



Millennium Wind Farm Extension

Environmental Statement Volume 4 Non Technical Summary



Introduction

The Environmental Statement (ES) supports an application by Millennium Wind Energy Ltd to The Highland Council for consent under the Town and Country Planning (Scotland) Act 1997 for the construction of a four turbine extension to the Millennium Wind Farm on elevated land to the west of Fort Augustus and north of Loch Garry in the Highlands of Scotland. The National Grid Reference for the centre of the site is 226400 807200.

West Coast Energy Limited is a company specialising in renewable energy development, which is based in Edinburgh and North Wales. The Company has successfully managed both on-shore and off-shore wind farm projects and are acting as agents and project managers for the proposed development. West Coast Energy has been responsible for the planning and design of the Millennium Wind Farm Extension and for the preparation of the ES.

The scope of the ES has been based on previous correspondence with the Scottish Executive, and the Highland Council and other statutory and non-statutory agencies, and provides environmental information in the process of the determination of the wind farm proposals.

The ES has been prepared in four volumes as follows: -

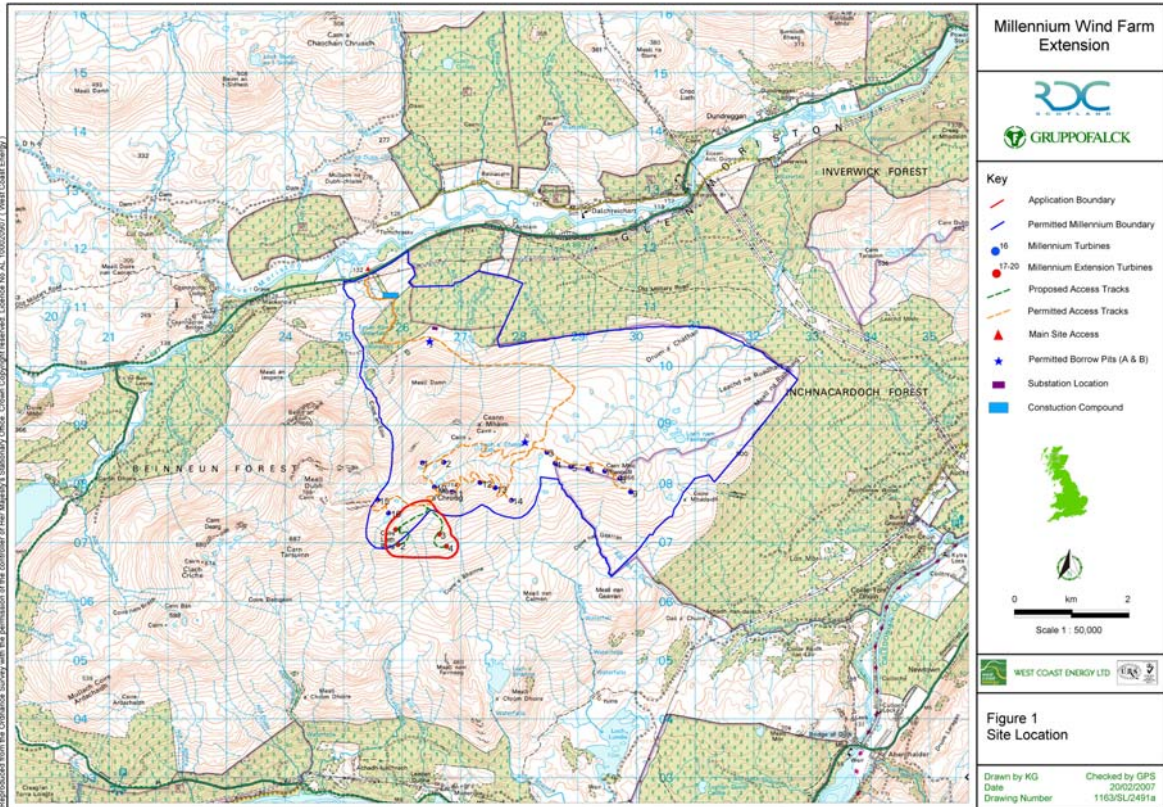
- Volume 1 contains the text of the environmental impact assessment and relevant appendices;
- Volume 2 contains the appendices to the reports in Volume 1
- Volume 3 contains the maps, figures and drawings that support the assessment presented in Volume 1;

- Volume 4 is a Non-Technical Summary of the submitted environmental information contained in Volume 1, Volume 2 and Volume 3.

Copies of the Non-Technical Summary are available free of charge from the Highland Council or West Coast Energy Ltd. subject to availability.

Copies of the ES can be purchased at cost from West Coast Energy Limited for £120.00. or in CD format for £30.00. The Non-Technical Summary is available free of charge, separately on request. Contact: Simon Green, West Coast Energy Ltd, The Long Barn, Waen Farm, Nercwys Road, Mold Flintshire CH7 4EW. Tel: 01352 757604, E-mail 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 will have 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 large volumes of carbon dioxide gas resulting from, amongst other things, the burning of fossil fuels (coal, oil, gas) to generate electricity. There is therefore a need to obtain clean, diverse and sustainable supplies of energy from renewable sources such as the wind, water and from the sun.

Renewable energy has a key role to play in the Governments wider Climate Change Programme. Such energy sources generally produce low or negligible levels of pollutants (i.e. greenhouse gases) and by displacing conventional sources of energy they can help the UK to meet its climate change targets.

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 In Scotland – 18% target and beyond

In Scotland, the Scottish Executive has committed to providing 18% of Scotland's electricity demand from 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. This clearly indicates Scotland's commitment to renewable forms of electricity generation and further emphasises the need to accelerate the installation rate of renewable energy facilities in order to meet these targets and aspiration.

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



Millennium Wind Farm Extension

The proposed wind farm extension is located approximately 8km to the west of Fort Augustus on the southern flanks of a small range of hills separating Glen Garry and Glenmoriston and immediately adjacent to the 16 consented turbines which comprise Millennium Wind Farm. The original application for the Millennium Wind Farm included 21 turbines and associated access tracks. Changes to the design during the planning process reduced the layout to 20 turbines. When the application was considered at the planning committee in April 2005, four further turbines were dropped due to perceived sensitivities of views from Fort Augustus and Dalchreichart. This application has essentially considered a relocation of these four turbines with no visibility from those locations considered to be sensitive receptors.

Access to the site is taken from the forestry track leading from the A887, which is the access to the consented wind farm. Views from the site overlook the lower valley landforms of Glen Garry to the south and the Great Glen to the east as well as general views to surrounding upland and mountain areas. The application site which covers an area of approximately 90 hectares is located within the boundaries of The Highland Council Region. The application area is entirely within the boundary of the Aberchalder Estate with access achieved through the Achlain Estate. The application area is subject to rough grazing for deer, cattle and sheep. The Achlain Estate manage the hunting rights over both estate lands.

The following criteria were assessed in relation to the site:- The wind resource, the connection to the local electricity distribution system, National and local planning policy, nature

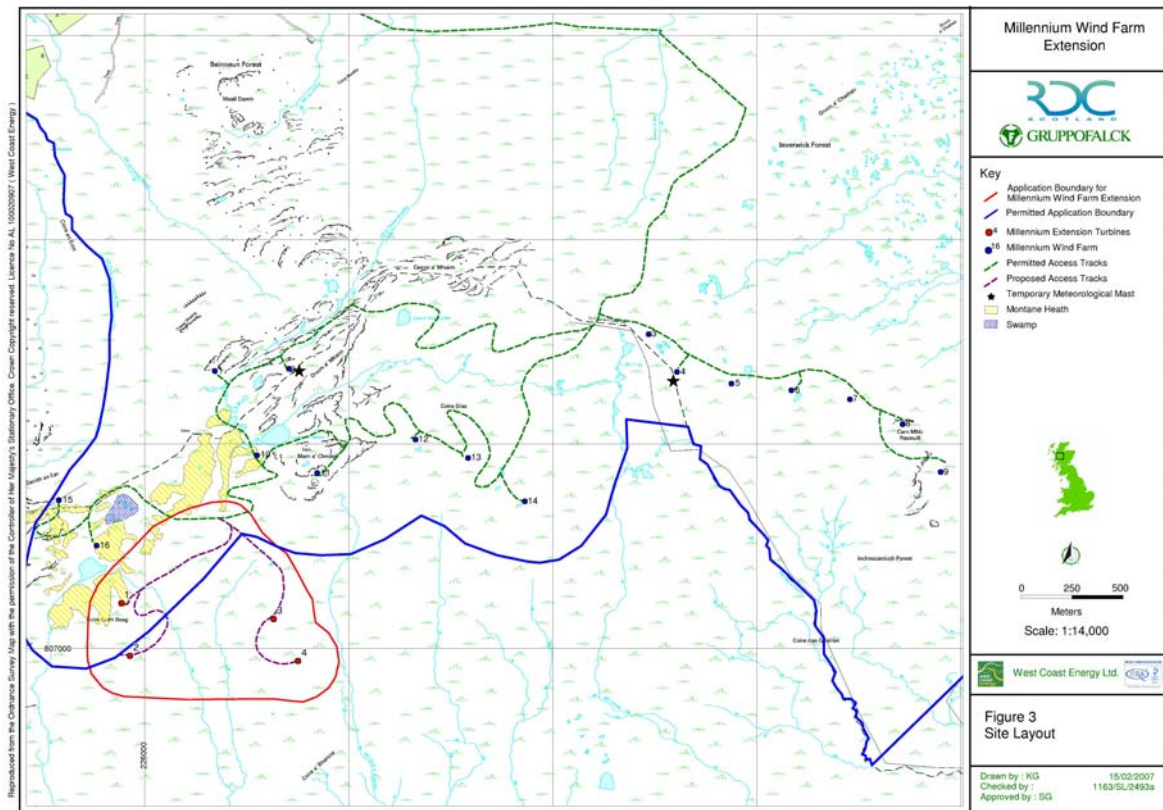
conservation and landscape designations, proximity of dwellings, existing transmission and microwave signals which cross the site, highway access, archaeological features, hydrological and hydrogeological issues, landowner participation and safety considerations.

The design evolution of the Millennium Wind Farm Extension site has been influenced by a number of environmental factors. Although it is acknowledged that, in practice, every wind energy project has some impact on the locality, it was considered that the Millennium Wind Farm Extension turbines offered the following environmental and economic characteristics in its favour:

The site is not subject to any national designations for landscape or ecological reasons although there are a number of cited archaeological features contained within the site. On site wind resource analysis has confirmed the suitability of the site for a commercial wind farm.

A 132kV grid network and sub station exists in close proximity of the site. Detailed environmental assessment studies have not identified any overriding constraints which cannot be dealt with by appropriate mitigation.

Significant efforts have been made to ensure that the project design reflects the findings and recommendations of the extensive consultations and assessments. In addition, due consideration has been given to National and Local Planning policies, and the need to mitigate against any significant environmental effects.



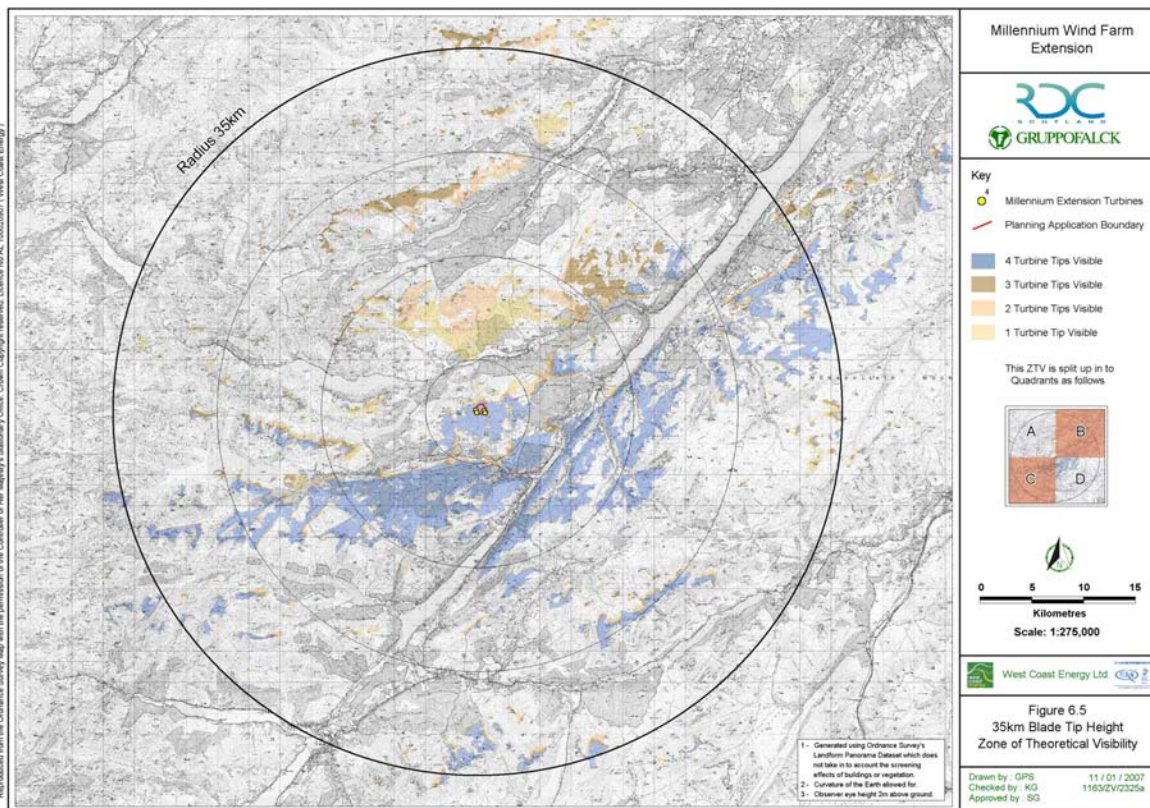
Project Description

The extension to the permitted Millennium Wind Farm will comprise 4 wind turbines of modern design, each having a three bladed rotor of 90 metres (297 feet) in diameter supported on a tapered cylindrical tower to give a height of 70 metres (230 feet) to the rotor hub and maximum 115 metres (377 feet) to the blade tip. Each wind turbine has a maximum power output of approximately 2.5MW.

The topographical, technical, planning and environmental considerations of the application site 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 and to avoid sensitive areas of ecological and hydrological sensitivity.

Each turbine will be linked by an access track, which will be approximately 2.4 km long and 5 metres wide. The turbines will be connected by underground cables, which will take power from each turbine which will then be transmitted to the wind farm control building where it would then be distributed to the Scottish and Southern 132kV electricity distribution system.

It is estimated that the total permanent land take associated with the turbines, site tracks and hardstandings will be approximately 1.5ha, which is less than 2% of the 90ha application area.



Wind Farm Construction, Operation and Benefits

The wind farm will take approximately 4 months to construct. Access to the site will be via the existing access on the A887. A temporary construction compound will be located within the site area. Approximately 2.4km of new on site track will be required to give access to all the turbine locations utilising a cut road design due to the minimal depth of peat over the extension area.

Over the construction period, it is estimated that there will be three types of traffic accessing the site: - exceptional loads, conventional HGVs and vans and cars used by construction staff. It is anticipated that the turbine components will be delivered to the port at Kyle of Lochalsh and then transferred east along the A87 and A887 to the site access. This route is judged to be of a suitable standard to accommodate the exceptional loads. There would be around 28 exceptional loads coming into the site to deliver the tower

sections, blades, components of the turbines and mobile cranes. With the exception of the cranes, all the long vehicles delivering the large loads would reduce in length for their return journey and this would therefore reduce their impact. Apart from the possible delivery of the concrete for the foundations, all traffic will be spread over the four month construction period with approximately 6 HGV movements a day. There will be a maximum of 40 people working at the site, and these vehicles will approach the site from all directions. It is not anticipated that they will create any noticeable impact during the construction period.

The total cost of the extension to the wind farm will be about £8 million and this would require significant investment in and around the Region. It is estimated that the total local direct investment over the 4 month period is likely to be in the order of £1million together with indirect expenditure in local shops, service stations, etc. In addition, it is likely that a significant proportion of the 40 personnel directly

employed at the site would be employed from the local area.

After completion of the wind farm, the operation and maintenance works will provide employment for technicians and utilise local services, where appropriate. Wind energy developments secure a stable income for the landowners during the life of the wind turbines, which in this instance is anticipated to be 25 years. Furthermore, normal grazing and hunting practices are likely to be unaffected by the presence of wind turbines.

Once built, the 4 turbines would supply the average annual domestic needs of around 6,250 homes based on the 10MW project capacity. Furthermore, it is estimated that the Millennium Wind Farm Extension would displace up to 155,946 tonnes of carbon dioxide, 1813 tonnes of sulphur dioxide and 544 tonnes of nitrogen oxide during each year of its operational life compared with conventional fossil-fuelled power stations. Over a twenty five year period, the carbon dioxide emission savings alone could amount to almost 3.9 million tonnes. The Millennium Wind Farm Extension will therefore make an important contribution to the UK's Climate Change Programme and to the Governments targets to achieve 10% of electricity provided by renewable energy sources by the end of 2010 and 20% by 2020. In Scotland the target has been further increased to 18% by 2010 and a goal set to reach 40% by 2020.

Landscape and Visual Effects

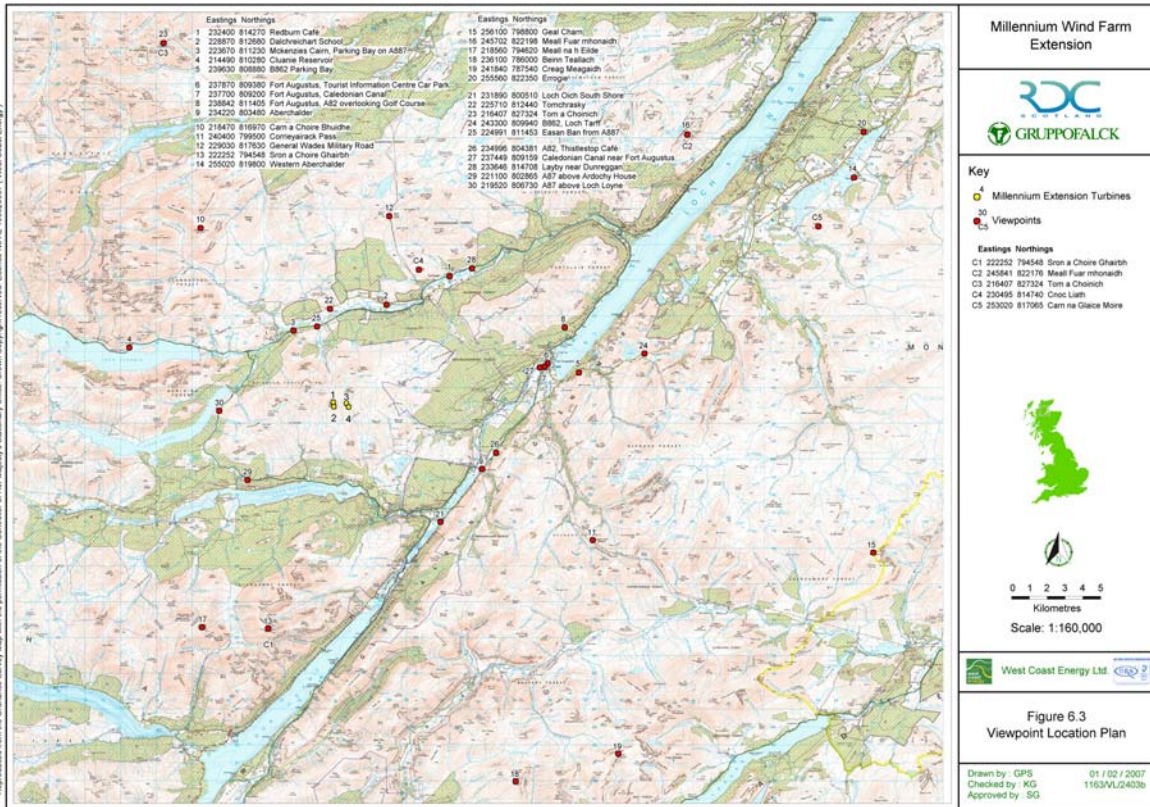
The landscape and visual assessment has established that the proposed extension to the consented Millennium Wind Farm will cause no significant change to the landscape and visual baseline conditions during construction and operation phases of the wind farm save for extremely localised effects upon landscape character in the

immediate vicinity of the proposed turbines. The direct effects on landscape fabric are not considered to be significant.

The proposed wind farm extension has been designed to incorporate standard mitigation measures in relation to the design of the turbines and site-specific mitigation measures and has been designed to complement and merge with, so as to be seen as part of the same development as, the adjacent consented Millennium turbines. The layout has been optimised in respect of technical, economic and environmental constraints including landscape and visual amenity considerations.

The proposed wind farm extension is considered to be well sited with due consideration to landscape and visual effects in relation to the other environmental constraints.

Having carefully examined the potential effects on landscape and visual amenity associated with the proposed Millennium Wind Farm Extension, it is considered that the proposals are acceptable in this location in landscape and visual terms



Nature Conservation

The wind farm site has a ground cover primarily of wet and dry heath with minor areas of bog. The main land uses are deer management for stalking and sheep grazing.

There are no nature conservation designations within the wind farm application boundary or immediate environs.

The most valuable habitat type is montane heath. This habitat type is sensitive to any development activities. Our ecological studies have confirmed that any significant areas of montane heath will be avoided by careful design of the access routes and turbine locations. No notable floral species were found on site.

The main sources of effect during the construction and operational phases of the development are the construction of 2.4 km of new access roads and the erection the four turbines. In the final wind farm layout (Figure 3) the turbines and access routes have been located to avoid the more pristine

habitats of active blanket bog and heath.

The most notable mammals on the site are otter and brown hare.

The most notable amphibians on site are the common frog.

The site also drains to several important salmon rivers.

Ornithology

Independent consultants have undertaken an assessment of the ornithological interests of the extension site and the immediate environs. The studies completed for the proposed extension, between September 2005 and August 2006, overlaps with some of the previous study areas but includes a full twelve months of observations. These later studies have included upland breeding bird surveys, passerine studies, raptor surveys, breeding waterfowl studies, diver flight assessments, walkover surveys and extensive vantage point monitoring.

Ten species were recorded during baseline surveys in 2005 / 6. Effects were considered for six of these species that were identified as sensitive receptors. Three of these species, Golden Plover, Dunlin, Skylark, were recorded breeding within 500m of the Millennium Extension development. An additional three species, Hen Harrier, Golden Eagle and Peregrine Falcon, were recorded during vantage point surveys.

It was judged that the individual and cumulative effects of the wind farm operation would have negligible adverse impacts on the regional breeding population of all six species. Collision risk analysis was carried out for Golden Eagle and Peregrine Falcon. The results indicated that there would be no collisions from the Millennium Extension development, there being no flights recorded within the risk window. Cumulative effects of the Millennium Extension and Millennium development indicated that there would be negligible adverse impacts on both these species (Golden Eagle 1 fatality every 390 years / Peregrine 1 fatality every 3069 years).

Therefore it is judged that the effects of the Millennium Extension development, taken individually and cumulatively with the Millennium development would have negligible adverse effects on the regional conservation status of Golden Plover, Dunlin, Skylark, Hen Harrier, Golden Eagle and Peregrine Falcon.

Cultural Heritage

This chapter provides a survey of sites of cultural heritage significance for the proposed extension to the Millennium Wind Farm, together with an assessment of the potential impacts of the development on these sites.

The ZVI indicates that 4 turbines will be visible from 10 cultural heritage sites of national importance. None are

considered to have a wider landscape setting and all cases impacts were adjudged to be of negligible significance.

All impacts have been assessed as being of negligible significance as none of the sites is deemed to have a wider landscape setting. In the absence of effects resulting from the proposed wind farm extension it therefore follows that there can be no potential cumulative impact with other wind farms.

All operational impacts have been assessed as being of negligible significance and no mitigation is proposed.

The operational impacts are all assessed as being of negligible significance, will persist throughout the lifespan of the wind farm and cease upon its decommissioning.

Residential and Recreational Amenity

With respect to noise the site is remote from residential properties, all in excess of 4km from the closest extension turbines. Noise would not normally be considered a problem at this separation especially since none of the closest properties are downwind of the development. The previous background noise monitoring at Achlain and Dalchreichart was considered appropriate for the analysis of the extension turbines although calculations have assumed that all twenty turbines are operational.

Independent consultants have carried out an assessment of the likely noise impact of the wind farm and the assessment shows that the predicted noise levels at surrounding noise sensitive properties will be within the recommended limits of acceptability under all operating conditions. The control of noise from the development can be secured by condition providing for a noise management and monitoring scheme to be in place prior to the commencement of the development.

There are no recreational rights of way within or in close proximity to the site although the whole of the land holding

is considered 'open access' under the definition in Part 1 of the Land Reform Act, Scotland, 2001.

Given the distance between the nearest residential properties and the proposed turbines and the difference in elevation of the turbines, it is not anticipated that shadow flicker will occur in a way which will cause nuisance or annoyance to residents surrounding the site.

Public access and safety is not considered to be a problem at the Millennium Wind Farm Extension.



Geology, Hydrology, Hydrogeology and Peat Stability Assessment

Following the site walkover, it was concluded that the application area is predominately covered by thin peat deposits generally less than 0.3m in depth with rock outcrops common. Groundwater will be present in the peat and limited in the bedrock to fractures and fissures. The surface water streams and drains are generally 1m to 2m wide and tend to be 'flashy'. Following the assessment of the potential impacts on the hydrology it is concluded that these are negligible. On the information available, through the mitigation measures proposed, the residual impacts of the development on geology, soils hydrology and hydrogeology are considered to be minor (adverse). The assessment of

the potential for a peat slide has concluded that although the risk is considered to be extremely low, mitigation measures will be implemented to all construction operations. A construction method statement would be submitted including a rapid reaction strategy for dealing with the consequences of a slide event. Limited site investigations will be carried out to determine the ground conditions at all four turbines

Highways and Transportation

The initial highways and transport study has concluded that the transport of turbine components is feasible along the proposed route from the Kyle of Lochalsh. A Police escort will be necessary. Approximately 2.4km of new internal access roads will be required which have a gradient that are no greater than 1:10



Development Plan

The Development Plan consists of the Highland Structure Plan and the Lochaber Local Plan There is also Supplementary Planning Policy, the Highland Renewable Energy Strategy and Planning Guidelines.

Both the Structure Plan and the Local Plan support the generation of electricity from renewable sources and seek to provide for wind farm development within areas which are least constrained in planning terms. The Environmental Impact Assessments reported on in this Environmental Statement have provided detailed information to conclude that there are no significant conflicts between the development and the relevant policies of the Structure and Local Plan. Taking into account the National and Local policy context which seeks to promote renewable energy, the extension to the Millennium Wind Farm proposal will make a notable contribution to Scottish Executive and UK Government renewable energy targets, as well as being of potential socio - economic benefit to the Highlands.

Public Safety

There is no recorded incident of a member of the public being injured by a turbine. The Government has deemed wind energy as 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. The wind turbines are designed and manufactured to withstand weather conditions at least as extreme as those which arise 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 on the occurrence

of such events as loss of electrical connection or excessive blade speed.

Interference with Radar, Flight Safety, Television, Radio and Microwave Paths

Our researches have revealed no conflict with military or civilian radars. The site is not close to any commercial flight paths and interference with navigational equipment is not anticipated.

A report was commissioned by JWD Ltd to assess the effects of the permitted Millennium scheme on national UHF domestic television reception. This report concluded that there was likely to be no effect. That position is unlikely to change if the four extension turbines are permitted. Millennium Wind Energy Limited will, however, bear the cost of further investigations, if necessary, to establish the extent, of any interference and to expedite appropriate remedial action. These matters can be controlled by appropriate conditions or by legal agreement.

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

Community Benefits

Economic benefit will be provided to the local area during the construction and operation of the wind farm, but in addition, in order to provide additional community benefit, Millennium Wind Energy Limited proposes to work with the local community to expand the existing Community Wind Farm Trust. This will enable support to be given to local social, educational and environmental initiatives.

Overall Conclusions

UK Government and Scottish energy policy provides for a presumption in favour of renewable energy projects unless a particular proposal would cause demonstrable harm to interest of acknowledged importance.

In the case of the Millennium Wind Farm Extension it is submitted that the main issue to be considered is the desirability and benefits to be gained from exploiting a clean sustainable energy resource, weighed against any perceived material impact on landscape character, visual amenity and nature conservation and ornithological interests.

The Development Plan in this case consists of the Highland Structure Plan and the Lochaber Local Plan.

Consideration of current planning policy indicates:

- No conflicts between the Development Plan Policies, issued by The Highland Council, and the proposed development are anticipated;
- No national or local statutory designations are directly affected by the proposed development ;
- There is minimal additional visual and landscape impact to the permitted Millennium Wind Farm, with the additional benefit of minimal cumulative effect compared with other schemes.
- The existing on-site compound, sub - station and access tracks at the permitted scheme will be utilised thereby minimising disturbance to the extension site.
- The extension allows for the maximum generation capacity from the site to be transmitted from the site via the 132kV grid connection
- There is minimal additional impact on the ecology, ornithology,

archaeology, noise and hydrology at the site.

- There are no additional impacts on electromagnetic interference at the site from the permitted Millennium Wind Farm.
- The proposal complies with relevant planning guidance and policy

Taking into account the National and Local policy context which seeks to promote renewable energy, the extension to the Millennium Wind Farm proposal will make a notable contribution to Scottish Executive and UK Government renewable energy targets, as well as being of potential socio - economic benefit to the Highlands.

The proposed Wind Farm development lies outwith any landscape character designations. The Wind Farm development will not affect archaeological sites or any other Listed Buildings or Conservation Areas or Historic Gardens and Designed Landscapes. Impact on Nature Conservation Resources will be minimal and enhanced where possible.

Independent consultants have carried out a detailed comprehensive assessment of the environmental effects of the development. The assessment as reported in this E.S. has concluded that there will be no significant effect in relation to noise, cultural heritage, safety and physical (including access) effects of construction. There will be some effects on the local landscape character, on visual impact and in terms of local recreational amenity. In addition there will be some minor impacts on nature conservation and ornithological interests but it is submitted that these impacts can be mitigated by good construction management procedures secured by legal agreement and suitable conditions.

It is accepted that there will be some minor localised effects relating principally to visual impact and effect on landscape character. However the E.S. demonstrated that these effects are not unacceptably adverse, and as such the development is in accord with the Development Plan. If the alternative view is taken then significant material weight must be attached to UK Government and Scottish energy policy and the desirability and benefits to be gained from the generation of clean green energy from the Millennium Wind Farm.

Valency is a way of describing whether people are in favour of wind energy development (positive valency) or are opposed to wind energy developments (negative valency). Valency can be influenced by aesthetic, perceptual and financial considerations, and also

the understanding of the performance of a wind turbine.

Time is an important factor as public perception, or valency, can vary over time, particularly as the result of changes to people's understanding of a subject or their increasing familiarity with a particular scenario.

It is considered that the proposal can provide significant environmental and economic benefits to the local area and is in accord with the principles of sustainability. The E.S. has demonstrated that the proposal will not cause demonstrable harm to interests of acknowledged importance and therefore when all material planning factors are taken into account it is hoped that planning permission will be granted for the development.



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Further Information

If you would like to find out more about the Millennium Wind Farm Extension proposal and its effects, you can read the full Environmental Statement during normal opening hours at:

The Highland Council
Glenurquhart Road
Inverness
IV3 5NX,

Also at The Highland Council, Church Street, Inverness, The Service Point at Fort Augustus, Invergarry Post Office and Invermoriston Post Office.

For further details about this project, please contact:

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Nercwys Road, Mold, Flintshire, CH7 4EW Tel 01352 757604
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