Non Technical Summary

January 2008

Nigg

Wind Farm

FALCK RENEWABLES

GRUPPOFALCK

Introduction

Falck Renewables proposes to develop a wind farm at the Hill of Nigg which is approximately 4km south west of Balintore in Easter Ross. A planning application for the proposed 'Nigg Wind Farm' has been submitted to The Highland Council for consent under the Town and Country Planning Act (Scotland) 1997. As required by the Environmental Impact Assessment (Scotland) Regulations 1999, the planning application is accompanied by an Environmental Statement (ES).

The Nigg Wind Farm application seeks consent for the installation of five wind turbine generators and associated ancillary development, with a total generating capacity of 10 Mega Watts (MW). Each wind turbine will be rated from 2 to 2.5 MW.

The scope of the ES was agreed with The Highland Council and other statutory and non-statutory agencies. It contains the environmental information required for the determination of the Nigg Wind Farm application and is structured as follows:

- Volume 1 Planning Application
- Volume 2 Environmental Statement, written text
- Volume 3 Maps and Figures
- Volume 4 Technical Appendices
- Non-Technical Summary (NTS)

Wind – Clean Energy for a Sustainable Future

It is now widely accepted that global climate change is a reality and has the potential for major adverse effects: making species extinct, affecting human lives, agriculture and water supply. The UN's International Panel on Climate Change reported in November 2007 that climate change is "unequivocal" and may bring "abrupt and irreversible impacts".

Within the UK, climate change may have the following impacts:

- Extremes in weather, with wet areas becoming wetter;
- Increased frequency of flooding for communities;
- Significant alteration of the species composition of about half of the protected areas in the UK within 50 years (including the Cromarty Firth) due to habitat change;

The major cause of global warming is the burning of fossil fuel, including the coal, gas and oil used in power stations to generate electricity. In order to combat the threat of global warming and also to ensure security of supply there is a need to move to clean, diverse and sustainable supplies of energy from renewable sources such as wind.

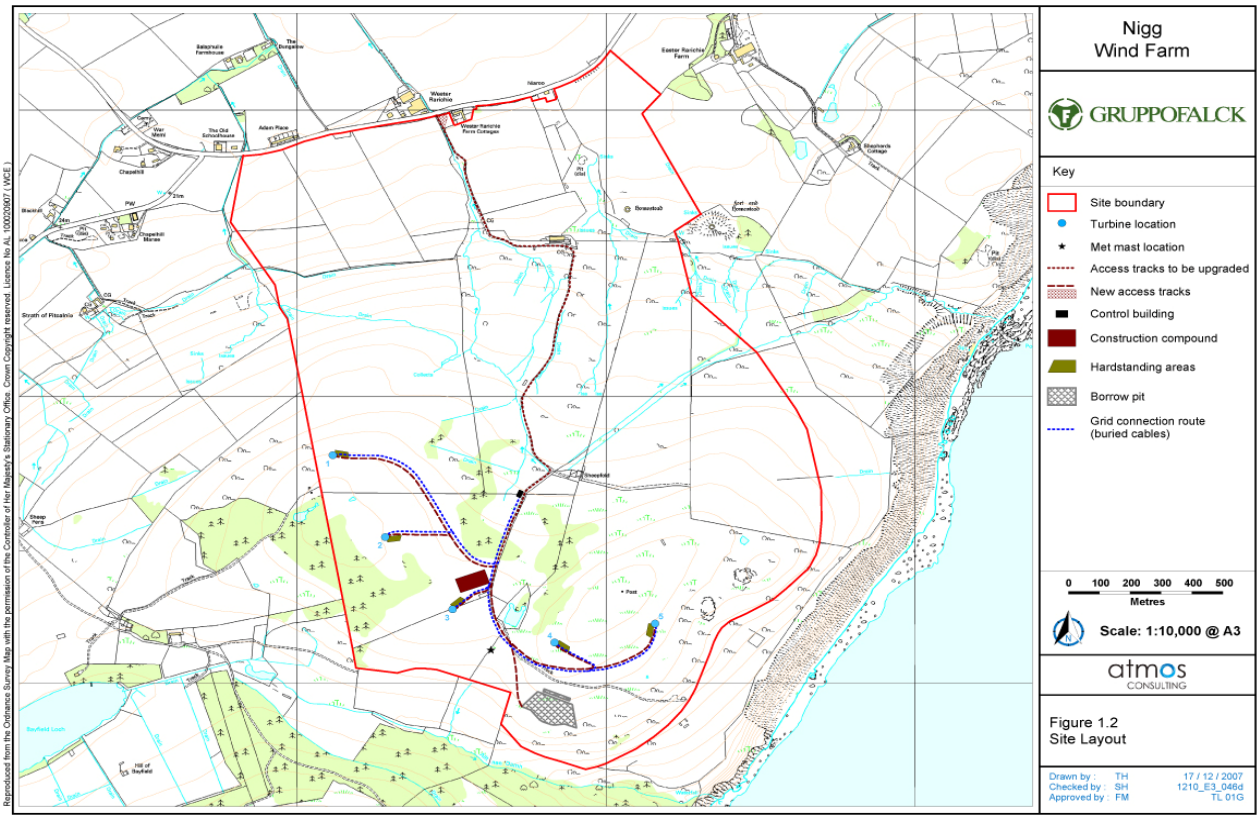
Wind Energy in Europe

Within Europe, virtually all countries are seeking to generate more electricity from the wind. Germany, Spain and Denmark lead the way with installed capacities of around 21 Giga Watts (GW), 12 GW and 3 GW respectively (2006). The UK, and Scotland in particular, has the greatest wind resource in Europe, but lags behind in installing renewable capacity with 2299 Mega Watts currently installed (Dec. 2007). At present 16% of Scotland's electricity generation comes from renewable energy. The Scottish Government has recently announced a target of generating 31% of electricity from renewable sources by 2011 and a longer term target of 50% by 2020 (Nov 2007).

Why Site a Wind farm at Nigg?

The selection of an appropriate site with the potential to support a wind farm development is a complex and lengthy process. It involves examining and balancing a number of technical, economic, environmental and planning issues. The site at Nigg was selected from a list of potential sites because of the following attributes:

- A high annual mean wind speed across the site;
- The site itself does not support any national ecological or landscape designations;
- There are no military aviation constraints, a significant issue for wind farms;
- The site is sufficiently distant from the nearest properties;
- An existing grid line with spare capacity runs close to the site making a connection economically viable;
- Road access to, and construction on, the site will be straightforward; and
- The landowners have agreed to the proposal.



Design Iteration

The proposals at Nigg have followed an iterative design process whereby the results of the Environmental Impact Assessment process gradually feed back into the gradually evolving layout of the turbines and ancillary developments.

Phase 1: First Design Iteration (15 turbines)
Initial concept layout considering:

- Wind resource;
- No other constraints.

Phase 2: Second Design Iteration (5 turbines)
From desk study, site visits and discussions with landowner, the design evolved with the primary constraints being:

- Avoidance of the area of goose activity around Castlecraig;
- National Grid capacity; and
- Optimising the wind resource.

This layout was publicly issued in the scoping report to The Highland Council in May 2007.

Phase 3: Third Design Iteration (5 turbines)

From consultants' baseline reports, liaison with consultees and comparative visual assessment, a curved five turbine layout representing the optimum appearance for the majority of viewpoints was developed. This was presented at the three public exhibitions and posted online.

Phase 4: Fourth Design Iteration (5 turbines)

Very minor adjustments were made to the location of two turbines to ensure no impacts on woodland of semi-ancient origin.

Benefits

From the data gathered to date it is estimated that up to 35,000,000 Mega Watt Hours of electricity will be produced annually by the project. Utilising the average UK household electricity consumption of 4,700kWh per annum, it is calculated that the Nigg Wind Farm will be sufficient to supply the average domestic needs of between up to 7,500 homes.

Every unit of electricity produced by wind energy displaces a unit of electricity which would otherwise have been produced by a power station burning fossil fuel. Using the British Wind Energy Association emission figures for coal-fired plant, it is estimated that the Nigg Wind Farm could displace the following gaseous emissions which would otherwise have been produced by a power station burning fossil fuel:

- 14,000 to 30,000 tonnes of carbon dioxide (CO_2) per annum;
- 350 tonnes of sulphur dioxide (SO_2) per annum; and
- 105 tonnes of nitrogen oxides (NO_x) per annum.

The Nigg Wind Farm will therefore make a notable contribution to the Scottish Climate Change programme.

The total cost of construction of the wind farm is expected to be around £10 million and, as such, would require significant investment within the Highland economy. It is estimated that local companies will be able to bid for between £3 and £4 million worth of construction contracts. Additional indirect expenditure in local shops, service stations, catering and accommodation will also occur. The Nigg Wind Farm will endeavour, when practical, to employ local contractors for construction, operation and maintenance work.

An average of 20 personnel will be directly employed during the construction period. Once operational, an engineer will be required to undertake site supervision and maintenance, together with a site caretaker. Through its 25 year lifespan, the operation of the Nigg Wind Farm would result in the contribution of up to £3 million into various forms of social funding (community contributions plus rates) over the lifetime of the project.

Planning Policy Context

The proposed Nigg Wind Farm is situated in the Highland Council area. The documents that comprise the development plan for this area are:

- The Highland Council Structure Plan 2001
- The Highland Council Ross and Cromarty East Local Plan March 2007
- The Highland Council Renewable Energy Strategy 2006

Scottish Planning Policy, National Planning Policy Guidance and Planning Advice Notes are also material to the planning decision.

Wind Farm Construction and Operation

The construction period for the proposal is estimated to last approximately 6-9 months, commencing (depending on planning permission and turbine availability), in 2009 or 2010. The development consists of the following operations:

- Siting of temporary site office and storage area (compound) for wind farm components and temporary site facilities etc;
- Opening of a borrow pit to produce material for access track construction;
- Construction of site access tracks to wind turbine positions for use by civil engineering plant and construction equipment;
- Construction of wind turbine foundations and adjacent hardstanding areas;
- Excavation of cable trench and cable laying;
- Construction of control building;
- Erection of wind turbines;
- Connection of on site electrical power and signal cables (the connection to the grid will be underground)
- Commissioning of the site equipment; and
- Site reinstatement and restoration.

Approximately 2.3 kilometres of new, and 2 kilometres of upgraded, on-site access track will be required to provide full transport access to the five turbine locations. The layout of on-site access tracks has been designed to minimise landscape and ecological impacts.

Stone aggregate material for track construction, crane hard-standings, control building hardstanding and the temporary compound/office hardstandings will be sourced from the on-site borrow pit. Material for the actual turbine foundations will be sourced from a local quarry.

Access to the site for the turbines will be from the port at Invergordon, following the A9 to the B9175 then on to the site from the unclassified Ankerville Corner to Balintore road.

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.

The total number of HGV vehicle loads associated with the construction of the wind farm is estimated at up to:

- 443 normal HGV loads; and
- 47 abnormal loads associated with the movement of turbine towers and blades.

Environmental Impacts

Early consultations with The Highland Council, Historic Scotland, SEPA and Scottish Natural Heritage identified the key environmental and amenity issues to be considered. These are fully addressed in the ES which includes reports on landscape and visual amenity, cultural heritage, ecology, hydrology, noise, access and safety, and the effects of the proposal on television and other communication systems. These reports have been commissioned from independent expert consultants, the main conclusions of which are summarised below.

Cultural Heritage

CFA Archaeology was engaged to undertake a cultural heritage assessment using a range of desk-based sources, consultations and field investigation.

The cultural heritage assessment identified twelve sites of cultural heritage significance within or directly adjacent to the study area. The Fort and Fort and Dun near Easter Rarichie are Scheduled Ancient Monuments and considered to be of National significance while the remains of a settlement and mill lade which also lie within the application area are considered to be of regional significance. The wind farm and ancillary developments has been laid out to ensure that construction will not directly affect these cultural heritage features.

The impacts of the proposed wind farm on the setting of a further 258 cultural heritage sites such as Listed Buildings, Scheduled Ancient Monuments and Historic Gardens and Designed Landscapes around the site were also assessed. None of the predicted indirect, visual effects is considered to be significantly adverse. The settings of the Shandwick Stone and Hilton of Cadboll Chapel have already been compromised by modern intervention and features, therefore the effect of the wind farm on the setting of these two features is not considered to be significant.

Overall the impact of the proposed Nigg Wind Farm on cultural heritage was assessed to be not significant.

Viewpoint 6 Balintore

Viewpoint 12 A832 Nr Davidston

Viewpoint 17 Chapelhill

Viewpoint 20 Shandwick Stone

Nature Conservation and Hydrogeology

Specialist consultants from Atmos Consulting have undertaken a review of the ecology, ornithology and hydrogeology of the proposed site and its surroundings.

Bird surveys completed between October 2006 and October 2007 indicate the presence of some important bird species. Whooper swans and greylag geese are qualifying features of the nearby Cromarty Firth and Loch Eye Special Protection Areas (SPAs) and were recorded flying over and in the vicinity of the site. These species were not recorded feeding on the site but to the north in the lowland farmland and south of the site near Hill of Nigg.

Six raptor species were recorded on the site: goshawk, hen harrier and white-tailed eagle were infrequently recorded and not breeding in the development area or its vicinity. Peregrine, merlin and osprey were recorded more frequently and nest locations for osprey and peregrine were located in the vicinity of the wind farm but with a minimum distance of 2 to 5 km.

Large numbers of pink-footed geese were recorded and regular flight patterns and preferred foraging habitats were identified between the Cromarty Firth and Loch Eye SPAs. Preferred feeding areas were located to the south of the site near Hill of Nigg and also on the lowland farmland north of the site. The importance of the site for migrating and wintering geese was considered to be low despite its proximity to important wintering and feeding areas. No breeding waders were identified within the development area. Four passerine species of lower conservation value are considered to be breeding abundantly within the development boundaries (skylark, song thrush, yellowhammer and twite).

No significant impacts on waterfowl or raptors are predicted to occur within the development area. The collision risk assessment showed that there would be no significant collision risk to any of the goose, swan or raptor species. No significant impacts on any other bird species are predicted during construction, operation or decommissioning of the wind development.

Overall, there will be no significant impacts on populations of important or sensitive bird species. No impact on the SPA qualifying populations of whooper swans and greylag geese are expected.

A hydrogeology survey of the site area identified sensitive receptors including one private water supply, fisheries, and downstream, the Cromarty Firth SSSI, Special Protection Area and Ramsar site and the Moray Firth Special Area for Conservation. Mitigation measures have been proposed which will reduce the likelihood and magnitude of potential effects on all of the sensitive receptors, such that any adverse residual effects are assessed as being of minor significance or lower.

Landscape and Visual Assessment

A landscape and visual assessment of the proposal was carried out by landscape architects, Horner and Maclennan. The landscape and visual impact assessment considered changes in landscape character and changes to important or representative views. The 16 views considered, were selected based on discussions with The Highland Council and Scottish Natural Heritage. The assessment involved desk study, computer modelling and field survey. The assessment also considered cumulative impacts in relation to operational, consented and (known) planned wind farms around Nigg.

The landscape and visual impact assessment (LVIA) has considered the nature of the existing landscape and the scenic qualities on and around the proposed development site, the impacts that the proposed wind turbines will have on these, and how modifications to the layout of the wind turbines and infrastructure could reduce these impacts. The study area for the assessment extended to 35km from the site.

The study area contains many different landscape character types. The proposed turbines would be located in a landscape character type known as 'Open Farmed Slopes' which occupies around 3.8% of the study area. The proposed turbines are assessed as having a moderate adverse impact on the physical fabric of, and a moderate adverse impact on views within, this landscape character type.

The Landscape and Visual Impact assessment considered the potential impacts on the Inner Moray Firth Area of Great Landscape Value (AGLV), Dornoch Firth National Scenic Area (which lies some 20km north) and a further six AGLVs, a Search Area for Wild Land and nineteen Gardens and Designed Landscapes Inventory Sites. Overall, during construction and operational phases, and taking into account the fact that the development will be situated near to the existing fabrication yard and oil terminal, it is predicted that the proposed development will have a moderate adverse effect on the landscape resource of the study area. In terms of the assessment, this is not a significant effect.

The visual impact assessment considered sixteen viewpoints representative of places within the study area where people live or visit. Most of the viewpoints were considered to have a high sensitivity to the proposed development. The assessment also took into account the views from designated areas and from the main routes within the study area. Overall, during construction and operational phases, it is predicted that the proposed development will have a moderate adverse effect on the visual amenity of the study area. In terms of the assessment, this is a significant effect.

The assessment also considered the effects of the proposed turbines at Nigg in addition to other proposed windfarms within 70km. It concluded that the cumulative effect of Nigg in addition to any individual other windfarm (i.e. Kilbraur, Cambusmore, Gordonbush, Berry Burn or Broombank) would be no greater than that assessed for Nigg alone (i.e. moderate adverse) or for other windfarms in the following combinations:

- Cambusmore, Kilbraur and Gordonbush; and
- Broombank and Berry Burn

Noise

An independent noise impact assessment has been carried out by Hayes Mackenzie in accordance with relevant guidelines. Background noise measurements were made at three locations representative of the nearest residential properties to the proposed wind farm (following agreement with The Highland Council) and worst case turbine noise levels were predicted.

The assessment has shown that predicted noise levels, using a Vestas V80 Turbine, would meet the night-time noise limits and lower day-time noise limits under all conditions except at Bayfield Loch Holiday Cottage and Strath of Pitcalnie where there is a small but insignificant exceedance for a very limited range of wind conditions. If this is found to be significant in practice, a further mitigation for critical wind conditions can be applied as necessary. This can be achieved by a change of the operational mode in the system control of the wind turbines. It should be noted that no specific turbine has been chosen for Nigg and the modeling has therefore been undertaken on a worst case basis. Other currently available turbines such as the Enercon E-82 would be fully noise compliant.

Air Safety

Consultations with the National Air Traffic Service, Highlands and Islands Airports Ltd (HIAL) and the MOD have been undertaken. The MOD have no objections to the proposals. The developer is continuing to liaise with HIAL to ensure that the development of Nigg will have no impact on the new radar which is to be installed at Inverness Airport during 2008.

Interference with Television, Radio and Microwave Paths

Consultation with communications agencies was undertaken to predict the potential for disturbance to communication systems as a result of the proposed wind farm, including those used by the emergency services and mobile telephone service providers. No telecommunication links will be affected. Any impact on television reception (little or none is expected) will be righted at the developer's expense.

Public Safety and Public Access

There is no recorded incident of a member of the public around a wind farm being injured by a wind 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 proposed wind turbines are designed and manufactured to withstand weather conditions at least as extreme as those which arise in Scotland, 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. Shadow flicker, an effect caused by bright sunlight shining through turning blades and then into a room, most of whose light comes from that window, will not affect residential properties.

There would be no impact on the low level informal recreational use of the area and no direct impact on any right of way or candidate core path.

Conclusions

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. Given the conclusion that there will be no significant adverse impacts on protected habitats or species, the main issue to be considered is whether the benefits to be gained from exploiting a clean sustainable energy resource outweigh any perceived impact on changes to views, landscape character, or residential amenity.

It is clear from the individual assessments set out within the ES and summarised within this document that there will be no long-term significant effects from the development in relation to ecology, cultural heritage, health & safety, hydrology, noise and ornithology.

In terms of potential landscape and visual impacts, overall, during construction and operational phases, it is predicted that the proposed development will have a moderate adverse impact on the landscape and visual amenity of the study area.

The ES has demonstrated that the effects of the proposed Nigg Wind Farm are not unacceptably adverse and the benefits to be gained from the generation of clean green energy from this resource must be considered in the determination of the planning application.

Further Information

Copies of the full Environmental Statement can be read at:

- The Highland Council Planning and Development Department, Achany Road, Dingwall
- The Highland Council Planning and Development Department, Highland Council HQ, Glenurquhart Road, Inverness
- Nigg Community Hall, Pitcalnie
- Seaboard Memorial Hall, Balintore, and
- Cromarty Library, Church Street, Cromarty

For further details about this project, please contact:

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Inverness,
IV1 1SU

or go to the dedicated web site www.niggwindenergy.co.uk.

Copies of the full Environmental Statement documentation can be purchased for £200.00 (CD copies will be charged at £30) from Atmos Consulting Ltd at the address above.