

1 Introduction

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1 Introduction

1.1 Background and Site Description

- 1.1.1 Hagshaw Hill Repowering Ltd is a subsidiary of 3R Energy Solutions Ltd and is hereafter referred to as “the Applicant”. The Applicant intends to apply to the Scottish Ministers for a Section 36 (S36) consent and deemed planning consent, under the terms of the Electricity Act 1989, for the repowering and extension of Hagshaw Hill Wind Farm (hereafter referred to as the “Proposed Development”), at a site centred on British National Grid (BNG) NS 79240 30238.
- 1.1.2 This application will be supported by an 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 and will accompany the S36 Application submitted to the Scottish Ministers.
- 1.1.4 The Proposed Development will comprise the repowering and extension of the existing Hagshaw Hill Wind Farm, which is a 26 turbine site currently operated by ScottishPower Renewables and nearing the end of its operational life. The Proposed Development will consist of 14 turbines up to 200 m blade tip height when vertical, each being around 6 megawatt (MW) in power rating.
- 1.1.5 The Proposed Development generation capacity will be approximately 84 MW, plus around 20 MW of storage capacity. The associated infrastructure will include: site access; access tracks (new and re-used/upgraded); crane hardstandings; underground cabling; on-site substation, control room, energy storage facility and maintenance building; temporary construction compounds (including concrete batching plant) and a laydown area; potential excavations/borrow workings; and two permanent meteorological masts.

Site Description

- 1.1.6 The Proposed Development site is partly formed by the existing Hagshaw Hill Wind Farm, which comprises 26 existing turbines located on three hills, Hagshaw Hill, Common Hill and Broomerside Hill (hereafter referred to as the “Existing Development”). The Proposed Development site also incorporates land to the south of the Existing Development, east-north east of the Galawhistle Wind Farm development.
- 1.1.7 The village of Glespin lies approximately 1.6 km to the south of the nearest proposed turbine, and the village of Douglas approximately 3.2 km to the east. The M74 motorway is approximately 6 km east of the proposed turbines, and the site boundary incorporates two access route options from the M74 to the proposed turbine locations. The overall site area, including the access route options, extends to 275 ha.
- 1.1.8 The location and wider environment of the site is shown on Figure 1.1a. Figure 1.1b shows the main development area overlain on an aerial photograph base. The Proposed Development layout is shown in detail on Figures 1.2a to 1.2c.
- 1.1.9 The total power output of the Proposed Development would be around 84 MW. Based on a calculated site-specific capacity factor, the annual indicative total power output for the site would be around 237.7 GW hours per annum, indicating the Proposed Development would generate enough electricity to power approximately 60,940 average UK households (based on average electricity consumption per household in the UK quoted by RenewableUK in 2017, of 3900 kW). The Proposed Development would contribute towards international and national targets for the generation of renewable energy and reduction in greenhouse gas emissions (further information is provided on this matter in Chapter 3).

1.1.10 The electricity produced will be exported to the electricity network. The proposed point of connection to the wider electricity network is via the Coalburn Transmission Substation to the north-east of the site.

1.2 The Applicant

1.2.1 Hagshaw Hill Repowering Ltd (the Applicant) is a subsidiary of 3R Energy Solutions Ltd (3R Energy) which is a Clydesdale-based SME that is part of a family group of companies which also includes Holz Energie UK Ltd; William Mitchell & Sons Ltd; and Mitchell Farming Partnerships.

1.2.2 3R Energy is a renewable energy and development company based in Lanark. Holz Energie UK, sister company of 3R Energy and also based in Lanark, is a wholly owned UK import franchise of the successful German wood-gas CHP manufacturer, Holz Energie Wegscheid. Mitchell Farming Partnerships and William Mitchell & Sons Ltd, based at Newtonhead Farm Rigside and Hazelside Farm Glespin respectively, manage the farming assets of the Group.

1.2.3 Together, the Group:

- owns and manages over 3,500 acres of land in the Douglas Valley, including the Proposed Development site;
- generates a combined annual turnover of c.£6m;
- employs 18 people on a full and part time basis; and
- has farmed the land at Hagshaw Hill for over 120 years.

1.2.4 Following its establishment in 2009, 3R Energy has supported farms and rural businesses in reducing their energy costs, with the mainstay of the business being farm sized wind turbines, CHP systems and biomass boilers. More recently, a successful application to develop a 49 MW wind farm at Douglas West represented the next step in the development of the business into larger-scale renewables. The current proposal to repower the Hagshaw Hill Wind Farm forms a key component of a wider Forward Strategy (refer to Appendix 1.1) for the landholding which aims to grow and diversify the business for the future.

1.2.5 3R Energy is a local company and is committed to working with the local communities in the Douglas Valley to develop a successful project at the site which will deliver significant and lasting benefits for the surrounding communities.

1.3 Planning History

1.3.1 Planning permission was granted for the Existing Development by Clydesdale District Council in February 1995 under planning ref. P/LK/01940252 P. The Existing Development comprises 26 wind turbines which are 55 m in height and associated infrastructure, with a total generation capacity of 15.6 MW. The Existing Development was constructed in 1995 and became Scotland's first commercial wind farm. Condition 9 of planning permission ref. P/LK/01940252 P requires the site to be restored within 6 months of the wind farm ceasing to generate electricity.

1.3.2 A further planning permission was granted for an extension of the Existing Development by South Lanarkshire Council (SLC) in December 2006 under planning ref. CL/05/0018 (hereafter referred to as the "Hagshaw Hill Extension"). The Hagshaw Hill Extension became operational in 2008 and comprises an additional 20 turbines which are 80 m in height, with a generation capacity of 26 MW. The Hagshaw Hill Extension turbines are in two groups: nine turbines to the west of the Existing Development on Avemarks Hill and 11 turbines to the east of the Existing Development near Burnt Rig (refer to Figure 1.3). The Hagshaw Hill Extension will continue to operate until at least 2033 and does not form part of this repowering proposal.

- 1.3.3 The application for the Proposed Development has been discussed with the Scottish Government Energy Consents Unit and relevant consultees in order to confirm the approach to and scope of the EIA (refer to Chapter 4 for more detail). A formal Scoping Opinion was not sought, however consultees have provided input to and feedback on the EIA scope through meetings and direct correspondence, as detailed in Chapter 4 and each of the technical assessment chapters.
- 1.3.4 The assessment presented in this EIA Report seeks to align with draft SNH guidance on assessing the impact of repowered wind farms on nature (SNH, 2018), while remaining compliant with the EIA Regulations. The approach taken involves presenting an assessment of the potential effects of the Proposed Development at the site if it had been decommissioned and restored, while also acknowledging the presence of the existing wind farm and considering the difference in environmental effects between the Existing Development and the Proposed Development. This is discussed further in Chapter 4.
- 1.3.5 In the case of this repowering proposal it is also recognised that even if the Existing Development was decommissioned and the site restored, the Hagshaw Hill Extension turbines would continue to operate for many years to come on either side of the Existing Development site i.e. decommissioning and restoration of the Existing Development site would not result a vacant hillside scenario..
- 1.3.6 Table 1.1 below provides a comparison between the Existing Development (excluding Hagshaw Hill Extension) and the Proposed Development.

Table 1.1 – Comparison of Existing Development and Proposed Development

Characteristic	Existing Development	Proposed Development
Number of Wind Turbines	26	14
Maximum Tip Height	55 m	200 m
Turbine Capacity	0.6 MW each	c.6 MW each
Overall Wind Farm Capacity	15.6 MW	c.84 MW
Storage Capacity	None	c.20 MW
Total Power Generation p.a.	38.2 GWh	c.237.7 GWh
Community Benefit p.a.	£29,000	c.£420,000

- 1.3.7 The proposed repowering project would therefore result in an increase in installed capacity of the site, from 15.6 MW to around 84 MW. The proposed larger generator size, coupled with greater wind yields from taller turbines with bigger rotors, and improved efficiency of newer model turbines, is anticipated to result in approximately six times the renewable energy generation and 14 times the community benefit of the Existing Development.

1.4 Repowering Explained

- 1.4.1 Repowering is the process to replace older first-generation wind turbines with modern units that are quieter, more reliable and capable of producing more electricity, more efficiently. The process is carried out within a timeframe that allows replacement of older units before they come to the end of their operational life.
- 1.4.2 Reliability of older generation turbines drops with age and scarcity of spares can also drive up operating and maintenance costs. There has been a vast improvement in turbine technology over

the last 10 years which means that modern turbines are far more reliable than their predecessors and capable of delivering vastly increased renewable generation.

- 1.4.3 Repowering maximises energy generation and updates a country's turbine fleet to the latest technology standards, which brings benefits to the environment and to consumers.

1.5 Purpose of the EIA Report (EIAR)

- 1.5.1 ITP Energised (ITPE) was appointed by the Applicant to undertake an Environmental Impact Assessment (EIA) of the Proposed Development in accordance with the Section 36 of the Electricity Act and The Electricity Works (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.

- 1.5.2 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.

- 1.5.3 This EIA Report and NTS accompany the application for S36 consent, being submitted to the Scottish Ministers.

1.6 Structure of the EIA Report

- 1.6.1 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 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 ecology and nature conservation;
- Chapter 8 assesses the potential and residual effects on ornithology;
- Chapter 9 assesses the potential and residual effects on noise and vibration;
- Chapter 10 assesses the potential and residual effects on the historic environment;

- 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, radar and telecommunications;
- Chapter 15 assesses the potential and residual effects from shadow flicker and reflectivity;
- Chapter 16 provides a summary of all predicted cumulative effects;
- 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.

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

1.6.3 **Volume 3** 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. **Confidential Annexes** to the EIA Report, which include confidential information on protected species will be provided separately to the Scottish Government Energy Consents Unit, South Lanarkshire Council (SLC) and Scottish Natural Heritage (SNH).

1.6.4 **Volume 4** contains the landscape and visual impact assessment visualisations that inform Chapter 6 Landscape and Visual Assessment.

1.6.5 Additional supporting documents which form part of the S.36 Consent application submission include a **Planning Statement** and a **Pre-Application Consultation (PAC) Report**.

1.7 Assessment Team

1.7.1 The assessment was undertaken by ITPE's environmental teams supported by the following external consultants:

- ACIA Acoustics (Noise Assessment);
- AECOM (Engineering Design);
- Brodies LLP (Legal Advisors);
- Mott MacDonald (Historic Environment Assessment);
- BiGGAR Economics (Socio-Economic Assessment);
- MacArthur Green (Ecology and Ornithology Assessments);
- Pegasus Group (Landscape and Visual Assessment and Residential Visual Amenity Assessment);
- Transport Planning (Traffic and Transport Assessment);
- JLL (Policy and Consenting Framework); and
- Wind Business Support (Aviation & Telecommunications Assessment).

1.8 Availability of the EIA Report

1.8.1 Copies of the EIA Report are available from:

3R Energy
Lanark Auction Market,
Hyndford Road,
Lanark
ML11 9AX
Tel: (01555) 660244
Email: info@3renergy.co.uk

1.8.2 The cost of a hard copy of the EIA Report Volumes 1 and 3 (EIA chapters and technical appendices) is £250.00, and a hard copy of the EIA Report Volume 2 and 4 (figures) is £500.00. In addition, all documents are available (as a PDF) on a DVD for £15.00. The Non-Technical Summary (NTS) is available free of charge. Copies of the other supporting documents are also available in hard copy with the cost to be confirmed on request.

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

South Lanarkshire Council
Planning and Building Standards HQ
Montrose House
154 Montrose Crescent
Hamilton
ML3 6LB

Coalburn Miners Welfare
42 Coalburn Road
Coalburn
ML11 0LH

St.Brides Centre
Braehead
Douglas
ML11 0PT

1.9 Representations to the Application

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

Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU
Email: representations@gov.scot.

1.10 References

RenewableUK (2017). *UKWED Figures Explained*. Available at:

<http://www.renewableuk.com/en/renewable-energy/wind-energy/uk-wind-energy-database/figures-explained.cfm>

Scottish Natural Heritage (2018). Assessing the impact of repowered wind farms on nature (Consultation Draft). Available at:

<https://www.nature.scot/sites/default/files/2018-06/Guidance%20-%20Assessing%20the%20impact%20of%20repowered%20wind%20farms%20on%20nature%20-%20consultation%20draft%20-%20June%202018.pdf>

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