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**Proposed Curryfree Wind Farm, near Drumahoe,
Co. Londonderry**

**Non-Technical Summary
November 2004**

Curryfree Wind Farm

Non-Technical Summary

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1. INTRODUCTION

This Environmental Statement was prepared as a result of discussions with officers of the Department of Environment Planning Service and as required by the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999 [1]. It is in support of a planning application for a wind farm and comprises 8 wind turbines, associated transformers, a permanent anemometer mast, a temporary anemometer mast, upgrading existing access tracks and extending to new turbine locations, gates, a site control room and substation, electrical cabling, a temporary site compound, a site entrance, road improvement works at the site entrance and all ancillary works at Curryfree wind farm, in the townlands of Curryfree, Creevedonnell, Lisglass and Carnafarn (known as "Curryfree wind farm").

The application is made in the name of Wind Farm Developments Ltd which is a joint venture company formed by B9 Energy Services Ltd (B9 Energy) and Renewable Energy Systems Ltd (RES) to develop wind energy projects in Northern Ireland. Wind Farm Developments Ltd is wholly owned by B9 Energy and RES.

Connection to the electricity grid system is the responsibility of NIE and reference to the grid connection is made in this Environmental Statement.

Approval of the scope of the ES for the proposed wind farm was agreed in a meeting with Anne Garvey and Jane Curley of DoE Planning Service on 20th November 2003.

2. THE PROPOSED SITE

The proposed Curryfree wind farm site is located in the north of County Londonderry, 6.5km south of Derry City, 6km south west of Drumahoe, 5.5km north east of Dunamanagh and 4.5km south east of Newbuildings (See NTS Figure 1).

The proposed site covers a large area of approximately two square kilometres at the western end of the Slievekirk hill range. The site is bounded by minor public roads on all sides.

The site has been highly modified by human activities such as drainage, grazing, improvement of grassland, forestry and extraction of peat. The principle land uses on the site are currently extensive agricultural grazing and managed plantation forestry. In general the habitats present are either man-made habitats or degraded semi-natural habitats.

There are two groups of farm out-buildings (one abandoned, one in use) within the boundary of the site as well as several existing access tracks. A stream drains the site to the north-west and this has carved quite a steep-sided gully with some associated scrub and tree cover. The site is completely surrounded by improved grassland.

1. Meetings with Jim Cavalleros and Fiona Mc Candless of Department of Environment Planning Service on 1st May 2003

3. THE PROPOSED PROJECT

The proposed development is for a wind farm comprising up to 8 wind turbines, associated transformers, a permanent anemometer mast, a temporary anemometer mast, upgrading existing access tracks and extending to new turbine locations, gates, a site control room and substation, electrical cabling, a temporary site compound, a site entrance, road improvement works at the site entrance and all ancillary works. The final layout proposed is illustrated in NTS Figure 2 showing a radius of 50m for micro-siting.

The wind turbine industry is evolving at a remarkable rate. Designs continue to improve technically and economically. The most suitable turbine model for a particular location can change with time and therefore a final choice of machine for Curryfree has not yet been made. The most suitable machine for the proposed site will be chosen shortly before the time of construction. The overall tip height of the selected turbine will be no greater than 96m. The units proposed will be three bladed horizontal axis wind turbines. A selection of turbines offered by different manufacturers that meet the overall tip height limit of 96m.

Manufacturer	Neg Micon 72– 1.65MW	Bonus Energy A/S
		<i>Reference Design</i>
Turbine model	Neg Micon 72 – 1.65MW	BONUS 1.3 MW
Name-plate capacity	1650 kW	1300 kW
Axis of rotation	Horizontal	Horizontal
Number of blades	3	3
Control system	Full-blade pitch regulation	Combi-Stall regulation
Tower	Tubular steel	Tubular steel
Voltage	690 V	690 V
Cut-in wind speed	4.0 m/s	4.0 m/s
Cut-out wind speed	25 m/s	25 m/s
Rotor speed(s)	14.4 rpm	13/19 rpm
Rotor diameter	72 m	62 m
Hub height	60 m	65 m
Overall height (max)	96.0	96.0m

The proposed access route has been designed in consultation with the Roads Service, Londonderry office. It is anticipated that turbines will be delivered from their country of origin (GB and/or Denmark) by sea to Lisahally dock, Derry city. From Lisahally the deliveries will travel down Maydown Road and turn right onto the A2 at the roundabout. They will then follow the A514 ‘ Kilfinnan Bypass’ and turn left at the roundabout onto the A6. After 2.5km they will turn right towards Currynierin. After 2.5km, turn right at the Ardmore Bridge onto the Bigwood road. Travel for 5km along the Bigwood road. The site entrance is located on the right hand side, almost opposite the Drum road.

The civil engineering works will comprise:

- the improvement of the site entrance
- the upgrading of existing tracks and the provision of new access tracks to the turbine locations;
- construction of the on-site control room/sub-station;
- the preparation of compounds and hardstanding areas for cranes;

- the preparation and establishment of temporary site facilities; and,
- at each turbine location, the preparation and construction of the concrete foundation to support the turbine structure and the individual turbine transformer.

The main construction activities during the civil works phase are:

- earthworks for the foundations, hardstandings and access tracks;
- construction of access tracks;
- the fixing of formwork and reinforcement for the foundations;
- the placing of ready mixed concrete for the foundations;
- back-filling and compacting around the foundations;
- construction of substation, security fence and site compound;
- completion of hardstanding areas and landscaping;
- burying cables between the turbine locations and the on-site substation; and
- erection of wind turbines.

After construction the turbines require routine maintenance and engineers would be on site on an intermittent basis. The expected life of the wind farm is twenty five years. At the end of this period a decision would be taken as to whether to refurbish, remove or replace the turbines.

4. POLICY

4.1. EUROPEAN POLICY CONTEXT

4.1.1 Climate Change

The majority of the world's leading climate scientists now agree that the climate is changing. The burning of coal, gas and oil is a major cause of climate change. It is widely recognised that future energy policy must be based on using less fossil fuel, increasing energy efficiency and employing more renewable energy such as wind energy which does not produce atmospheric emissions. The EU recognises that it must take a lead in reducing emissions and has established targets for greenhouse gas reductions under the Kyoto Protocol at an 8% decrease in greenhouse gas emissions by 2001–2012 compared to 1990 levels.

4.1.2 Renewable Energy

The overall objective of the Commission's work on renewable energy is to improve energy security by ensuring durable and reliable energy services at affordable cost and conditions and at the same time to reduce the impact of the production and use of energy, particularly the emission of carbon dioxide.

The EU's Renewable Energy Directive came into force in September 2001 and states that 12% of total community primary energy (or 22.1% of electricity) should come from renewable energy by 2010.

4.2. UK POLICY CONTEXT

4.2.1 Climate Change

The UK has remained committed in its support for the Kyoto Protocol, but has adopted a tougher emissions reduction target of 12.5% compared with the overall international Protocol target of 5.2%.

The UK Government's commitment to reduce harmful emissions, and protect the wider environment is outlined within a number of documents including The White Paper "*This Common Inheritance*" published in 1990, the Government's "*Sustainable Development - The UK Strategy*" published in 1994 and the UK Climate Change Programme published in 2001 by DEFRA and the devolved administrations.

4.2.2 Renewable Energy

The Government's renewable energy policy has five key aims:

- To assist the UK to meet national and international targets for the reduction of atmospheric emissions including greenhouse gases;
- To help provide secure, diverse, sustainable and competitive energy supplies;
- To stimulate the development of new technologies necessary to provide the basis for continuing growth of the contribution from renewables into the longer term;
- To assist the UK renewables industry to become competitive in home and export markets and, in doing so, provide employment; and,
- To make a contribution to rural development.

The Government regards renewable energy as being key to reducing levels of harmful atmospheric emissions, while at the same time acknowledging its potential as a valuable contributor to UK electricity needs.

The Energy White Paper "*Our Energy Future - Creating a Low-Carbon Economy*" was published in February 2003, and confirms the crucial contribution of renewable energy to achieving the long term goal of reducing carbon dioxide emissions by 60% (from 1990 levels) by 2050. It indicated that by 2020, 20% of the UK electricity supply will come from renewable sources, with the largest expected contributions coming from both on-shore and off-shore wind and from biomass.

4.3. NORTHERN IRELAND POLICY CONTEXT

4.3.1 Climate Change

In November 2000, the UK Climate Change Programme was presented to the Northern Ireland Assembly. The UK Climate Change Programme sets out the UK Government and the devolved administrations' strategic approaches to tackling climate change. It outlines the measures that Northern Ireland has taken, and will continue to take, to ensure that it makes as significant a contribution as possible to cutting greenhouse gas emissions.

4.3.2 Renewable Energy

There is 71 MW of renewable energy capacity installed in Northern Ireland (March 2004). The Department of Enterprise Trade and Investment is currently finalising its Energy Strategy.

The strategy includes setting a Northern Ireland development target of 12% of electricity consumption to come from renewables by 2012. A Renewables Obligation has been proposed similar to that already operating in the rest of the UK to achieve the necessary level of renewable energy development in Northern Ireland. This will place an obligation on suppliers to purchase a proportion of their electricity from renewable generators.

4.3.3 Planning

All renewable energy developments are addressed through the operation and use of the planning system, which is the responsibility of the Planning Service, an agency within the Department of the Environment for Northern Ireland.

The strategic and regional planning policy framework is provided by the Department's document "*A Planning Strategy for Rural Northern Ireland*" and all relevant Planning Policy Statements.

The Planning Strategy published in September 1993 is gradually being superseded by individual Planning Policy Statements. Of relevance to this application are PPS 1 – General Principles; PPS 2 – Planning and Nature Conservation; PPS 3 – Development Control: Roads Considerations; PPS6 – Planning, Archaeology and the Built Heritage and PPS10 – Telecommunications.

The Department for Regional Development has also published its regional development strategy for Northern Ireland 2025: "*Shaping our Future*".

The development falls within the jurisdiction of Derry City Council the Derry Area Plan is therefore the most relevant. There is no reference to renewable energy within this Plan, and the turbines are located outside all designated areas.

5. LANDSCAPE AND VISUAL ASSESSMENT

5.1. LANDSCAPE CHARACTER ASSESSMENT

The site is located on the edge of the high value Sperrin Foothills Landscape Character Area at its transition with the Burngibbagh Valley which is considered to be of moderate to low value. It is outside Derry's Greenbelt on land not otherwise designated for its landscape quality, although close to the Area of High Scenic Quality of the Sperrins Foothills. The varied geography of the study area includes areas of very high quality around the Sperrins, because of the dramatic topography and unspoilt character of the area, as well as areas of high value along the Foyle Valley, in the Sperrins foothills and the Donegal uplands. As result of their scenic quality these areas are designated or highlighted for protection from development and views from them are considered to be of high importance to visitors and local residents. Areas of pressure from development have been protected in many places around Londonderry and along transport corridors between the main settlements. These pressures have eroded the quality of the existing landscape in places, mainly near Londonderry and the windfarm site is located on the transition between these two generalized areas.

Landscape Area	Character	Landscape Quality	Magnitude of Impact	Significance of Impact
Foyle Valley		High	Minor	Low
Glenally Valley		Very High	None	None
Sperrin Mountains		Very High	None	None
Sperrin Foothills		High	Moderate	Moderate
Burngibbagh and Drumahoe		Moderate-Low	Moderate	Moderate-Low
Derry Slopes		High	Minor	Low
Lough Foyle Alluvial Plain		Moderate	None	None
Loughermore Hills		Moderate	Moderate	Moderate
Inishowen Coastal Area		Moderate-Low	Minor	Low-None
Inishowen Lowland Hills		Moderate	Minor	Low
Inishowen Uplands		High	None	None
Inch Coastal Area		Moderate	None	None
Dooish Uplands		High	Minor	Low
Fin and Deele Valleys		Moderate to Low	None	None

5.2. VISUAL APPRAISAL

In close range views (i.e. 0–5km) the windfarm is likely to be a prominent or relatively prominent feature. The receptors in this area have been identified as being less sensitive than those in the wider area in relative terms, i.e. there are no landscape designations or recognised tourism features apart from a section of the national cycle route. However, from the locations of some close range views, one or more other windfarms may be visible (at a distance of 10–15km), which will have a slight detrimental effect on the quality of the view.

The site is visible in medium range views (5–15km), particularly to the south of the site, but also to the west and east. In these views the site is only clearly visible in conditions of clear visibility, and will be seen as part of the wider landscape. A number of viewpoints where receptors are considered to be sensitive to visual impact have been identified, mostly to the south and northwest of the site, from archaeological sites, recreational areas, settlements, main roads and tourist roads. In a number of these locations, windfarms at Owenreagh and Altahullion are also visible, which will cause the proposed development to have a slight negative cumulative effect on the quality of the view.

The wind farm site will only be visible in distant range views (15km+) in very clear visibility as a minor element of the landscape. Some of the more potentially sensitive receptor groups are at a greater distance than 15km, such as those within the higher Sperrin Mountain range, Glenally Valley and the Inishowen Uplands. Few viewpoints were identified within this zone as the site is not prominent and distant viewpoints relatively inaccessible.

5.3. VIEWPOINT ANALYSIS

A total number of 13 viewpoints were assessed. A wind farm based upon the proposed layout will have visual impacts of high (or high/moderate) significance in three viewpoints, moderate (or moderate/minor) significance in seven viewpoints and minor (or minor/negligible) significance in three viewpoints. The results of the visual impact analysis are summarised below.

Viewpoint no. and location	Approx. distance from nearest turbine (km)	Range of view	Sensitivity of receptors	Magnitude of impact	Magnitude of cumulative impact	Significance of impact
1. Grianan of Aileach, Co Donegal	13 km	Long	Medium-high	Slight	Moderate	Moderate
2. Dooish Mountain, Co Donegal	13 km	Long	Low	Moderate	None	Minor
3. Knockavoe Hill	13.5 km	Long	Low	Slight	Slight	Minor
4. Owenreagh	14 km	Long	Medium	Moderate	Slight	Moderate
5. Dunamanagh	6 km	Medium to long	High	Substantial	None	High
6. Taboe Glebe	2 km	Close	Low	Substantial	None	Moderate
7. Burngibbagh	2.5 km	Close to medium	High-low	Substantial	None	High-moderate
8. Gortmonly Hill	4 km	Medium	High-low	Moderate	None	Moderate-minor
9. Maris Road (A6)	5 km	Medium	High-med.	Moderate	None	Moderate-high
10. A6 near Altahullion	18 km	Distant	High-med.	None	None	Neutral
11. Burntollet River Valley	10 km	Long	High-low	Moderate	None	Moderate-minor
12. Drumman	8 km	Medium	Low/high	Mod-substantial	None	Moderate
13. Moor Lough Car Park	11 km	Long	Low-medium	Slight	Slight	Minor-moderate

5.4. CUMULATIVE EFFECTS

There are 2 existing wind farms within the study area (Owenreagh and Altahullion). There are also several wind farms in Co. Donegal which are located beyond the study area but which are still visible from some of the chosen viewpoints. There are 2 proposed wind farms within 20km of Curryfree, these are located at Slievekirk (adjacent to Curryfree) and an extension to Altahullion. None of the cumulative visual impacts are considered significant.

6. ORNITHOLOGY

The potential effects of the proposed Curryfree wind farm on breeding and wintering birds has been studied in detail, by way of breeding season surveys in 2002 (two visits) and 2003 (four visits) and four winter surveys during January-March 2004.

Assuming that construction takes place outside the breeding season (April-July inclusive) it is concluded that the proposed development would not have a significant negative effect on breeding and wintering birds at Curryfree.

7. HABITAT

The vegetation within the proposed development area at Curryfree has been highly modified by human activity. In general the habitats present are either man-made habitats or degraded semi-natural habitats

(dry modified bog and acid grassland/wet heath mosaic) and these habitats are of low or negligible significance for their flora. For most of the site, therefore, there are no significant potential issues with regard to loss or damage to natural/semi-natural habitats in terms of the proposed development.

An exception is an area of wet heath habitat that has been identified by the survey. This is considered to be of low moderate significance and might possibly fall under the remit of the EHS *Upland Heathland Habitat Action Plan*. However it is also demonstrated that the proposed turbine layout does not impinge on the wet heath area and it is concluded that the proposed development will therefore have no adverse impact on this habitat.

8. IRISH HARE

The population density of Irish hares at the Curryfree proposed wind farm is approximately 2.1 hares/km². Whilst this is slightly higher than those reported for Northern Ireland as a whole (1.0 hare/km²) it is directly comparable to the results obtained for upland areas by O'Mahony & Montgomery (2001), who reported a density of 2.13 hares/km² for similar upland regions in Northern Ireland. It should be noted that night driven transects return consistently higher results than day walked transects. It is therefore concluded that hares are present on the site at densities consistent with those expected. However, due to the greater difficulty of spotting hares during day walked transects, the actual hare density is likely to be slightly higher than the reported level.

9. NOISE

The noise report contains an assessment of the noise impact of the proposed Curryfree wind turbines on nearby dwellings. The assessment has been made according to criteria specified in 'The Assessment & Rating of Noise from Wind Farms'. The proposed wind farm at Curryfree will comprise eight turbines, the precise choice of which is not yet finalised, but are expected to be similar in acoustic properties to the Bonus 1.3MW.

Applying the assessment methodology, the analysis indicates that the noise immission levels at neighbouring properties resulting from the operation of the wind farm would be deemed acceptable for both day and night time operation for all properties.

10. ARCHAEOLOGY AND CULTURAL HERITAGE

A desk top survey was undertaken to identify any known sites of archaeological importance within the development area, extending to a 5km radius surrounding the wind farm. Coupled with this a site inspection was also undertaken to identify any previously unknown or unrecorded upstanding sites which may exist within the area of the proposed development. While no known monuments were located within the area of the wind farm, a large number of sites were identified within the wider landscape. These sites were found to range in date from the pre-historic period to the modern era. An analysis of the importance of these sites, the magnitude of the potential impact, and significance of impact of the proposal on the sites and monuments was also undertaken. The results of this indicate that while the proposed development will be intervisible with a number of these monuments, the significance of the impact varies between slight and moderate.

One area of potential, previously unknown, archaeology was identified during the course of the site inspection. The remains, as identified, may represent a cist or cists of pre-historic date. The development

will avoid this area of archaeological potential and no turbines will be placed either on or in the immediate vicinity of this area.

Given the extent of the archaeological activity in the surrounding environs it is possible that further, previously unknown sub-surface archaeological deposits may exist within the limits of the proposed development area which may be revealed during the construction works and the proposed precautionary measures should be adopted.

11. GEOLOGY AND HYDROLOGY

Curryfree has a sensitive hydrological environment defined by its poorly drained peaty and gleyey soils and resultant high water table. The site contains a number of small watercourses and man-made drainage paths, associated with the peaty area of the site. The vegetation on the site is a mixture of grassland used for grazing, heather and coniferous forest. Grassland dominates the southern area of the site in the vicinity of turbine 5, whilst the remainder of the site, excluding the area of coniferous forest, is heather peat land. The wettest part of the site is in the vicinity of turbines 1, 2 and 3.

The site lies on the watershed between the Burngibbagh and the River Faughan, both of which join at Drumahoe (C 460147). The Burn Dennet may also receive drainage from the site. Water from the vicinity of turbines 1, 2, 3, 6, 7 and 8 flows to the north east to enter on site streams which flow north west to enter the Burngibbagh at around C 431109 and C 441115. Water from the vicinity of turbines 4 and 5 also drain to the Burngibbagh, though via streams in the south and western parts of the site. These tributaries enter the Burngibbagh at C425098.

There is one confirmed private water supply within a 3km radius of the site, and one confirmed public water supply. These take the form of a borehole (for dairy farming) and a surface water abstraction (for public water supply). There are a further four potential private water supplies in the immediate vicinity of the site, and for the purposes of this assessment it is assumed that they do have private water supplies. However, risks to these supplies are thought to be negligible due to the location of the turbines, the distance between the area of construction and the sources, the low permeability of the bedrock geology and the mitigation measures put in place to protect the surface and groundwaters.

The construction of the wind farm will involve the removal of earth to form 8 turbine foundations, and the construction of new tracks, substation and temporary constructors compound.

As a construction site there is the potential for spillages. To mitigate this, a pollution incidence response plan will be implemented in accordance with EHS PPG21 and best practise guidelines from CIRIA and EHS. The construction process could result in the generation of sediment entrained run-off that could enter watercourses. In the case of the substation, temporary construction compound and turbine base construction, effects would be mitigated by the provision of silt traps and other such devices to remove sediment from runoff before it enters watercourses. If the appropriate design recommendations and mitigation measures outlined in this Section are implemented then the proposed development will not have a significant affect on the hydrological environment of the Curryfree site or its surroundings.

12. ROADS

The traffic volume due to construction, operation and decommissioning are summarised below:

	Delivery		Vehicle
	Total	Per Day	
Construction			
Access tracks	50	20	20 tonne stone truck
Foundations	190	24	6m ³ ready mix truck
Substation & Electrical	20	2	Truck
Turbine Delivery			
Blades	8	1	39.0m long, 5.0m high, 4.1m wide, low loader / abnormal load
Tower	16	2	
Nacelles and Hubs	8	1	
Electrical Equipment	4		15m shipping container
Rotor Assembly/Tail crane	1 for all	1	Flat-bed truck
Erection of wind turbines	1 for all	1	200 tonne capacity mobile crane
Staff vehicles	2250	15	500 tonne mobile crane
			Cars, pick-ups & light vans
Operation			
Regular inspections		1 per week	4 x 4 vehicle or light van
Emergency repairs	If required		200 tonne mobile crane
Decommissioning			
Removal of rotor assemblies	1		500 tonne crane
Dismantling of turbines	1		500 tonne crane
Removal of turbines	6		Trucks
Removal of substation	15		Trucks
Removal of turbine plinths	20		20 m ³ Stone trucks

It is anticipated that turbines will be delivered from their country of origin (GB and/or Denmark) by sea to Lisahally. From Lisahally the deliveries will travel down Maydown Road and turn right onto the A2 at the roundabout. Follow the A514 'Kilfinnan Bypass' and turn left at the roundabout onto the A6. After 2.5km turn right towards Currynierin. At the Ardmore Bridge, turn onto the Bigwood road. Travel 5km down the Bigwood road until you are almost opposite Drum road. Turn right into the site entrance.

It is hoped that stone will be sourced from the on-site borrow pit for road-stone for the access tracks. This is subject to obtaining a mineral extraction license, as well as testing to determine suitability. Without on site borrow pit an additional 650 deliveries of roadstone would be needed. Deliveries will be in 20 tonne trucks (10m³); therefore a total of 700 deliveries would be required. Over a period of 10 weeks, this will be up to 20 deliveries per day. Initially stone will have to be brought to the site from a quarry until the track to the borrow pit has been completed. Deliveries will access the site from the quarry at Prehen towards Londonderry turn right at the junction onto the B523. Travelling on the B523 away from the City in the direction of Ardmore, and joining the proposed turbine delivery route specified. If stone is sourced from any other quarry a suitable route will be agreed with Roads Service, again joining up with the proposed turbine delivery route and using the site entrance proposed.

In consultation with the Roads Service, haul routes, establishment of a site entrance, requirements for passing bays, appropriate traffic management arrangements, along with a condition survey will be agreed prior to construction to minimise the impact on local roads and traffic and to ensure the safety of other road users.

13. COMMUNICATIONS, ELECTROMAGNETIC INTERFERENCE AND AIR TRAFFIC ASSESSMENT

Consideration was given to potential impacts with electromagnetic transmissions; local TV reception; and air traffic communications.

13.1. ELECTROMAGNETIC TRANSMISSIONS

Microwave and fixed links can be affected by reflection, diffraction, blocking and radio frequency interference caused by wind turbines in their "line of sight". The consultation responses confirmed that no impact is predicted on major transmission systems from the proposed development.

13.2. LOCAL TV RECEPTION

Wind turbines have the potential for causing interference to television reception, primarily where a viewer is in the 'shadow' of and within a few km of the wind farm, with their aerial pointing through the wind farm. Viewers in such locations can have their signal 'scattered' causing loss of picture detail, loss of colour or buzz on sound. Viewers situated to the side may experience periodic reflections from the blades, giving rise to a delayed image or 'ghost' on the picture, which is liable to flicker as the blades rotate.

It is concluded that no widespread interference to domestic TV reception will be experienced in the area of the proposed Curryfree wind farm site. In 2002 NTL was consulted by RES about the potential effect of Curryfree wind farm on the local reception [2]. According to NTL:

"As the site is in between a number of television relays we would not expect large number of viewers looking through the development, therefore large scale problems are not expected. However, some isolated problems near to the site can't be ruled out entirely.

Homes close to the development, where high levels of reflected signals could be received, may experience reception problems irrespective of the direction. Fortunately, there appears to be very few dwellings nearby therefore large scale problems are not expected. However, some isolated problems near to the site can't be ruled out entirely."

RES conclusions are in total agreement with these comments. Wind farm Developments Ltd will undertake post construction remedial action if this is necessary.

13.3. AIR TRAFFIC COMMUNICATIONS

Early consultation with Londonderry City Airport highlighted concerns that the proposed wind farm may cause interference to the airports navigational system. In response to this RES carried out a report 'Assessment of Interference to Airport Communications' report to examine the issue further.

The following issues were considered in detail:

- The existence of 'line of sight' between the airport and the turbines (as this is a key aspect when assessing the potential effect of a wind farm on an airport's navigational aids);

2 NTL, Letter from Spectrum Planning Group, NTL to (RES-Ltd), 17/04/2002

- Application of guidance from the CAA document CAP670 [3], in order to assess whether technical safeguarding of the Airport Radio Sites is guaranteed;
- The potential effects of the wind farm on the Airport Radio Systems;
- Other relevant comments regarding the Airport Operation.

Due to the fact that there is no line of site to the airport from the wind farm and the wind farm is a significant distance away (15km), no interference to Londonderry/ Eglinton airport is predicted.

14. AIR AND CLIMATE IMPACT ASSESSMENT

B9 Energy Services Ltd completed an assessment of the impact of the proposed wind farm on air and climate. The assessment was compiled using published UK data.

The use of wind power for generating electricity produces no direct atmospheric emissions, other than those associated with vehicles used by maintenance engineers and is therefore useful in contributing to a reduction in levels of atmospheric pollutants produced by other forms of electricity production. It is concluded that there will be a beneficial impact arising from the proposed development of regional significance.

15. HEALTH AND SAFETY

B9 Energy Services Ltd and Renewable Energy Systems Ltd completed an assessment of health and safety. Both companies operate health and safety systems, and have an excellent safety record in wind energy development.

The wind farm will be designed, constructed, operated and decommissioned in accordance with the conditions of the Construction (Design and Management) Regulations and the recommendations of the British Wind Energy Association (BWEA) / Health and Safety Executive (HSE) working group on safety. Properly designed, constructed and maintained wind turbines are safe. The very few accidents that have occurred involving injury to humans have been caused by failure to observe manufacturers' and operators' instructions for the operation of the turbines.

It is considered that if the appropriate regulations are adhered to during the design, construction and operation phases of the development, and the best available technology is used in the selection of turbine design; there will be no adverse impact on the safety of operators during construction or maintenance of the wind farm, or to the general public.

16. SOCIO-ECONOMIC AND TOURISM IMPACT ASSESSMENT

An assessment of the impact of the proposed wind farm on socio-economic and tourism issues was compiled using published data provided by NITB, local councils, the NI Statistics and Research Agency and the Planning Service. The Curryfree wind farm is unlikely to effect recreational or local activity in the study area. It is also considered that there will be no adverse impact on tourism within the study area arising from the proposed development.

3 "Air Traffic Services Safety Requirement", Part B 'Generic Requirements and Guidance', Section 9 'Wind Farms', CAA CAP670, September 1999.

The construction of this wind farm will have a small positive impact on the local economy of this area. Once the site is fully operational, the socio-economic impact of the wind farm will be minimal, as there will be no increase in the population levels in the development area, as only one to two wind farm engineers will be required to operate and maintain the site.

The most beneficial impact of this development will be the reduction in the emissions of carbon dioxide, and other greenhouse gases, which are produced during the combustion of fossil fuels in alternative generation processes and which contribute to global warming.

17. POSSIBLE LOSS OF AMENITY DURING CONSTRUCTION

It is considered that if the appropriate regulations are adhered to during the construction phase of the development that loss of amenity will be minimal.

18. MITIGATION MEASURES

The Environmental Assessment Regulations require the categorisation of effects in terms of their significance. Once identification has taken place, those effects considered by the process to be significantly adverse are subject to "*mitigation measures*" designed to "*prevent, reduce or where possible off-set any significant adverse effects*".

Each topic assessment has made recommendations affecting the design of the project. These have been incorporated into the design of the project as discussed in the relevant sections. The mitigation measures discussed in this section relate only to those aspects judged as resulting in "*significant adverse effects*".

19. CONCLUSION

The promotion of renewable sources of energy and in particular wind energy is afforded a prominent position in energy and environmental policy at the European, UK and Northern Ireland. There is demonstrable need for the project on the basis of providing small but significant contributions to meeting the regional renewable energy targets and the regional carbon dioxide emission reduction targets.

Wind energy projects have specific locational requirements and must be sited where the wind resource is found. The Curryfree wind farm has been located following a clear and rational assessment process. The project has been designed to optimise wind energy capture within the planning constraints identified in this environmental assessment process.

The landscape and visual amenity assessment concluded that the proposed wind farm avoids any significant effects on *landscape character*. In addition, it concluded that cumulative effects with either existing operational wind farms or known proposed wind farms currently in the planning process are insignificant.

As a result of the visual appraisal, a total of 13 viewpoints were assessed. It was concluded that there would be visual impacts of high (or high/moderate) significance in three viewpoints, moderate (or moderate/minor) significance in seven viewpoints and minor (or minor/negligible) significance in three viewpoints. Those viewpoints from where the impacts are assessed as significant are limited to the local area around the site and these impacts are not assessed as being of a long-term nature (beyond the life of the project).

Potential significant impacts relating to ornithology are capable of full mitigation.

Positive impacts are predicted to arise in relation to the contribution to reductions in atmospheric emissions and to the local economy through construction and operation activities.