

1 Introduction

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1.1.1 Renewable Energy Systems UK and Ireland Ltd (RES) is applying for consent to Scottish Ministers under section 36 of the Electricity Act 1989 (as amended), seeking consent and deemed planning permission to construct and operate the proposed Bloch Wind Farm (hereinafter referred to as the proposed development). This Environmental Impact Assessment (EIA) Report has been prepared in support of this application for consent.

1.1.2 This Chapter introduces the proposed development and the need for the development, as well as providing an overview of the purpose of the EIA Report, its structure and the technical experts who prepared it. It also identifies where copies of this EIA Report can be viewed and obtained if required.

1.1.3 This EIA Report has been prepared by SLR Consulting Ltd (SLR) on behalf of RES UK and Ireland Ltd, a subsidiary of Renewable Energy Systems Holdings Ltd (hereinafter referred to as 'the applicant') to accompany an application for consent to construct and operate the proposed development.

Need for Development

1.1.4 The UK and Scotland's current climate change ambitions are amongst the highest in Europe. The Scottish Government declared a climate emergency in May 2019. At the end of March 2020, the Scottish Government brought into force the measures in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 passed by the Scottish Parliament in September 2019.

1.1.5 The UK government set a net zero CO₂ emissions target by 2050. In Scotland, The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 was passed in September 2019 which sets out a net zero target by 2045 and further interim targets of reductions in CO₂ emissions of 56% by 2020, 75% by 2030 and 90% by 2040. These targets build on the Scottish Energy Strategy's (Scottish Government 2017) target of 50% of all energy (including transport, heat and electricity) being supplied from renewables by 2030.

1.1.6 In its advice to the UK and Scottish Governments on achieving the net-zero target, the UK Committee on Climate Change stated that renewable electricity generation "*must quadruple*" and that the Scottish Government should make "*use of planning powers to drive decarbonisation.*" Significant deployment of additional renewable energy capacity, well in excess of historical deployment levels, is therefore needed to achieve our climate change commitments.

1.1.7 In June 2019, Dumfries and Galloway Council (D&GC) declared a Climate Emergency and agreed a 12-point Action Plan to reinvigorate the pursuit of net zero carbon emissions in the region. Point 10 of the plan states that the Council will produce a "*Climate Change Strategic Action Plan which will incorporate our obligations under the Climate Change (Emission Reduction) (Scotland) Bill when enacted, encapsulate everything that we can do to reduce or eliminate carbon emission and, will incorporate actions on loss of biodiversity and our natural environment*". The plans identified in the 12-point Action Plan are currently under development.

1.1.8 The annual generation from the proposed wind turbines, based on an anticipated 31.16% capacity factor, is estimated at approximately 344¹ gigawatt-hours (GWh). The proposed wind turbines will therefore supply renewable electricity equivalent to the approximate annual domestic needs of up to 128,905 average UK households². Each unit of renewable electricity transmitted will displace a unit of conventionally generated electricity, therefore displacing carbon dioxide (CO₂) emissions. It is estimated that the proposed wind turbines will displace approximately 87,214³ tonnes of CO₂ emissions per year, or 4,360,000 tonnes over the anticipated 50-year lifespan of the proposed development.

1.1.9 As well as making a positive contribution towards action on climate change and renewable energy targets, the proposed development would provide opportunities for community investment and create further employment opportunities in the local area.

1.1.10 Further information on the need for and benefits of the proposed development are provided in Chapter 12: Socio-economics, Tourism and Recreation, and the Planning Statement which accompanies this application.

¹ For example, using a 31.16% capacity factor, figures are derived as follows: 126 MW × 8,760 hours/year × 0.3116 (capacity factor) = 343,932MWh.

² Calculated using the most recent statistics from the Department of Business, Energy and Industrial Strategy (BEIS) showing that annual GB average domestic household consumption is 3,748kWh (as of December 2021, updated annually).

³ Based on the current grid-mix of the UK electricity grid.

1.1.11 RES is at the forefront of the operation and development of renewables in the UK and fully supports the fight against climate change with this proposed development. This would be a fully integrated renewable energy solution in direct response to meeting national and international climate change targets. The proposed development would be able to regulate output and provide clean power to people's homes when they need it most and would represent a state-of-the-art development for Dumfries and Galloway. As well as contributing to targets for renewable energy, the proposed development would provide opportunities for community investment and create further economic benefits, including employment opportunities, in the local area.

1.2 The Proposed Development

1.2.1 The proposed development is located south of the B7068, approximately 5.5km⁴ south-west of Langholm in Dumfries and Galloway. The site is within the administrative boundary of D&GC. Figure 1.1 presents a general context for the location of the site withing D&GC and Figure 1.2 presents the extents of the site. The border between Scotland and England is located approximately 7km to the south of the site at its closest point.

1.2.2 The site is located adjacent to the operational Solwaybank Wind Farm, which comprises 15 wind turbines up to 126.5m to wind turbine blade tip. Solwaybank Wind Farm became fully operational in 2020.

1.2.3 The proposed development comprises 21 wind turbines, with varying heights to blade tip as follows:

- 10 wind turbines up to 230m in height to blade tip;
- 6 wind turbines up to 200m in height to blade tip; and
- 5 wind turbines up to 180m in height to blade tip.

1.2.4 The proposed development and associated infrastructure are presented in Figure 1.3 and described in detail in Chapter 2: Proposed Development Description of this EIA Report.

1.3 The Applicant

1.3.1 RES is the world's largest independent renewable energy company active in onshore and offshore wind, solar, energy storage and transmission and distribution. At the forefront of the industry for over 40 years, RES has delivered more than 23GW of renewable energy projects across the globe and supports an operational asset

portfolio of 10GW worldwide for a large client base. RES employs more than 2,500 people and is active in 11 countries working across onshore and offshore wind, solar, energy storage, green hydrogen and transmission and distribution

1.3.2 From its Glasgow office RES has been developing, constructing and operating wind farms in Scotland since 1993. RES has developed and/or built twenty-one wind farms in Scotland with a total generation capacity of 597MW and has recently finished constructing Blary Hill Wind Farm in Argyll and Bute. The applicant has the necessary knowledge and experience in renewable energy to develop the proposed development.

Table 1.1: Applicant Details

Applicant	
Renewable Energy Systems Ltd	Third Floor, STV, Pacific Quay, Glasgow, G51 1PQ

1.4 Structure of the EIA Report

1.4.1 The EIA Report has been prepared in accordance with the EIA Regulations (2017)⁵ and follows the structure presented in Table 1 below. Where relevant each EIA Report chapter considers the baseline environment, the likely significant effects for each phase of the proposed development and cumulative impacts.

1.4.2 The EIA Report is presented in four volumes as follows:

- Volume 1: EIA Report.

1.4.3 The EIA Report written text is structured as follows:

- Chapter 1: Introduction;
- Chapter 2: Proposed Development Description;
- Chapter 3: Design Evolution and Alternatives;
- Chapter 4: Approach to EIA;
- Chapter 5: Landscape and Visual Impact Assessment;
- Chapter 6: Cultural Heritage and Archaeology;
- Chapter 7: Ecology;
- Chapter 8: Ornithology;
- Chapter 9: Hydrology, Hydrogeology, Geology and Soils;
- Chapter 10: Traffic and Transport;

⁴ This distance is given to the approximate centre point of the site boundary.

⁵ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations')

- Chapter 11: Noise and Vibration;
- Chapter 12: Socio-economics, Tourism and Recreation;
- Chapter 13: Other Issues; and
- Chapter 14: Schedule of Mitigation.

1.4.4 The rest of the EIA Report is structured as follows:

- Volume 2a - 2b: EIA Report Figures and Visualisations; and
- Volume 3: EIA Report Technical Appendices.
- Volume 4: Non-Technical Summary (NTS).

1.4.5 The technical appendices that are referred to in each Chapter of the EIA Report are compiled separately in Volume 3. They are numbered sequentially for each Chapter in which they are principally referred to.

1.4.6 The NTS provides a non-technical overview of the EIA Report and is intended for review by the general public. It includes a description of the proposed development and a summary of the predicted environmental effects.

1.5 EIA Report Project Team

1.5.1 This EIA has been led by SLR Consulting Limited (SLR) with assistance from other specialist technical and environmental consultants. SLR is a large multi-disciplinary environmental and advisory consultancy. Within the energy sector, SLR provides a wide range of planning, environmental and technical services relating to the design and development of windfarms and other renewable energy developments. The company undertakes all aspects of development support, from initial concept design, through planning and permitting to supporting detailed design, construction management and closure stages with a focus on environmental assessment and management.

1.5.2 SLR is a holder of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark. The IEMA Quality Mark is awarded to companies that have achieved the required standards in EIA following regular independent review of EIA work by IEMA. The company has significant experience in the preparation of planning applications and undertaking EIA for a wide variety of projects, including renewable energy, minerals, waste and infrastructure developments.

1.5.3 Further information on SLR can be found on its corporate website at www.slrconsulting.com

1.5.4 For this project, SLR is responsible for co-ordinating the production of the EIA Report and preparing the Archaeology and Cultural Heritage assessment.

1.5.5 Table 1.2 lists the consultancies responsible for each technical discipline covered in this EIA Report.

1.5.6 SLR confirms on behalf of RES that the technical experts that have carried out the EIA and produced the EIA Report have the skills and relevant competency, expertise and qualifications to undertake EIA for the proposed development.

Table 1.2: EIA Team Details

Technical Discipline	Consultant	Qualifications	Experience	Address
Landscape and Visual Impact Assessment	Ruth Knight, LDA Design	BA (Hons) Landscape Design and Town Planning PGDipLA MA Planning Policy and Practice Chartered Member of the Landscape Institute (CMLI)	Ruth is a Chartered Landscape Architect with over 20 years' experience and expertise in landscape and environmental planning, including landscape and visual impact, and advising on EIA development. Project examples include LVIA's for renewable energy projects, including preparation of proofs of evidence for a number of wind farm appeals; large scale residential and commercial development; and DCO nuclear power stations.	17 Minster Precincts, Peterborough PE1 1XX
	Sam Hammersley, LDA Design	BSc (Hons) Landscape Architecture with Ecology MLA Landscape Architecture Chartered Member of the Landscape Institute (CMLI)	Sam is a recently Chartered Member of the Landscape Institute, whose portfolio of work includes input on landscape and visual matters to a number of EIAs in relation to onshore wind farms, electricity infrastructure, airports and nuclear power.	
Hydrology Hydrogeology Geology Peat	Sam Wainwright, Natural Power	MSc Hydrogeology, FGS	Principal Environmental Consultant with 8 years' experience in planning and environmental sectors	The Green House, Forrest Estate, St John's Town of Dalry, DG7 3XS
	Allan Rutherford, Natural Power	MSc Engineering Geology, FGS	Principal Geotechnical Engineer >20 years industry experience (11 years for NPC working on wind energy projects)	
	Emma Bryder, Natural Power	PhD, Geography	Senior Environmental Consultant with over five years' experience in renewable consultancy.	

Technical Discipline	Consultant	Qualifications	Experience	Address
Climate Impact Assessment	Lesley Cartwright, Natural Power	Bachelor of Science BSc.(Jt. Hons); Master of Science MSc. Environmental Management; Doctor of Philosophy Ph.D.	Over 12 years of renewable energy consultancy and EIA co-ordination and support. Ten years authoring carbon balance assessments.	The Green House, Forrest Estate, St John's Town of Dalry, DG7 3XS
	Sarah Lister, Natural Power	Master of Chemistry (MChem) - Chemistry with Forensic Science	13 years of oil and gas cementing services and project co-ordination. 2 years of renewable energy consultancy and EIA co-ordination and supporting climate impact assessments.	
Archaeology and Cultural Heritage	Beth Gray, SLR	MA (hons) ACIfA	Beth is an Associate Heritage Consultant and has more than seven years' experience assessing renewable energy projects and onshore wind projects and specifically their potential effects on cultural significance of heritage assets. She is based in Edinburgh and has worked throughout Scotland, including sites in similar settings to the proposed development, as well as working on Solwaybank Wind Farm (2019). She is supported by a senior team with experience in expert witness testimony for renewable projects.	7 Wornal Park, Menmarsh Road, Worminghall, Aylesbury, HP18 9PH
Ecology and Ornithology	Steve Percival, Ecology Consulting	BSc (hons) Biological Sciences PhD Zoology Member of the Chartered Institute for Ecology and Environmental Management (CIEEM), the British Ecological Society and the British Ornithologists' Union	Has been involved in over 400 renewable energy projects, including carrying out ecological assessments, preparation of ecological material for environmental statements and giving evidence at public inquiries, in the UK and internationally.	Swallow Ridge Barn, Old Cassop, Durham, DH6 4QB
Traffic & Transport	Gordon Buchan, Pell Frischmann	BSc (hons) MSc CMLT FCIHT	Has over 25 years of undertaking the transport assessments associated with new developments and has worked on renewable energy and energy distribution projects across the UK, Ireland and Northern Europe	5th Floor, 85 Strand London WC2R 0DW

Technical Discipline	Consultant	Qualifications	Experience	Address
Noise	Andrew Birchby, RES	Systems Engineering MEng Diploma in Acoustics & Noise Control Member of the Institute of Acoustics (MIOA) Environmental Governance MSc	Over ten years' experience in wind farm noise assessment.	Third Floor, STV, Pacific Quay, Glasgow, G51 1PQ
Shadow Flicker & Telecommunications	Stefanos Kolydas, RES	BSc in Physics (Hons) MSc in Renewable Energy Engineering MSc in Environmental Physics	7+ years of experience in energy yield assessments and 3+ years of experience in wind farm development technical work.	Third Floor, STV, Pacific Quay, Glasgow, G51 1PQ
Aviation	Sam Johnson, RES	MMath Mathematics	Over 20 years working in radar, including over 15 working specifically with aviation and radar in the wind industry	Third Floor, STV, Pacific Quay, Glasgow, G51 1PQ
Socio-economic, Recreation and Tourism	Simon Cleary, Biggar Economics	MA (Hons) Economics & Mathematics	Simon has 11 years of experience in assessing the socio-economic impact of renewable energy projects across the UK.	Pentlands Science Park Bush Loan Penicuik Midlothian EH26 0PZ

1.6 Publicity of the EIA Report

1.6.1 Printed copies of the NTS and EIA Report (including figures and appendices) may be obtained from:

Third Floor,
STV,
Pacific Quay,
Glasgow,
G51 1PQ

Email: carey.green@res-group.com

1.6.2 Hard copies of the NTS and EIA Report will be available for viewing in the following locations:

- Langholm Town Hall; and
- Middlebie Community Centre.

1.6.3 An additional hard copy will be available upon request with Middlebie and Waterbeck Community Council.

1.6.4 The Non-Technical Summary is available free of charge, and a limited number of hard copies of the EIA Report is available for £1,500 per copy. The price of the hard copy reflects the costs of producing the Landscape and Visual visualisations.

1.6.5 Alternatively, a DVD or USB memory stick containing PDF files of the EIA Report are available for £15 per CD. These PDF files can also be downloaded for free from the Bloch Wind Farm project website page at:

www.bloch-windfarm.co.uk

1.7 Representations to the Application

1.7.1 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 Online: <http://www.energyconsents.scot/>

1.8 References

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

The Electricity Act 1989.

The Scottish Energy Strategy 2017.