

1 Introduction

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1 Introduction

1.1 Introduction

- 1.1.1 Energy Isles Ltd is a consortium of over 50 mainly Shetland-based companies. The consortium was brought together via the shared desire to ensure that the considerable benefits of Shetland’s emerging renewable energy sector are retained as far as possible within the isles, and Shetland’s North Isles in particular.
- 1.1.2 Energy Isles Ltd (hereafter referred to as the ‘Applicant’) is proposing the development of a wind farm (hereafter referred to as the ‘Proposed Development’) on Yell, in the Shetland Islands¹. This Environmental Impact Assessment (EIA) Report has been prepared in support of an application submitted to the Scottish Government’s Energy and Consents Unit under Section 36 of the Electricity Act 1989 (as amended), seeking consent and deemed planning permission to construct and operate the Proposed Development for a limited operational period of 30 years.
- 1.1.3 It should be noted at the time of writing (April 2019) that the negotiations of Brexit are still ongoing. The European Union (Withdrawal) Act 2018 specifies that EU-derived domestic legislation will continue to have effect in domestic law after the UK formally exits the EU. Therefore, this EIA Report continues to reference EU-derived legislation as appropriate.

1.2 Background and Site Description

Site Description

- 1.2.1 The Proposed Development application boundary (the “site”) is located approximately 147 m west of Sellafirth, 1.8 km west of Cullivoe and 812 m south of Gloup, on the island of Yell in the Shetland Islands. The site covers Hill of Vigon, Hill of Bakkanalee, Sandwater Hill, Hill of Markamouth, Tonga Field Muckle Bratt-houll, Little Bratt-houll, and Fugla Field. The elevation of the site ranges from 0-112 m above ordnance datum (AOD). The site occupies an area of 1,679 hectares (ha). The central grid reference for the site is BNG (450134, 1201392). The site location and site boundary are shown in **Figure 1.1**.
- 1.2.2 The site comprises grazed peatland, intersected with waterbodies (including Gossa Water), burns and drainage ditches. No buildings or structures are located within the site boundary. The Dalsetter Hill Road (known locally as the Old Cullivoe Road) intersects the south-eastern corner of the site and will be used as the access to the site from the A968.

The Proposed Development

- 1.2.3 The Proposed Development comprises 29 wind turbines of up to a maximum 200 m height from ground to blade tip when vertical. The overall capacity of the Proposed Development will be up to, but not exceeding, 200 MW. A number of ancillary elements are also proposed, including four temporary construction compounds (1, 2, 3 and substation), 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, an abnormal loads access junction off the A968, underground cables between turbines, an on-site substation and maintenance building, a permanent meteorological monitoring mast and nine potential temporary borrow pit search areas. The proposed site layout is shown in **Figures 1.2a-e**.
- 1.2.4 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 Please note this development was previously named “Yell Wind Farm” through the EIA Scoping processes.

- 1.2.5 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 100 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. Any variation of between 50 m and 100 m shall only be permitted following prior written approval of Shetland Islands Council, in consultation where relevant with aviation consultees, Scottish Water, Scottish Environment Protection Agency (SEPA) and/or Scottish Natural Heritage (SNH). It is proposed that the micro-siting of all infrastructure will be subject to an appropriately worded planning condition.
- 1.2.6 The total installed power based on currently available turbine models is anticipated to be up to 200 MW². Based on the capacity factors of other wind farms on Shetland³ and supported by independent analysis, the annual indicative energy output for the site is expected to be approximately 893,520⁴ MWh/p.a., indicating that the Proposed Development would generate enough electricity to power over 236,318⁵ average Scottish households (based on Department of Business, Energy and Industrial Strategy (BEIS) UK average domestic household consumption is 3,781 kWh/p.a. (BEIS, 2018)). The Proposed Development is anticipated to save 180,000 tonnes of carbon emissions annually (refer to Chapter 16 for further details).

1.3 Purpose of the EIA Report

- 1.3.1 ITP Energised are appointed by the Applicant to undertake an EIA of the Proposed Development in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations). EIA 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 beneficial and adverse likely significant 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 possible, offset 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 the EIA are summarised in a Non-Technical Summary (NTS), as required by the EIA Regulations. The NTS provides a stand-alone document, summarises the key findings of the EIA in easily accessible, non-technical language, ensuring everyone with an interest in the Proposed Development can understand and access information on its predicted environmental effects.
- 1.3.3 This EIA Report and NTS, comprise documentation in support of an application for consent under the terms of Section 36 of the Electricity Act 1989 (as amended) and for a direction for planning permission under Section 57 of the Town and Country Planning (Scotland) Act 1997, submitted to the Scottish Government's Energy and Consents Unit.

1.4 Structure of the EIA Report

- 1.4.1 The EIA Report is split into seven volumes, with the NTS, a concise document that provides a description of the EIA process and its findings. Volume 1 of the EIA Report is structured as follows:
- Chapter 1 introduces the Proposed Development and the EIA Report;

² 200 MW is target capacity. Actual installed capacity may vary dependent on turbine model selection.

³ e.g. Burradale Wind Farm on the island of Mainland, Shetland has an average annual capacity factor of 52% <https://www.burradale.co.uk/>. This has been independently validated by a third party consultant using Analysis of the wind resource for the Proposed Development by a third-party consultant independently supports use of this figure.

⁴ This has been calculated by multiplying the annual capacity of the Proposed Development (200MW) by the hours in a year (8760) by the capacity factor (51%) (Renewable UK, 2019).

⁵ This has been calculated by dividing the annual power output (893,520 MWh) by annual UK average household consumption (3.781 MWh) (Renewable UK, 2019).

- Chapter 2 explains the need for the Proposed Development, project objectives, site selection and the consideration of alternatives;
- Chapter 3 provides a description of the site and details the Proposed Development including the construction, operation, maintenance, and decommissioning processes;
- Chapter 4 sets out the methodology for the EIA, including its scope, justification for topics scoped out and details the pre-application consultation process undertaken;
- Chapter 5 assesses the potential landscape and visual impact of the Proposed Development (including residential visual amenity assessment and night-time lighting assessment);
- Chapter 6 assesses the potential effects on ornithology;
- Chapter 7 assesses the potential effects on ecology and nature conservation;
- Chapter 8 assesses the potential effects on noise and vibration;
- Chapter 9 assesses the potential effects on archaeology and cultural heritage;
- Chapter 10 assesses the potential effects on geology, hydrology, hydrogeology and peat;
- Chapter 11 assesses the potential effects on traffic and transport;
- Chapter 12 assesses the potential effects on socio-economics;
- Chapter 13 assesses the potential effects on aviation and radar;
- Chapter 14 assesses the potential effects of shadow flicker;
- Chapter 15 assesses the potential effects on telecommunications;
- Chapter 16 assesses the whole life carbon balance of the Proposed Development and influence of the Proposed Development on climate change;
- Chapter 17 sets out the Schedule of Environmental Commitments, which summarises all mitigation measures presented in this EIA Report; and
- Chapter 18 provides summary tables of all predicted residual effects.

1.4.2 Volume 2 contains the EIA Report figures with the exception of the landscape and visual figures.

1.4.3 Volume 3 and 4 contains the landscape and visual figures for Chapter 5 Landscape and Visual, and for Chapter 9 Cultural Heritage.

1.4.4 Volumes 5 and 6 contain supporting information 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 7 contains confidential ornithology figures.

1.5 Assessment Team

1.5.1 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 and	Over 10 years experience leading and undertaking EIAs across a range of sectors,	PIEMA, BSc (Hons)

Person	Role	Expertise	Qualifications
	telecommunication chapters.	including wind farms across Scotland.	
Alan Farningham (Alan Farningham Planning Ltd)	Planning and consenting lead	Planner with over 35 years of experience across the UK within both local authority and private sectors.	MRTPI, BSc (Hons)
Peter Dunmow (HEPLA)	Landscape and visual lead	Chartered landscape architect with over 24 years experience across multiple wind farm sites.	BA (Hons), MA (Hons), CMLI, Diploma Landscape Architecture
Mikael Forup (ITPE)	Ecology and ornithology lead	13 years of experience as an ecological project manager and advisor, undertaking assessments for over 10 wind farms	BSc (Hons), PhD Restoration Ecology; CEnv, FCIEEM
Owain Gabb (BGS)	Ornithology support	A professional ornithologist for 20 years, specialising in wind farms for 17 years.	MSc, CIEEM, CEnv
Duncan Saunders (Fluid Environmental Consulting)	Geology, hydrology, hydrogeology and peat	Over 18 years of consulting experience in geology, peat, hydrogeology and water resources	BSc, MSc, MCIWEM, C. WEM, CSci
Andy Mills (AM Geomorphology)	Peat support	Over 10 years experience as peat advisor in the renewables sector. Author of the Scottish Government's Peat Landslide Hazard and Risk Assessment: Best Practice Guide.	BSc, MSc, PhD, CGeol
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), MCifA, FSA Scot
Liz Hunter (WYG)	Traffic and transport lead	Transport planner with over 20 years experience.	BSc (Hons), CMILT, MIHT
Simon Waddell (ITPE)	Noise and vibration lead	Principal Noise Consultant with over 9 years experience as a	BSc, MIOA, PGDip

Person	Role	Expertise	Qualifications
		technical specialist in environmental noise.	
Aisla Gray (Arcus)	Socio-economic lead	Planning consultant with 4 years experience.	MA (Hons), MSc, MRTPI
Graeme Blackett (BiGGAR Economics)	Socio-economic support	Economist with over 25 years experience, specialising in the wind sector.	BA (Hons), MEDAS, MIED
Anna Hudson (ITPE)	Shadow flicker lead	EIA consultant with over eight years experience who has undertaken shadow flicker assessments for 13 wind farm developments and numerous single turbines.	BSc (Hons), PIEMA
John Taylor (WPAC)	Aviation lead	33 years as Royal Navy Air Traffic Controller and Fighter Controller. 13 years advising developers, Government working groups, local authorities and the Crown Estate on wind farm and aviation interaction.	-

1.6 Availability of the Environmental Statement

1.6.1 Copies of the EIA Report are available from:

Energy Isles Limited
10 Charlotte Street,
Lerwick,
Shetland,
ZE1 0JL

Email: info@energyisles.co.uk

1.6.2 Electronic copies of the EIA Report can be accessed at <http://www.energyconsents.scot/> or at <https://www.energyisles.co.uk/>.

1.6.3 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, 4, 5 and 6 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.

1.6.4 The EIA Report is free to view in hard copy at the following locations:

Cullivoe Village Hall	Lerwick Town Hall
Cullivoe	Hillhead
Yell	Lerwick
Shetland Islands	Shetland Islands
ZE2 9DD	ZE1 0JL

1.7 References

BEIS (2018). *The Renewables Obligation for 2019/2020*. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/747218/2019-20-renewables-obligation-level.pdf

Digest of UK Energy Statistics (2018). *Electricity*. Available at:

<https://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes>

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

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

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

UK Government (1989). *The Electricity Act (as amended)*. Available at:

<http://www.legislation.gov.uk/ukpga/1989/29/contents>