Figures

1. Introduction

1.1 Introduction

1.1.1 This Environmental Impact Assessment (EIA) Report has been prepared to accompany the application by Limekiln Wind Limited ('the Applicant') to vary the existing consent for Limekiln Wind Farm (case reference: WIN-270-8) at the Limekiln Estate, in Caithness (hereafter referred to as the 'Revised Consented Development').

1.1.2 The site location of the Revised Consented Development is shown on **Figure 1.1**, with the site boundary shown on **Figure 1.2**.

1.2 Project History

1.2.1 In 2012 the Applicant submitted a section 36 Application to the Scottish Ministers for a proposed wind farm at Limekiln Estate in the Highlands of Scotland. The application sought consent for the erection of 24 wind turbines (15 with a maximum blade tip height of 139 m; and 9 with a maximum blade tip height of 126 m) with an installed capacity of over 50 megawatts (MW). This application was refused at a Public Local Inquiry (PLI) in 2014 on the grounds that it did not include adequate information to understand the potential impact of the proposal on Wild Land Area (WLA) 39 East Halladale Flows.

1.2.2 In 2016 the Applicant submitted a section 36 Application with exactly the same proposed infrastructure and layout as the first section 36 Application submitted in 2012. The application, EIA Report and other documents which were submitted in support, took account of relevant changes in policy or guidance which had occurred in the intervening period since the first application and was supported by additional information regarding wild land and updated information on cumulative impacts.

1.2.3 In February 2017 the planning committee of the Highland Council (THC) voted to object to the section 36 Application on the grounds of a loss of recreational amenity close to the village of Reay and an unacceptable impact on Wild Land Area 39 - East Halladale Flows. The Scottish Ministers therefore referred the section 36 Application to the Planning and Environmental Appeals Division (DPEA) to be examined at Public Local Inquiry (PLI).

1.2.4 In response to feedback received, the Applicant decided to remove three turbines (T19, T20 and T21) and their associated access tracks from the (then) proposed wind farm. Supplementary Information (SI) to support this layout, as well as to respond to consultees and update the cumulative assessment, was submitted in September 2017 and it was consented by the Scottish Ministers in June 2019. A copy of the Limekiln Wind Farm decision letter is included in **Appendix 1.A**. The Applicant has subsequently satisfied the conditions required for construction to commence.

1.2.5 As access would be taken to several turbines along an existing Core Path, the Applicant submitted a Section 11 application to THC for temporary closure of this path for health and safety reasons. After considering the application THC refused the Section 11 in November 2020.

1.2.6 Separately, in 2020 the Applicant also submitted a planning application for Limekiln Wind Farm Extension, located immediately to the east of the Revised Consented Development. The proposal consists of five turbines with a maximum tip height of 149.9 m, including ancillary infrastructure. At the time of writing Limekiln Wind Farm Extension has appealed to Scottish Ministers following planning refusal by THC (DPEA case reference: WIN-270-13).

1.3 Overview of the Revised Consented Development

1.3.1 As set out above, in June 2019, Limekiln Wind Farm was granted consent under section 36 of the Electricity Act 1989 and deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997 by the Scottish Ministers (the "Consented Development"). The consent is for a wind farm generating station with a generating capacity exceeding 50 Megawatts, with up to 21 wind turbines with varying tip heights[1] and associated infrastructure for an operational period of 25 years. The Applicant is seeking to amend the consent to:

- Increase the maximum height of all turbines to 149.9m;
- Reroute certain access tracks;
- Remove one borrow pit;
- Increase the period of consent from 30 to 40 years; and
- Relocate the construction compound and increase its size from 100m x 100m to 150 x 100m.
- Relocate five watercrossings and insert two more;
- Increase the size of the crane hardstandings from 40 m x 22 m to 40 m x 35 m; and
- Removal of permanent anemometer mast.

1.3.2 Collectively, these proposed variations to the Consented Development are referred to as the 'Revised Consented Development', which is shown in comparison to the Consented Development on **Figure 1.3**.

1.3.3 Based on the candidate turbine the Revised Consented Development will have an indicative installed capacity of 88.2MW. This would be a 40% increase in the installed capacity of the Consented Development using its candidate turbine. We would note however, that in reality another turbine make or model with a different installed capacity might be used, both for the Revised Consented Development as well as for the Consented Development (but still within the design limits of the applicable consent, for example, maximum tip height). For the Revised Consented Development we would expect to install a turbine with a higher installed capacity than the installed capacity of the proposed candidate turbine.

1.4 Reasons for Seeking the Variations

Access Tracks

1.4.1 As access would have been taken for the Consented Development to a number of turbines along an existing Core Path (CA11.03 Limekiln Forest), the Applicant submitted a Section 11 application to THC for temporary closure for health and safety reasons. After considering the application THC refused the Section 11 in November 2020. Therefore the Applicant has decided to submit an application to vary the consent to allow an alternative route for the access tracks.

1.4.2 It should be noted that the indicative alignment of the revised access track shown on Figure 1.0 of the Scoping Report (see **Appendix 3.A**) has been substantially altered as part of the Revised Consented Development. This is in response to technical specifications received from the turbine supplier, emerging environmental and technical constraints gathered during the EIA and consultee comments. In particular the comments of Matt Dent the access officer at THC who was concerned about the number of times the scoping report revised access track crossed Core Path CA11.03.

[1] 15 No. with a maximum blade tip height of 139 m; and 6 No. with a maximum blade tip height of 126 m.

The changes to the access track to produce the alignment in the Revised Consented Development have substantially reduced the number of times the proposed access track crosses Core Path CA11.03.

Borrow pit removal

1.4.3 Since the granting of consent and deemed planning permission in June 2019, site investigation works have been carried out in respect of the largest approved borrow pit at the application site, which have shown that there will be sufficient material within the largest approved borrow pit for the necessary onsite works. As such, the second smaller borrow pit to the northwest of the site is no longer considered to be required and can be removed from the proposal

Wind Turbine Tip Height Increase

1.4.4 The new application also presents the opportunity to look afresh at the Consented Development in the context of a wider range of renewable technologies since the section 36 application was submitted, in particular the availability of larger, more efficient turbines.

1.4.5 The increase to the maximum tip height of the wind turbines would substantially increase the energy production and associated carbon dioxide emissions reduction from the Revised Consented Development. Consequently, the Revised Consented Development would make an even greater contribution to the achievement of the UK and Scottish Government 'whole system' targets to decarbonise energy consumption. So too, the increase in operational life will extend the period of such contributions. Furthermore, the Applicant, concurrently has an application before the Scottish Ministers seeking planning permission for Limekiln Wind Farm Extension (ref WIN-270-13) which neighbours the Revised Consented Development directly to the east. Limekiln Wind Farm Extension is also proposing a maximum tip height of 149.9m for the turbines and a 40 year operational life.

Crane Hardstanding increase

1.4.6 Due to the proposed increase in tip height of the wind turbines, it is necessary to increase the size of the crane hardstandings and construction compound.

Anemometer mast removal

1.4.7 With sufficient wind data being available directly from the wind turbines, no permanent anemometer mast will be required.

1.5 The Applicant

1.5.1 The Applicant, Limekiln Wind Limited, is a joint venture between Infinergy Limited and Boralex Limited Liability Partnership (LLP), which is the same Applicant as for the Consented Development.

1.5.2 Infinergy Limited is a UK based renewable energy company with a focus on the development of onshore wind energy in Scotland, England and Wales. Infinergy develops wind energy projects from inception through to construction and operation and has offices in Wimborne (England), and in Edinburgh (Scotland).

1.5.3 Infinergy believes wind energy has an important role to play in reducing the combined threats of decreasing energy security, climate change and energy poverty, all of which have been identified by successive governments as key issues facing the energy supply of the UK. The Scottish Government has set a target of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources by 2030.

1.5.4 When developing a wind energy scheme, Infinergy aims to put the right sized wind farm in the right place, whilst in close consultation with statutory consultees and local communities. This approach allows it to consistently design wind developments that are in keeping with local landscapes, while maximising operational efficiency and hence energy output. Infinergy currently have a wind farm project portfolio of over 500 MW.

1.5.5 Infinergy is a member of the trade organisations Scottish Renewables and Renewable UK. For more information please visit: http://www.infinergy.co.uk.

1.5.6 Boralex LLP is a Canadian based independent power provider that has developed and operates a large portfolio of wind farms and solar parks, primarily in Canada and France. The company also owns and operates large hydro-electricity projects in Canada. Further information can be found at: https://www.boralex.com/our-projects-and-sites-geo/

1.6 Environmental Impact Assessment Project Team and Competency

1.6.1 This Environmental Impact Assessment (EIA) Report has been prepared on behalf of the Applicant by a number of consultants as outlined below:

- Wood Group UK Ltd (Geology, Hydrology and Hydrogeology, Peat Slide Risk assessment, Peat Management Plan, Socio-economic assessment);
- Optimised Environments (Landscape and Visual);
- Natural Power (Civils design and Project Description);
- Natural Resource Projects (Ornithology);
- Nevis Environmental (Ecology);
- Pell Frischmann (Traffic and Transport);
- Headland Archaeology (Cultural Heritage);
- McKay Forestry (Forestry);
- Infinergy (Infrastructure, Health & Safety and Shadow Flicker); and
- Hayes McKenzie (Noise).

1.6.2 A statement outlining the relevant experience and qualifications of the competent experts who have prepared this EIA Report is provided in **Appendix 1.B**.

1.7 Purpose of the Environmental Impact Assessment Report

1.7.1 This document forms the EIA Report (EIAR) which supports an application made by the Applicant to the Scottish Government Energy Consents Unit (ECU) under section 36C of the Electricity Act 1989 and under S57 (2ZA) of the Town and Country Planning (Scotland) Act 1997 to vary the deemed planning permission for Limekiln Wind Farm.

1.7.2 The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 came into effect on Friday 24th April 2020. These allow a temporary relaxation of the usual requirement to make documents available for public inspection for health and safety purposes and hence hard copies of the

application documents have not been lodged at locations accessible to the public. The public will however be able to access the application documents, together with the public notice of the application, at the Applicant's website as noted above.

1.7.3 The Revised Consented Development falls within Schedule 2 of the EIA Regulations and the Applicant, in agreement with the ECU, acknowledges that EIA is required. In accordance with good practice, a Scoping Report was prepared to identify the potentially significant environmental effects of the Revised Consented Development; with those that were considered as being likely to be significant assessed further in this EIA Report.

1.7.4 This reflects the requirement of the EIA Regulations to only assess impacts that are likely to result in significant effects. In addition, the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 make it clear that, for a variation application relating to an EIA development, further assessment required to inform the application should consider the impacts of the variation itself and how those differ from the original scheme, rather than requiring the whole development to be assessed again.

1.7.5 The Scoping Report was issued to the ECU together with a request for a Scoping Opinion under the EIA Regulations on 9th March 2021, under which the Scottish Ministers are required to consult with the 'consultation bodies' as defined in the EIA Regulations.

1.7.6 Drawing upon the Scoping Opinion and subsequent assessment work, the EIA Report includes an assessment of the likely significant environmental effects of the Revised Consented Development. The overall approach that has been taken to defining significance, as well as further information about the approach to preparing the EIA Report, are outlined in Chapter 3 of this document.

1.8 Scope of the EIA Report

1.8.1 As set out in Schedule 4 of the EIA Regulations, the following information should be included in an EIA Report:

- The location of the development;
- The description of the physical characteristics of the Revised Consented Development and land-use requirements of the Development Site, considering construction and operation (including requisite demolition works where relevant);
- Operational processes such as energy, materials and natural resources used;
- An estimate of any expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases);
- The reasonable alternatives that the developer has studied, which are relevant to the Revised Consented Development and its specific characteristics, including an indication of the main reasons for the chosen option, with a comparison of their environmental effects;
- The baseline environment and an outline of its likely evolution (as far as natural changes to that baseline can be assessed with reasonable effort) in the absence of the development;

- A description of the likely significant effects of the construction and operation of the Revised Consented Development on environmental factors - population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape including the cumulation of effects with other existing and/ or approved development taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources, and the technologies and substances used;
- A description of the methods used in the assessment to determine whether significant effects are likely to occur;
- A description of measures and monitoring that have been identified to address likely adverse significant effects, during construction and/or operational phases;
- A description of any significant effects on the environment deriving from the development's vulnerability to major accidents and/ or disasters;
- A non-technical summary; and
- A list of references.

1.8.2 Regulation 4 and Schedule 4 of the EIA Regulations require that the environmental topics listed in column 1 of Table 1.1 need to be considered when preparing an EIA Report. Column 2 lists where these topics are included in this EIA Report, with reference to the relevant chapter numbers.

Table 1.1 Environmental Topics to be addressed in the EIA Report and Chapter References

Topics[2] that need to be assessed under the EIA Regulations	Chapter titles in this EIA Report
Population	Visual effects - Chapter 9 (Landscape & Visual); Chapter 7 (traffic and transport); Chapter 17 (noise); Chapter 6 (recreation and socio-economics)
Human health	Chapters 17 (noise), 18 (Shadow Flicker) and 9 (Landscape & Visual)
Biodiversity	Ecology (Chapter 11)
Land	Geology, Hydrology and Hydrogeology (Chapter 13)
Soil	Geology, Hydrology and Hydrogeology (Chapter 13)
Water	Geology, Hydrology and Hydrogeology (Chapter 13)
Air	Air quality (scoped out of the 2012 and 2016 ES and 2017 Supplementary Information (SI) and this assessment)
Climate	Climate (Chapter 8 - Renewable Energy Policy, Climate Change, Carbon Balance and Peat Management)
Material assets	N/A (scoped out of the 2012 and 2016 ES and 2017 SI and this assessment)
Cultural heritage	Cultural Heritage (Chapter 10)
Landscape	Landscape & Visual (Chapter 9)

[2] In this EIA Report, the word 'topic' is used when referring to the environment that could be affected by the Revised Consented Development. Other words with the same general meaning are used in the EIA Regulations, notably 'factor' and 'aspect', but these are not used in the same context within this EIA Report.

Topics[2] that need to be assessed under the EIA Regulations	Chapter titles in this EIA Report
The inter-relationship between the above factors	These are discussed within each Technical Chapter as relevant.
Vulnerability to major accidents or disasters	Health and Safety (Chapter 16)

1.9 Structure of this EIA Report

1.9.1 This EIA Report comprises 4 volumes:

- **Volume 1** (i.e. this volume) is sub-divided into the following chapters:
  - Chapter 2 explains the need for the Revised Consented Development, outlines the main alternatives considered for meeting this need and indicates the main reasons for the preferred choice;
  - Chapter 3 details the approach that has been adopted in preparing the EIA Report;
  - Chapter 4 provides a description of the Revised Consented Development;
  - Chapter 5 provides an overview of the legislation and policies that are relevant to the EIA Report;
  - Chapters 6 to 18 set out the technical assessments for the environmental topics considered in the EIA Report.
- **Volume 2** contains the figures referred to in Volume 1;
- **Volume 3** contains the Landscape and Visual and Cultural Heritage visualisations;
- **Volume 4** contains the appendices referred to in Volume 1;
- **Volume 5** is a Non-Technical Summary (NTS), which is also available as a standalone document;

1.9.2 Also accompanying this EIA Report is the Planning Statement.

1.9.3 A glossary of technical terms and abbreviations is provided as **Appendix 1.C** in Volume 4.

1.9.4 This EIA Report provides additional assessment material relating to the assessment of the impacts of the Revised Consented Development. The EIA Report should not be read as removing the assessment material of the 2012 ES, 2016 ES or the 2017 Supplementary Information.

1.9.5 A table is provided in the introduction of each technical chapter which provides a comparison between the conclusions of the 2012 ES, 2016 ES and 2017 Supplementary Information and this EIA Report.

1.10 Obtaining Further Information

1.10.1 Limekiln Wind Farm has a dedicated website. Please visit online at www,limekilnwindfarm.co,uk where you can find the following information:

- The Limekiln Wind Farm 2012 Environmental Statement;
- The 2016 Consented Development Environmental Statement;
- 2017 Supplementary Information; and
- This Section 36C EIA Report and supporting documentation.

1.10.2 Copies of the Non-Technical Summary (NTS) and a DVD comprising this entire EIA Report in PDF format may be obtained free of charge while stocks last.

1.10.3 Similarly, paper copies of the EIA Report may be obtained at a cost of £750 + P&P. Please email the Applicant at info@limekilnwindfarm.co.uk, or write to *Freepost Infinergy Ltd* (no further details or stamps required) to request a copy.