

TCP/11/16(341)
Planning Application 14/00837/FLL - Erection of 9 turbines
and associated infrastructure, Knowes Farm, Dunning

FURTHER INFORMATION

ENVIRONMENTAL
STATEMENT

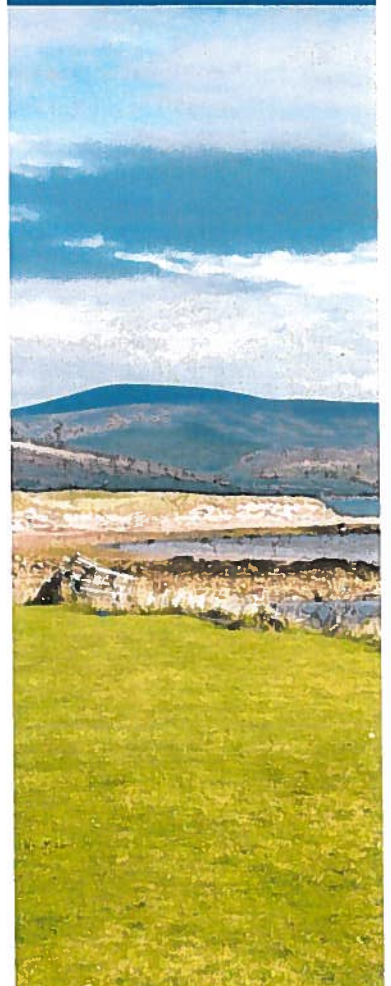
VOLUME 1: NON-
TECHNICAL SUMMARY

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KNOWES WIND FARM

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Preface

The following Non-Technical Summary forms the first part of a three volume Environmental Statement, which presents the findings of the various assessments undertaken to address the potential environmental effects of the proposed development at Knowes, Dunning, Perth and Kinross, PH2 ORB.

| Document | Title | Contents |
|-----------------|-----------------------|--|
| Volume 1 | Non-Technical Summary | Summary details of the proposal and conclusions of the individual EIA chapters |
| Volume 2 | Written Statement | Full details of all assessments included within the EIA |
| Volume 2 | Figures | Presentation of A3 figures referred to in Written Statement |

This Environmental Statement has been prepared in accordance with the Environmental Impact Assessment (Scotland) Regulations 1999. These regulations state that a wind turbine project is a Schedule 2 development which would 'require an EIA if it is likely to have significant environmental effects because of factors such as its nature, size or location'. This development does require an EIA.

The volumes of the Environmental Statement are available at the Perth and Kinross Council Offices in Perth.

Additional copies can be purchased directly from Muirden Energy: printed copies are available at a cost of £350 or digital versions on CD-ROM are available for a cost of £50.

To order an additional copy, please contact Muirden Energy at the following address or phone number:

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Introduction

The Non-Technical Summary (NTS) summarises the Environmental Statement (ES) for the proposed development of a wind farm at Knowes. The development comprises 9 wind turbines up to 81m to blade tip height and associated infrastructure providing an installed generating capacity of 7.65MW.

There is a requirement for an Environmental Impact Assessment (EIA) to be submitted as part of the application due to the potential for significant environmental effects resulting from the development. The EIA considers the current characteristics of the site and surrounding area, predicts the impacts resulting from the development and evaluates their significance. Where significant effects are predicted, mitigation measures are proposed.

Structure of NTS

This Non-Technical Summary provides the following information:

- Section 1: a brief overview of the planning application;
- Section 2: a brief overview of the findings of the environmental assessments.

1. Summary of Proposed Development

1.1 Project Description

The planning application consists of 9 turbines up to 81m to blade tip height and associated infrastructure at Knowes near Dunning, Perth and Kinross. The associated infrastructure includes access tracks, an on-site control building, laydown areas and crane pads.

1.2 Development Context

The site is located approximately 2.5km south of the village of Dunning (shown in appended Figure 1.1). The intended site for the turbines will be on moorland and livestock farmland. The site is accessed from the B934.

The proposed development comprises 9 turbines of varied blade tip heights (between 70m and 81m to blade tip height) with a generating capacity of 0.85MW each (site layout shown in appended Figure 1.2). In addition, associated vehicular access from the B934, hardstanding areas, control building and an underground grid connection will be constructed and remain in place for an operational period of 25 years. After the operational period decommissioning will be undertaken through a pre-determined decommissioning bond agreed with Perth and Kinross Council.

1.2.1 Environmental Impact Assessment

Given the scale of the development there is a requirement for an Environmental Impact Assessment (EIA) to be submitted in as part of the application due to the potential for significant environmental effects to result from the development. The EIA considers the current characteristics of the site and surrounding area, predicts the impacts resulting from the development and evaluates their significance. Where significant effects are predicted, mitigation measures are proposed.

The following documents are submitted as part of the EIA which also forms part of the planning application:

The Environmental Statement (ES) comprises the following documents:

- **Volume 1: Non-Technical Summary**
The Non-Technical Summary (NTS) summarises the key points within the ES in a non-technical manner.
- **Volume 2: Written Statement**
The ES details the approach taken to the EIA, methodology used and reports the findings of various environmental, technical and economic studies undertaken to evaluate the environmental impact of the development. Areas where mitigation is required are identified with suitable measures set out.
- **Volume 3: Figures and Visualisations**
The Figures and Visualisations provide various illustrations to be used in conjunction with the ES including site maps, ZTVs, wirelines and photomontages.

1.3 Project Design

Before Muirden Energy's individual Iterative Design process was implemented to find an optimum location for the proposed wind farm, Perth and Kinross Council's 'Supplementary Planning Guidance for Wind Energy Proposals' was utilised to find a suitable location for the wind farm.

A number of factors were taken into account when deciding where the wind farm project would be located on the land at Knowes. The following factors were taken into account when attempting to choose the optimal location of the wind farm project:

- Wind Resource
- Grid Connection
- Site Access
- Environmental Impact
- Desired Energy Generation
- Aesthetic Considerations
- Land Take
- Aviation Restrictions

After consideration of the above factors a plan was created to erect nine wind turbines up to 81m to blade tip height and each with a generating capacity of up to 0.85MW.

1.3.1 Layout Evolution

From the initial site selection to submission for planning consent the wind farm layout has evolved following feedback from consultation with Perth and Kinross Council and statutory consultees. The design process has led to a number of changes that can be grouped into three main iterations, as detailed in Table 1.1 and displayed on Figure 1.4 in Volume 3.

Table 1.1 Modifications to wind farm design

| Application | Turbine details | Modification Rationale |
|--|--|--|
| Scoping Layout | 7 turbines up to 80m to blade tip height | Initial design |
| Post-Scoping revision | 11 turbines up to 80m to blade tip height | The results of early survey work enable the area of search to be increased resulting in an additional 4 turbines. |
| Layout submitted for planning consent | 7 turbines up to 81m to blade tip and 2 turbines up to 70m to blade tip height | Pre-application assessment with NATS results in a requirement to remove 2 turbines and reduce the blade tip height of a further 2. Turbine model altered from Enercon E48 to Gamesa G52. |

1.4 Planning Policy

The proposed development has been assessed using a wide range of planning frameworks and policies, including Scottish Planning Policy, National Planning Framework for Scotland 2, the Perth and Kinross Strategic Development Plan 'TAYplan' and the Perth and Kinross Local Development Plan.

The wind farm at Knowes is expected to be in accordance with each of these documents.

2. Summaries of Environmental Impact Assessments

2.1 Landscape and Visual Impact

Landscape and visual effects are of key concern to any wind turbine development. The landscape and visual impact assessment considered the potential effects of the proposed wind turbines on the landscape and visual character of the site and its surrounding areas. The landscape assessment considered the effects of the proposal on existing areas of landscape character, patterns and elements within or close to the site. The visual assessment considered the effects of the proposal on the views and the overall effect on visual amenity within the study area.

The proposed wind farm will be in the Igneous Hills landscape character area, which locally includes a significant proportion of the Ochil hills.

The proposed development at Knowes is not situated within any nationally or locally designated landscapes. The nearest nationally designated landscape areas to the site are:

- National Scenic Area: River Earn (Comrie to St Fillans) 26km west of the proposed development;
- Garden and Designed Landscape: Invermay 4km east of the proposed development.

The ZTV landscape and visual assessment of the 25km study area concludes that overall a wind farm of the proposed layout and scale is appropriate for its setting within medium scale hills near to Strathearn. It is considered that effects have been minimised as far as possible by a simple wind farm design that relates to the local landform.

The assessment of 14 representative viewpoints was also undertaken from various locations within the 25km study area. The viewpoint assessment found that 13 of the 14 viewpoints selected will not have significant visual or cumulative effects to their visual amenity.

2.2 Hydrology, Hydrogeology and Soil

Hydrology, hydrogeology and soil assessments were undertaken by Eco-Fish Consultants Ltd.

The assessments addressed the potential impacts of the proposed development on the surface water and groundwater environment both in terms of quality and quantity. In addition, the potential impact of the development proposals on soil and geology were assessed, both on the site and its immediate surroundings.

The potential for the proposed development to affect geological, hydrogeological and hydrological features was not found to be significant.

The use of best practice guidance will be used throughout the key stages of the development, in particular during construction, to ensure no negative impacts occur to the site.

2.3 Ecology and Ornithology

Ecology and ornithological studies were carried out by Heritage Environmental Ltd.

The scope of the ecological and ornithological studies was derived from an initial desk based study, local knowledge and experience of the ecologists, as well as consultation with Perth and Kinross Council and Scottish Natural Heritage (SNH). The ecology and ornithology studies considered the following issues:

- Migrating birds;
- Breeding birds;
- Mammals and reptiles; and
- Habitat and vegetation.

To identify the movements of birds year round and the presence of breeding birds on site and in the surrounding area, a variety of survey methods were carried out, including Vantage Point (VP) surveys, raptor surveys and breeding bird surveys. The studies were undertaken from 2012 until 2014.

The proposed wind farm supports a range of bird species that would be expected from a site on the upland fringes of the Scottish Highlands, with both moorland and lowland farmed habitats. Overall, no significant impacts were predicted as a consequence of the wind farm to bird species, mammals or habitat.

2.4 Noise

A noise assessment was undertaken taking into consideration noise during construction, during operation and in consideration with other wind turbines surrounding the site.

During the operational period of the turbine the noise levels resulting from the Knowes Wind Farm are predicted to be below noise limits at all surrounding properties.

A cumulative assessment of operational noise has also been undertaken, taking into account the nearest wind farm at Green Knowes. The cumulative assessment found that the noise levels from both developments are within acceptable limits for all surrounding properties.

The effect of noise from construction activities to the nearest properties in all directions has been assessed. The calculated construction noise level remains below the noise level limits at all properties.

2.5 Cultural Heritage

The cultural heritage assessment section considered the potential effects of the proposal on the cultural heritage interests of the application site and surrounding area.

All Category A & B listed buildings, Gardens and Designed Landscapes and Scheduled Ancient Monuments were identified and assessed in the area surrounding the Knowes Wind Farm.

Assessment found that the majority of impacts to cultural heritage features within the study area were predicted to be negligible or minor. Where impacts were identified to be higher, the impacts were not found to be significant.

2.6 Transport and Access

The components of the Gamesa G52 wind turbines will be transported to the site on articulated lorries. The articulated lorries would have extended trailers in order to deliver the turbine blades. Each turbine delivery is expected to be undertaken in seven articulated low loader deliveries: one for the nacelle, one for the blades, two for the tower, one for the blade hub and two for the generator/controller etc. In addition, construction traffic will be generated by the following activities:

- Delivery of electric cable for connection to the grid network
- Delivery of sand for the cable trenches
- Delivery of concrete for the turbine bases

- Delivery of formwork and reinforcing steel for the construction of the turbine base

The exact delivery route of the turbines and docking location of the turbines is not confirmed but the map below (Figure 1.3) shows the proposed delivery route of the turbines from Junction 6 of the M90. Wynns Ltd has undertaken an abnormal load route assessment to ensure the suitability of this proposed route.

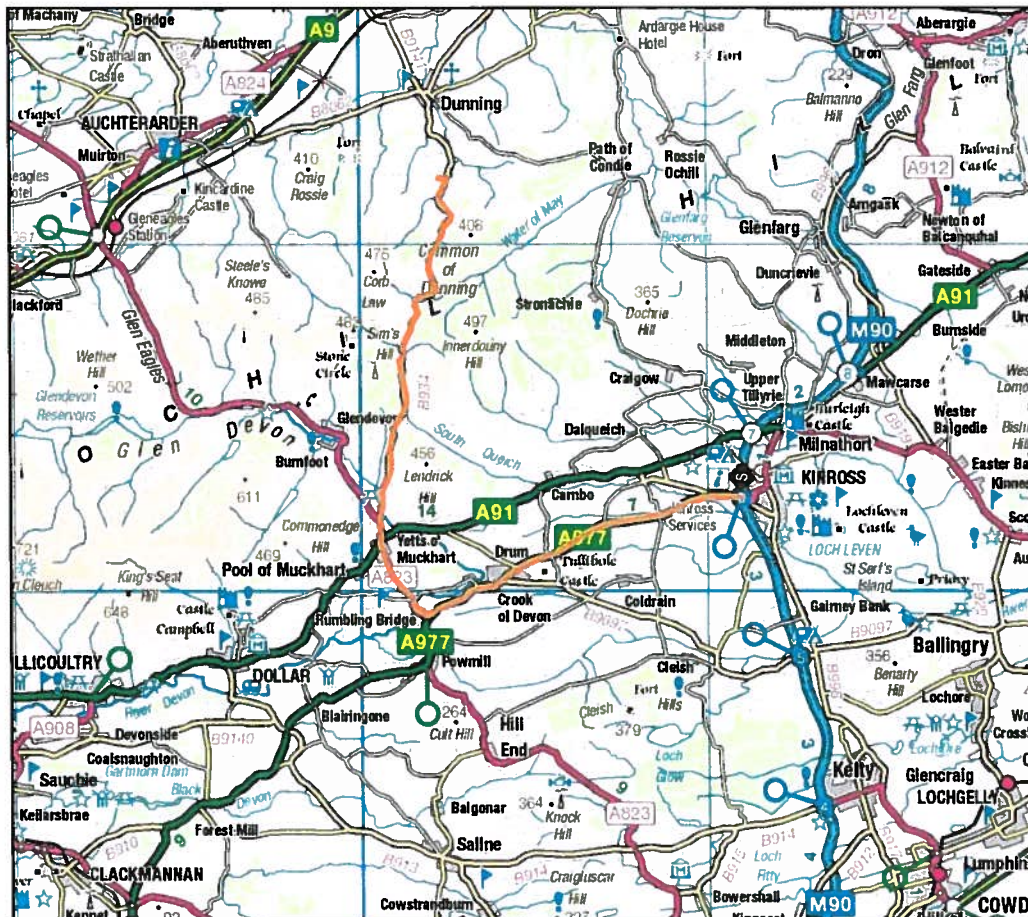


Figure 1.3 Proposed turbine delivery route from M90 Junction 6 to Knowes.

The route is anticipated as:

- Exit the M90 at junction 6 for the A977
- Exit the A977 for the A823 northbound
- Exit A823 for the B934 and arrive at the site

Following construction of the turbines it is expected that access to the site will only be required infrequently for maintenance trips.

Overall, the proposed development has potential to cause impacts to transport networks through the construction period however, given the temporary nature of construction the overall impacts are considered to be low.

2.7 Shadow Flicker

Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It only occurs inside buildings where the flicker appears through a narrow window opening. Shadow flicker effects will occur when a certain combination of conditions coincide in specific locations at particular times of the day and year.

It is widely accepted that shadow flicker does not occur within 10 rotor diameters of a wind turbine, for the proposed turbine- 520m.

There are no properties within 10 rotor diameters of the Knowes Wind Farm. Consequently, no surrounding properties are predicted to experience shadow flicker.

2.8 Communications, Infrastructure and Electromagnetic Interference

Potential effects of the proposed development on communications, infrastructure and electromagnetic interference have been assessed. Wind turbines have the potential to be a physical obstruction that could affect communication networks and aviation activities.

Consultation with various telecommunication operations was undertaken which found that no telecommunication links will be affected by the proposed wind farm.

Consultation with aviation operators was undertaken including MoD, BAA and NATS. Consequently, a pre-application assessment was undertaken by NATS to ensure the feasibility of the project. No issues are predicted given prior consultation.

The potential impacts on television signal in the area was investigated which found that the proposed development has the potential to impact one home for which there is no alternative service. Following commissioning of the wind farm, any issues caused to surrounding households will be dealt with by the developer.