

1 INTRODUCTION

1.1 Background

- 1.1.1 Environmental Statement (ES) has been prepared by RES Limited (RES) to accompany a planning application that has been made to the Planning and Environment Decisions Wales (PEDW) for permission to construct, operate and decommission a wind farm known as Mynydd Maen Wind Farm, hereinafter referred to as ‘the proposed wind farm’. The purpose of the ES is to aid PEDW in the assessment of the likely significant environmental effects resulting from the proposed wind farm and to establish the need for mitigation measures to reduce such effects.
- 1.1.2 The site is located between Newbridge and Cwmbran, partly in Caerphilly County Borough and partly in Torfaen County Borough. The Site is centred at E325643 N197926 and is shown in Figure 1.1: Site Location Plan and Figure 2.2: Planning Application Boundary.
- 1.1.3 This chapter is supported by:
- Technical Appendix 1.1: EIA Scoping Report (Barton Wilmore);
 - Technical Appendix 1.2: EIA Scoping Direction from Planning and Environment Decisions Wales (PEDW);
 - Technical Appendix 1.3: Scoping consultation summary table.

1.2 The Applicant

- 1.2.1 The application for planning permission is made by RES (‘the Applicant’).
- 1.2.2 RES is one of the world’s leading independent renewable energy project developers with operations across Europe, the Americas and Asia-Pacific. At the forefront of renewable energy development for over 40 years, RES has developed and/or built more than 23 GW of renewable energy capacity worldwide. In the UK alone, RES currently has more than 10 GW of projects either constructed, under construction or consented. RES is active in a range of renewable energy technologies including onshore and offshore wind, solar, hydrogen, as well as enabling technologies such as energy storage.
- 1.2.3 RES has been active in Wales since the early 1990s and has developed and/or constructed seven onshore wind farms, including the operational 34 MW Garreg Lwyd Hill Wind Farm in Powys, the recently consented 60 MW Llanbrynmair Wind Farm in Powys and the 25 MW Upper Ogmore Wind Farm in Bridgend.

1.3 EIA Process

Scope of Environmental Statement

- 1.3.1 The Environmental Impact Assessment (EIA) has assessed the environmental impacts associated with the construction, operation and decommissioning of the proposed wind farm, which comprises thirteen three-bladed, horizontal axis wind turbines. All of the turbines are up to a maximum tip height of 149.9 m and would have a total installed capacity of approximately 54.6 MW. The proposed wind farm would include an improved site entrance, new and upgraded access tracks, crane hardstandings, control building and substation compound, electricity transformers, underground cabling, and drainage works. During construction there would be a number of temporary works including a construction compound with car parking, temporary crane hardstandings and welfare facilities. A full description of the proposed wind farm is provided in Chapter 3: Proposed Development.
- 1.3.2 RES submitted a Request for a Scoping Direction to PEDW in November 2021. A copy of the Scoping Report which accompanied this request is included in Technical Appendix 1.1: EIA Scoping Report

(Barton Wilmore). A copy of the Scoping Direction issued by PEDW in January 2022 in response is contained in Technical Appendix 1.2: EIA Scoping Direction from Planning and Environment Decisions Wales (PEDW). The Scoping Direction has been fully addressed by each of the relevant individual chapter topics. Technical Appendix 1.3: Scoping Consultation Summary Table contains a summary table listing out the sections of this ES that address each element of the Scoping Direction.

1.3.3 An EIA has been undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (As Amended in 2019), (the “EIA Regulations”), to identify and assess the likely environmental effects of the proposed wind farm and establish an appropriate range of mitigation measures to reduce adverse impacts where possible. This ES contains the findings of the EIA.

1.3.4 EIA is a process by which information about the environmental impacts of a project is collected, evaluated and taken into account in its design, which will determine whether it should be granted planning permission. The applicant presents the information on the project and its likely environmental impacts in an ES. This enables decision-makers to consider these impacts when determining the related planning application. The EIA process has a number of key characteristics:

- It is systematic, comprising a sequence of tasks defined both by regulation and by practice;
- It is analytical, requiring the application of specialist skills from the environmental sciences;
- It is impartial, its objective being to inform the decision-maker rather than to promote the project;
- It is consultative, with provision being made for obtaining information and feedback from statutory agencies and key stakeholders; and
- It is iterative, allowing opportunities for environmental concerns to be addressed during the planning and design of a project.

1.3.5 This final point is particularly important with respect to the design of the proposed wind farm where a number of design iterations have taken place in response to environmental factors identified during the EIA process (Chapter 2: Design Evolution and Alternatives).

1.3.6 The EIA for the proposed wind farm has been carried out in accordance with the latest regulations, guidance and advice on good practice, comprising:

- Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (As Amended in 2019);
- Environmental Impact Assessment (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, 2014)
- Environmental Impact Assessment Guide to: Delivering Quality Development (Institute of Environmental Management and Assessment, 2016).

1.3.7 Individual technical assessments have been undertaken in accordance with a variety of legislation, guidance and best practice. Relevant details are contained within the Legislation and Policy Framework section where applicable to each technical chapter.

The Assessment Method

1.3.8 Appropriate methodologies have been used to assess the effects relating to each of the environmental topics that have been investigated as part of the EIA. These methodologies are based on recognised good practice and guidelines specific to each subject area, details of which are provided within each individual technical section.

- 1.3.9 The design team employed an iterative approach to the design of the proposed wind farm where the design evolved throughout the EIA process as different constraints and potentially adverse impacts were identified and evaluated. This method is considered best practice as mitigation measures can concurrently be integrated into the design throughout the EIA process. This approach allowed the design team to alleviate or remove potentially adverse impacts and incorporate measures into the design to enhance beneficial impacts. The final evaluation of significance assesses the residual impacts assuming all mitigation measures are applied.
- 1.3.10 Each technical chapter assesses the impacts that could arise as a result of the proposed wind farm. Impacts are assessed as being either adverse, beneficial, permanent, temporary or reversible. Significance is determined by assessing the magnitude and sensitivity of each likely impact.
- 1.3.11 The ES complies with current planning policy and will be submitted in conjunction with a planning application. This report is a formal ES as required by PEDW under the Town and Country Planning (EIA) (Wales) Regulations. The ES is designed to provide information for the purpose of assessing the likely potential impact upon the environment.

1.4 Structure of the Environmental Statement

- 1.4.1 Regulation 18 of the EIA Regulations 2017 states that the following at least must be included within the ES:
- A description of the proposed wind farm comprising information on the site, design, size and other relevant features of the development;
 - A description of the likely significant effects of the proposed wind farm on the environment;
 - A description of any features of the proposed wind farm, or measures envisaged in order to avoid, prevent or reduce and if possible, offset likely significant adverse effects on the environment;
 - A description of the reasonable alternatives studied by the applicant, which are relevant to the proposed wind farm and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the significant effects of the development on the environment;
 - A non-technical summary of the information referred to above; and
 - Any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.
- 1.4.2 Schedule 4 sets out the following on information for inclusion in the ES:
- A description of the development (location; physical characteristics including land use requirements during construction and operation; main characteristics of the operational phase in particular production processes, e.g. energy demand, materials and natural resources used; estimate of expected residues and emissions and waste produced during construction and operation.
 - A description of the reasonable alternatives (e.g. in terms of development design, technology, location size and scale) studies by the applicant which are relevant to the proposed wind farm and its specific characteristics and an indication of the main reasons for selecting the chosen option.
 - A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development.

- A description of the factors likely to be significantly affected by the development: population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape.
- A description of the likely significant effects of the development on the environment resulting from: the construction and existence of the development; use of natural resources, the emission of pollutants, noise, vibration, light, heat, radiation, creation of nuisances, waste; risks to human health, cultural heritage or the environment; the cumulation of effects with other existing and/or approved projects; impact of the project on climate and the vulnerability of the project to climate change; technologies and substances used.
- The description of likely significant effects should cover direct, indirect, secondary, cumulative, transboundary, short-term medium-term and long-term, permanent and temporary, positive and negative effects of the development.
- Description of the forecasting methods or evidence used to include details of difficulties encountered and the main uncertainties involved
- Description of measures envisaged to avoid, prevent, reduce or, if possible offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements. The description should explain the extent to which significant effects are avoided, prevented, reduced or offset.
- Description of the expected significant adverse effects of the development of the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned.
- A non-technical summary of the above information
- A reference list detailing the sources used for the descriptions and assessments included in the ES.

1.4.3 This ES has been prepared in accordance with the EIA Regulations described above. The ES comprises the following volumes:

- Volume 1: Non-technical Summary (NTS) of the ES
- Volume 2: Main Text
- Volume 3: Figures (the illustrations that accompany the ES)
- Volume 4: Technical Appendices (technical information relating to the environmental topics such as detailed methodologies, baseline data information and data analysis).

1.4.4 Volume 2 is organised as follows:

- Chapter 1: Introduction
- Chapter 2: Design Evolution and Alternatives
- Chapter 3: Proposed Development
- Chapter 4: The Statutory and Policy Framework
- Chapter 5: Landscape and Visual
- Chapter 6: Ecology
- Chapter 7: Ornithology
- Chapter 8: Cultural Heritage
- Chapter 9: Hydrology and Hydrogeology

- Chapter 10: Traffic, Transport and Access
 - Chapter 11: Acoustic
 - Chapter 12: Shadow Flicker and Reflected Light
 - Chapter 13: Aviation and Electromagnetic Interference
 - Chapter 14: Socio-Economics
 - Chapter 15: Schedule of Mitigation
- 1.4.5 Human Health is covered under Chapters 11 & 12, Climate Change is covered within Chapter 14, Air Quality is covered within Chapters 6 & 11 and Waste is covered under Chapters 9 & 10. A schedule of mitigation is described in Chapter 15.
- 1.4.6 Chapters 1, 2, 3, 9, 10, 11, 12, 13 and 15 have been authored by RES using their in-house professionally qualified expertise in respect of these topics. The Environmental Statement has been compiled by RES, primarily by Chris Jackson (Project Manager) and Elliot Smith (Development Project Manager). Chris Jackson is a Chartered Engineer with more than 30 years' experience planning and developing energy projects. The remaining chapters have been authored by external consultants, each with relevant qualifications and significant experience in their fields.
- 1.4.7 In general, for each environmental topic, the following format has been adopted with regard to the presentation of information:
- Introduction
 - Scope of Assessment
 - Legislation and Policy Framework
 - Consultation
 - Assessment Methodology
 - Baseline Assessment
 - Assessment of residual impacts
 - Design Evolution and Mitigation Measures
 - Residual Impacts
 - Cumulative Impacts
 - Summary and Conclusions
 - References.
- 1.4.8 A number of individual disciplines have adopted variations from this format as a result of specific assessment methodologies and appropriate reporting structure.

1.5 EIA Project Team

- 1.5.1 The EIA was undertaken by the applicant and supported by external consultants. Table 1.2 outline the full EIA team and their experience.

Table 1.1: EIA Team Details

| Name | Input to the EIA | Company | Experience |
|------------|------------------|------------------------|-------------------------------|
| David Bell | Planning Lead | David Bell Planning | BSc (Hons) Dip UD MCIHT MRTPI |

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| | | | Chartered Town Planner with over 30 years' experience of planning and development practice in the private sector. |
| Dale Turner | Landscape and Visual Impact - Project Director | Pegasus Group | BSc (Hons) MSc Over 15 years' experience in undertaking and overseeing LVIA for energy developments |
| David Gooch | Landscape and Visual Impact - LVIA Lead | Pegasus Group | MA (Hons) Over 10 years' experience in undertaking LVIA for energy developments |
| Owain Gabb | Ecology | BSG Ecology | Owain has worked with onshore wind projects since 2002, and has planned and co-ordinated ornithological and ecological work for renewables schemes throughout the UK. He is a full member of the Chartered Institute of Ecology and Environmental Management and a Chartered Environmentalist. |
| James Garside | Ornithology | BSG Ecology | James has considerable experience completing ornithological survey and assessment for a range of developments including wind farms. He has led the ornithological work for onshore wind projects throughout Wales, including sites in Torfaen, Blaenau Gwent and Rhondda Cynon Taf. |
| James Meek | Archaeology element of the Cultural Heritage Assessments | HCUK Group | BA(Hons) in Archaeology. Over 30 years' experience in archaeology, with the last 15 based in Wales including working on a number of large and small scale renewables projects in Wales and England. Member of the Chartered Institute for Archaeologists (MCIfA) since 2001. |
| Dr Paula Jones | Built Heritage elements of the Cultural Heritage Assessments | HCUK Group | BA (Hons) in Archaeology, MA in Death and Society, and a PhD in Landscape Archaeology. |
| Mark Crabtree | Hydrology | RES | Chartered Civil Engineer with over 15 years of experience across diverse infrastructure engineering sectors, specialising in geometric road design, earthworks, sustainable drainage, and pavement design. Proficient in leading multi-disciplinary design teams through all project stages, from conceptual planning to construction support. Senior |

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| | | | <p>Civil Design Engineer at RES from 2012-2024, delivering detailed designs for renewable energy projects, including wind farms and grid connections. Experienced in drainage design, flood risk assessments, and design management for complex projects. Holds a BEng in Civil Engineering from the University of Leeds, Chartered Engineer status (CEng MICE), and extensive additional training in design, safety, and mentoring.</p> |
| Rob Lowe | Peat and GWDE ecohydrological impact assessment & mitigation | Rigare Ltd. | <p>Rob has over 30 years' experience as a hydrogeologist and wetland/peatland ecohydrologist.</p> <p>Rob has worked extensively on the hydrology of Welsh peatlands, including ecohydrological impact assessment and impact mitigation for the Pen y Cymoedd windfarm, as a part of which the peatland hydrological mitigation techniques proposed in the current document were developed.</p> <p>Rob has developed technical approaches to peatland ecohydrological characterisation and impact assessment which have been adopted by regulatory agencies and others.</p> |
| Alan Huntridge | Soil and Peat Management Plan. Peat Surveys. | SLR Consulting Ltd | <p>Technical Director (BSc, MSc) in SLR's Land Quality and Remediation technical discipline.</p> <p>Over 17 years' experience in site investigations, geotechnical assessments, environmental risk assessments and design and implementation of remedial strategies. Alan has managed and undertaken over 50 geological assessments including Peat Landslide Hazard Risk Assessments (PLHRA) and Peat Management Plans (PMP) in the UK within a wide variety of development projects including wind farms.</p> |
| Ruari Watson | Soil and Peat Management Plan. | SLR Consulting Ltd | <p>Associate in SLR's Land Quality and Remediation technical discipline.</p> <p>Over 12 years' experience within the geotechnical engineering sector working for specialist contractors and consultants, managing ground investigations and undertaking geotechnical assessments including</p> |

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| | | | PLHRA, PMP, Borrow Pit Assessment and Carbon Balance in the UK within a wide variety of development projects including wind farms. |
| Calum Campbell | Traffic, Transport & Access | RES | <p>MSc in Mechanical Engineering with Design.</p> <p>Over 6 years' experience in the renewable industry, focusing primarily on onshore wind farm development. This time also includes 4+ years' experience on battery storage developments.</p> <p>4 years' experience working in Oil & Gas industry on gas turbine maintenance, fuel nozzle refurbishment, and steam turbine analysis.</p> |
| Mike Craven | Senior Acoustics Specialist | RES | <p>18 years' experience in dealing with noise and vibration associated with renewable development.</p> <p>Member of the Institute of Acoustics.</p> |
| Sam Johnson | Aviation Lead | RES | <p>MMath in Mathematics.</p> <p>Over 20 years' experience in the radar industry with over 15 years specifically in the area of wind farms.</p> <p>Member of the Renewable UK Aviation Working Group and is Chair of Aviation Investment Fund Company Limited (AIFCL).</p> |
| Nick Collis | Shadow Flicker and Reflected Light | RES | <p>Master of Physics (MPHYS) degree.</p> <p>Over 12 years' experience in the wind industry and Lead technical analyst for the UK&I onshore wind, pre-construction team since 2017.</p> |
| Neil McCullough | Socioeconomics | Oxford Economics | <p>MSc Finance; BSc Economics.</p> <p>Director of Cities Consultancy, with over 20 years of experience in local impact modelling.</p> <p>Has undertaken numerous local studies for onshore wind farms. Has also modelled the economic impact of a planned offshore windfarm, and regularly provides impact modelling to local councils.</p> |

1.6 Planning Application

- 1.6.1 The proposed wind farm falls under Schedule 2 of the EIA Regulations as an '*installation for the harnessing of wind power for energy production (wind farm)*'. For Schedule 2 projects, an EIA is needed if significant environmental effects are likely to arise from the implementation of the Project. It has therefore been concluded that an EIA should be carried out and that an ES should be submitted in support of the planning application.
- 1.6.2 In its January 2022 Scoping Direction, PEDW confirmed that an EIA should be carried out and that the application should be submitted to PEDW, for determination by the Welsh Ministers, as a Development of National Significance (DNS).

1.7 Commenting on the ES

- 1.7.1 An electronic version of the reports supporting the application, including the ES, are available to download free of charge from www.mynyddmaen-windfarm.co.uk.
- 1.7.2 Paper copies of the full ES are available to purchase at a cost of £250. Copies of the full ES are available on USB stick free of charge. Paper copies of the non-technical summary are available free of charge.
- 1.7.3 Requests for documents should be made in writing, including payment if purchase of the full ES is required, to RES Ltd, Cedar House, Greenwood Close, Cardiff Gate Business Park, Cardiff, CF23 8RD or to chris.jackson@res-group.com.
- 1.7.4 Any comments on the application may be submitted to the above addresses.

1.8 List of Figures, Appendices & References

Figures

Figure 1.1: Site Location Plan

Figure 1.2: Planning Application Boundary

Appendices

Technical Appendix 1.1: EIA Scoping Report (Barton Wilmore)

Technical Appendix 1.2: EIA Scoping Direction from Planning and Environment Decisions Wales (PEDW)

Technical Appendix 1.3: Scoping consultation summary table.

1.9 References

Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (As Amended in 2019).

Environmental Impact Assessment (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, 2014).

Environmental Impact Assessment Guide to: Delivering Quality Development (Institute of Environmental Management and Assessment, 2016).