MWP

Chapter 01 Introduction

Ballycar Wind Farm

1. Introduction

This Environmental Impact Assessment Report (EIAR) relates to a proposed wind energy project in County Clare, named Ballycar Wind Farm, for which development consent is being sought by Ballycar Green Energy Ltd. (the Applicant) from An Bord Pleanála (ABP) (the competent Planning Authority). A full description of the proposed development is provided in Chapter 2 Description of the Proposed Development of this EIAR which has been prepared by Malachy Walsh and Partners Engineering Consultants.

The EIAR consists of a systematic analysis and assessment of the potential effects from the proposed development on the receiving environment. The intended purpose of the EIAR is to:

- Inform decision makers and the public of the possible environmental effects and impacts associated with the implementation of the proposal,
- Determine whether the identified impacts and associated effects could be significant, and
- Suggest mitigation measures for potential impacts where feasible.

This chapter of the EIAR sets out the background and terms of reference for the EIAR. It sets out the report structure, assessment topics, assessment authors and contributors, and their experience and qualifications, and assumptions which underlie the EIAR. Any references to legislation throughout the EIAR include any amendments thereto.

1.1 The Applicant

The Applicant is Ballycar Green Energy Limited, a subsidiary of Greensource Sustainable Developments Limited (Greensource Ltd.). Greensource is an innovative Irish renewable energy company based in Adare, Co. Limerick that specialises in the development of renewable energy projects, working with communities from pre-planning to operation, and creating long-lasting local partnerships. Greensource has over ten years development and operational experience. The company has a highly skilled and experienced team who are committed to developing projects with successful outcomes for all stakeholders. Working with integrity and care for the local environment, the team has a strong track record, having successfully completed wind energy and other renewable projects in the west of Ireland. Since inception, the company has played a key role in the development of over 150 MW of renewable energy projects, playing a significant role in further decarbonising the electricity system in Ireland.

1.2 The Project

The planning application will be made by Ballycar Green Energy Ltd. to An Bord Pleanála (ABP), in respect of the proposed wind energy project as set out below:

> *Application under section 37E of the Planning and Development Act 2000, as amended, for the Ballycar Wind Farm, including 12 wind turbines, substation, met mast, access tracks, borrow pit, deposition areas, grid connection, and all ancillary works.*

The development assessed throughout this EIAR consists of all of the above components. The proposed development is a wind farm comprising of 12 wind turbines (up to 158m tip height) and will have an expected

Maximum Export Capacity (MEC) of 54 Megawatts (MW). Further details are provided in Chapter 2 Description of the Proposed Development.

1.3 Legislative Context of Strategic Infrastructure Development and Environmental Impact Assessment (EIA)

1.3.1 Strategic Infrastructure Development

In relation to projects that may be deemed to be Strategic Infrastructure Development (SID), Part 1 of the Seventh Schedule of the Planning and Development Act 2000 (Act), as amended, specifies, inter alia, the following classes of development:

> "An installation for the harnessing of wind power for energy production (a wind farm) with more than 25 turbines or having a total output greater than 50 megawatts."

Once an SID determination request is made by a prospective applicant, An Bord Pleanála (the Board) must satisfy itself that the development meets one or more of the conditions set out in section 37A(2) of the Planning and Development Act 2000 as amended, namely:

"(a) the development would be of strategic economic or social importance to the State or the region in which it would be situate;

(b) the development would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate; and

(c) the development would have a significant effect on the area of more than one planning authority."

1.3.2 Environmental Impact Assessment

The Environmental Impact Assessment (EIA) Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by EIA Directive 2014/52/EU, requires Member States to ensure that a competent authority (in this instance An Bord Pleanála) carries out an assessment of the likely significant effects of certain types of projects, as listed in the Directive, prior to development consent being given for the project.

The requirement for EIA of certain categories of development is transposed into Irish legislation under the Planning and Development Act 2000 as amended and the Planning and Development Regulations 2001 to 2023 as amended (the "Regulations").

The proposed wind energy project, is of a prescribed class of development to which the EIA Directive applies and falls within the list of project types requiring an EIA as set out under 3(i) of Part 2 of the 5th Schedule of the Planning and Development Regulations 2001 to 2023 (as amended) which states:

> *"Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts".*

The project includes works that are part of the windfarm development including access tracks, tree felling and excavation. The works have been assessed as part of the windfarm development.

This EIAR is compliant with the requirements of the EIA Directive and the Planning and Development Regulations 2001 to 2023, as amended in terms of the structure and content of the information required to be provided by the Developer.

1.4 The Environmental Impact Assessment (EIA) Process

In terms of the EIA process, the following stages were undertaken:

- Screening;
- Consultation;
- Scoping; and
- EIAR preparation (i.e., establishing baseline data, evaluating impacts, defining mitigation measures, etc.).

1.4.1 Screening

The proposed development is a wind farm comprising of 12 wind turbines and will have an expected Maximum Export Capacity (MEC) of 54 Megawatts (MW).

Schedule 5 (Part 2) Sub-section 3(i) of the Planning & Development Regulations 2001-2023 sets a mandatory threshold for **'Installations for the harnessing of wind power for energy production with more than 5 turbines or having a total output greater than 5 megawatts'.**

Therefore, the proposed development is over the threshold for mandatory EIA.

1.4.2 Consultation

Extensive consultation was undertaken in relation to the project, and comments from stakeholders and interested parties were requested and recorded. Consultation through meetings, public information days, letters, email, and telephone calls, with various statutory and non-statutory consultees has been maintained throughout. The following outlines the consultation process.

Pre-planning consultation meetings took place with the following parties:

- An Bord Pleanála; and
- Clare County Council.

1.4.2.1 An Bord Pleanála

Two pre-application meetings were held with ABP, the first meeting was held on 23rd February 2022, where Ballycar Green Energy Ltd. and MWP provided an overview of the proposed development, including the grid connection. The Natura Impact Statement (NIS) and EIAR were also discussed at this meeting.

A second meeting was held with ABP on September 1st, 2022. The discussion focused on project progress to date including the EIAR and the NIS. The Board advised they would be providing the list of statutory bodies once the pre-application stage was closed.

ABP confirmed the project would be Strategic Infrastructure as it meets the requirements outlined in Section 1.3.1 above, in correspondence dated the 4th of November 2022 and advised on the list of prescribed bodies.

1.4.2.2 Local Authority – Clare County Council

Ballycar Green Energy and MWP held a meeting with members of Clare County Council Planning Department on March 2nd, 2022. This was a preliminary meeting to provide an overview of the proposed development. It was confirmed that all of the proposed wind turbines are located within a "strategic area" for wind farm development as outlined in the Clare County Development Plan 2017-2023 (as varied) at the time of the meeting (within a "strategic area" also in the 2023-2029 plan). The turbine delivery route, potential visual impacts, public consultation, and environmental impacts were also discussed.

1.4.2.3 Written Consultations

Written requests outlining details of the proposed development were issued in December 2021 to a number of key stakeholders (both statutory and non-statutory consultees) for consultation/feedback. This included a notification setting out an overview of the development proposal. The notifications invited feedback from the Consultees on any key issues and considerations which they believe should be addressed and expressed that their input at this stage would be welcomed. Consultees were informed that participation at this stage of the project would not affect participation at a later stage in the planning process. A list of the organisations/groups consulted, a copy of the consultation documents and the responses received are provided in Volume III Appendix 1B of this EIAR. The issues raised were subsequently considered in the EIA process and are addressed where relevant in the various chapters.

1.4.2.4 Community Engagement and Public Consultation

Ballycar Green Energy Ltd. has engaged and consulted with the local community to ensure that their views, queries, and suggestions were considered as part of the project design and the Environmental Impact Assessment process.

The applicant has also undertaken a robust programme of community engagement, a summary of which is presented in detail in the Ballycar Wind Farm Community Report Volume III Appendix 1A. Ballycar Green Energy Ltd. have sought to engage with the community to gain valuable insights into the local area and to facilitate productive discourse. In line with national policy, Ballycar Green Energy Ltd. are committed to transparent and meaningful consultation to facilitate more informed and active engagement with stakeholders. A summary of the public consultation is presented in Table 1-1.

Table 1-1: Summary of Public Consultation

Date	Description of Activity
17 November 2021	Project Website Launched www.ballycargreenenergy.ie
17 November 2021	Local Newspapers: *Clare Champion* and *Limerick Post*: Articles on project

Date	Description of Activity
17 November 2021	Letter and Brochure posted to households within 2 km of the project
17 November 2021	Letter posted to households within 1 km of the project in relation to Covid 19 restrictions
17 November 2021	Correspondence to local representatives re proposed project
17 November 2021 to present	Ongoing communications with residents via phone calls and email
30 November 2021	Face-to-face meetings were held between the Community Liaison Officer and the residents who requested them. Ongoing communications with residents via phone calls and email.
21 December 2021	Website update – Engagement to date
01 March 2022 to 30 March 2022	Door to door visits to 110 households within 1km of the proposed project site. When nobody was at home, a postcard with the date and time of visit was left for the resident (approx. 30). An information leaflet on climate change and a printed version of the December website update was also provided to residents. Between these dates a total of 9 visits to the area were carried out with all households within 1km visited with additional households in close proximity also engaged.
27 April 2022	Website update on public consultation
23 June 2022	Invite to Public Exhibition event issued to Public Representatives via email
24 June 2022	Advert on Public Exhibition Event in Clare Champion
24 June 2022	Postcard to local residents (266) regards Community Engagement Event
29 June 2022	Public Exhibition Event at Radisson Blu Hotel, Limerick, for local councillors and TD's
30 June 2022	Public Exhibition Event at Radisson Blu Hotel, Limerick (80 attendees)
19 July 2022	Website update, exhibition materials uploaded with all information presented at the Radisson event made available.
26th August 2022	Website Update – Invitation to Windfarm Visit
28 September 2022	Wind Farm Visit invite and map posted and emailed to residents who expressed an interest at the Radisson event, and residents who did not receive the original invitation to the public consultation event.
8 October 2022	Leaflet for residents was created with additional materials added from the public consultation exhibition was given to residents that attended the wind farm visit.
8 October 2022	Wind Farm Visit in Tullabrack, Kilrush,Co. Clare
10 October 2022	Website update – October 2022 Wind farm visit in Tullabrack wind farm
13 February 2023	Website update – Archaeological Surveys
10 May 2023	Website update – Useful Resources
Ongoing	Responses to queries raised in relation to the project.

A project website (www.ballycargreenenergy.ie) has been established to share information with the local community. This website has been updated regularly to reflect progress on the proposed development. Information presented on the project website includes:

- Project Information;
- Project Benefits;
- Key Questions;
- Company Information;
- Public Consultation Material;
- Project Updates;
- Wind Energy Survey; and
- Contact information.

1.4.2.5 Scoping (determining the issues that EIAR should address)

As it has been determined that an EIA is required, the next step is to 'scope' the content of the EIAR. Scoping considers the potential for likely significant effects throughout different phases of a proposed project to determine "the content and extent of the matters which should be covered in the environmental information to be submitted in the EIAR" (EPA, 2022). The following was considered and consulted during the scoping phase:

- Preliminary environmental appraisal and project feasibility involving desk-top studies, review of available data for the general area of the site, site visits and field surveys;
- Preliminary consultations between Clare County Council, ABP and the Applicant;
- The Clare County Development Plan 2023-2029 and Clare Wind Energy Strategy;
- Environmental Protection Agency (EPA) publication 'Guidelines on Information to be contained in environmental impact assessment reports', (EPA, 2022);
- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU;
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) (EIA Regulations 2018);
- Planning and Development Act, 2000, (Part X) as amended, and in Part 10 of the Planning and Development Regulations, 2001, as amended;
- Department of Agriculture Food and the Marine, Forest Standards and Procedures Manual (DAFM, 2015);
- The Irish Wind Energy Association, Best Practice Guidelines for The Irish Wind Energy Industry, (IWEA, 2012);
- The Department of Environment, Heritage and Local Government, Wind Farm Planning Guidelines 2006;
- Scoping checklist set out in the European Commission's guidance document on EIA scoping (2017);
- Feedback from Statutory and Non-Statutory Consultations (included in **Appendix 1B**); and
- The experience of the project team.

A draft version of the revised Wind Energy Development Guidelines (WEDGs) was published for consultation in December 2019. However, at the time of submitting this planning application, the 2006 Wind Energy Development Guidelines remain the relevant valid guidelines, for the purposes of Section 28 of the Planning and Development Act 2000, as amended. Further detail on this is provided in the relevant chapters of this **EIAR**.

Based on all EIA scoping activities outlined above, **Table 1-2** outlines the specific topic areas that have been identified for assessment and inclusion in the **EIAR** and the chapters of the **EIAR** where these topics have been addressed. The vulnerability of the proposed development to risks of major accidents and/or disasters and the proposed developments potential to cause accidents and/or disasters is discussed in **Chapter 2 Description of the Proposed Development**.

Table 1-2: EIAR Topics and Relevant Chapters within the EIAR

Regulated Topic Area	Assessments and Studies Included in the EIAR	EIAR Chapter
Population	Residential Amenity (noise, traffic, air quality, visual effects, shadow flicker)	Chapters 5, 9, 10, 11, 12, 14 & 15
	Health and Safety	
Biodiversity	Habitat Disruption	Chapters 6 & 7
	Protected Flora and Fauna	
	Bat populations	
	Aquatic Ecology	
	Avian populations	
Water	Impacts on Surface Water Quality	Chapter 8
	Impacts on Groundwater Quality	
	Impacts on Groundwater Levels and Local Well Supplies	
	Flood Risk Assessment including the potential for the proposed development to be affected by flooding and the potential for the development to increase flood risk elsewhere	
	Hydrological impacts on designated sites	
Land and Soil	Loss of land use	Chapter 9
	Excavated materials	
	Peat Stability	
	Forestry replanting	
	Contamination of soil	
	Soil Erosion	
Air and Climate	Emissions to atmosphere and effect on Air Quality	Chapter 14
	Impact of the project on climate	
	Vulnerability of the project to climate change	
Noise	Noise & Vibration Emissions	Chapter 10
Landscape	Visual Impact of new structures	Chapter 12
	Impact on landscape character	
Cultural Heritage	Impact to archaeological (known and unknown) and cultural heritage resources	Chapter 13
Material Assets	Roads, infrastructure, utilities, traffic	Chapter 15
	Forestry Resources	
	Telecommunications, Television, Aviation	

1.5 EIA Study Area

The EIA study area for the development includes the proposed development site, in addition to a wider area over which the various assessments and studies were carried out. **Figure 1-1** shows the outline of the proposed development site (application boundary) as per the planning application statutory drawings.

Figures 1-2 shows the minimum extent of the lands considered as part of the environmental assessment. The EIA however takes account of the spatial limits of individual environmental components outside the EIA study area boundaries where an effect can be reasonably expected as described in the individual chapters.

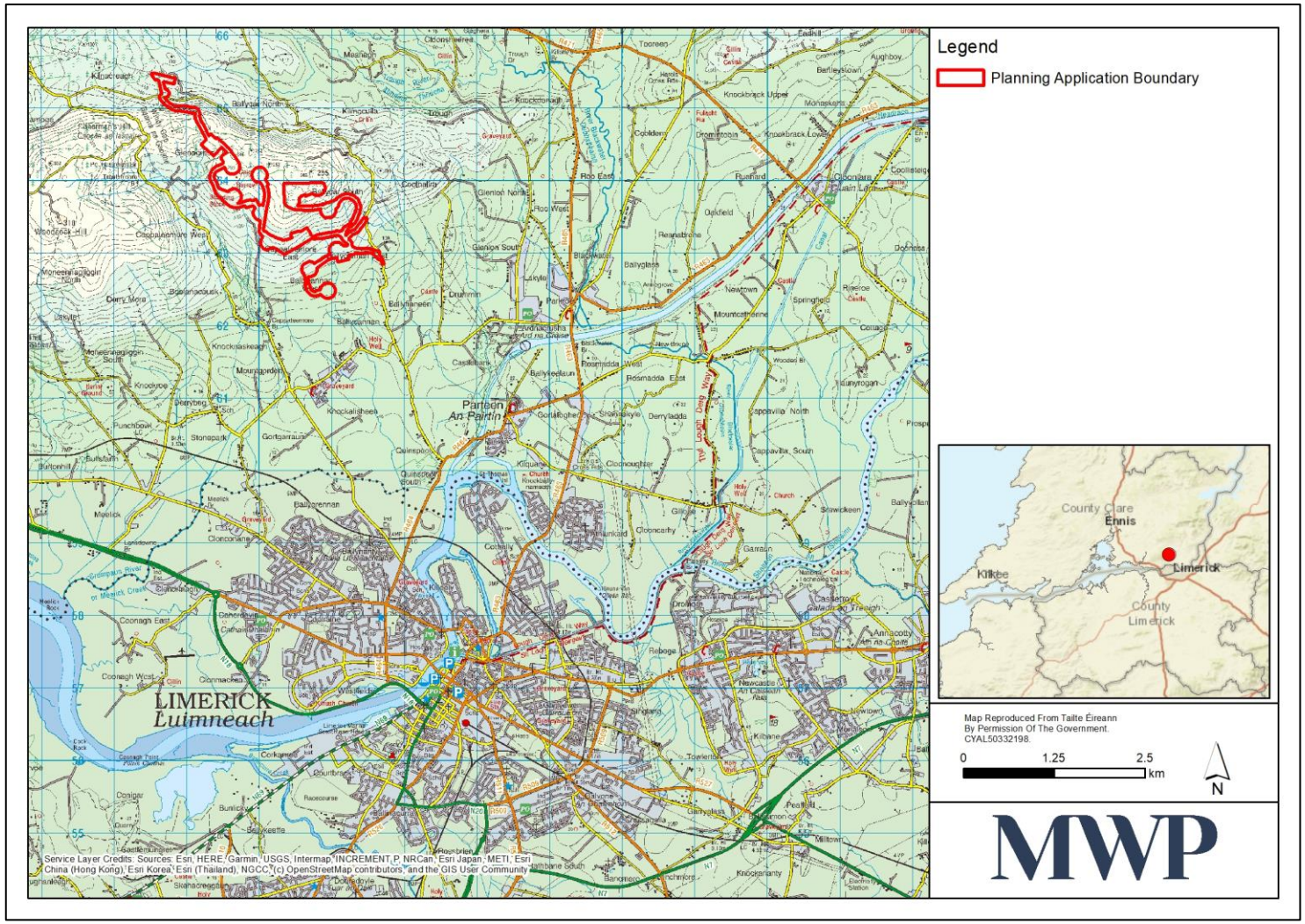

Figure 1-1: Development Area and Site Location

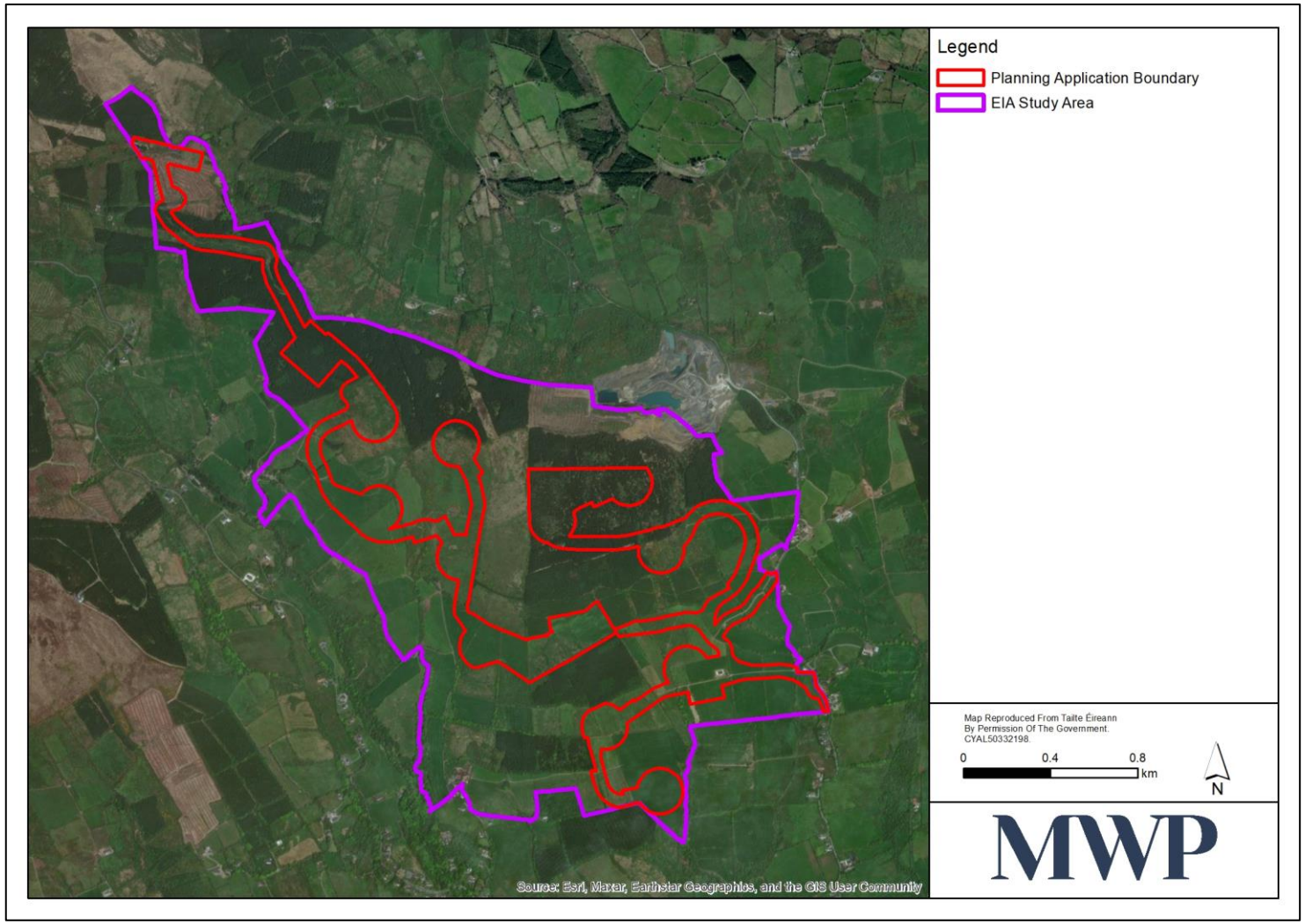

Figure 1-2: General EIA Project Area

1.6 Overview of EIAR Structure

The EIAR is prepared in accordance with the requirements outlined in Schedule 6 of the Environmental Impact Assessment Regulations 2018 (S.I. No. 296 of 2018) and the 2022 EPA Guidelines on Information to be contained in an Environmental Impact Assessment Report.

The EIAR is presented in 4 No. Volumes as follows:

- Volume I: Non-Technical Summary;
- Volume II: Main Environmental Report;
- Volume III: Appendices; and
- Volume IV: Photomontages.

A Screening for Appropriate Assessment and Natura Impact Statement accompany this application.

1.6.1 Volume I – NON-TECHNICAL SUMMARY

The Non-Technical Summary provides a concise, easy-to-follow and understandable summary of the information included in the EIAR. The summary is presented similar to the grouped format structure which discusses each environmental topic separately.

1.6.2 Volume II – MAIN EIAR

This document provides a detailed description of the proposed development and contains specialist reports on each of the selected assessment topics. This document is prepared in the 'Grouped Format Structure' which examines each environmental topic area. Biodiversity is included across two chapters (Chapter 6 Biodiversity and Chapter 7 Ornithology). This structure was selected for the Main EIAR as it facilitates straightforward investigation of individual topics. This document is divided as follows:

- Chapter 1 Introduction;
- Chapter 2 Description of the Proposed Development;
- Chapter 3 Civil Engineering;
- Chapter 4 Alternatives;
- Chapter 5 Population and Human Health;
- Chapter 6 Biodiversity;
- Chapter 7 Ornithology;
- Chapter 8 Water;
- Chapter 9 Land and Soil;
- Chapter 10 Noise and Vibration;
- Chapter 11 Shadow Flicker;
- Chapter 12 Landscape and Visual;
- Chapter 13 Cultural Heritage;
- Chapter 14 Air and Climate;
- Chapter 15 Material Assets;

- Chapter 16 Interaction of the Foregoing; and
- Chapter 17 Schedule of Environmental Mitigation.

Each chapter follows a broad methodology framework including the following: Introduction, Methodology, Existing Environment, Potential Impacts, Mitigation Measures, Residual Impacts.

1.6.3 Volume III – APPENDICES

Volume III – Appendices contains supporting information and reference documents related to Chapters 1-17 of the main EIAR (Volume II).

1.6.4 Volume IV – PHOTOMONTAGES

Volume IV contains the photomontages prepared for the visualisation of the proposed development from the selected viewpoint locations.

1.7 Project Team

MWP are the lead Environmental and Engineering Consultants on this project and the final EIAR has been compiled by MWP on behalf of the Applicant.

The project team included a combination of competent engineering and environmental experts. The team of specialists involved in the project engineering design are presented in Table 1-3. Qualifications and competencies of the contributing authors to the EIAR are presented in Table 1-4.

Table 1-3: Project Engineering Design Team

Company	Role
Ballycar Green Energy Ltd.	Site selection
	Wind resource analysis
	Community engagement
MWP	Project Management, Design Engineering, EIA, AA, and Planning lead
TLI Group	Grid Connection: Route Design and Electrical Substation

Table 1-4: EIAR Authors and Specialist Contributors

Subject Area	Author Contributor	Company
Description of Development	Peter Barry –Environmental Consultant Paul Nealon– Civil Engineer Paddy Curran – Civil Engineer	MWP
Civil Engineering	Cormac Murphy – Civil & Geotechnical Engineer Paul Nealon– Civil Engineer Paddy Curran – Civil Engineer	MWP

Subject Area	Author Contributor	Company
Main Alternatives	Peter Barry – Environmental Consultant	MWP
Population and Human Health	Kieran Barry – Environmental Consultant Olivia Holmes – Environmental Consultant	MWP
Biodiversity Terrestrial Ecology Appropriate Assessment	Marie Kearns - Ecologist Otto Storan – Ecologist Tom O' Donnell – Ecologist Ger Hayes – Senior Aquatic Ecologist Hazel Dalton – Ecologist Úna Williams - Ecologist	MWP O'Donnell Environmental Ltd.
Ornithology	Brian Madden - Ornithologist	BioShpere Environmental Services
Lands and Soils	Jasmin Spoerri - Geologist Paddy Curran – Civil Engineer Olivia Holmes – Environmental Consultant	MWP
Water	Chris Ahern – Hydrologist Michael Fenton – Hydrologist	MWP
Air and Climate Change	Peter Barry - Environmental Consultant Kieran Barry - Environmental Consultant	MWP
Noise and Vibration	Kieran Barry – Environmental Consultant Peter Barry – Environmental Consultant	MWP
Landscape	Evelyn Sikora – Senior Landscape Planner John Flanagan – Visualisation Expert	Cunnane Stratton Reynolds Innovision
Cultural Heritage	Laurence Dunne – Archaeologist	L Dunne Archaeology
Material Assets	Kieran Barry – Environmental Consultant Olivia Holmes – Environmental Consultant	MWP
Traffic and Transportation	Diane Johnston	ORS Building Consultants
Shadow Flicker	Jeremy King – GIS & AutoCAD technician Kieran Barry – Environmental Consultant Peter Barry – Environmental Consultant	MWP
Interaction of the foregoing	Noelle O'Leary – Environmental Consultant	MWP
Schedule of Environmental Mitigation	Kieran Barry – Environmental Consultant	MWP

Table 1-5: EIAR Authors and Specialist Contributors Qualifications

Author/Contributors	Qualifications	Competencies
Paul Nealon	BE (Hons) CEng MIEI Civil and Project Engineer	Paul is a Civil and Project Engineer with over 10 years of experience in designing wind farm projects from planning through to construction stage. He has been responsible for the design of infrastructure on a number of wind farm projects such as Cluddaun WF, Kilathmoy WF, Carrownagowan WF, Sliabh Bawn WF and Tullahennel WF.
Cormac Murphy	BE MIEI Civil and Project Engineer	Cormac is a senior engineer with wide ranging experience in Civil Engineering, from site assessment through to design, tendering, site supervision and inspection. Cormac has specialised in wind farm design and construction with particular emphasis on Peat Stability Assessment and constructability of

Author/Contributors	Qualifications	Competencies
		infrastructure in the peat environment. He has been responsible for the assessment and design of infrastructure on a number of wind farm projects in difficult peat conditions. These have included Tullahennel Wind farm, Co. Kerry; Tievenameenta Wind Farm, Co. Tyrone; Booltiagh Wind Farm Co Clare; Hollyford Wind Farm, Co Tipperary; Ugool and Knockranny, Co Galway; Letteragh, Co Clare. Cormac's extensive experience in construction resulted in his engagement as the Technical Advisor on the construction of several large Wind Farms including Coomacheo and Curragh Wind Farms, Co. Cork, Athea and Dromada Wind Farms, Co. Limerick.
Paddy Curran	BE, MSc, DipPM, CEng, MICE, RoGEP Geotechnical Engineer	Paddy is a Senior Engineer and has over 10 years' experience in civil engineering, particularly in the area of Geotechnical Engineering. Project experience includes delivering the geotechnical investigation/interpretation, design and construction support for many projects including Tullabrack Wind Farm and Derryadd Windfarm EIS.
Tom O'Donnell	BSc, MSc Ecologist	Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has 15 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2023-16) and to capture bats (C25/2023).
Gerard Hayes	BSc, MIEEM, FBA Aquatic Ecologist	Gerard Hayes is a Senior Aquatic Ecologist with over 13 years' experience in environmental consultancy. He is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and the Freshwater Biological Association (FBA). Gerard has a diverse ecological profile, with Phase 1 habitat, tree, mammal (including bats), fish, bird, amphibian, macroinvertebrate survey experience. He has had numerous responsibilities including report writing (EIAR, EIA, EA, AA, NIS), waste assimilation capacity assessment and ecological monitoring. His area of expertise covers infrastructure projects ranging from wind energy development, waste-water treatment, roads/bridges, water supply, flood defence and hydroelectric schemes. He is co-author and/or carried out surveys for NPWS Irish Wildlife Manual Nos. 15, 24, 26, 37, 45. As part of his experience and continuing professional development, Gerard has developed excellent analytical and GIS skills.
Hazel Dalton	BBUS, BSc Ecologist	Hazel is an Ecologist with MWP and has completed numerous reports informing Stage 1 and Stage 2 Appropriate Assessments and Ecological Impact Assessments (EcIA). She has experience with general ecological report writing and has authored several ornithological reports for large scale projects. Hazel has experience in standard field survey methodologies including, in particular, those for birds and bats, having been involved in field surveys for several large-scale projects. She is also experienced in mammal and invertebrate surveying, freshwater ecology and habitat mapping.

Author/Contributors	Qualifications	Competencies
Peter Barry	B.Sc. M.Sc. AIEMA, AIOA, CEnv Environmental Consultant	Peter is a Chartered Environmental Scientist and environmental impact assessment practitioner with 20 years' experience. Peter has managed several Environmental Impact Assessment Reports and contributed as a specialist contributor to numerous EIARs. Peter has presented evidence as expert witness at Oral Hearings on air and climate, noise and vibration and shadow flicker. Peter is a member of the Institute of Acoustics (IOA) and has completed the IOA Diploma in Acoustics and Noise Control.
Evelyn Sikora	BA, MA Senior Landscape Planner	Evelyn is a qualified landscape architect and town planner and is also a Corporate Member of the Irish Landscape Institute. She has specialised in Landscape and Visual Assessment (LVIA) and has five years' experience in a range of projects, including Strategic Infrastructure Projects throughout Ireland. Projects include numerous wind farms, solar farms, road schemes, flood relief projects, and other infrastructural projects in both rural and urban contexts.
John Flanagan	BSc Visualisation Consultant	John is a visualisation consultant with over 12 years' experience providing photomontage and mapping services to the planning industry. Throughout his career, John has worked on many different projects including wind farms, solar farms, road schemes, bridges, power-lines and numerous other engineering and architectural developments. John has worked on numerous wind farm projects including Lettercraffroe Wind Farm, Knockranny Wind Farm & Uggool Wind Farm.
Laurence Dunne Archaeology	BSc	For over twenty years, Laurence Dunne and his experienced staff have completed an extensive and diverse range of terrestrial and underwater projects in all environments, all situations and developments. Laurence Dunne Archaeology Ltd. has the expertise and competency to complete all aspects of archaeological assessment.
Diana Johnson ORS	BSc	Diana Johnson is an experienced consultant who has carried out several traffic and transport assessments for a broad and diverse range of large developments.
Jasmin Spoerri	MSc Applied Environmental Geoscience, BSc International Field Geosciences	Jasmin Spoerri holds an MSc in Applied Environmental Geoscience and a BSc in International Field Geosciences from University College Cork (UCC). Jasmin has experience in geological investigation/interpretation, geotechnical investigation/interpretation, hydrogeological assessment and investigation, geo-environmental assessment, and report writing. She has authored several EIAR Land and Soils chapters on a variety of project types, including wind farms.
Jeremy King	Cert IA, Cert CAD, HDip AutoCaD & GIS Technician	Jeremy is the lead GIS technician in MWP and assists the environmental team in completing EIA's, EIS's, wind farm feasibility studies and planning applications. He also works alongside the wind farm civils design team, particularly in constraint mapping and collating and generating GIS baseline data that ultimately influences design and layout. Jeremy works with the EIA team specialists. He has expertise in WINDFARM design software that includes modules on wind farm layout, Photomontages, ZVI and Shadow Flicker. He has generated shadow flicker models on numerous wind farm projects.

Author/Contributors	Qualifications	Competencies
Christopher Ahern	BSc, MSc Engineer	Christopher Ahern holds a BSc in Earth Science and a MSc in Applied Environmental Geoscience from University College Cork. Christopher has experience in hydrology, 1D and 2D hydraulic modelling, flood analysis, and the preparation of flood risk assessment reports.
Micheál Fenton	BE CEng MIEI	Micheál has 15 years' experience in the areas of hydrology, hydraulic analysis, flood risk assessments, strategic drainage studies as well as completing drainage and civil design for numerous wind farm projects. He has also worked as a researcher in the Centre for Hydrology, Micrometeorology and Climate Change in UCC in the area of hydrology and flood event analysis. Part of his work was published in the OPW FSU packages. Micheál has a strong understanding of the first principals of hydrology and has extensive knowledge of frequently used flood estimation methods such as those presented in the FSU, FSR and FEH. In addition to this, he has a strong competence in 1D/2D hydraulic modelling.
Úna Williams	MSc BSc Ecologist	Úna Williams is an experienced ecologist who has prepared numerous ecological assessments across a variety of project development types.
Otto Storan	BSc (Hons) MSc Ecologist and Environmental Scientist	Otto holds an MSc in applied environmental science from University College Dublin (UCD) and an honours BSc in Applied Freshwater and Marine Biology from Atlantic Technological University (ATU, formerly GMIT). Otto's core professional work to date has focussed on the implementation of European legislation in the context of the Water Framework Directive, the Habitats Directive, Birds Directive and EIA Directive and he has undertaken and prepared assessment reports for a range of coastal, marine, and terrestrial projects.
Noelle O'Leary	BSc (Hons) MSc Environmental Scientist	Noelle works on a variety of infrastructure projects conducting environmental assessments and supporting the delivery of a number of environmental deliverables including Screening for Environmental Impact Assessment (EIA) Reports, feasibility and constraints studies, route option assessments and Environmental Impact Assessment Reports (EIAR).
Kieran Barry	BEng, PgDip Environmental Scientist	Kieran is an experienced Environmental Scientist. Kieran works on a variety of infrastructure projects conducting environmental assessments and supporting the delivery of a number of environmental deliverables including Environmental Impact Assessment (EIA) Screening Reports, feasibility and constraints studies, route option assessments and Environmental Impact Assessment Reports (EIAR).
Brian Madden	BA. Mod. (Hons), PhD Ornithologist	Brian graduated in Natural Sciences from the University of Dublin in 1984 and earned a Ph.D. degree in 1990 from the National University of Ireland for his research on ecosystem processes in raised bogs. Since 1994, Brian has been the principal ecologist with BioSphere Environmental Services. Brian has carried out botanical surveys and habitat assessments for most terrestrial habitats which occur on the island of Ireland. He is an experienced ornithologist, with particular interests in birds of prey and wetland birds. He has published a range of peer-reviewed research papers. Examples of energy projects Brian has been involved with include: Grousemount Wind Farm, Cos. Cork/Kerry, Oweninny Wind Farm Phases 1 & 2, Co. Mayo, Castlepook Wind Farm, Co. Cork, Letteragh Wind Farm, Co. Clare, Kiltumper Wind Farm Co.

Author/Contributors	Qualifications	Competencies
		Clare, Eglish Wind Farm, Co Tyrone, Connemara 110kV Overhead Line Reinforcement Project (40 km from Barna to Screeb Bay in Connemara).
Olivia Holmes	BSc MSc, CEng MIEI, MCIWEM, C.WEM Environmental Consultant	Olivia Holmes has over twenty years' experience in Environmental Engineering focussing primarily on Environmental Impact Assessment (EIA), Appropriate Assessment (AA) and planning. She has led the preparation of a number of large-scale multi-disciplinary EIA projects and planning and other consent applications.

1.8 Technical Difficulties and Availability of Data

There were no difficulties encountered in the preparation of this EIAR. As is standard practice best available predictive modelling techniques where used were relevant to inform the assessment.

1.9 Note on Drawings and Graphics

Details of the proposed development are supported by the planning application drawings prepared by MWP in compliance with our internal Quality Management System (accredited to ISO: 9001) and the requirements of the Planning and Development Regulations 2001 to 2023 (as amended). These drawings accompany the planning application and are referenced as relevant throughout the EIAR. It should be noted that these drawings have been reduced in scale within the EIAR for more convenient examination.

1.10 Viewing and Purchasing the EIAR

Copies of this EIAR will be available online, including the Non-Technical Summary (NTS), on the website of An Bord Pleanála, under the relevant Planning Reference Number (to be assigned on lodgement of the application).

- An Bord Pleanála: http://www.pleanala.ie/

This EIAR and all associated documentation will also be available for viewing at the offices of both An Bord Pleanála and Clare County Council. The EIAR may be inspected free of charge or purchased by any member of the public during normal office hours at the following address:

- An Bord Pleanála, 64 Marlborough Street, Dublin 1;
- Planning Department, Clare County Council, Áras Contae an Chláir, New Road, Ennis, County Clare.

The EIAR will also be available to view online via the Department of Planning, Housing and Local Government's EIA Portal, which will provide a link to the planning authority's website on which the application details are contained. This EIA Portal was set up by the Department as an electronic notification to the public of requests for development consent which are accompanied by an EIAR.

This EIAR will also be available to view online on its dedicated website: https://ballycargreenenergyplanning.ie/

References

DHPLG. (2019). Draft Revised Wind Energy Development Guidelines, Department of Housing Planning and Local Government.

EC. (2017a). Environmental Impact Assessment of Projects: Guidance on Scoping. European Commission.

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