1 Introduction

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1 Introduction

1.1 Background and Site Description

1.1.1 Knockcronal Wind Farm Ltd (hereafter referred to as "the Applicant") is applying to the Scottish Ministers for Section 36 (S36) consent and deemed planning permission, under the terms of the Electricity Act 1989, for permission to construct and operate Knockcronal Wind Farm (hereafter referred to as the "Proposed Development"), at site centre British National Grid (BNG) NS 37746 00094 (refer to Figure 1.1).

1.1.2 The application is supported by this Environmental Impact Assessment Report (EIA Report) as required by The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

1.1.3 This EIA Report has been prepared to assess the environmental impacts of the Proposed Development, which will comprise six turbines up to 200 m blade tip height (T1, T2, T3, T7, T8 and T9) and three turbines up to 180 m blade tip height (T4, T5 and T6), with an associated on-site energy storage system. The indicative combined generation capacity of the turbines is anticipated to be 59.4 MW. The associated infrastructure will include site access, access tracks, crane hardstanding, underground cabling, on-site substation, temporary construction and gatehouse compound(s), energy storage compound, borrow pits/borrow pit search areas and a permanent meteorological mast.

Site Description

1.1.4 The Proposed Development is located approximately 4.8 km south of Straiton, 11.3 km south-west of Dalmellington and 17.4 km east of Girvan, (distances to the nearest proposed wind turbine) in South Ayrshire (refer to Figure 1.2).

1.1.5 The site comprises a main turbine development area of approximately 540 hectares (ha) of land, consisting of upland moorland in the south and west of the site, and farmland in the north-east. The turbine development area gradually rises from 120 m Above Ordnance Datum (AOD) in the north-east of the site, to 315 m AOD at Knockbuckle in the south-east of the site. The surrounding land comprises open moorland to the east and north-east, as well as farmland with some scattered individual properties, with forest plantations to the north-west, west, south and south-east.

1.1.6 The surrounding area is rural, with the land predominately used for agriculture and forestry. The site borders the buffer zone of Galloway Dark Skies Park. There are no listed buildings within the site boundary. The immediate area surrounding the site is rural in nature with land predominantly used for commercial forestry purposes and agriculture.

Overview of Proposed Development

1.1.7 The total power output of the Proposed Development would be approximately 59.4 MW. Based on a calculated capacity factor, the annual indicative total power output for the site would be an estimated 138 GWh per annum[1], indicating the Proposed Development would generate enough electricity to power approximately 40,500 average Scottish households (based on average electricity consumption per household in Scotland quoted by BEIS in 2020, of 3,393 kWh). The Proposed Development would contribute towards international and national targets for the generation of renewable energy and reduction in greenhouse gas emissions, including the Scottish Government's legally-binding target to achieve net zero emissions by 2045.

1.1.8 The electricity produced will be exported to the electricity network. The proposed point of connection to the wider electricity network is currently under assessment.

1.1.9 Two access routes to the turbine development area have been identified, one to the north utilising a forestry track currently under construction and the other to the west where there is an existing

[1] Calculated from 59.4 x 8760 (number of hours per year) x 0.2646 (onshore wind load factor).

forestry track. New road sections and upgrades to the forestry tracks will be required. Both of these routes have been assessed, however only one route will be utilised for construction and access.

1.2 The Applicant

1.2.1 Knockcronal Wind Farm Ltd (the Applicant) is a wholly owned subsidiary of Statkraft UK Ltd (Statkraft). Statkraft has operated in the UK since 2006, with UK bases in Glasgow and London and a head office in Oslo, Norway. Statkraft has invested £1.4 billion in the UK's renewable energy infrastructure and facilitated over 6 GW of new-build renewable energy generation through Power Purchase Agreements (PPAs). With a portfolio now exceeding 10 TWh per year from almost 300 customers, Statkraft is the leading provider of short and long term PPAs in the UK (Statkraft, 2021). Statkraft has a strong focus on continuing to play a leading role within the UK energy market with recent activities including delivering grid stability services for the National Grid, electric vehicle charging networks (via Mer https://uk.mer.eco/), solar farm development (e.g. acquisition of Solarcentury in late 2020) and wind farm developments such as Knockcronal Wind Farm.

1.2.2 Key facts about Statkraft:

- The largest renewable energy generator in Europe;
- A Norwegian state owned utility, with origins in hydropower over 125 years ago;
- Operates three onshore wind farms in Scotland with a combined capacity of 155.5 MW;
- Distributed over £2 million to communities near operating wind farms;
- Committed to building out at least 600 megawatts (MW) of onshore wind development in Scotland over the next five years; and
- Employs 4,600 people in 18 countries, all working towards our low carbon future.

1.2.3 For further information about Statkraft in the UK visit https://www.statkraft.com/about-statkraft/where-we-operate/united-kingdom/

1.3 Purpose of the EIA Report

1.3.1 ITPEnergised was appointed by the Applicant to undertake an Environmental Impact Assessment (EIA) of the Proposed Development in accordance with The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as "the EIA Regulations"). The EIA process is the systematic process of identifying, predicting and evaluating the environmental impacts of a proposed development. The EIA process for the Proposed Development is reported in this EIA Report, which identifies the methodologies used to assess the environmental effects predicted to result from the construction, operation and decommissioning of the Proposed Development. Where appropriate, it also sets out mitigation measures designed to prevent, reduce and, if at all reasonably possible, offset potential significant adverse environmental effects. An assessment of residual effects, those expected to remain following implementation of mitigation measures, is also presented.

1.3.2 The main findings and conclusions of this EIA Report are summarised in a Non-Technical Summary (NTS), as required by the EIA Regulations. The NTS, provided as a stand-alone document, summarises the key findings of the EIA in easily accessible, non-technical language, ensuring everyone with an interest in the project can understand and access information on its predicted environmental effects.

1.3.3 This EIA Report and the NTS support the S36 Application being submitted to Scottish Ministers.

1.4 Structure of the EIA Report

1.4.1 The EIA Report is split into five volumes, with the NTS forming a separate document. **Volume 1** of this EIA Report is structured as follows:

- Chapter 1 provides an introduction to the EIA Report and its authors;

- Chapter 2 provides a description of the design iteration process, detailing how the Proposed Development evolved throughout the course of the assessment process and the elimination of alternative development options;
- Chapter 3 provides a description of the existing site, details of the Proposed Development, the construction, operation and maintenance processes, decommissioning process, need for the Proposed Development and carbon considerations;
- Chapter 4 describes the methodology of the EIA process including the scope of the process, justification for topics scoped out of the EIA, and details of the Public Consultation process;
- Chapter 5 outlines the planning policy context;
- Chapter 6 assesses the effects on landscape and visual amenity;
- Chapter 7 assesses the effects on ornithology;
- Chapter 8 assesses the effects on ecology and nature conservation;
- Chapter 9 assesses the effects on geology, peat, hydrology and hydrogeology;
- Chapter 10 assesses the effects of noise and vibration;
- Chapter 11 assesses the effects on the historic environment;
- Chapter 12 assesses the effects of traffic and transport;
- Chapter 13 assesses the effects on socio-economics, tourism and recreation;
- Chapter 14 assesses the effects on aviation and radar;
- Chapter 15 assesses the effects on telecommunications;
- Chapter 16 assesses the effects from shadow flicker and reflectivity;
- Chapter 17 assesses the effects of the Proposed Development on carbon release and displacement;
- Chapter 18 is the Schedule of Environmental Commitments, which summarises all of the mitigation measures presented in this EIA Report; and
- Chapter 19 provides summary tables of all predicted residual and cumulative effects.

1.4.2 **Volume 2** contains the figures that inform the EIA Report.

1.4.3 **Volume 3** contains the landscape and visual impact assessment visualisations that inform Chapter 6.

1.4.4 **Volume 4** contains supporting information and technical appendices for each of the technical chapters, and additional studies that have been prepared to inform the relevant assessments as reported in the EIA Report.

1.4.5 **Volume 5** contains confidential technical appendices. This volume will include confidential information on protected species and will be provided separately to the Scottish Government Energy Consents Unit, South Ayrshire Council (SAC), NatureScot and RSPB.

1.4.6 Additional supporting documents which form part of the S.36 Consent Application submission include a **Non-Technical Summary** of the EIA Report, a **Planning Statement** and a **Pre-Application Consultation (PAC) Report**.

1.5 Assessment Team

1.5.1 The EIA was undertaken by ITPEnergised's environmental teams supported by external consultants. Table 1.1 outlines the full EIA team.

Table 1.1 - EIA Project Team

Consultant	Input to the EIA	Company	Experience
Jenny Hazzard	EIA Project Director	ITPEnergised	BSc (Hons) Geological Engineering, MSc Engineering Geology, PIEMA. 20 years' experience in environmental consultancy.
Emma Bathgate	EIA Project Manager	ITPEnergised	BSc (Hons) Environmental Management, MSc Sustainability and Environmental Studies. 3 years' experience in the renewable energy industry.
Sarah McArthur	EIA Assistant Project Manager and Shadow Flicker & Telecommunications Assessment	ITPEnergised	MA (Hons) Geography, MSc Energy, Society and Sustainability. 2 years' experience in environmental planning.
David Bell	Planning and Energy Policy	David Bell Planning	BSc (Hons) Town & Country Planning, Diploma Urban Design, MCIHT, MRTPI. 30 years' experience in planning and development.
Stuart Cargill	Landscape and Visual Impact Assessment and Residential Visual Amenity Assessment	Optimised Environments (OPEN)	Master of Landscape Architecture, BA (Hons) Fine Art, CMLI. 14 years' experience in landscape architecture and planning.
Colin Bonnington	Ecology and Ornithology	Avian Ecology	BSc (Hons) Ecological Science, MSc Ecological Economics, DPhil Wildlife Conservation and MCIEEM. 10 years' experience as an ecological consultant.
Lucy Parker	Geology, Peat, Hydrology and Hydrogeology	Fluid Environmental Consulting	BSc (Hons), Environmental Geoscience, MRes, Science in the Environment. 15 years' experience in environmental consultancy.
Mark Jiggins	Noise and Vibration Assessment	Hoare Lea	MSc Environmental Acoustics, MIOA. 21 years' experience as an environmental noise consultant.
George Mudie	Archaeology & Cultural Heritage Assessment	CFA Archaeology	MA (Hons) Geography and Archaeology, MCIfA, FSA Scotland. 17 years' experience as an archaeological consultant.

Consultant	Input to the EIA	Company	Experience
Gordon Buchan	Transport and Traffic Assessment	Pell Frischmann	MSc Transport Engineering, BEng (Hons) Civil & Transportation Engineering, CMILT, MCIHT. 24 years' experience as a transport consultant.
Graeme Blackett	Socio-Economics, Tourism and Recreation Assessment	BiGGAR Economics	BA (Hons) Economics, MIED, MEDAS. 25 years' experience as an applied economist.
John Taylor	Aviation Assessment	WPAC	Royal Navy Commander specialising in Air Traffic Control, Airspace Management and Air Defence. 22 years' experience as an aviation consultant.
Alexander Anderson	Forestry Assessment	DGA Forestry	BSc (Hons) Ecological Science, MBA, MICFor. Over 40 years' experience in forest management and consultancy.
Andy Mills	Peat Landslide Hazard and Risk Assessment	East Point Geo	MSc Geomorphology and Environmental Change, PhD Peat Slides: Morphology, Mechanisms and Recovery. 20 years' experience in geomorphology and peatland geomorphology.
Clare Wharmby	Carbon Calculator	Carbon Forecast	BSc Ecology Over 20 years' experience in carbon accounting and consultancy.
Richard Buckland	Engineering Design	Sustainable Solutions Group (SSG)	MEng (Hons) Civil and Structural Engineering. Over 13 years' experience in project management and engineering.

1.6 Availability of the EIA Report

1.6.1 Electronic copies of the EIA Report, including all figures, appendices and accompanying documents are available to view on the project website www.knockcronal.co.uk.

1.6.2 Electronic copies of the EIA Report can be accessed at http://www.energyconsents.scot/ as required by The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (Scottish Government, 2020).

1.6.3 For anyone who has difficulty accessing the documentation online, a USB copy can be made available on request by calling 0800 772 0668.

1.6.4 Due to the COVID-19 pandemic and in-line with The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (Scottish Government, 2020), no physical

copies of the EIA Report are available for viewing at the point of submission. However, should this change during the consultation period, the public copies will be made available during opening hours at the following location:

South Ayrshire Council
Wellington Square
Ayr
KA7 1DR

1.7 Representations to the Application

1.7.1 Any representations to the application should be made directly to the Scottish Government at:

Energy Consents Unit
4th Floor
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Email: representations@gov.scot
Online: http://www.energyconsents.scot/Register.aspx

1.8 References

BEIS (2020). Subnational Electricity and Gas Consumption Statistics. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/946968/sub-national-electricity-and-gas-consumption-summary-report-2019.pdf

Scottish Government (2017). *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*. Available at: http://www.legislation.gov.uk/ssi/2017/101/contents/made

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