Viking Wind Farm

November 2018

Design and Access Statement

Section 36 Variation Application - Environmental Impact Assessment Report

RAMBØLL

viking energy

Harnessing Shetland's natural resources

DESIGN AND ACCESS STATEMENT

1. INTRODUCTION

1.1.1 Viking Energy Wind Farm LLP (the Applicant) has applied for a variation to the Description of the Development provided in Annex 1 of the consent for Viking Wind Farm, Shetland. Consent was granted in April 2012 for a 103 turbine wind farm. A variation to the consent was granted in March 2017, extending the period in which development must commence until April 2020.

1.1.2 The purpose of this application is to seek a variation to the consent under section 36 of the Electricity Act 1989 (s36 consent), along with a direction that planning permission be deemed granted under section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended (s57 direction). It is proposed that both the s36 consent and the s57 direction would be subject to amended conditions to take account of recent good practice, update document cross referencing and to take account of consultation feedback on the application. The proposed varied development would increase the maximum tip height of the turbines, from 145 metres (m) to a maximum of 155 m. The Environmental Impact Assessment (EIA) also considers the potential for likely significant effects associated with an increase in rotor diameter from 110 m to 120 m. In combination, these proposed changes comprise the 'proposed variation'. It is important to note that no changes to the footprint of the development are proposed.

1.1.3 The Town and Country Planning (Development Management Procedure (Scotland) Regulations 2008[1] require applications for 'major' development to be supported by a Design and Access Statement. There is no statutory requirement for applications for consent under the Electricity Act 1989 to be support by a Design and Access Statement, however the applicant has opted to provide one as a good practice measure.

1.1.4 The purpose of the Design and Access Statement is to explain the design principles and concepts that have been applied. In line with the Scottish Government guidance[2] the statement does not extend to the consideration of internal aspects of individual buildings.

[1] Town and Country Planning (Development Management Procedure)(Scotland) Regulations 2008, (SSI 2008/432)

[2] Scottish Planning Series Circular 4 2009: Development Management Procedures (URL: http://www.gov.scot/Publications/2009/07/03153034/6)

2. POLICY CONSIDERATIONS

2.1.1 The Scottish Planning Policy (SPP)[3] requires planning authorities to define a spatial framework identifying those areas that are likely to be most appropriate for onshore wind farms. The spatial frameworks must be based on the following criteria:

- Group 1: Areas where wind farms will not be acceptable:
  - National Parks and National Scenic Areas.
- Group 2: Areas of significant protection:
  - Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.
  - Group 2 areas include World Heritage Sites; Natura 2000 and Ramsar sites; Sites of Special Scientific Interest; National Nature Reserves; Sites identified in the Inventory of Gardens and Designed Landscapes; Sites identified in the Inventory of Historic Battlefields; areas of wild land as shown on the 2014 SNH map of wild land areas; carbon rich soils, deep peat and priority peatland habitat; and an area not exceeding 2km around cities, towns and villages identified on the local development plan.
- Group 3: Areas with potential for wind farm development:
  - Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.

2.1.2 At a local level, the key policy provided within the following documents:

- The Shetland Local Development Plan, Adopted September 2014[4];
- Onshore Wind Energy Supplementary Guidance[5], Adopted February 2018; and

2.1.3 Whilst there are a number of policies within the LDP relevant to the proposed development, it is the Onshore Wind Energy Supplementary Guidance that is of most relevance to the design process. The spatial framework for wind energy development, provided in the Onshore Wind Energy Supplementary Guidance, shows that the site is located within a Group 3 area (areas where wind farms are likely to be acceptable). The Sandwater Site of Special Scientific Interest (SSSI) is the only 'Areas of Significant Protection', illustrated in Map 2. It is however noted that the Supplementary Guidance does not include the identification of carbon-rich soil, deep peat and priority peatland habitat areas. The carbon-rich soils, deep peat and priority peatland habitat mapping (SNH, 2016[6]) identifies the site as predominantly 'class 1' where 'all vegetation cover indicates priority peatland habitat; all soils are carbon-rich soils and deep peat'. As such, there is an expectation under SPP and the LDP that 'any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation'. To this end, the proposed varied development does not change the footprint of the consented Viking Wind Farm, which was previously designed with the aim of minimising effects on peatland habitats where possible, and includes a commitment to the restoration of more than three times the area of peatland habitat lost as a result of the proposed varied development.

2.1.4 This DAS does not make any judgements regarding the acceptability of the proposed development in relation to policy. A separate Planning Statement is provided which presents a review of compliance with the material planning considerations.

[3] The Scottish Government (2014) Scottish Planning Policy, The Scottish Government, Edinburgh, June 2014 - URL: http://www.gov.scot/Publications/2014/06/5823/6

[4] Shetland Islands Council, Adopted September 2014, The Shetland Local Development Plan 2014

[5] Shetland Islands Council, Adopted February 2018, Onshore Wind Energy Supplementary Guidance

[6] URL: http://map.environment.gov.scot/Soil_maps/?layer=10# (accessed 24/08/2018)

3. SITE SELECTION AND CONSIDERATION OF ALTERNATIVES

3.1 Approach to Site Selection

3.1.1 The proposed varied development is one that builds on the already consented Viking Wind Farm development, with the development footprint remaining the same. Site selection factors taken into account during identification of sites by the applicant include a range of criteria, such as wind speed, access to grid connection, landscape and recreational designations, site topography, ecological sensitivities, ornithological interests, noise and water features.

3.2 Design Strategy and Design Evolution

Overview of Approach

3.2.1 The purpose of a wind farm is to harness the energy of the wind and convert this to electricity. The process of turbine siting is a balance between maximising energy yield and minimising potential for negative environmental effects.

3.2.2 Changes made as a consequence of the design process are considered 'embedded' mitigation. The design of the wind farm layout is a vital part of the EIA process, as it is the stage where the biggest contribution can be made to prevent or mitigate potential effects.

3.2.3 The submitted design for the proposed varied development is identical to the consented Viking Wind Farm with the exception of the tip height and rotor diameter.

Design Evolution

3.2.4 The main design differences between the consented Viking Wind Farm and the proposed varied development is; the maximum tip height has increased from 145m for the consented Viking Wind Farm to 155m for the proposed varied development. The rotor diameter has also increased by 110m to 120m from the consented Viking Wind Farm to the proposed varied development, respectively.

Ornithological Considerations

3.2.5 Baseline bird studies have taken place every year from 2003 to 2018. Up to 2009 these studies were primarily aimed at characterising the baseline ornithological conditions to inform the previous 2009 ES and 2010 Addendum.

3.2.6 Since 2010 there has been a programme of further bird studies to better understand the flight behaviour and ecology of whimbrel, to inform the Project's Habitat Management Plan (HMP) and to monitor priority species.

3.2.7 Between 2015 and 2018 the revised s36 area and a species-appropriate surrounding buffer was re-surveyed, providing up-to-date information on the baseline bird distribution and abundance to inform the assessment presented in Chapter 5 (Ornithology).

3.2.8 The key design consideration made in amending the tip height and rotor diameter was in relation to ground clearance. By maintaining the ground clearance (i.e. the ground to bottom of the rotor swept area), this has ensured that the increased collision risk for birds previously identified as potentially subject to likely significant effect would be negligible.

Landscape and Visual Considerations

3.2.9 A review of the proposed varied development found that there would be no changes to the degree of landscape and visual effects (including cumulative landscape and visual effects) between the consented Viking Wind Farm and the proposed varied development as a result of the increase in turbine height excluding the effects of turbine lighting.

3.2.10 Current regulations require that structures greater than 150 m above ground level are fitted with aviation obstruction lighting. Consideration was given to limiting the turbine tip height to 149.9 m, with a 120 m rotor diameter to avoid the need for lighting. However, this option was rejected on the basis that it would reduce the ground clearance and potential result in additional significant effects on target bird species, especially whimbrel.

3.2.11 An assessment of turbine lighting has identified that the visual effect of a medium intensity light on every turbine, as required by CAA guidelines, would be significant from all but one of the VPs considered. The Applicant proposes to engage with CAA / Scatsta Airport to agree an acceptable lighting solution which would result in a reduced visual effect. …

Noise

3.2.12 An updated background noise survey was undertaken at thirteen noise monitoring locations which were representative of the noise sensitive receptors surrounding the proposed varied development. The baseline noise data collected was analysed in conjunction with on site measured wind speed data. This analysis was then used to derive noise limits for the proposed varied development in accordance with relevant guidance; ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms' and the Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (IOA GPG).

3.2.13 A set of updated noise related planning conditions have been drafted to replace Conditions 42 – 47 of the original consent, and are proposed to form part of the s57 direction issued by Scottish Ministers.

Other Environmental Considerations

3.2.14 Other environmental constraints were considered in designing the layout of the consented Viking Wind Farm, however as the footprint is not changing, have not been considered in detail in term of the design analysis.

Terrestrial Habitats

3.2.15 As a design principle, ecologically sensitive areas have been avoided as far as practicable, and loss of habitat has been minimised by careful design of the access track layout and utilisation of existing access tracks where possible. This was informed by detailed surveys, specifically Phase 1 Habitat survey and NVC survey. Further information on ecological effects can be found in EIA Report Chapter 8 (Ecology).

Watercourses

3.2.16 The minimisation of watercourse crossings and avoidance where possible of works in close proximity to watercourses was a key objective of the site layout. Accordingly, all known watercourses as shown on 1:50,000 OS mapping were identified (and confirmed where possible during site survey). Further details on the assessment on potential effects on watercourses can be found in EIA Report Chapter 9 (Hydrology, Hydrogeology, Geology, Soils and Peat).

Cultural Heritage

3.2.17 The site layout avoids direct effects on all known archaeology and cultural heritage assets. The difference between the consented Viking Wind Farm and the proposed varied development, with regard to effects on setting, is considered to be negligible. Further details can be found in EIA Report Chapter 11 (Cultural Heritage and Archaeology).

Technical Considerations

Distance from Public Roads

3.2.18 A typical safety set back from public roads is 1.5 times the height of the proposed turbine (232.5m). The nearest turbine to a public road is at a distance of approximately 242m.

Spacing

3.2.19 Spacing of turbines is a key consideration during wind farm layout development; turbines are generally arranged at a minimum distance apart to limit the effect of wake turbulence which can lead to increased fatigue loads. In order to minimise these fatigue loads, turbine spacing is normally bigger along the prevailing wind direction than across it. The minimum spacing varies from site to site and between turbine models (depending on manufacturer guidance). The spacing chosen at this site is based on modelling assumptions and is designed to maximise the energy yield from the wind farm while keeping fatigue loads within the turbines' design envelope.

Wind Capture

3.2.20 Wind capture (i.e. the ability to harness energy from wind) is affected by various issues such as wind speed, the prevailing wind direction, and local topography. A range of computer software analyses were undertaken to optimise the design of the proposed varied development where possible to ensure that the selected turbine locations maximise the opportunity to harness wind energy.

Ground Conditions

3.2.21 The suitability of ground conditions was considered during development of the site layout, with areas of peat and steep gradients identified. Peat depth was determined through peat probing.

3.2.22 A series of peat probes were taken across the site, particularly along potential access tracks routes, at proposed turbine locations and potential compound and substation locations. The majority of the site is flat lying ground in the small valleys between hills on site; approximately 18.9% of probe locations identified peaty soils < 0.5 m in depth; and approximately 58.4% recorded peat less than 1.5 m with 41.6% of probes measuring peat > 1.5 m.

3.2.23 Where wind farm infrastructure is proposed in areas where peat is present, data have been augmented by the peat probing. Appropriate mitigation measures have been developed to reduce peat slide risk. Further details contained in EIA Report Chapter 9 (Hydrology, Hydrogeology, Geology, Soils and Peat) and Technical Appendix (TA) 2.3 (Peat Slide Risk Assessment), TA 2.4 (Peat Management Plan) and TA 2.5 (Borrow Pit Assessment).

4. CONSULTATION ACTIVITIES

4.1.1 There is no statutory requirement for pre-application consultation made under Section 36 of the Electricity Act 1989, however, as a responsible developer, Viking Energy follows good practice in undertaking pre-application consultation activities to inform the EIA process. A Pre-Application Consultation Report (PACR) has been prepared by Ramboll on behalf of the applicant.

4.1.2 Pre-application meetings were held with representatives of Scottish Government (Energy Consents Unit), Shetland and Islands Council, SEPA and Scottish Natural Heritage. In addition, a public exhibition was held in the Voe Public Hall on the 2nd October 2018 from 12 noon until 8 pm.

5. ACCESS

5.1.1 A summary of vehicular access to the site is provided below, with full details of the assessment of effects on the local road network provided in EIA Report Chapter 10 (Access, Traffic and Transport).

5.1.2 The construction and operations access to the site would be from the A970 south of the site and the A968. It is envisaged that the turbine components would be delivered from the port facilities near Lerwick and transported to the site via the A970.

5.1.3 In accordance with section 6(1)(g) of the Land Reform Act 2003, general public access rights are removed throughout the construction working area for health and safety reasons.

6. SUMMARY

6.1.1 This document provides an overview of the design process undertaken by the applicant while preparing the application for the proposed development. This document summarises the relevant local development plan policy considerations, the design approach, consultation activities and the final design solution.

6.1.2 The careful placement of the proposed turbines within the site boundary has facilitated effective mitigation of the majority of potentially significant effects through the design process. There has been no change in the position of proposed turbines from the consented Viking Wind Farm. The only changes in the physical characteristics of the proposed varied development from the consented Viking Wind Farm is to increase the turbine tip height and rotor diameter. Further information on the residual effects is presented in the EIA Report.


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