1. INTRODUCTION

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1.1. Purpose of this EIA Report

1.1.1. This Environmental Impact Assessment (EIA) Report has been prepared to accompany the application by SETT Wind Development Limited ('the Applicant') to construct, operate and decommission up to 19 wind turbines, equating to a maximum output of approximately 84.6 megawatts (MW) (based on the candidate turbines and including the output from a battery energy storage facility), within the Smittons and Craigengillan North plantations, approximately 5 kilometres (km) east of Carsphairn in Dumfries and Galloway (hereafter referred to as the 'Site'). The project is known as Shepherds' Rig Wind Farm (hereafter referred to as the 'Proposed Development').

1.1.2. As the Proposed Development exceeds 50 MW, the Applicant is seeking consent from the Scottish Ministers under Section 36 of the Electricity Act 1989 (as amended) along with deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

1.1.3. This EIA report describes the likely significant effects on the environment as a result of constructing, operating and decommissioning the Proposed Development in line with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017[1].

1.2. The Applicant

1.2.1. SETT Wind Development Limited is a company formed by Infinergy Limited and Boralex LLP.

1.2.2. Infinergy is a UK based renewable energy company with a strong focus on the development of onshore wind energy in Scotland and Wales. Infinergy develops wind energy projects from inception through to construction and operation, and has offices in Wimborne (England) and Edinburgh (Scotland). For more information visit http://www.infinergy.co.uk.

1.2.3. Boralex LLP is a Canadian based independent power provider. Boralex has developed, and now operates, a large portfolio of wind farms as well as a number of 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 http://www.boralex.com/projects

1.2.4. Boralex is investing in a portfolio of Infinergy wind farm proposals in Scotland, and the Shepherds' Rig project is included within this programme.

[1] The Scottish Government (2017). Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: http://www.legislation.gov.uk/ssi/2017/101/pdfs/ssi_20170101_en.pdf. [Accessed 06/11/2018]

1.3. Site Description

1.3.1. The Site is located approximately 5 km to the east of Carsphairn and 10 km north of St John's Town of Dalry, in northern Dumfries and Galloway. The Site lies approximately 2 km to the north of the Glenken valley, which contains a sequence of lochs and associated hydro schemes, and is adjacent to the upper valley of the Water of Ken which lies close-by to the east. The Site lies approximately 3 km to the south east of the summit of Cairnsmore of Carsphairn.

1.3.2. The Site covers an area of approximately 752 hectares (ha) and is centred on approximate national grid reference (eastings) 262319 and (northings) 593591. The Site comprises commercial coniferous woodland plantation and is bounded to the north and north-east by further forestry and to the west, east and south-east by open moorland.

1.4. Overview of the Proposed Development

Proposed Development

1.4.1. The main components of the Proposed Development are:

- up to 17 wind turbines with a maximum blade tip height of 149.9 metres (m) and 2 wind turbines with a maximum blade tip height of 125 m, together with associated turbine foundations, wind turbine hard-standings, and crane pads;
- a series of onsite access tracks connecting each of the turbine locations;
- a network of underground cables linking the turbines to an onsite electricity substation and control/maintenance building;
- a battery energy storage array located within the onsite electricity substation;
- two temporary borrow working areas;
- an access junction at the existing forestry track into the plantation from the B729 between Muirdrochwood and Smittons;
- a temporary construction compound; and
- a permanent anemometer mast to measure wind speed and wind direction.

1.4.2. The layout of the Proposed Development has evolved via the iterative EIA process, and the final layout is described in detail in Chapter 4 and shown in **Figure 4.1**. Table 4.1 provides a grid reference for each turbine location.

1.4.3. The application is for the Proposed Development to be operational for 25 years and, at the end of this period, decommissioned.

1.4.4. The EIA has been based on a maximum parameter application wind turbines with tip heights of 149.9 m and 125 m. The candidate turbines that have been used within this assessment envelope are the Vestas V117 4.2 MW and Vestas V105 3.6 MW. Based on these candidate turbines, the estimated installed maximum generation capacity from all of the wind turbines together would be 78.6 MW.

1.4.5. The maximum output from the battery energy storage facility would be 6MW based on current technology, and consequently the overall maximum output from the Proposed Development would be 84.6MW.

1.4.6. The Proposed Development is not, however, tied to a particular turbine type, as the turbine market is dynamic, with technology changes, predicted performance and price fluctuations driving turbine selection. The final turbine choice will depend on technical and commercial considerations at the time of procurement, although the final turbines would not exceed the proposed maximum parameter tip heights of 149.9m and 125 m.

1.4.7. The Proposed Development would be accessed from the existing forestry track off the B729 between Muirdrochwood and Smittons. This will involve upgrading the existing Site entrance junction and the track (see **Figure 4.17**).

1.4.8. The turbine components which constitute 'abnormal loads' would be delivered by sea to the Port of Ayr and then south via the A77, A713 and to the western end of the B729.

1.4.9. The grid connection for the Proposed Development would be via a new onsite substation (see **Figure 4.10**), which would contain metering equipment and switchgear. The connection between the Site and the wider grid is the responsibility of Scottish Power Energy Networks (SPEN) and would be subject to a separate consent procedure. An overview of the grid connection for the Proposed Development has been provided in Chapter 4.

Need for the Development

1.4.10. The importance of taking action to address climate change is recognised both internationally and nationally. Successive EU, UK and Scottish Governments have set clear obligations to this end, establishing firm commitments for the promotion and use of renewable energy along with requirements for urgent action. In addition, the UK has recognised that diversifying energy supply away from a heavy (and growing) reliance on imported fossil fuels, to include renewables, helps to address risks associated with energy security and poverty[2].

1.4.11. In response to this, and recognising Scotland's opportunity to play a leading role, the Scottish Government announced a target to generate the equivalent of at least 100% of gross electricity consumption from renewable resources by 2020[3].

1.4.12. The Scottish Energy Strategy[4] has also set a new target of the equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources by 2030.

[2] DECC (2009). The UK Renewable Energy Strategy. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228866/7686.pdf [Accessed 06/11/2018]
[3] Scottish Government (2014) National Planning Framework 3 (NPF3), Paragraph 3.8.
[4] The Scottish Government (2017). Energy in Scotland 2017. Available at: http://www.gov.scot/Resource/0052/00529523.pdf [Accessed 06/11/2018]

1.4.13. A review of the Scottish renewable electricity statistics shows that in Scotland, renewable energy generation reached 59.4% of gross electricity consumption in 2014[5]; this leaves a shortfall of 40.6% if the ambitious target of 100% by 2020 is to be achieved. At a UK level, the proportion of energy use that was from renewables in 2016 was 8.9%[6], which is well below the 15% renewable energy proportion required by 2020 under the EU Directive 2009/28/EC[7] on the Promotion of the Use of Energy from Renewable sources.

1.4.14. The Proposed Development is a positive response to the ambitious targets for renewable electricity generation described above. As such, the estimated generation potential of the Proposed Development, of up to 78.6 MW, would provide a meaningful contribution to Scottish and UK Governments renewable electricity targets, while reducing CO_2 emissions and playing a positive role in the diversification of the UK's energy mix.

1.5. EIA Process

1.5.1. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 apply to any development which requires an application under section 36 of the Electricity Act 1989 for consent to construct, extend or operate a generating station. The regulations provide the framework to determine if an Environmental Impact Assessment (EIA) is required, and if so, what information needs to be included to support an application.

1.5.2. Under the regulations, developments are categorised as either 'Schedule 1' or 'Schedule 2' developments. It is mandatory for 'Schedule 1' developments to be subject to an EIA. Whereas, 'Schedule 2' developments only require an EIA if criteria set out in 'Schedule 3' of the regulations indicates that a development is *'likely to have significant effects on the environment by virtue of its nature, size or location'*. The Proposed Development is classified as a 'Schedule 2' development, and based on the criterion set out in schedule 3 of the regulations, the Applicant took the view that an EIA would be appropriate based on the nature, size and location of the Proposed Development.

1.5.3. An original Scoping Report for the Proposed Development was prepared in April 2013 (**Appendix 6.1**). This included a layout of up to 45 turbines with a tip height of 146.5 m. A Scoping Opinion was received from the Scottish Government Energy Consents Unit in July 2013 (**Appendix 6.2**). A range of initial baseline surveys were undertaken during and after the original scoping exercise as part of the EIA, including ornithological, ecological, noise, hydrological and peat depth surveys.

[5] Ibid

[6] BEIS (2017) Digest of UK Energy Statistics 2017. https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes [Accessed 06/11/2018]

[7] European Parliament (2009). Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance). http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028.

1.5.4. A series of community open days were also held in July 2013 allowing the community to find out more about the Proposed Development and provide comment on the proposals.

1.5.5. Constraint analysis and layout design work continued during 2014 to ensure an environmentally sensitive and economically viable scheme could be designed for the Site.

1.5.6. In 2015, assessment and design work on the project was put on hold due to the uncertainty associated with the UK Government's proposed changes to the funding arrangements for onshore wind.

1.5.7. In April 2017, following consideration of the economic viability of the Proposed Development in a post-subsidy environment, further ornithological survey work commenced and continued until March 2018.

1.5.8. In March 2018, an updated scoping report (**Appendix 6.3**) was submitted to the Energy Consents Unit with a further request for a scoping opinion. The aim of the second scoping process was to provide an update on the assessment work undertaken and agree the requirement for any further survey work. A copy of the second scoping opinion is provided in **Appendix 6.4**.

1.5.9. A second round of community open days were held in September 2018. The Statement of Community Consultation (SCC) Report which accompanies the section 36 application provides further details of the consultation undertaken.

1.6. Structure of the EIA Report

1.6.1. The EIA report comprises five parts:

- Non-Technical Summary;
- Volume 1 – Written Statement;
- Volume 2 – Figures;
- Volume 3 – Landscape and Visual and Cultural Heritage Visualisations; and
- Volume 4 – Appendices.

1.6.2. The chapters of the EIA Report are organised as follows:

- **Chapter 1: Introduction** - provides background information about the Applicant and an overview of the proposed Shepherds' Rig Wind Farm.
- **Chapter 2: Site Description** provides a general description of the site itself and its environs. Further detail on the Site can also be found in the baseline sections of each specialist topic chapter.
- **Chapter 3: Alternative and Scheme Evolution** provides a description of the main alternatives, including layout options, studied by the Applicant and gives an indication of why the chosen option was selected.
- **Chapter 4: Description of the Proposed Development** provides details of each element of the Proposed Development and information on how the project will be constructed and operated.
- **Chapter 5: Policy Context** provides an overview of UK and Scottish policy on renewable energy generation. It also presents an overview of national, regional and local planning policy which applies to the proposed Shepherds' Rig Wind Farm.

- **Chapter 6: EIA Methodology, Scoping and Consultation** describes the overall approach to the EIA, including a general explanation of how impacts have been evaluated, together with a table setting out the scoping opinion assessment requirements and a brief account of the other public and technical pre-application consultation that has been carried out.
- **Chapter 7: Forestry** identifies areas of forest to be removed as a result of the Proposed Development and outlines the management of the remaining forest within the Site.
- **Chapters 8 through to 21** are the specialist EIA topic chapters. Each of these chapters provide a description of the baseline environmental receptors, an outline of the potential impacts of the Proposed Development, a description of the proposed mitigation and enhancement measures, and an account of the predicted residual impacts. The specialist chapters are as follows:
  - Chapter 8: Landscape and Visual;
  - Chapter 9: Ecology;
  - Chapter 10: Ornithology;
  - Chapter 11: Cultural Heritage;
  - Chapter 12: Geology and Peat;
  - Chapter 13: Hydrology and Hydrogeology;
  - Chapter 14: Noise;
  - Chapter 15: Traffic and Transport;
  - Chapter 16: Aviation;
  - Chapter 17: Socio-economics, Tourism and Recreation;
  - Chapter 18: Shadow Flicker;
  - Chapter 19: Telecommunications and Utilities;
  - Chapter 20: Health and Safety; and
  - Chapter 21: Climate Change and Carbon Balance.

1.6.3. The findings of the Environmental Impact Assessment are brought together in a Non-Technical Summary (summarising the findings in non-technical language) presented as a separate document.

1.7. The Environmental Impact Assessment Team

1.7.1. Table 1.1 below sets out the consultancy responsible for the issues relative to this EIA and chapter.

Table 1.1: EIA Topics and Contributors

Chapter	Assessment Topic	Contributor
1	Introduction	Infinergy
2	Site Description	Infinergy
3	Alternatives and Scheme Evolution	Infinergy
4	Description of the Proposed Development	Infinergy
5	Policy Context	Savills

Chapter	Assessment Topic	Contributor
6	EIA Methodology, Scoping and Consultation	Arcus
7	Forestry	DGA
8	Landscape and Visual	Pegasus
9	Ecology	Arcus
10	Ornithology	NRP
11	Cultural Heritage	Wessex Archaeology
12	Geology and Peat	Arcus
13	Hydrology and Hydrogeology	Arcus
14	Noise	Arcus
15	Traffic and Transport	Arcus
16	Aviation	WPAC
17	Socio-economics, Tourism and Recreation	Biggar
18	Shadow Flicker	Arcus
19	Telecommunications and Utilities	Arcus
20	Health and Safety	Arcus
21	Climate Change and Carbon Balance	Arcus

1.8. Obtaining Further Information

1.8.1. The EIA Report and accompanying documentation are available online; please visit the dedicated project website for Shepherds' Rig Wind Farm at www.shepherdsrigwindfarm.co.uk. Copies of the Non-Technical Summary and a DVD comprising the entire EIA Report in Adobe pdf format may be obtained free of charge while stocks last.

1.8.2. Similarly, paper copies of the EIA Report may be obtained at a cost of £750 + P&P. Please email the Applicant at info@shepherdsrigwindfarm.co.uk or write to Freepost Infinergy Ltd (no further details or stamps required) to request a copy. Below is the Applicant's address:

Infinergy Ltd
16 West Borough
Wimborne
Dorset
BH21 1NG

Freephone 0800 980 4299

1.8.3. Hard copies of the application and EIA Report will also be made available for public viewing at Lagwyne Hall in Carsphairn, Dumfries and Galloway Council Planning Department, and the Scottish Government Library.