

# 1 Introduction

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# 1 Introduction

## 1.1 Executive Summary

- 1.1.1 This chapter sets out the background to the Proposed Development and information as to the purpose of the EIA Report and where the EIA Report can be viewed.

## 1.2 Background

- 1.2.1 The Orkney Islands Council (hereafter referred to as “the Applicant”) intends to apply to Orkney Islands Council (OIC) for planning permission to construct and operate Orkney’s Community Wind Farm Project - Quanterness (hereafter referred to as the “Proposed Development”), on a site on the Orkney Mainland, Orkney Islands. The site extends to approximately 172.27 hectares (ha) and is centred on British National Grid (BNG) 341650, 1013600 (refer to Figure 1.1).
- 1.2.2 The Applicant has submitted an application for the Proposed Development to OIC under The Town and Country Planning Act (Scotland) 1997 (as amended). This application is supported by an Environmental Impact Assessment (EIA) Report (this document) prepared in accordance with The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.

### ***Site Description***

- 1.2.3 The site lies approximately 2.7 km north-west of Kirkwall Town Centre on the Mainland of Orkney.
- 1.2.4 The site comprises pasture farmland, used for both livestock and crops. It is divided into large regular fields, with a network of tracks.
- 1.2.5 The site is generally flat, with Wideford Hill rising steeply to the south of the site. The site elevation is approximately 20 m above Ordnance Datum (AOD) at the southern edge of the site, falling very gently to approximately 10 m AOD in the central site area, and sea level at the northern site boundary (see Figure 1.1). The site is centred on grid reference (BNG) 341560, 1013640 and occupies an approximate area of 172.27 ha.
- 1.2.6 There are no substantial watercourses onsite, although several field drains are marked on 1:10,000 scale Ordnance Survey (OS) mapping and were observed during site reconnaissance. There are several small ephemeral waterbodies in the site which are rain-water fed hollows.
- 1.2.7 There are no residential properties within the site boundary. The closest residential properties are Quanterness Farm Cottages (132 m south of the site boundary), Quanterness Farm (370 m south of the site boundary), Harwood (433 m south of the site boundary) and Rennibister (1052 m west of the site boundary).

### ***The Proposed Development***

- 1.2.8 The Proposed Development would consist of six wind turbines of up to a maximum of 149.9 m height from ground to blade tip when vertical. The overall capacity of Proposed Development would be approximately 28.8 MW<sup>1</sup>. A number of ancillary elements are also proposed, including a temporary construction compound, permanent hardstandings adjacent to the wind turbines for maintenance and decommissioning cranes, temporary laydown areas adjacent to the wind turbines, external transformers, internal access tracks, underground cables between turbines, an on-site substation and maintenance building and a permanent meteorological monitoring mast. Access to the site would be directly from the A965 on the site’s southern boundary, via a new junction designed to meet relevant safety standards. The proposed site layout is shown in Figure 1.2.

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<sup>1</sup> 28.8 MW is target capacity. Actual installed capacity may be greater or less dependent on turbine model selection but will not be greater than 50 MW.

- 1.2.9 The proposed locations of the turbines have been identified in order to enable the EIA to assess fully the Proposed Development for which permission is being sought. The British National Grid coordinates denoting where each of the turbines are proposed to be located are listed in Table 3.1 of Chapter 3 (Proposed Development).
- 1.2.10 Whilst the location of the infrastructure described above has been determined through an iterative environmental based design process, there is the potential for these exact locations to be altered through micro-siting allowances prior to construction. A micro-siting allowance of up to 50 m in all directions is being sought in respect of each turbine and its associated infrastructure in order to address any potential difficulties which may arise in the event that preconstruction surveys identify unsuitable ground conditions or environmental constraints that could be avoided. The exception to this is turbine T5 which will not be micro-sited between 141° and 341° to prevent any impacts on the telecommunication links. No micro-siting will be undertaken that results in an increase in the significance of adverse effects. It is proposed that the micro-siting of all infrastructure will be subject to an appropriately worded planning condition.
- 1.2.11 The total power output of the Proposed Development would be approximately 28.8 MW<sup>2</sup>. Based on BEIS Renewable Energy Statistics the average capacity factor for wind farms in Orkney was 38.3% in 2018 (BEIS, 2019). This figure does not take account of curtailment of generators in Orkney so can be viewed as conservative. Using these figures the annual indicative total power output for the site would be around 96,626 MW hours per annum<sup>3</sup>, indicating the Proposed Development would generate enough electricity to power approximately 25,912<sup>4</sup> average UK households (based on average annual electricity consumption per household in the UK quoted by BEIS (2019), of 3.729 MW hours). Using RenewableUK (2019) methodology this equates to a reduction in carbon emissions of 43,482 tonnes per year<sup>5</sup>. The Proposed Development would therefore make a substantive contribution towards international and national targets for the generation of renewable energy and reduction in greenhouse gas emissions.
- 1.2.12 The Proposed Development is one of three under development by the Applicant under Orkney's Community Wind Farm Project. The aims of this project are threefold; to generate income to be used for the benefit of the people of Orkney, to aid towards a meaningful response to the Climate Emergency and the urgent need to further decarbonise, and to build the case for a new transmission connection for Orkney unlocking wider benefits to the energy sector in Orkney.
- 1.2.13 In September 2019 the electricity market regulator Ofgem published its final decision on the needs case for a transmission connection linking Orkney to the Scottish Mainland. It determined that there is a need for a cable. To justify the required spending on a new cable, there is a requirement for Scottish Hydro Electric Transmission (SHE-T) to demonstrate that there will be sufficient generation capacity to connect to the new cable, once operational. Ofgem agreed that in order to trigger a new 220MW connection, 135MW of new generation is required to have obtained planning permission, signed up to a grid connection agreement, and passed a financial audit before the end of 2021. Currently less than 40MW of new wind has gained planning permission. Noting that there are a number of other private projects at different stages of development, it is clear that, without the Proposed Development and the Orkney Community Wind Farm Project, the threshold will not be met and a new interconnector will not be built.

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<sup>2</sup> 28.8MW is target capacity. Actual installed capacity may be greater or less dependent on turbine model selection but will not be greater than 50 MW.

<sup>3</sup> This has been calculated by multiplying the annual capacity of the Proposed Development (28.8 MW) by the hours in a year (8760) by the capacity factor (38.3%) (Renewable UK, 2019).

<sup>4</sup> This has been calculated by dividing the annual power output (96,626 MWh) by annual UK average household consumption (3.729 MWh) (Renewable UK, 2019).

<sup>5</sup> This has been calculated by multiplying the GWh pa of the Proposed Development (96.626 GWh) by the number of tonnes of carbon which fossil fuels would have produced to generate the same amount of electricity (450 tonnes of carbon dioxide per GWh of electricity) (Renewable UK, 2019).

## 1.3 The Applicant

- 1.3.1 The Applicant is looking to develop three wind farms within the Orkney Islands, of which the Proposed Development is one. 'Orkney's Community Wind Farm Project' could generate significant income and community benefit for Orkney. All profit would stay in the islands, enabling the Applicant to preserve and enhance key services that local people value and depend upon and providing a foundation for communities to drive transformational projects of their own.
- 1.3.2 A Local Authority taking the decision to become a developer of wind energy projects is an unusual decision, but it is felt vital that the Applicant now takes an active 'developer approach' to energy projects in Orkney. Not only does this allow the Applicant to maximise the resources available to them in the islands to support services and projects for local people at a time of significant central funding reductions, but it also allows them to contribute significantly and in a meaningful way to allow Orkney's world-renowned local energy industry to survive and thrive through a new grid connection.
- 1.3.3 Public feedback following the launch of Orkney's Community Wind Farm project highlighted a desire for the community to understand more clearly how the project would deliver community benefits through profit generation. In response to this OIC unanimously agreed to a set of guiding principles for community benefit related to the project at a meeting of the Policy and Resources Committee on 24 September 2019.
- 1.3.4 Specifically, the Council accepted the recommendation that the following guiding principles be adhered to in delivery of community benefit by 'Orkney's Community Wind Farm Project', if developed to operation:
- The key purpose of the Orkney Community Wind Farm Project is to generate profit to be used for the benefit of the people of Orkney.
  - Community benefit from the project will be delivered via a 'Community Fund' with funding distributed in accordance with the principles of Section 69 (e) of the Orkney County Council Act 1974 (which states that any fund provided under this section may be applied for any purpose which in the opinion of the Council is solely in the interests of the county or its inhabitants).
  - Financing of the project will be structured to achieve a profit which can be used for community benefit as soon as reasonably practicable in the project lifecycle, noting that any wind farm constructed must pay-off its own construction costs and provide a return on capital invested.
  - Profit may be retained for the purpose of extending the life of the 'Community Fund', such as through developing new projects, or repowering existing projects.
  - The Orkney Community Wind Farm Project is for the benefit of the whole community with benefit delivered through the distribution of funds. It will not be possible for private individuals to take a shareholding in any project.
  - Communities located closest to projects will be impacted most by developments. It is therefore considered appropriate to provide these communities with a 'location-specific community benefit payment'.
  - In determining the level and geographic extent of any 'location-specific community benefit payment', the principles outlined by the Scottish Government in Community benefits from onshore renewable energy developments: Guidance on good practice principles for communities, businesses, local authorities and others (2019) will be used (available at this link). This commits the Council to undertaking community consultation on the geographic extent of 'location-specific community benefit payments' as well as on delivery mechanisms for such payments.

- Receipt of a 'location-specific community benefit payment' by any area will not impact on the likelihood of an area receiving further community benefits from the 'Community Wind Farm Fund'.
- 1.3.5 The Applicant initiated a process in 2017, seeking to identify potentially suitable sites for wind energy generation. The search began with Council-owned sites but did not identify any which were considered suitable based on an initial review of technical and environmental constraints. A search was undertaken alongside an 'Expressions of interest' process and sites were tested against an initial range of technical and environmental parameters. Quanterness was identified as a potentially suitable development site, and further work was undertaken to establish feasibility of development and the potential scale and capacity of potential wind energy generation at the site (further details of the site identification and design of the Proposed Development can be found in Chapter 2).

## 1.4 Purpose of the EIA Report

- 1.4.1 ITP Energised (ITPE) was appointed by the Applicant to undertake an Environmental Impact Assessment (EIA) of the Proposed Development in accordance with The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. ('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 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 possible, offset potential significant adverse environmental impacts. An assessment of residual effects, those expected to remain following implementation of mitigation measures, is also presented.
- 1.4.2 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.
- 1.4.3 This EIA Report and NTS accompany the application for consent, being submitted to the planning department of OIC.

## 1.5 Structure of the EIA Report

- 1.5.1 The EIA Report is split into four 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 Applicant, the Proposed Development and the EIA;
  - Chapter 2 provides a description of the design iteration process, detailing how the Proposed Development evolved through 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 development and carbon considerations;
  - Chapter 4 is 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 is the planning policy context;
  - Chapter 6 assesses the potential and residual effects on landscape and visual amenity;
  - Chapter 7 assesses the potential and residual effects on ornithology;
  - Chapter 8 assesses the potential and residual effects on ecology and nature conservation;

- Chapter 9 assesses the potential and residual effects on noise;
- Chapter 10 assesses the potential and residual effects on cultural heritage;
- Chapter 11 assesses the potential and residual effects on hydrology, hydrogeology and geology;
- Chapter 12 assesses the potential and residual effects on traffic and transport;
- Chapter 13 assesses the potential and residual effects on socio-economics, tourism and recreation;
- Chapter 14 assesses the potential and residual effects on aviation and radar;
- Chapter 15 assesses the potential and residual effects from shadow flicker;
- Chapter 16 reports on other issues arising, namely telecommunication, marine radar and the carbon calculator;
- Chapter 17 is the Schedule of Environmental Commitments, which summarises all of the mitigation measures presented in this EIA Report; and
- Chapter 18 provides summary tables of all predicted residual effects.

1.5.2 Volume 2 contains the non-landscape and visual figures that inform the EIA Report.

1.5.3 Volume 3 contains the landscape and visual figures and visualisations.

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

1.5.5 Volume 5 contains confidential technical appendices.

1.5.6 Additional supporting documents which form part of the application submission include a Non-Technical Summary of the EIA Report, a Planning Statement, a Pre-Application Consultation (PAC) Report and a Design and Access Statement (DAS).

## 1.6 EIA Project Team

1.6.1 The assessment was undertaken by the ITP Energised (ITPE) environmental team supported by external consultants as shown in Table 1.1 below.

**Table 1.1 – EIA Team**

Person	Role	Expertise	Qualifications
Rebecca Todd (ITPE)	EIA Project Manager, editor and author of introductory, concluding, shadow flicker and telecommunication chapters.	Over 12 years' experience leading and undertaking EIAs across a range of sectors, including wind farms across Scotland.	PIEMA, BSc (Hons)
Stuart Winter (JLL)	Planning and consenting lead	Planner with over 15 years of experience across the UK within both local authority and private sectors.	MRTPI BLE (Hons)

Person	Role	Expertise	Qualifications
Jo Phillips (OPEN)	Landscape and visual lead	Chartered landscape architect with over 14 years' experience across multiple wind farm sites.	BA (Hons), Dip UD, MLI
Mikael Forup (ITPE)	Ecology lead	14 years of experience as an ecological project manager and advisor, undertaking assessments for over 15 wind farms	BSc (Hons), PhD Restoration Ecology; CEnv, FCIEEM
Richard King (ITPE)	Ornithology Lead	Over 12 years' experience as ecologist, including 10 assessing infrastructure developments.	BSc (Hons), MSc, MCIEEM
Jenny Hazzard (ITPE)	Geology, hydrology and hydrogeology	Over 19 years of consulting experience in geology, peat, hydrogeology and water resources	BSc, MSc, PIEMA
Lynne Roy (AOC Archaeology)	Cultural heritage lead	A Project Manager and has 14 years of knowledge and experience in the historic environment, with a specialism in preparing Environmental Impact Assessments.	BA (Hons), MSc, MCIfA, FSA Scot
Gordon Buchan (Pell Frischmann)	Traffic and transport lead	Transport planner with over 23 years' experience and has worked on over 400 wind farm projects across the UK, Ireland and Northern Europe.	BEng (Hons), MSc, CMILT, MCIHT
Scott McGarva (Pell Frishmann)	Engineering Lead	Civil Engineer and Project Manager with over 20 years' experience working on onshore renewable energy schemes within the UK and Ireland from pre-planning through to onsite delivery.	HNC Civil Engineering, MCIHT, CMILT
Simon Waddell (ITPE)	Noise and vibration lead	Principal Noise Consultant with over 9 years' experience as a technical specialist in environmental noise.	BSc, MIOA, PGDip



Person	Role	Expertise	Qualifications
Graeme Blackett (BiGGAR Economics)	Socio-economic support	Economist with over 25 years' experience, specialising in the wind sector.	BA (Hons), MEDAS, MIED
Ian Fletcher (WBS)	Aviation lead	Wind Energy consultant, specialising in aviation impacts advising government and industry for 21 years	BEng (Hons), IMechE
Sam Westwood (Anatec)	Marine radar lead	Maritime industry consultant with 21 years' experience working for ports and the Maritime and Coastguard Agency	BSc (Hons), Post Graduate Certificate I Shipping, Ports & Environment, NVQ 2 & 3 in Marine Operations, VTS V103-1 Qualified

## 1.7 Availability of the EIA Report

1.7.1 If you would like a copy of the EIA Report please contact:

Development and Infrastructure

Orkney Islands Council

Town House

Stromness

Orkney

KW16 3AA

or

[Sweyn.johnston@orkney.gov.uk](mailto:Sweyn.johnston@orkney.gov.uk)

1.7.2 Hard copies of the Non-Technical Summary (NTS) are available for free from the Applicant, a hard copy of the EIA Report Volumes 1, 2, 3 and 4 are available for £1,250.00 (including printing and distribution). In addition, all documents are available (as a PDF for screen viewing only) on a DVD for £10.00.

1.7.3 Copies of the EIA Report will also be available for viewing during opening hours at the following locations:

Orkney Island Council	Orkney Library & Archive
Council Offices	44 Junction Road
School Place	Kirkwall
Kirkwall	Orkney
Orkney	KW15 1AG
KW15 1NY	

## 1.8 Representations to the Application

1.8.1 Any representations to the application should be made directly to OIC at: [planning@orkney.gov.uk](mailto:planning@orkney.gov.uk)

## 1.9 References

BEIS (2019). The Renewables Obligation for 2019/20. Calculating the Level of the Renewables Obligation for 2019/20. Available at:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/747218/2019-20-renewables-obligation-level.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/747218/2019-20-renewables-obligation-level.pdf)

Renewable UK (2019). *Wind Farm Statistics Explained*. Available at:

<https://www.renewableuk.com/page/UKWEDEExplained>

Scottish Executive (1997). Town and Country Planning Act (Scotland) 1997. Available at:

<https://www.legislation.gov.uk/ukpga/1997/8/contents>

Scottish Executive (2006). The Planning etc. (Scotland) Act 2006. Available at:

<http://www.legislation.gov.uk/asp/2006/17/contents>

Scottish Government (2017). The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at:

<http://www.legislation.gov.uk/ssi/2017/102/contents/made>