) and oxides of nitrogen (NO_x). The development of renewable energy and, particularly in Ireland, wind energy with zero emissions is seen as an essential element in achieving reductions in emissions, while allowing continuing economic expansion.

Soils and Drainage

The development does not involve any discharges to soil or groundwater nor is it located in any area of geological interest. Disturbance of vegetation cover during construction could lead to short-term generation of high suspended sediment loads in streams draining the area. However, with proper control it is considered that there will be no significant adverse environmental impacts on soils beyond the areas involved in the constructed elements of the project, namely turbine foundations and access tracks.

Material Assets

Short-term effects on traffic will arise during the construction period, but there will be no effects thereafter.

The windfarm is not anticipated to have any negative impacts on tourism.

The proposal will assist in meeting increases in electricity demand nationally by exporting electricity into the deregulated electricity market. It will contribute to ensuring that adequate electricity supplies are available to support economic activity and growth in a manner fully compatible with Government energy and environmental policies.

The production of electricity by the windfarm will result in savings in fossil fuel resources.

There are no implications for air navigation and there will be no impact on the safety of air traffic.

Cultural Heritage

There are no known sites of archaeological potential or interest within the site and no impact will thus arise. The development does not impact on any recorded features or events of historical interest and it is not envisaged that the development will have any negative physical impact on any architectural sites.

General Issues & Interaction of Impacts

The windfarm will have no impacts in relation to surface waters, groundwaters, waste, infrastructure or other land uses.

There will be no significant interaction of impacts.

A. 3 CONCLUSION

The equipment used will be of the most advanced technological design available. The

most significant environmental impacts from the project have been examined and the best available control technologies have been applied in an integrated approach.

With the application of various mitigation measures, there are no impacts that are considered unacceptable within the context of the planning policy framework for assessing wind energy projects. It is therefore concluded that the windfarm is supported by Government policy regarding the promotion of renewable energy and is consistent with planning guidance for the development of wind energy.

Table NTS.1: Summary of Environmental Impacts

Category	Receiving Environment	Nature of Impact	Assessment of Impact	Mitigation Measures
Human Beings	Principal potential impacts relate to noise and landscape.	Refer to impacts on noise and landscape (see below)	Positive re air, imperceptible re others	See Below
	Employment	Provide employment during construction	Positive	N/A
	Health and safety	Technology well understood and history of successful use	None	N/A
		Shadow flicker	None	N/A
Noise	Noise representative of rural environment	Noise from construction and operation.	Imperceptible	Noise abatement incorporated into design of turbines.
Landscape	Views from an area covering 60 km ² to the north-east through to south	Intrusion of turbines on skyline	Visual impact seen to be moderate to high.	Limited size of windfarm and arrangement of the turbines related to the landform
	Views from areas covering 42 km ² to the north, northeast and southeast	Intrusion of turbines on skyline	Low to moderate visual impact	
	Distant views up to 10 km distance	Intrusion of turbines on skyline	Low visual impact	Turbines located at maximum feasible distance from residences.
	Landscape of rural character	Introduction of engineered elements	Significant impact along roads and from properties up to 3 km away, where open views occur.	Equipment neutrally coloured to be blend into background. Switchyard located to provide least visibility.

Category	Receiving Environment	Nature of Impact	Assessment of Impact	Mitigation Measures
Ecology	Dominant habitats of blanket bog and wet heath	Small loss of habitats	Not significant	N/A
	No sites of conservation value in the vicinity of the site	No loss of habitats	None	N/A
	Birds including some of conservation importance	Disturbance during construction	Temporary impact during construction	N/A
		Disturbance during in long term	Avoidance initially, reducing with habituation.	N/A
		Potential collision with wind turbines	Low to negligible likelihood	
Air Quality and Climate	National commitment to limit increases in greenhouse gas emissions to 13% of 1990 levels	Project will not give rise to emissions of carbon dioxide.	Positive	N/A
	Air emissions from industrial sources including power plants contributing to regional pollution problems in Europe	Project will generate electricity without emissions of nitrogen oxides or sulphur dioxide.	Positive	N/A
Soils & Drainage	Peat of variable depth	Excavation of soils during construction	Minor	Separate removal and storage of organic and mineral materials.
	Site drainage already disrupted by peat cutting activities	Increased in run-off following rainfall	Insignificant	Use of floating roads as necessary

Category	Receiving Environment	Nature of Impact	Assessment of Impact	Mitigation Measures
Material Assets	Traffic levels on nearby roads	Increase in traffic during construction	Minor	Traffic management plan agreed prior to commencement of construction.
	Traffic levels on nearby roads	No increase in traffic during operation	None	N/A
	Existing windfarms have attracted significant numbers of visitors	Tourism of vital importance to the national and regional economy	None	N/A
	Electricity supply and economy	Sustained economic growth facilitated by additional electricity generating capacity.	Positive	N/A
	Use of fuel in electricity production	Additional electricity generating without consumption of fossil fuel resources	Positive	N/A
	Air navigation	Interference with air navigation	None	Requirements of Irish Aviation Authority and Department of Defence to be implemented in full.
Cultural Heritage	No significant archaeological, historical or architectural assets.	None	None	N/A