TOBIN

Ballyfasy Wind Farm, Co. Kilkenny

Environmental Impact Assessment Scoping Report

MANOGATE LTD.

BUILT ON KNOWLEDGE

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1. INTRODUCTION

Manogate Ltd (hereafter referred to as the Developer) intend to develop Ballyfasy Wind Farm in County Kilkenny and have commenced the process of Environmental Impact Assessment (EIA). Manogate Ltd. is a company established for this project by Art Generation and FuturEnergy Ireland (FEI).

The proposed development is located in the southern portion of County Kilkenny between the villages of Listerlin (c. 4km northeast), Mullinavat (c. 3.5km west) and Glenmore (c. 5km southeast). The proposed windfarm application area is approximately 372.2 hectare (ha).

The proposed wind farm study area is shown in Appendix A.

1.1 ART GENERATION LTD.

ART Generation Ltd. is a wholly Irish owned renewable energy company based in Ireland. It is a well-established energy development company with responsibility for managing the development, construction, and operation of projects throughout Ireland including Foyle Windfarm in Co. Kilkenny. ART Generation Ltd. most recently developed three wind farms in the counties of Kilkenny and Tipperary.

1.2 FUTURENERGY IRELAND

In November 2021, Coillte and ESB joined forces to launch their joint venture company FEI. FEI's mission is to maximise the potential of our unique wind and land resources and accelerate Ireland's transformation to a low carbon energy economy.

Coillte, one of Ireland's largest semi-state companies with a history in forestry development, has expanded in recent years to include three high potential businesses including Forestry, Land Solutions and MEDITE SMARTPLY.

Within the "Land Solutions" business, Coillte partner, develop and add value where Coillte lands are suited to activity other than forestry, e.g., Renewable Energy projects, and they provide potential partners and clients with expertise in areas such as project management, planning and development, construction, land sales, legal, finance, community engagement procurement and communications.

If Ireland is going to meet its binding national commitments on combatting climate change and de-carbonising the economy, we must develop successful renewable energy projects. Coillte has been at the forefront of this effort and intends to continue to be so through partnership in projects and by continuing to make suitable lands available.

High quality wind farms have been built on Coillte lands and, as Ireland continues to promote new sectors such as solar, storage and biomass, Land Solutions will ensure that Coillte continues to be a key contributor to the re-shaping of Ireland's renewable energy supply landscape.

Coillte has been a supporter of wind energy since the earliest days of the sector in Ireland in the 1990s. Of the approximately 3GW of wind farms now in operation here, nearly one-third are located on Coillte lands. They range from the Galway Wind Park, the biggest wind farm in Ireland, to small scale sites such as Cranemore 0.5MW.

1.3 THE NEED FOR ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The Developer and TOBIN consider that the proposed development of the Ballyfasy Wind Farm has the potential, prior to design mitigation and other mitigation, to have significant effects on the environment, due to the potential size, scale, and location of the proposed development. The proposed development also exceeds the thresholds for completion of an EIA, as detailed in the *Planning and Development Regulations 2001 (as amended)*, *Schedule 5*, *Part 2*, *Class 3(i)*. As such, it is not proposed to provide a report on the screening requirement for an EIA but to proceed on the basis of considering the potential effects of the wind farm development through the process of EIA. The Developer proposes to accompany the Planning Application for the wind farm with an Environmental Impact Assessment Report (EIAR).

The European Commission's *Guidance on EIA Scoping* (European Commission, 2001) notes the following in Part A of the guidance, EIA is a procedure required under the terms of European Union Directives 85/337/EEC and 97/11/EC on assessment of the effects of certain public and private projects on the environment.

Article 2 of the Directive requires that

> *"Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects."*

Article 8 then requires that

> *"The results of consultations and information gathered pursuant to (the EIA procedure) must be taken into consideration in the development consent procedure".*

In terms of legislative context, it is considered that the proposed development of Ballyfasy Wind Farm is subject to the requirements set out in the provisions of Part X of the Planning and Development Act 2000 (as amended by the Planning and Development (Amendment) Act 2010 (30/2010), s. 54, (S.I. No. 405 of 2010), the European Union (Environmental Impact Assessment) (Planning and Development) Regulations 2014 (S.I. No. 543 of 2014) Reg. 2, the European Union (Environmental Impact Assessment and Habitats) Regulations 2011 (S.I. No. 473 of 2011) Reg. 6, the European Union (Environmental Impact Assessment) (Planning and Development Act, 2000) Regulations 2012 (S.I. No. 419 of 2012) Reg. 2(c), the European Communities (Environmental Impact Assessment) (Amendment) Regulations 2006 (S.I. No. 659 of 2006) Regs. 2 and 4, and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

1.4 PURPOSE OF EIA SCOPING

The purpose of the scoping for EIA is to provide a framework for the approach to be taken for the individual specialists evaluations, to identify environmental topics for which potential significant environmental impacts may arise, to provide a framework for the consultation process to take place with prescribed Statutory Bodies as part of the environmental assessment work, and as such, a structure for the preparation of the EIAR to be prepared and the information required to be included therein.

The European Commission's, *Guidance on EIA Scoping* (European Commission, 2001) notes the following in Part B of the guidance, as being the benefits of scoping:

- *"It helps ensure that the environmental information used for decision making provides a comprehensive picture of the important effects of the project, including issues of particular concern to affected groups and individuals;*
- *It helps focus resources on the important issues for decision-making and avoids wasted effort on issues of little relevance;*
- *It helps ensure that the environmental information provides a balanced view and is not burdened with irrelevant information;*
- *It stimulates early consultation between the developer and the competent authority, and with environmental authorities, other interested parties, and the public, about the project and its environmental impacts;*
- *It helps effective planning, management, and resourcing of the environmental studies;*
- *It should identify alternatives to the proposed project and mitigating measures which ought to be considered by the developer;*
- *It can identify other legislation or regulatory controls which may be relevant to the project and provide opportunities for the necessary assessment work for different control systems to be undertaken in parallel, thereby avoiding duplication of effort and costs for all concerned;*
- *It reduces the risk of delays caused by requests for further information after submission of the development consent application and the environmental information; and*
- *It reduces the risk of disagreement about impact assessment methods (baseline surveys, predictive methods, and evaluation criteria) after submission of the environmental information".*

1.5 EIA TEAM

TOBIN has been engaged by the Developer to coordinate the EIA and prepare the EIAR for the proposed development. The relevant specialists included in the Study Team, who are both experienced and competent in their areas of expertise, are noted here:

- TOBIN staff will provide expertise in relation to Project Direction, Project Management, EIAR Production and expertise in relation to the environmental evaluation of the following topics: Planning, Reasonable Alternatives, Land, Soils & Geology, Hydrology & Hydrogeology, Flood Risk Assessment, Traffic, Population and Human Health, Telecommunications & Aviation Assessment, Shadow Flicker and Biodiversity;
- Causeway Geotech Ltd – Geotechnical Site Investigation;
- Doherty Environmental Ltd – Bats and Ornithology;
- Macro Works – Landscape & Visual Impact (LVIA) Consultants & Production of Photomontages;
- AWN Consultants – Noise & Vibration, Air & Climate;
- TLI Group – Substation and Grid Connection Design;
- Western Forestry Co-Op - Forestry; and
- Irish Archaeological Consultancy Ltd. (IAC) – Cultural Heritage.

1.6 SCOPING REPORT STRUCTURE

Individual specialists will undertake their evaluations of the environment and the proposed development, including evaluation under following topics:

- Reasonable Alternatives;
- Policy, Planning and Development Context;
- Population and Human Health;
- Biodiversity;
- Land, Soils and Geology;
- Hydrology and Hydrogeology;

- Air Quality and Climate Assessment;
- Material Assets: Shadow Flicker;
- Material Assets: Aviation, Telecommunications and Electromagnetic fields (EMF);
- Noise and Vibration;
- Landscape and Visual Impact Assessment (LVIA);
- Forestry;
- Cultural Heritage;
- Traffic and Transport;
- Interaction of the Foregoing; and
- Schedule of Mitigation Measures.

Initial Constraints

Initial constraints work has begun in relation to mapping of known constraints including planning designations/preferred wind energy development areas as per the current Kilkenny City and County Draft Development Plan (2021-2027) (hereafter referred to as 'Kilkenny CCDP'), ground truthing of sensitive receptors, proximity of residential/sensitive receptors, known and mapped archaeological constraints, existing ecological data available for the site location and baseline ecological surveys, baseline noise monitoring, identifying landscape character areas and telecommunications and aviation constraints. Consideration of grid connection options has also begun.

1.7 Project Description

The project comprises of the development of a wind farm of up to 10 no. wind turbines and all associated infrastructure including turbine foundations, hardstanding areas, borrow pits, access tracks, on site 110kV substation and other ancillary infrastructure. The proposed wind farm area is approximately 372.2 ha.

The grid connection will be determined during the EIA progress but currently consists of two potential options. Option 1. is an underground cable connection from the wind farm site substation to the planned Castlebanny 110kV substation approximately 10km north. Option 2. is an underground cable connection between the onsite substation and the existing Great Island -Kilkenny 110kV overhead line passing over site to the east.

Although this project may be submitted in two separate planning applications, the EIAR will be composite and will cover both aspects of the proposed development (i.e. wind farm and grid connection).

1.8 Site Location

The proposed development is located in the southern portion of County Kilkenny between the villages of Listerlin to the northeast, Mullinavat to the west and Glenmore to the southeast.

The topography of the area can generally be described as gently sloping, rising from c.160 OD in the west and 190 OD in the east to a high point of 190 OD in the north and 160 OD in the south, and 200 OD in the centre.

The landscape is largely agricultural with areas of coniferous forestry occurring. Two watercourses traverse through the wind farm study area; the Arrigle River and the Smartcastle Stream. The source of the Arrigle River occurs in the north, and flows in a northerly direction. The Smartcastle Stream, which is situated towards the south, flows in a southerly direction.

In general terms, the area surrounding the site can be described as rural with dispersed settlement type. The impact of the location of wind turbines in terms of required setback distances will be considered at the design stage and following the results of a ground-truthing exercise. All properties identified as being potential sensitive receptors will be located at a minimum of 720m from the proposed turbine locations.

There are two commissioned wind farms located in the local area namely; Ballymartin Wind Farm to the northwest and Rahora Wind Farm to the northeast.

1.9 THE PROPOSED DEVELOPMENT

1.9.1 Internal Access Route and Turbine Locations

The exact number, siting and scheme layout for the turbines will be decided as part of the design and EIA process.

In addition, the internal access route layout, access route types and construction methodologies will be designed and the location of the proposed entrance to the wind farm site will be confirmed. The layout design will be developed by the design team in Q3/Q4 2024 and assessment of potential access points through which turbine components and construction related deliveries may be made will commence at that stage.

1.9.2 Wind Turbine Specification

The exact rating and design of the proposed turbine, subject to completion of the statutory processes, will be subject to a competitive tender and will be detailed by the turbine manufacturer on award of the contract. However, the proposed turbines will be the typical three bladed, horizontal axis type.

Details of the maximum hub height, maximum rotor diameter, maximum tip height and the overall proposed capacity will be decided in the design and EIA process. Each turbine will have a maximum blade tip height of between 169m-180m, a rotor diameter of between 149m-163m and a hub height of 98.5m-105m. The potential installed capacities for the wind turbines and the wind farm as a whole will be proposed as part of the design process. Based on turbines available at the scale initially considered, the output from the wind farm is estimated to be approximately 72MW.

1.9.3 Electrical / Mechanical Equipment

The main mechanical and electrical components associated with the development include the following:

- Turbine components (tower sections, nacelle, hub, rotor blades);
- On site 110kV substation;
- Electrical cable;
- SCADA cable;
- Main and assist cranes; and
- Potentially two end masts for grid connection with the existing overhead line network.

It is noted that an existing 80m wind monitoring mast is in place within the boundary of the proposed development located in Ballyfasy Upper (latitude 52˚22’46.63”N, longitude 7˚05’55.03”W).

1.9.4 Forestry Operations Management

The forestry consultant contributing to the EIAR will confirm any relevant details relating to forestry sections and sub-sections, tree species planted on site, tree planting dates, yield class, thinning and felling regimes and planned felling coupes and schedules.

1.9.5 Grid Connection

Proposed connection point and the method of connection to the grid will be evaluated as part of the design and EIA process. However, current grid connection proposals include two potential options. Option 1. is an underground cable connection from the wind farm site substation to the planned Castlebanny 110kV substation approximately 10km north. Option 2. is an underground cable connection between the onsite substation and the existing Great Island -Kilkenny 110kV line passing over site to the east.

1.9.6 Decommissioning

The proposed turbine will have a design lifetime of approximately 30-years without replacement of major components. In certain circumstances, the developer may wish to replace turbines prior to the end of the design lifetime. Such a decision would be made on the merits of economic and technical factors at the time of assessment and undertaken in consultation with the local authorities.

Turbine design renders the decommissioning process as a straightforward process. In the decommissioning phase, cranes disassemble each turbine section and remove from the site. The upper sections of the foundations projecting above ground will be removed, and the remainder of the foundations will be covered by soils typical of the surrounding environment and then re-seeded or left to re-vegetate according to ecological requirements. Underground cables will be cut back at the turbine termination points and will either be recycled or left buried in situ (de-energised). It is proposed that site routes would remain to allow access through the site either for further alternative development of the site, for ongoing forestry operations and/or for amenity purposes, as considered appropriate at the time.

Site materials will be recycled where practicable or disposed of in accordance with current waste legislation and best practice guidelines. Based on current commodity prices, principally steel and copper, material returns achieved through recycling may exceed current financial costs associated with site decommissioning.

Decommissioning activities are typically similar to construction activities, having similar type risks and sensitive receptors associated with them. The potential impacts of decommissioning activities will be assessed accordingly in the EIAR.

1.9.7 Rehabilitation / Concurrent or Future Use of the Site

The site predominantly consists of agricultural lands and coniferous forestry which will be used during of the operation of the wind farm site. Following decommissioning the lands will be returned to their current use.

2. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

2.1 PROJECT SUMMARY

At the stage of the submission of the planning application and EIAR, and arising out of the EIA process, the project description as per the application for planning approval will have been finalised.

In the case of a wind farm development, the final project proposal may have gone through a number of iterations during the EIA, including changes to design proposals, numbers of proposed turbines and turbine layouts.

It is proposed that the following EIA guidelines will be followed during the process:

- *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (Environmental Protection Agency (EPA), 2003); and
- *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA, 2022) (hereafter, the EPA EIAR Guidelines).

In addition to the guidelines above, the EIAR will be prepared with cognisance to the *Wind Energy Development Guidelines for Planning Authorities* (2006), the proposed draft revisions to these guidelines (December 2013), the Preferred Draft Approach to these guidelines as announced by the Government in June 2017 and the *Draft Revised Wind Energy Development Guidelines* (December 2019).

An Appropriate Assessment (AA) and, potentially, a Natura Impact Statement (NIS) will be prepared for the proposed development. The purpose of the AA/NIS will be to inform An Bord Pleanála in its undertaking of an 'Appropriate Assessment' of the proposal, as required under Article 6(3) of the EU Habitats Directive (92/43/EC). This is an assessment of the potential for significant or adverse effects resulting from the project, both individually and in-combination with other activities, plans and projects, on European Site(s) as designated under the EU Habitats Directive and the conservation objectives for their qualifying species and habitats.

2.2 THE SCOPING PROCESS

This current report will form the basis for the scoping process to be undertaken by the applicant's consultants on behalf of the Developer, with the Planning Authority and the prescribed Statutory Bodies.

The scoping will allow statutory consultees to provide information, data or additional guidance from their governmental departments and will facilitate the iteration of the design and EIA process, to determine what the main potential significant effects might be and what sub-topics the EIAR should focus upon.

It is proposed that this Scoping Report will be used as a framework to facilitate statutory consultees to provide feedback into the EIA process.

2.3 Baseline Assessment

Following an introduction to the EIAR, the following information will also be presented:

- Description of the Existing Environment – a detailed description of the existing environment to allow the baseline conditions at the development site to be understood and existing areas of sensitivity to be recorded.
- Description of the proposed development, including site layout and infrastructural details, construction procedures and the materials required, the operational and maintenance phases in addition to the decommissioning and rehabilitation phases.
- Consideration of Reasonable Alternatives – This provides a detailed assessment of alternatives considered in the selection of site location and site layout.

2.4 Assessment Methodology

In the case of each of the environmental topics, it is proposed that the following elements will be evaluated, and that the format of the EIAR will follow the standard methodology and be presented in accordance with the above-mentioned legislation and guidelines. Individual chapter topics are discussed further below in this section. The development is assessed and described within each environmental topic in terms of:

- **Introduction** - Includes a background to the assessment and describes the study methodology employed in carrying out the assessment;
- **Existing Environment** – Describes and assesses the existing environment in the context of the relevant environmental categories. This section also takes account of any other proposed and existing developments in the vicinity;
- **Potential Effects** - Provides the description of the potential specific direct, indirect, and cumulative effects, associated with the development. This is done with reference to the existing environment and characteristics of the proposed development, while also referring to the magnitude, duration, consequences, and significance of the effect associated with the construction and operation and decommissioning of the development. This section also considers cumulative effects with other proposed or permitted developments;
- **Mitigation Measures** - A description of any remedial, or mitigation measures that are either practicable or reasonable having regard to the potential effects. It will also outline, where relevant, monitoring proposals to be carried out should consent be granted in order to demonstrate that the project in practice conforms to the predictions made;
- **Residual Impacts** - Provides the description and assessment of the predicted residual impact associated with the development on the surrounding environment;
- **Conclusion** – Provides a summary of the salient points of the assessment chapter.

2.5 Assessment of the Effects

As stated in the EPA EIAR Guidelines (2022), an assessment of the likely significant effects of a proposed development is a statutory requirement of the EIAR process. The criteria for the presentation of the characteristics of potential significant effects will be described with reference to the magnitude, spatial extent, nature, transboundary, intensity and complexity, probability, onset, duration, frequency, reversibility, cumulative and the possibility of effectively reducing those impacts.

The classification and description of effects in the EIAR will follow the terms provided in Table 3.4 of the EPA EIAR Guidelines (2022) referenced above (and duplicated in Table 2.1 overleaf for information purposes).

According to the EPA EIAR Guidelines (2022), the relevant terms listed in the table below can be used to consistently describe specific effects, but all categories of terms do not need to be used for every effect.

The use of standardised terms for the classification of effects will ensure that the EIAR employs a systematic approach, which can be replicated across all disciplines covered in the EIAR. The consistent application of terminology throughout the EIAR will facilitate the assessment of the proposed development on the receiving environment.

Table 2-1 Descriptions of Effects (as per Table 3.4 of the Guidelines on the information to be contained in Environmental Impact Assessment Reports, (EPA, 2022)).

Quality of Effects It is important to inform the non-specialist reader whether an effect is positive, negative, or neutral	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Describing the Significance of Effects ''Significance' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see *Determining Significance* below.).	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects

	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration, or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics
Describing the Extent and Context of Effects Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly, or increasingly experienced.	**Extent** Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the Probability of Effects Descriptions of effects should establish how likely it is that the predicted effects will occur – so that the CA can take a view of the balance of risk over advantage when making a decision.	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects 'Duration' is a concept that can have different meanings for different topics –	**Momentary Effects** Effects lasting from seconds to minutes
	Brief Effects Effects lasting less than a day

in the absence of specific definitions for different topics the following definitions may be useful.	**Temporary Effects** Effects lasting less than a year
	Short-term Effects Effects lasting one to seven years
	Medium-term Effects Effects lasting seven to fifteen years
	Long-term Effects Effects lasting fifteen to sixty years
	Permanent Effects Effects lasting over sixty years
	Reversible Effects Effects that can be undone, for example through remediation or restoration
	Frequency of Effects Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

2.6 Potential Mitigation

The strategies for identification of appropriate Mitigation Measures, as detailed in the EPA EIAR Guidelines (2022), will be followed in the preparation of the EIAR.

There are four established strategies for effects mitigation - avoidance, prevention, reduction, and offsetting. As noted above, following the iteration of the design and EIA process, and following implementation of any design mitigation, the description of any remedial, or mitigation measures that have been incorporated into the design will be included to offset or minimise identified potential adverse impacts.

These measures can mitigate impacts:

- *By Avoidance*

  When no impact is caused (often through consideration of alternatives).
- *By Prevention*

  When a potential impact is prevented by a measure to avoid the possibility of the impact occurring.
- *By Reduction*

  When an impact is lessened.
- *By Offsetting*

  When an adverse impact is resolved by a remedial action or balanced by a positive impact.

2.7 Non-Technical Summary and Construction Environmental Management Plan

The non-technical summary (NTS) provides an overview and summary of the main EIAR using non-technical language. It is a standalone document which presents a clear and concise summary of the existing environment, characteristics of the proposed development, a clear outline of the potential significant impacts/effects which could result from the proposed development and mitigation measures adopted into the design of the development to minimise impacts on the surrounding environment.

A standalone Construction Environmental Management Plan (CEMP) will also be prepared which will set out the details of proposed construction compounds, construction methodologies, environmental mitigation measures and proposed reinstatement measures. The CEMP will incorporate the relevant construction phase mitigation measures which will have been integrated into the project, EIAR and AA.

3. REASONABLE ALTERNATIVES

As set out in the EIA Directive, the EIAR is required to provide a description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3.1 ALTERNATIVE SITES

In respect of consideration of alternative sites, the EIAR will set out the reasonable alternative sites available to the Developer. Details on the steps carried out to identify the proposed site location as appropriate for this project will be provided in the EIAR.

3.2 ALTERNATIVE DESIGN

In the context of alternative design (incorporating scale and size), this section of the EIAR will set out the processes and assessments that were followed to arrive at the proposed turbine layout, turbine envelope and infrastructure layout. This section will be informed by comprehensive site surveys and ground investigations.

3.3 ALTERNATIVE TECHNOLOGY / ALTERNATIVE PROCESSES

The proposed development will support European and National policy in decarbonising electricity generation and contribute to Ireland's target to generate 80% of the country's electricity from renewable sources by 2030. There are a number of different renewable energy technologies available on the market, however not all will be viable at the proposed development location. This section will consider the various renewable energy alternatives (such as solar) and will assess the alternative wind turbine technologies available.

4. POLICY, PLANNING AND DEVELOPMENT CONTEXT

The planning assessment will evaluate the planning history and the planning and development context of the proposed development.

The evaluation will include a review of relevant European, national, and local planning policy documentation, planning legislation, strategies and plans and set the local context of the project. Also reviewed will be the Regional Spatial and Economic Strategy for the Region, County Development Plans, Wind Energy Strategies, the Preferred Emerging Wind Energy Guidelines, and other appropriate renewable/wind energy development policies as they emerge.

The planning assessment will include a review of the relevant planning and wind energy development policies included in the current Kilkenny CCDP (2021-2027) and any emerging Development Plan. A full review of all renewable energy applications (wind and solar) local to the site will be carried out to identify potential technical and environmental cumulative impacts and to present a summary of the local renewable energy infrastructure.

At an international and European level, this will include:

- Europe 2020 Climate and Energy Framework;
- Europe 2030 Climate and Energy Framework;
- Energy Roadmap 2050; and
- Renewable Energy Directive 2009/28/EC & Recast Directive 2018/2001/EU.

At a national level this will include:

- National Energy and Climate Plan (NECP) 2021-2030;
- Climate Action Plan 2023 (December 2022);
- Project Ireland 2040 - National Planning Framework (2018);
- Revised National Development Plan 2021-2030 (2021);
- Government White Paper – Ireland's Transition to a Low Carbon Energy Future 2015-2030;
- National Renewable Energy Action Plan 2010;
- Climate Action and Low Carbon Development Act 2015;
- Climate Action and Low Carbon Development (Amendment) Bill 2021;
- National Wind Energy Guidance Documents including:
    - Wind Energy Development Guidelines 2006;
    - Draft Revised Wind Energy Development Guidelines – December 2019;
    - Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy, and Climate Change (2017); and
    - Code of Practice for Wind Energy Development in Ireland on Guidelines for Community Engagement (DCCAE, 2016).

At a regional level this will include:

- Regional Spatial and Economic Strategy (RSES) for the Eastern & Midland Region 2019-2031.

At a local level this will include:

- Kilkenny CCDP (2021-2027);
- Adjoining County Development Plans - Waterford City and County Development Plan 2022-2028;
- Kilkenny County Council Climate Change Adaptation Strategy 2019-2024;
- Kilkenny County Council Sustainable Energy Action Plan (2017).

Energy infrastructure already exists in the local area e.g., Ballymartin Wind Farm to the north west and Rahora Wind Farm to the north east of the site. The Great Island to Kilkenny 110kV line crosses over the site to the east.

The site is currently identified in the Kilkenny CCDP – Wind Energy Strategy as 'Open for Consideration' for the development of wind energy. The proposed development falls within the County Development Plan definition of a 'Large Scale Wind Energy Developments (>5MW).

Wind Energy Strategy Areas

Strategic Area	Description and Guidance
Acceptable in Principle	This is the preferred area for wind energy development, characterised by high wind speeds, and no significant conflict with environmental designations or sensitivities.
Open for Consideration	This area is characterised by no significant conflict with environmental designations or sensitivities.
Not Normally Permissible	This area is considered to be generally unsuitable for wind farm development. Individual turbines will be considered on a case-by-case basis.

Figure 4-1 Kilkenny Wind Energy Strategy Areas - Extract from Kilkenny City and County Development Plan – Wind Energy Strategy (Source: Kilkenny CCDP 2021-2027)

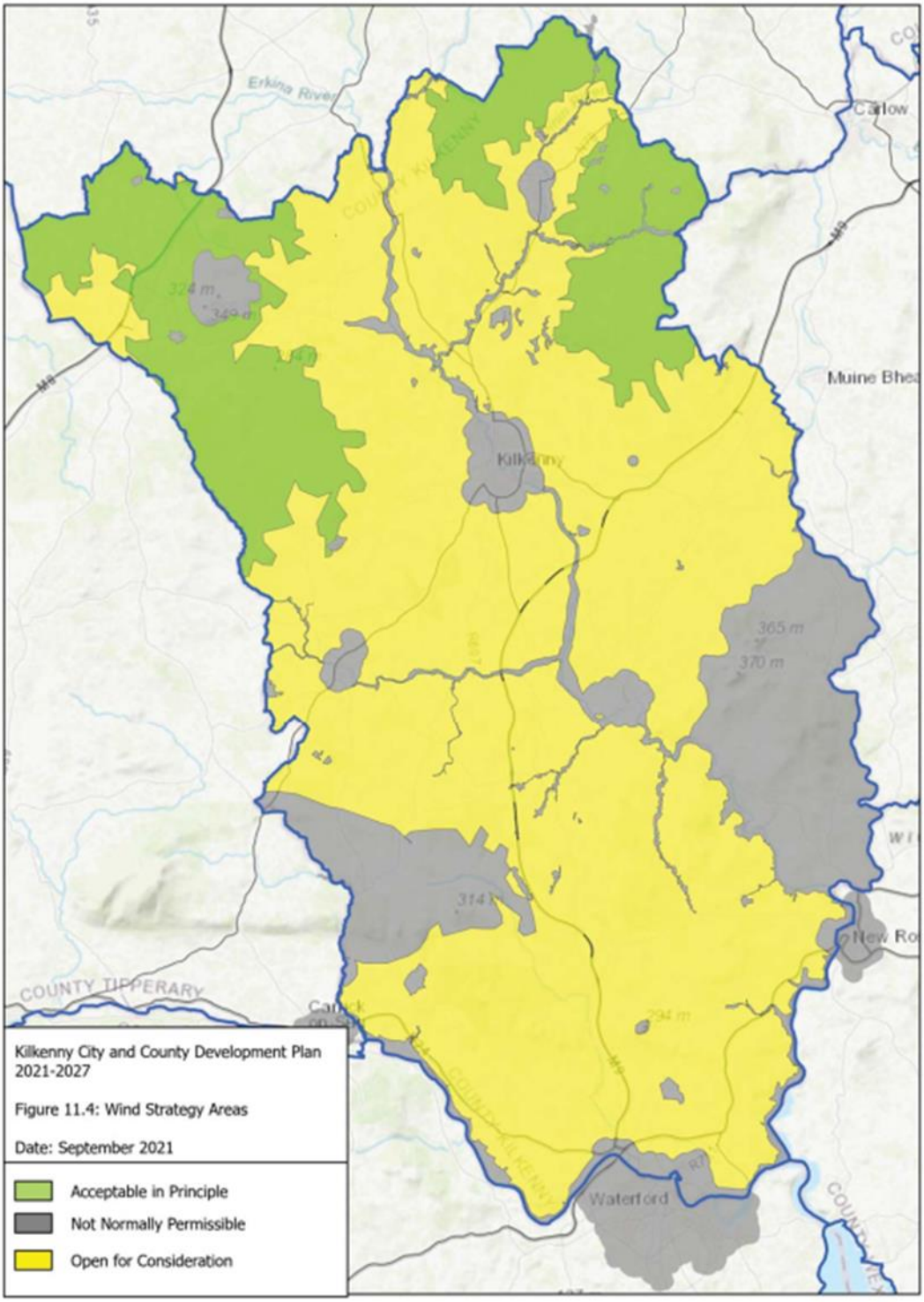

Figure 4-2 Wind Strategy Areas within County Kilkenny- Extracted from Kilkenny City and County Development Plan 2021-2027 (Source: Kilkenny CCDP 2021-2027)

5. POPULATION AND HUMAN HEALTH

5.1 INTRODUCTION

The Population and Human Health impact assessment will evaluate the receiving environment/land use and will include analysis of local population patterns.

The assessment will include a review of appropriate demographic documentation and incorporates current Central Statistics Office (CSO) census data and reports and Electoral Division Information, Land use, Population, Employment and Planning Permissions. The existing local population will be described and the projected change in the population, if any, of the study area will be assessed. This section will address, in particular, the effects of the development on nuisance and residential amenities in the surrounding area. Any impacts on recreational activities as a result of the development will be discussed in this chapter. In addition, the positive economic impacts will be examined, as employment will be created during the construction an operational phase of this project.

The chapter will also assess the impact of the proposed development on human health. Aspects examined in this section of the chapter will primarily relate to impacts from the proposed development on socio-economic activities, tourism and on local community health.

5.2 STUDY AREA

The study area for the Population and Human Health assessment will include County level data in relation to Electoral Divisions. In addition, the mapping in relation to residential receptors will include an area within 2km of the proposed wind farm site boundary.

5.3 SENSITIVE RECEPTORS

All properties in close proximity to the site boundary will be mapped as potential sensitive receptors. Properties will include residential dwellings, commercial properties, derelict buildings, agricultural buildings, and pre-planning infrastructure (including houses submitted for planning permission). All properties will then be reviewed by ground-truthing and further desktop assessment (in the case of planning applications) to identify potential sensitive receptors in the vicinity of the development. In addition, as part of the initial turbine layout design process, a minimum 720m buffer will be extended from the location of any proposed turbines to sensitive receptors. This will inform the turbine layout and for the current proposed turbine tip height of 180m, complies with the proposed minimum set-back requirement of four times tip height.

5.4 DESKTOP AND FIELD SURVEYS

The following information sources and references are of relevance in relation to the desktop study for the Population and Human Health assessment;

- The EPA EIAR Guidelines (2022);
- *Advice notes on current practice (in preparation of Environmental Impact Statements)* (EPA, 2003);
- IWEA *Best Practice Guidelines for the Irish Wind Energy Industry* 2012;
- IWEA *Best Practise Principles in Community Engagement and Community Commitment* 2013; Ordnance Survey Ireland (OSI) mapping and Aerial Photography to identify land use and possible amenity sites;
- Kilkenny CCDP (2021-2027);

- Central Statistics Office (CSO) information;
- Fáilte Ireland Information in relation to tourism amenity in conjunction with websites of relevant tourism sites and amenities for the area;
- Fáilte Ireland *Guidelines on the Treatment of Tourism in an Environmental Impact Statement*;
- An Post GeoDirectory;
- *Health Impact Assessment Resource and Tool Compilation* (United States (US) EPA, 2016);
- *Guidelines for Community Noise* (WHO,1999);
- *Health in Environmental Impact Assessment - A Primer for a Proportionate Approach* (IEMA, 2017);
- *Health Impact Assessment* (Institute of Public Health Ireland, 2009);
- Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011);
- *Global Air Quality Guidelines* (WHO, 2021);
- British Standard (BS) 5228-1:2009+A1:2014 – *Code of Practice for Noise and Vibration Control on Construction and Open Sites Part 1: Noise*;
- *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* (EPA, 2016); and
- *Environmental Noise Guidelines for the European Region* (WHO, 2018).

Houses in proximity to the boundary of the proposed development were investigated using aerial imagery (Google Maps and Google Earth Imagery) to verify the An Post GeoDirectory data. Following on from this verification process, TOBIN commenced ground-truthing of houses in the vicinity of the proposed wind farm.

There are separate health profiles available via the Health Service Executive (HSE) for all local authority areas. The most recent profile published for Kilkenny relates to 2015 (HSE, 2015) which will be used to establish a community health profile for the proposed development.

The assessment of human health for the proposed development, in terms of health protection, will follow the approach set out in the EPA EIAR Guidelines (2022), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) and in the European Commission's Guidance Environmental Impact Assessment of Projects (2017).

5.5 CUMULATIVE EFFECTS

The potential cumulative impact of the proposed development, along with other relevant projects in the area on the local community and human health, will also be addressed. This may include other wind farm developments, other renewable energy projects or any proposed project which could have the potential to have a cumulative impact.

6. BIODIVERSITY

6.1 INTRODUCTION

Potential impacts on biodiversity from the proposed development will be addressed in line with the requirements of the Environmental Impact Assessment Directive 2011/92/EU as amended by Directive 2014/52/EU and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296/2018), which implements EU Directive 2014/52/EU in planning law. Due regard will be had to published guidelines and best practice including:

- EPA EIAR Guidelines (2022);
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine;
- DEHLG (2019) Draft Revised Wind Energy Development Guidelines;
- IWEA (2012) Best Practice Guidelines for the Irish Wind Energy Industry; and
- Accepted specific best guidance for assessing wind farm impacts on birds, bats, and other sensitive ecological receptors.

To date, a significant amount of desktop studies and field surveys have been undertaken since May 2020 to gather information on the biodiversity of the study area. This information will be used to inform the design of the proposed development.

6.2 STUDY AREA

The wind farm study area predominantly comprises a mix of conifer plantation and agricultural grasslands. Where required, the study area has been expanded to take into account sensitive receptors that may be within the zone of influence of the project. The zone of influence depends on the particular sensitivities of receptors and the ecological pathways along which impacts may be transmitted.

6.3 SENSITIVE RECEPTORS

Several sensitive ecological receptors have been identified by ecological surveys carried out to date within the study area. These include designated areas, habitats, protected mammals, birds, and bat species.

From preliminary studies, three European sites (Natura 2000 network) have been identified within the zone of influence of the project: the River Barrow and River Nore SAC (Site Code: 002162), the River Nore SPA (Site Code: 004233) and the Lower River Suir SAC (Site Code: 002137). Two watercourses traverse through the project site boundary; The Arrigle River (Arrigle_010) and the Smartcastle Stream (Smartcastle Stream_010). The source of the Arrigle River occurs in the northern boundary of the project site, and flows in a northerly direction, forming part of the River Barrow and River Nore SAC approximately 3km downstream and the River Nore SPA approximately 12km downstream of the project. The Smartcastle Stream (Smartcastle Stream_010) which is situated towards the southern boundary of the project site flows in a southerly direction and forms part of the Lower River Suir SAC approximately 20km downstream. Potential effects on these three European sites (and any others that may be identified within the zone of influence) will be assessed in an AA Screening report and (if required) a NIS that will accompany the planning application and EIAR.

There are no NHAs or pNHA's in or adjacent to the project site. The closest national site is Brownstown Wood pNHA (Site Code: 000827) located approximately 4.3km north-east of the

project site. The project site is also hydrologically connected to several pNHA's which occur within the River Nore and River Suir catchments. Potential effects on nationally designated sites will be addressed within the biodiversity chapter of the EIAR.

During the desktop study, records of badger (*Meles meles*), pine marten (*Martes martes*), Irish hare (*Lepus timidus*) and the following bird species; common grasshopper warbler (*Locustella naevia*), common pheasant (*Phasianus colchicus*), Eurasian curlew (*Numenius arquata*), lesser black-backed gull (*Larus fuscus*), common kestrel (*Falco tinnunculus*), and barn swallow (*Hirundo rustica*), were recorded within the 2km Irish grid squares (S62D & S62H) which encompasses the project site.

During field surveys habitats within the project site were identified and classified following standard guidelines. The project site predominantly comprises agricultural grasslands and conifer forestry. No invasive plant species were recorded during the surveys.

During the field surveys evidence of protected mammal species were recorded. These included evidence of badger, deer, and bat species.

During Vantage Point (VP) bird surveys, a number of target bird species were recorded which included; buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), sparrow hawk (*Accipiter nisus*), lesser black-backed gull (*Larus fuscus*) and yellow hammer (*Emberiza citrinella*).

Bat surveys have also been undertaken as part of baseline surveys. All bat species are protected in Ireland.

The locations of sensitive receptors, such as habitats and watercourses, have been mapped as part of the project constraints and will be considered in the design of the wind farm layout.

6.4 Desktop and Field Surveys

6.4.1 Desktop Survey

Desktop studies have been carried out, and the results for potentially sensitive receptors are outlined in Section 6.3. The primary data sources for the desktop studies were:

- National Biodiversity Data Centre records;
- National Parks and Wildlife Services (NPWS) rare and protected species records;
- National Hen Harrier survey data;
- Irish Wetland Bird Survey site coverage information;
- Bat Conservation Ireland database records;
- Irish Cave Database;
- Coillte sub-compartment (tree species and planting date) data;
- Coillte Biodiversity Areas;
- NPWS designated area boundary data;
- NPWS site-specific conservation objectives shapefiles;
- National Survey of Native Woodland sites;
- National Fen Database sites;
- EPA water quality data; and
- Aerial photography.

6.4.2 Field Surveys

To date, the following field surveys have been carried out:

- Habitat survey and mapping: detailed habitat and botanical surveys were undertaken in September 2022, September 2023 and August 2024 (undertaken by TOBIN);
- Mammal Surveys: protected terrestrial mammal surveys were undertaken in September 2022 and August 2024 (undertaken by TOBIN);
- Aquatic River Surveys: aquatic surveys which included kick sampling and river assessment surveys were undertaken in September 2022, September 2023 and August 2024 (undertaken by TOBIN);
- White-clawed crayfish survey undertaken by TOBIN in September 2023 and August 2024 (undertaken by TOBIN);
- Bird Surveys: VP surveys were carried out on a monthly basis from May 2020 until June 2021 and commenced again in April 2022 to present day (undertaken by Doherty Environmental);
- Bat surveys: bat surveys were undertaken during the spring, summer, and autumn months of 2022 and 2023 and are currently underway for 2024 (undertaken by Doherty Environmental).

During detailed vegetation surveys, habitat mapping will be updated as needed in line with the CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys.

Additional survey effort will be undertaken along the proposed grid connection route and along the haul routes once available. The need for additional survey work to address any information gaps has been and will be reviewed on an ongoing basis.

6.5 Cumulative Effects

Cumulative impacts with other developments, including but not limited to other wind farms, will be assessed for all sensitive receptors. Interactions with other environmental disciplines, especially hydrology and climate, will also be assessed.

6.6 Appropriate Assessment

An AA Screening Report and (if required) a NIS will be prepared and submitted to assess potential effects on the integrity of European sites within the zone of influence of the project. The NIS will be prepared with due regard to the European Commission's (2018) *Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC* and the European Commission's (2010) guidelines on *Wind Energy Developments and Natura 2000.* In line with best practice, the NIS will be a separate standalone document to the EIAR.

7. LAND, SOILS AND GEOLOGY

7.1 INTRODUCTION

The principal objectives of the Land, Soils and Geology Chapter of the EIAR will be to identify and mitigate potential issues of the proposed development to ensure that the impact on the environment is minimised.

7.2 STUDY AREA

The EIAR study area of the Lands, Soils and Geology chapter will primarily focus on the project red line boundary which will include the proposed grid connection route options. In addition, the assessment will consider the lands adjacent to the site boundary as well as proposed forestry replacement lands off-site.

7.3 SENSITIVE RECEPTORS

There are currently no known geological sensitive receptors at the outset of the scoping process and prior to site investigation. This will be reviewed as further data is collected.

7.4 DESKTOP AND FIELD SURVEYS

Consultation will be undertaken, and feedback requested from a number of statutory bodies;

- The Geological Survey of Ireland (GSI). Well data will be sourced and information on proposed Natural Heritage Areas (pNHAs), County Geological Sites (CGS) and any recorded Landslide Events (from the historical landslide database) in the region of the study area will be requested;
- Inland Fisheries Ireland (IFI);
- The EPA;
- The Local Authority Environment Officer; and
- Scoping of geotechnical aspects of the EIA for peat sites will be agreed in conjunction with the multidisciplinary team, including but not limited to Geotechnical Engineer, Hydrogeologist, Hydrologist, Ecologist, and the requirements of any and all of the design team as necessary e.g., Engineering designers deciding on access route types and construction methodologies.

The evaluation will include:

- Desk study of soils, subsoils, bedrock, geological maps, and aerial photography;
- Geomorphology assessment and mapping will be undertaken of geomorphological features;
- Site Investigation works have been specified in conjunction with the requirements of the designers and are currently underway. The site investigation will provide detail on soils, geology, geotechnical risk and potential requirements for water management and drainage. Investigations include, but are not limited to:
    - Trial pitting;
    - Peat Probes;
    - Boreholes (drilling methods and depths to be determined as part of specification);
    - Geophysical surveys;
    - In-situ Standard Penetration Test (SPT) testing and sampling; and
    - Ground Water Monitoring Installation.

- Development of Geotechnical Risk register to identify and mitigate potential issues that may arise during the construction stage (including karst risk and geomorphology features);
- Design of appropriate erosion and sediment control measures; development of erosion and sediment control procedures for implementation on site;
- Design and installation of monitoring wells, piezometers and surface hydrometric structures where required;
- Conduct preliminary geotechnical site investigations to inform the following:
    - Identify the depth of soil and bedrock across the site;
    - Access routes construction methodology;
    - Cable route construction methodology;
    - Foundation construction methodology;
    - Borrow pits / quarry potential;
    - Earthworks and Material Balance calculations;
    - Groundwater management, as required;
    - Drainage design;
    - Overburden (soils) storage and management;
    - Temporary works design; and
    - Site reinstatement, to be aligned with the existing site rehabilitation plan (including erosion control).
- Geohazard Mapping & Risk Assessment; and
- Interpretation and reporting of all geological & geotechnical data with reference to data within the Geotechnical & Soil Stability Report.

7.5 CUMULATIVE EFFECTS

Cumulative effects will be determined based on the site investigation findings and the likely impacts and risks that may be anticipated, along with consideration of other relevant developments in the surrounding areas, including existing wind farms. Guidance will be provided towards the mitigation of these impacts and minimisation of the associated risks of the proposed development.

8. HYDROLOGY AND HYDROGEOLOGY

8.1 INTRODUCTION

The principal objectives of the Hydrology and Hydrogeology Chapter of the EIAR will be to identify and mitigate potential issues of the proposed development to ensure that the impact on surface water and groundwater is minimised.

8.2 STUDY AREA

The EIAR study area of the Hydrology and Hydrogeology assessment will extend outside the red line planning boundary and include watercourses which will receive surface water from the proposed development site. These include tributaries of the Smartcastle River to the south and the River Arrigle to the northeast. The River Arrigle is part of the River Barrow and River Nore SAC (Site code 002162).

A series of buffer distances have been adopted to help reduce effects of the proposed development on the hydrological environment. A 50m buffer form turbines will be implemented for all identified rivers. Watercourse crossings associated with new access tracks required as part of the proposed development will be minimised.

8.3 SENSITIVE RECEPTORS

There are currently no known on site hydrology-specific sensitive receptors at the outset of the scoping process and prior to site investigation. This will be reviewed as further data is collected and throughout the assessment.

8.4 DESKTOP AND FIELD SURVEYS

A desk study shall be undertaken to acquire all published hydrological data for the proposed development site and surrounding area, including flood data and surface water quality data. Consultations will be carried out with a number of statutory bodies including:

- The Geological Survey of Ireland (GSI). Well data will be sourced and information on Natural Heritage Areas (NHAs), County Geological Sites (CGS) and any recorded Landslide Events (from the historical landslide database) in the region of the study area will be requested;
- The Local Authority Environment Officer;
- Inland Fisheries Ireland (IFI); and the
- The EPA.

8.5 HYDROLOGICAL ASSESSMENT

As part of the EIAR, TOBIN will establish existing baseline hydrological conditions, identify potential impacts, and propose appropriate mitigation measures. TOBIN will also:

- Identify the existing surface water drainage characteristics of the site (including any natural or man-made drainage). A surface water feature survey/catchment assessment of the study area will be carried out to record all streams, rivers and lakes within the site boundary and surrounding area; and
- Establish baseline water quality across the site. Any historical water quality for this area will be reviewed and existing EPA water quality data will also be examined as part of the study including any available data relating to the river catchments in this area. Where required, surface water samples will be collected in order to provide a baseline set of

water quality results for the area. Biological assessments of the rivers will also be carried out, if required.

TOBIN will also assess the potential for siltation as a result of the proposed development, particularly during the construction phase and propose mitigation measures for associated pollution control. Any existing siltation management practices will be reviewed as part of this assessment.

Groundwater Assessment:

TOBIN will also carry out the following studies as part of the EIA:

- Aquifer assessment; and
- Impact assessment on water schemes/water supplies.

Water Quality Assessment:

TOBIN will complete the following as part of the EIAR:

- Conduct water sampling (surface water and groundwater where possible) in accordance with industry standards; and
- Establish baseline/existing conditions, identify potential impacts, and propose appropriate mitigation measures.

Flood Risk Assessment (FRA):

The OPW's National Flood Risk Assessment (PFRA) mapping and Flood Maps were reviewed. There are no recorded flood events for the proposed development site, and it is approximately 3km from potential flood areas as indicated on the Flood Maps. Although the risk of fluvial flooding (rivers and streams) is low, the risk of pluvial flooding from new hard-stand areas and infrastructure will be considered. The Flood Risk Assessment for this project will include the following works:

- Review of available information, planning guidelines and historical flooding records;
- Topographical survey of site, including survey of smaller water courses;
- Assessment of hydrometric data (water levels and flows) for adjacent water bodies; and
- Assessment to take cognisance of climate change and the 1 in 100 year to 1 in 1000-year flood events.

The Flood Risk Assessment will be completed for the overall site and detailed within the EIAR. This assessment shall include undertaking the following tasks:

1. A visual Inspection of site and watercourses by hydrologist;
2. Site topographical survey;
3. Site survey of watercourses for hydraulic modelling;
4. A review of existing information and planning guidelines;
5. An assessment of historical flooding;
6. Estimation of the 100 and 1000 MRFS (Mid-Range Future Scenario) design flood events at the proposed Ballyfasy Wind Farm site, as recommended by 'The Planning System and Flood Risk Management Guidelines' (OPW, 2009). The hydrological assessment of the site may include:
    i. Statistical estimation of design flood flow from available hydrometric data;
    ii. Analysis of watercourses using the OPW's Flood Studies Update Portal; and
    iii. Estimation of design flood flow from catchment descriptors and rainfall.
7. Hydraulic modelling, using HEC-RAS or similar, of watercourses for the 100- and 1000-year design flood events. Where possible, the model shall be calibrated against historical

and gauged flow data if available from the OPW and EPA hydrometric station network in the vicinity of the site; and

8. Modelling and assessment of one flood risk solution proposed by the design team; and Floodplain Mapping for the 100 and 1000-year MRFS design flood events for the watercourses.

8.6 CUMULATIVE EFFECTS

Cumulative effects will be determined based on the site investigation findings and the likely impacts and risks that may be anticipated, along with consideration of other relevant developments in the surrounding areas, including existing wind farms. Guidance will be provided towards the mitigation of these impacts and minimisation of the associated risks of the proposed development.

9. AIR QUALITY AND CLIMATE

9.1 INTRODUCTION

The purpose of this section of the Environmental Scoping Report is to describe the scope of work and methods to be applied in the identification and assessment of air quality and climate impacts associated with the proposed development. A high-level overview of the baseline conditions is included, together with a review of relevant sensitive receptors, policy, and the study area.

9.1.1 Policy and Plan Context – Air Quality

The assessment of Air Quality will be conducted with consideration of the relevant legislation and guidance including the following EPA guidelines:

- *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)* (EPA, 2003);
- *Draft Advice Notes for Preparing Environmental Impact Statements* (EPA 2015a); and
- The EPA EIAR Guidelines (2022).

In order to reduce the risk to health from poor air quality, National and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or "Air Quality Standards" are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set. The statutory ambient air quality standards in Ireland are outlined in S.I. No. 180 of 2011 Air Quality Standards Regulations 2011 (hereafter referred to as the 'Air Quality Regulations'), which incorporate the ambient air quality limits set out in Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (hereafter referred to as 'the CAFE Directive'), for a range of air pollutants.

The assessment of air quality will be conducted with consideration of the relevant legislation and guidance including:

- *Guidance on the Assessment of Dust from Demolition and Construction V1*. (IAQM, 2016);
- *A Guide To The Assessment Of Air Quality Impacts On Designated Nature Conservation Sites* (Version 1.1) (IAQM, 2020);
- The *TII Air Quality Guidelines* (TII, 2011);
- German VDI (2002) *Technical Guidelines on Air Quality Control – TA Luft*;
- *Guidelines for Assessment of Ecological Impacts of National Roads Schemes* (hereafter referred to as the 'TII Ecological Guidelines') (TII, 2009);
- *Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017);
- United Kingdom (UK) Department of Environment Food and Rural Affairs (DEFRA) Part IV of the Environment Act 1995: *Local Air Quality Management Policy Guidance (PG16)* (hereafter referred to as LAQM (PG16)) (DEFRA, 2016);
- Part IV of the Environment Act 1995: Local Air Quality Management Technical Guidance (TG16) (hereafter referred to as LAQM (TG16)) (DEFRA, 2018);
- UK Highways Agency (Highways England) *Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality* (hereafter referred to as 'LA 105 Air Quality') (Highways England, 2019);
- *World Health Organization (WHO) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide Global (Update 2021) (hereafter referred to as the 'WHO Air Quality Guidelines') (WHO, 2021);*
- *Air Quality Assessment of Specified Infrastructure Projects_2022 (PE-ENV-01106); and*

- *Local Authority air quality and planning guidance.*

9.1.2 Policy and Plan Context – Climate

In order to reduce the risk due to climate change, National and European statutory bodies have set targets for future greenhouse gas (GHG) emissions. Ireland has signed up to the Climate Action Plan 2021, which commits Ireland to a legally binding target of net-zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030. This plan specifically targets delivery of up to 80% renewable electricity by 2030.

The assessment of Climate will be conducted with consideration of the relevant legislation and guidance relating to climate which are set out in the following sections. In addition to specific climate guidance documents, the following guidelines were considered and consulted in the preparation of this Chapter:

- *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)* (EPA, 2003);
- *Draft Advice Notes for Preparing Environmental Impact Statements* (EPA, 2015); and
- The EPA EIAR Guidelines (EPA, 2022).

The assessment of climate will be conducted with consideration of the relevant legislation and guidance including:

- Climate Action and Low Carbon Development Act (Act. No. 46 of 2015) (hereafter referred to as the "Climate Act");
- Department of Communications, Climate Action & Environment (DCCAE) *National Mitigation Plan* (DCCAE, 2017a);
- Climate Action Plan 2023 (hereafter referred to as the CAP) (DECC 2022);
- Department of Transport, Tourism and Sport (DTTAS) *Transport – Climate Change Sectoral Adaptation Plan* (DTTAS, 2019);
- *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013);
- General Scheme of the Climate Action (Amendment) Bill 2019 (hereafter referred to as the General Scheme) (DECC, 2021);
- *European Commission 2030 Climate and Energy Policy Framework* (European Commission, 2014);
- Transport Infrastructure Ireland (TII) *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (TII, 2011);
- Design Manual for Roads and Bridges (DMRB): *LA 114 – Climate* (UKHA, 2019);
- Institute of Environmental Management & Assessment (IEMA) *Assessing GHG Emissions and Evaluating their Significance* (IEMA, 2022);
- *IEMA EIA Guide to: Climate Change Resilience and Adaptation* (IEMA, 2020a);
- *IEMA GHG Management Hierarchy* (IEMA, 2020b);
- *Technical guidance on the climate proofing of infrastructure in the period 2021-2027* (European Commission, 2021a);
- *Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change* (European Commission, 2021b);
- Climate Action and Low Carbon Development (Amendment) Act 2021 (No. 32 of 2021) (hereafter referred to as the "2021 Climate Act");
- Climate Guidance for National Roads, Light Rail and Rural Cycleways (PE-ENV-01104);
- TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (GE-ENV-01106); and
- Local Authority's climate and planning guidance.

9.2 Study Area

The proposed development is located in the southern portion of County Kilkenny between the villages of Listerlin to the northeast, Mullinavat to the west, and Glenmore to the southeast. The surrounding landscape is largely agricultural with areas of coniferous forestry occurring.

The land use in the immediate vicinity of the proposed development is rural but does not include any designated sensitive ecological receptors within 3km. There are areas of forestry in proximity to the proposed development.

It is determined that the scheme will require appropriate assessment of the degree of sensitivity of the siting and design (i.e., sensitivity of surroundings) of proposed infrastructure associated with the proposed development. It is expected that there will be sensitive residential receptors located within 200m of grid connection options and haul routes for the wind farm.

Dust impacts due to material handling activities, including excavation and backfill, on site may typically emit dust. Deposition typically occurs in close proximity to each site and therefore the study area is limited to a 350m radius from any dust generating activities and up to 500m along haul routes from the site entrance.

The study area with respect to impacts to air quality due to emissions from vehicle and HGV movements is limited to sensitive receptors less than 200m from road links which are affected by significant changes in traffic volume (i.e., above 5%). This study area is the same for designated areas of conservation (either Irish or European designation) with respect to ecology as the potential impact is highest within 200m of the road links and when significant changes in AADT (>5%) occur.

There are no EPA Industrial Emissions Licence (IEL) holders or Waste licenced facilities within 5km of the proposed development. The closest facility is Green Biofuels Ireland Limited (IEL P0829-01) located in New Ross, over approximately 9km east of the proposed development.

Due to the nature of climatic effects, if significant emissions occur, they will have the potential to impact Ireland's commitments and targets under various EU Climate Agreements and other international agreements. Therefore, the study area can be classed as Ireland.

9.3 Sensitive Receptors

The assessment will take account of sensitive receptors relevant to the proposed development. Sensitive receptors include locations where people spend significant periods of time, such as domestic properties. Examples of these sensitive receptors include:

- Residential dwellings;
- Industrial or commercial uses sensitive to dust;
- Recreational areas and sports grounds;
- Schools and other educational establishments;
- Buildings of religious sensitivity;
- Designated ecological area of conservation (either Irish or European designation);
- Hospitals and nursing homes; and
- Offices or Shops.

Due to the location of the site, the receptors with the greatest potential for impact are considered to be nearby residential dwellings.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 European Parliament approval of a resolution declaring a climate and environment emergency in Europe, in addition to Ireland's current failure to meet its EU binding targets under Regulation (European Union, 2018). This results in changes in GHG emissions either beneficial or adverse are of more significance than previously considered prior to these declarations. Climate is therefore considered a highly sensitive receptor.

9.4 Desktop and Field Surveys

9.4.1 Air Quality

A desktop review of available baseline air quality data within the study area will be undertaken.

An assessment will be undertaken to establish the impact of dust emissions from onsite activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. It is important to note that the predicted impacts associated with the earthworks of the proposed development are short term and temporary in nature.

The following data sources will be referred to during the air quality assessment:

- EPA National Ambient Air Quality Monitoring Data Archive;
- EPA Air Quality in Ireland 2022 Report and previous reports (1997 – 2021);
- EPA Geo Portal Data and Mapping; and
- EPA Integrated Pollution Control Licences.

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. A review of existing baseline levels of NO_2, PM10 and PM2.5 based on extensive long-term data from the EPA are well below ambient air quality limit values in the vicinity of the proposed development.

9.4.2 Climate

Climate is defined as the average weather over a period of time, whilst climate change is a significant change to the average weather. Climate change is a natural phenomenon but in recent years human activities, through the release of GHGs, have impacted on the climate (Intergovernmental Panel on Climate Change (IPCC), 2022). The release of anthropogenic GHGs is altering the Earth's atmosphere resulting in a 'Greenhouse Effect'. This effect is causing an increase in the atmosphere's heat trapping abilities resulting in increased average global temperatures over the past number of decades. The release of CO_2 as a result of burning fossil fuels, has been one of the leading factors in the creation of this 'Greenhouse Effect'. The most significant GHGs are CO_2, methane (CH_4) and nitrous oxide (N_2O).

For the purposes of this assessment, the definition outlined in Council Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (European Union 2009) for GHGs has been used. In 'Annex V, C. Methodology Point 5' the relevant GHGs are defined as CO_2, CH_4 and N_2O. CO_2 accounted for 60.9% of total GHG emissions in Ireland in 20120 while CH_4 and N_2O combined accounted for 37.7%. The main source of CH_4 and N_2O is from the agriculture (~93%) sector (EPA, 2022).

GHGs have different efficiencies in retaining solar energy in the atmosphere and different lifetimes in the atmosphere. In order to compare different GHGs, emissions are calculated on the basis of their Global Warming Potential (GWPs) over a 100-year period, giving a measure of

their relative heating effect in the atmosphere. The IPCC Sixth Assessment Report (AR6) (IPCC, 2021) sets out the global warming potential for 100-year time period (GWP100) for CO_2 as the basic unit (GWP = 1) whereas methane gas (CH_4) has a global warming potential equivalent to 27-30 units of CO_2 and N_2O has a GWP100 of 273.

Data published in 2022 (EPA, 2022) predicts that Ireland exceeded its 2020 annual limit set under EU's Effort Sharing Decision (ESD) No 406/2009/EC by 6.75 million tonnes CO_2 equivalent (Mt CO_2eq). The sector with the highest emissions is agriculture at 37.1% of the total, followed by transport at 17.6%. GHG emissions from the transport sector reduced by 15.7% in 2020. Due to COVID-19 lockdowns 2020 may be considered an atypical year with respect emissions. Sectoral emissions from the energy sector increased by 17.6% in 2021 due to an increase in the use of coal and fuel oil use in electricity generation. 2021 also saw a decrease renewable energy electricity generation from wind of 16% in 2021.

9.5 CUMULATIVE EFFECTS

The cumulative impacts on air quality and climate will be determined as part of the EIAR assessment along with consideration of all relevant projects in the surrounding areas, including but not limited to onshore wind projects.

10. SHADOW FLICKER

10.1 INTRODUCTION

The purpose of the Shadow Flicker assessment will be to assess the potential impacts of the proposed wind farm to sensitive receptors in the surrounding environment.

10.2 STUDY AREA

The study area will incorporate all sensitive receptors which have the potential to be impacted by shadow flicker from the proposed development.

The shadow flicker assessment will be carried out using WindPRO modelling software and in accordance with the guidelines set out in the 2006 *Wind Energy Guidelines* as well as the Draft *Revised Wind Energy Guidelines* (December 2019). Consideration will also be given to relevant UK guidance, including the *Update of UK Shadow Flicker Evidence Base*, carried out by Parsons Brinckerhoff in 2011.

10.3 SENSITIVE RECEPTORS

The envelope within which sensitive receptors will be evaluated will be determined by the size, scale, and layout of the final wind farm. The current *Wind Energy Guidelines* (2006) outline that at distances greater than ten rotor diameters from a turbine, the potential for shadow flicker is very low, therefore the assessment will initially consider all sensitive receptors within 2km of the proposed turbines. This will be revised as necessary to identify all potential receptors.

10.4 DESKTOP AND FIELD SURVEY

The extent and impact of Shadow Cast Analysis and Shadow Flicker depends on the relative positions and orientation of nearby houses and wind turbines, the presence of windows facing on to the proposed wind farm, the absence/presence of vegetation or other obstructions between the houses and the wind farm etc. This will be assessed as part of the EIA.

WindPRO Computer Modelling software will be employed, for this element of the assessment, through the use of the shadow module. This facilitates calculation and documentation of flickering effects in terms of hours per year during which a specific receptor or an area would be exposed to flickering from nearby turbine rotors.

For each receptor identified, maximum minutes of potential shadow flicker per day are calculated. The software can calculate the worst-case results (sun always shining in daytime, turbines always rotating and wind direction "worst case") or the "real expected values", based on assumptions on solar statistics and operating hours divided by wind direction. Typically, calculations are made in a worst-case scenario assuming that each sensitive receptor location has windows on all sides (i.e., glasshouse effect) but can also allow for user defined windows on properties.

Results will be presented in the form of calendars, cumulated hours with flicker or, for the area calculation, as maps of flicker hour isolines.

10.5 CUMULATIVE EFFECT

Cumulative impacts of shadow flicker from all relevant projects in the surrounding areas including existing wind farms will be assessed. The configuration of existing or consented wind farms can be added to the model and is particularly relevant to consider properties which may experience low levels of shadow flicker from one or more wind farms on their own but may be significantly impacted by adjacent wind farms.

11. MATERIAL ASSETS: AVIATION, TELECOMMUNICATIONS AND ELECTROMAGNETIC INTERFERENCE (EMF)

11.1 INTRODUCTION

This chapter will detail the telecommunications baseline environment of the proposed development site and identify the possibility of interference occurring to telecommunications and radio transmissions as a result of the wind turbine installations as well as potential impacts for commercial/private aviation authorities and associated communications.

11.2 STUDY AREA

The operators of telecommunications and aviation assets in the vicinity of the proposed development will be identified, and through consultation with them, it will be determined whether there is any potential interaction or interference with the assets within the study area as a result of the potential development.

11.3 SENSITIVE RECEPTORS

As part of the study of potential impact to telecommunications and aviation operators by the proposed development, identified stakeholders will be approached with project details and asked to revert with any potential impacts on their communications and flight management infrastructure. An initial list of telecommunications consultees has been prepared and will be added to as necessary throughout the project.

11.4 DESKTOP AND FIELD SURVEY

The Television and Radio Impact Assessment will include:

- Identification of sources of local TV and radio reception;
- Identification of local telecommunications transmitters;
- Site surveying of telecommunications infrastructure including a microwave link survey;
- Determining if the turbines are in the path between the receptors and transmitter;
- Liaison with RTÉ as required to assess impacts and address any queries or issues should they arise;
- Carrying out a baseline interference assessment; and
- Providing recommendations for pre and post construction monitoring.

The Radar, Telecommunications and Aviation Impact Assessment will include:

- Identification of local telecommunications and aviation microwave links;
- Desktop assessment of all identified aviation infrastructure and aviation routes which could potentially be impacted by the proposed development;
- Liaison with all relevant Radar, Telecommunications and Aviation operators to assess impacts and address any queries or issues should they arise;
- Determining if the turbines are in the path between the receptors and transmitter;
- Examining the interference scenario;
- Identification of predicted impacts;
- Mitigation Studies;
- Measurement of existing electromagnetic environment and statement regarding future compliance to relevant regulations; and
- Providing recommendations for pre and post construction monitoring.

11.5 Cumulative Effects

The potential for cumulative impacts is low because the interference that is generated from a wind turbine is directly related to the presence of that turbine in the path of television or communication link signal and less likely to be generated from multiple cumulative reflections. However, consideration will be given to all other relevant projects in the surrounding areas including other onshore wind farm developments and relevant project infrastructure as part of this assessment.

12. NOISE AND VIBRATION

12.1 INTRODUCTION

The Noise and Vibration chapter of the EIAR will assess the potential impacts of the proposed development on sensitive receptors in the surrounding environment. The principal objectives of the Noise and Vibration assessment will be to specify appropriate limit values and mitigation measures to ensure that the specific limits can be achieved and to minimise impact on the noise sensitive receptors where possible.

The assessment of wind turbine noise will be undertaken with reference to the most appropriate guidance documents relating to environmental noise and vibration, such as the Institute of Acoustics (IOA) publication, *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (May 2013), and the *Wind Energy Development Guidelines* (2006) or more recent revision (if applicable).

In addition to these specific guidance documents for the assessment of noise and vibration, the EPA EIAR Guidelines (2022) will be followed when preparing the EIAR chapter.

12.2 STUDY AREA

The study area for the operational phase will cover at least the area predicted to exceed 35 dB L_{A90} when all existing and proposed turbines are at their maximum output noise level and will include all identified Noise Sensitive Locations (NSLs) that are within this area.

Properties within 500m of the proposed construction activities or the nearest NSL if greater than 500m will be considered in the assessment.

12.3 RECEIVING ENVIRONMENT

12.3.1 Background Noise Survey

A background noise monitoring survey will be completed at several NSL's in the vicinity of the proposed development site and within the defined study area.

All measurements will be conducted in accordance with the IOA document *A Good Practice Guide to the Application of ETSU-R-97 for The Assessment and Rating of Wind Turbine Noise*(IOA GPG) and the associated supplementary guidance notes.

The results of the background noise survey will be used to identify appropriate noise criteria for the various phases of the proposed development with reference to the appropriate guidance documents.

12.4 ASSESSMENT OF IMPACTS

The noise survey work will characterise the existing noise environment in the area and facilitate the quantification of potential noise impact which may arise from the proposed development. All noise prediction calculation will be conducted in accordance with the guidance contained in ISO 9613:1996: *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*. Source noise levels will be obtained from BS 5228 2009 +A1 2014 *Code of practice for noise and vibration control on construction and open sites*.

Vibration will also be considered regarding the potential impact of residential amenity and potential structural damage to buildings.

Noise levels at all the identified noise sensitive locations will be predicted using a proprietary noise modelling package. All predictions will be done in accordance with ISO 9613: *Acoustics – Attenuation of Sound Outdoors, Part 2: General Method of Calculation* (ISO, 1996) using the recommended calculation settings outlined in the IOA GPG. The use of a computer-based noise model lends itself to ongoing evaluation of design changes and provides output that is detailed and extensive. Noise contour maps will be generated for the site noise models illustrating turbine noise levels in the study area.

The results obtained from the prediction calculations will be used to assess the likely noise impact from the operation of the proposed turbines. This will include the assessments at various noise sensitive locations with consideration of various wind direction sectors. Where necessary, noise control measures will be considered.

Discussion of other issues will be undertaken where appropriate (e.g., tonality, low frequency noise/Infrasound, amplitude modulation etc.).

The potential noise impact associated with road traffic movements and other ancillary parts of the development including the substation and any other permanent source of noise will be assessed and included as part of the noise chapter.

12.5 Cumulative Effects

A cumulative assessment considering all relevant developments within the surrounding areas including other onshore windfarms will be undertaken.

13. LANDSCAPE AND VISUAL IMPACT ASSESSMENT (LVIA)

13.1 INTRODUCTION

The purpose of this Scoping Report is to describe the scope of work and methods to be applied in the identification and assessment of landscape and visual impacts associated with the proposed development.

13.2 STUDY AREA

The current *Wind Energy Development Guidelines* (2006) specify different radii for examining the Zone of Theoretical Visibility (ZTV) of proposed wind farm projects. The extent of this study area is influenced by turbine height as follows:

- 15km radius for blade tips up to 100m;
- 20km radius for blade tips greater than 100m; and
- 25km in order to incorporate features of national or international renown.

In the case of this project, the blade tips will be over 100 high and, thus, the minimum ZTV radius required is 20km from the outermost turbines of the proposed development. It is not considered that there are any features of 'national or international renown' within 25km of the site and thus, the study area will remain at a consistent 20km radius from the proposed turbines.

Consideration will also be given to the guidelines set out in the *Draft Revised Wind Energy Guidelines* (December 2019) with regard to defining the study area.

13.3 SENSITIVE RECEPTORS

Sensitive landscape and visual receptors will be identified during baseline studies and fieldwork and will consist of both designated (highly sensitive landscape zoning / scenic views in the CDP) and non-designated receptors. Visual receptors will be selected from the following categories:

- Designated scenic routes / views (CCDP);
- Local Community views (roads and residences within approximately 5km);
- Centres of Population;
- Major Transport Routes; and
- Amenity, Heritage, and Tourism locations.

13.4 SURVEY METHODS

13.4.1 Desktop and Field Survey

The desktop study will comprise of the following:

- Prepare and review of ZTV maps, which indicates areas from which the development is potentially visible in relation to terrain within the Study Area;
- Review of relevant County Development Plans, particularly with regard to sensitive landscape and scenic view/route designations;
- Selection of potential Viewshed Reference Points (VRPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity; and
- Preparation of an initial VRP selection report and associated map for consultation purposes (Planning Authorities).

Fieldwork will consist of:

- Select a refined set of VRP's for assessment;
- Record a description of the landscape elements and characteristics within the Study Area generally and also within view from each VRP; and
- Capture high quality base photography from which to prepare photomontages of the proposal.

13.5 IMPACT ASSESSMENT

The assessment of landscape effects involves establishing the landscape baseline. This includes consideration of the geographic location and landscape context of the proposed wind farm site as well as the essential landscape character and salient features of the wider Study Area and is discussed with respect to; landform and drainage and; vegetation and land use. The visual baseline is more population based, but still overlaps with elements of the landscape baseline. The visual baseline is discussed in relation to; centres of population and houses; transport routes and; public amenities and facilities. Once the baseline environment is established an assessment of the potential significant effects associated with the proposed development will be carried out. In accordance with the Guidelines for Landscape and Visual Impact Assessment (GLVIA) (2013), the method for estimating the significance of landscape impacts and visual impacts is very similar. This is summarised in the diagram below.

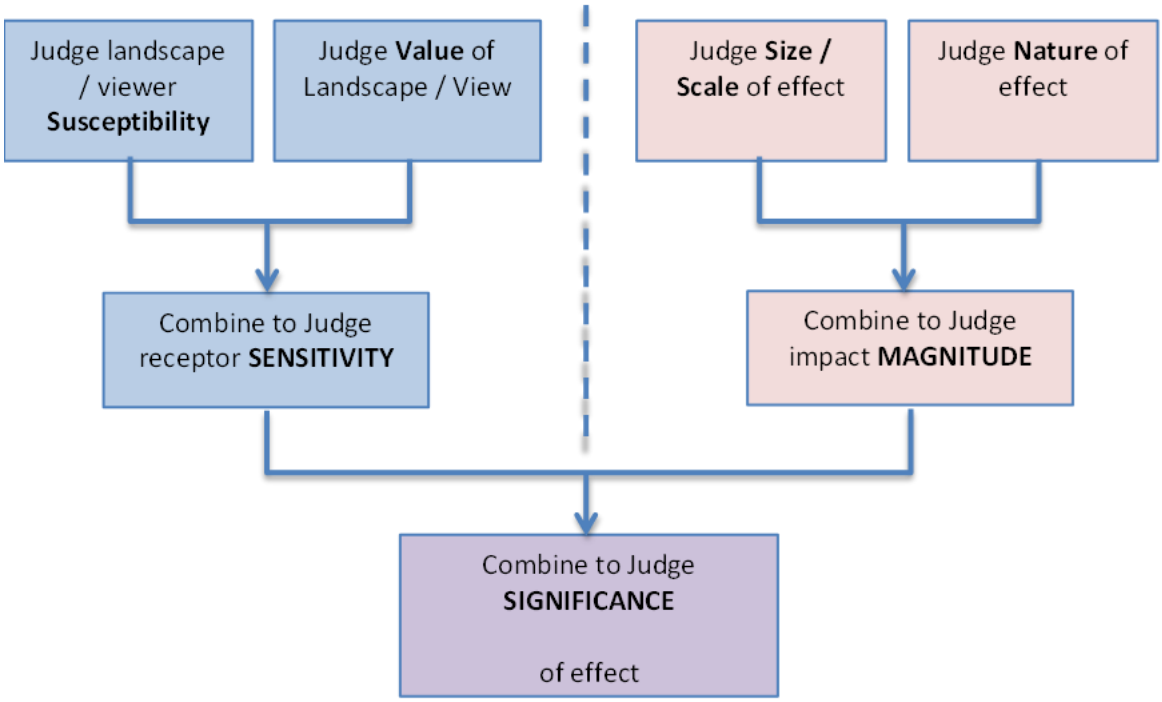

Figure 13-1 Method for assessing Landscape Impact significance and Visual Impact significance (adapted from GLVIA (2013))

13.5.1 LVIA Assessment Tools / Techniques

The following assessment tools and techniques will be considered for this project and applied as appropriate and beneficial to the assessment.

Photomontages:

Photomontages are photo-realistic depictions of the proposed development superimposed on baseline photography at selected receptor/viewpoint locations. The photomontages will be fully compliant with the most recent NatureScot (formerly Scottish Natural Heritage (SNH)) guidelines (2014).

In the case of the proposed development it is anticipated that approximately 30 no. viewpoints will be required overall. It is imperative that base photography is captured in the clearest of viewing conditions, especially where existing turbines are contained within the view.

Route Screening Analysis (RSA):

The project team landscape specialist has developed a 360° vehicle mounted photo-capture unit to gather imagery every second (approximately 15m intervals). The images are then synchronised with a 3D model of the proposed development for rapid analysis of screening levels. When used in vegetated lowland landscapes, RSA has shown actual visibility to be much less than indicated by traditional Zone of Theoretical Visibility (ZTV) maps.

Theoretical Visual Intensity (TVI) Mapping:

Because traditional ZTV maps are of limited value in illustrating likely comparative visual prominence over distance, a more advanced form of visibility mapping will also be utilised, which takes into account both the scale in relation to distance of the proposed development and the degree to which it is visible within the 'bare-ground' terrain context. TVI mapping will highlight, at the baseline stage, those areas that have the most potential to be significantly affected by views of the proposed development as well as areas where visual impacts are not likely to be significant.

360° On-line Photomontage Viewer:

This is principally a design team collaboration tool but can be used for consultation purposes also. All viewpoint photography will be captured in 360° and early stage design iterations will be presented on an on-line photomontage viewer, which is calibrated to a 24-inch screen allowing the viewer to pan around the image as if turning their head. This resource allows the project team to efficiently compare design options and discuss potential impacts / design solutions.

13.6 Cumulative Effects

Cumulative impacts will consider all relevant developments within the surrounding areas including other onsite wind farms. The cumulative impacts will be assessed in accordance with the NatureScot guidance note for 'Assessing the cumulative impact of onshore wind energy developments' (2012) taking account of 'Combined Views' 'Succession Views' and 'Sequential Views'. The landscape specialist will use their own on-line viewer (see detailed description above) to compare 360° photography against corresponding 360° cumulative Wireframe images to aid the cumulative impact assessment.

14. CULTURAL HERITAGE

14.1 INTRODUCTION

The principle aim of the cultural heritage assessment is to anticipate and avoid impacts on the cultural heritage resource. Detailed constraints mapping using Geographic Information Systems (GIS) will form the basis of this work, followed by further analysis of sites that will potentially be impacted upon, and field surveys to ground truth the results of the desk-based assessment and ascertain the significance of any potential impacts.

14.2 STUDY AREA

IAC will map the study area in GIS and identify the cultural heritage resource within the broader area. The various data sources (including but not limited to OSI mapping and historic mapping, aerial photography, archaeological sites, architectural sites, and other cultural heritage sites) will be presented as GIS datasets which will be combined with desktop data.

14.3 SENSITIVE RECEPTORS

The archaeological and architectural sites noted above will be reviewed in GIS to ascertain whether there is a potential for direct or indirect impacts or for impacts on the setting of cultural heritage sites. Where sites are in visually prominent locations and may be susceptible to impacts on their setting from visually prominent development in the wider area these will also be mapped. Sensitive receptors within and in the vicinity of the study area of the proposed development will be identified as part of the scoping, constraints and EIAR process.

14.4 DESKTOP AND FIELD SURVEYS

The desktop element of the EIAR chapter will include rigorous interrogation of all existing information on the archaeological, architectural and cultural heritage of the area including the Record of Monuments and Places (RMP), Sites and Monuments Record (SMR), Register of Protected Structures (RPS), the Topographical Files of the National Museum, the NIAH (building and garden survey), cartographic sources, an assessment of previous archaeological fieldwork and studies in the area, aerial photographs, local histories, local area plans, etc. All relevant bodies both public and private will be consulted with a view to maximising our knowledge of the proposed development area (and any associated infrastructure) and their archaeological, architectural, and cultural heritage background. Full consultation will also be carried out with the Landscape and Visual specialist as part of this assessment and may include requests for specific photo-montages or wire modelling.

Once all relevant baseline data has been examined, an inspection of the site will be carried out in order to locate and assess the existing recorded archaeological/ architectural sites and to attempt to identify any additional sites that may be of archaeological or architectural heritage significance. It is of critical importance that a thorough and comprehensive baseline is established at an early stage to allow for the identification of any possible gaps and inconsistencies within the information and allow for their resolution. This will also allow for mitigation through design, should any potentially significant cultural heritage features be identified within the proposed development area.

Following the gathering of the baseline information and the information derived from the field inspection, the results will be assessed in detail in conjunction with all the design and construction information. This will include potential direct and indirect impacts upon the

cultural heritage resource, including impacts on settings of sites. Following this assessment, a detailed impact assessment will be produced and mitigation strategies will be proposed that are designed to avoid, reduce, or offset each individual impact on the archaeological, architectural, and cultural heritage resource. The assessment will be produced in line with all current EPA requirements.

14.5 CUMULATIVE EFFECTS

Based on the findings and the likely impacts and risks that may be anticipated, and the potential cumulative effects that may arise, guidance will be provided towards the mitigation of these impacts and minimisation of the associated risks during construction. Cumulative impacts will be determined with consideration of all relevant developments in the surrounding areas, including existing wind farms.

15. TRAFFIC AND TRANSPORT

15.1 INTRODUCTION

The purpose of the traffic and transport assessment will be to assess the potential impacts of the proposed development on the surrounding roads and potential sensitive receptors. The potential requirement for construction stage traffic management will be assessed as part of the EIAR process.

15.2 STUDY AREA

The proposed development is located in the southern portion of County Kilkenny between the villages of Listerlin (c. 4km northeast), Mullinavat (c. 3.5km west), and Glenmore (c. 5km southeast). The national motorway, the M9, is approximately 4km west of the study area. A network of regional and local roads in the vicinity, including the L3424, L7522, L3425, R723 and R704, a number of which are in the vicinity of the site with local access to existing site access and internal haul roads.

15.3 SENSITIVE RECEPTORS

Sensitive receptors in the vicinity of the proposed development will be identified as part of the scoping and EIAR process.

15.4 DESKTOP AND FIELD SURVEYS

The primary traffic related impact caused by a wind farm generally occurs during the construction stage of the project. As such, the traffic assessment within the EIAR will focus on the impacts that will be associated with the construction of the wind farm. From the site investigation works, the quality of the materials that will be arising from excavations will be considered and peat/overburden will be side cast or deposited elsewhere on the site for beneficial reuse.

The extent of rock, sand and gravel on-site will be identified, and it is expected that if present that this will be exploited in order to minimise traffic movements to and from the site. The wind farm will also be designed such that all surplus excavated materials will be used on-site for landscaping purposes thereby minimising the volume of materials leaving the site, reducing the cost of disposal, and minimising the construction traffic.

Using aerial photography and mapping, haul routes will be identified for the construction process. These haul routes will be originally assessed by undertaking a site visit and driving the proposed haul routes. A qualitative assessment of the proposed haul routes will be carried out identifying pinch points, tight bends, steep elevations, poor pavement conditions, road structures, watercourse crossings etc. and the haul routes will be revised where necessary. Swept path analysis will be undertaken at identified constraints by the traffic specialists to inform the assessment. Early engagement with third party landowners will be undertaken where details of external road improvements are proposed, and these will be included in the EIAR as appropriate.

The traffic team will also look at traffic access to the site from the public road network, including sightlines and advise on any limitations. They will consider if the existing site access is appropriate for construction and work vehicles to enter and exit the site in a safe manner. Due to the location and existing land use, steep gradients are envisaged on existing access roads.

Longitudinal profiles and sections shall be undertaken in accordance with the TII Publication Rural Road Link Design (DN-GEO-03031 June 2017) to develop suitable road levels.

Using information on the project, an estimate of the number of vehicles (both light and heavy good vehicles) that would be generated by the construction phase, will be produced. These estimates can be used to assess the impact on the road network in numerical terms and will also feed into other EIAR chapters such as noise and air quality. The Road / Traffic Section of Kilkenny County Councils will be consulted, and the relevant information will be taken into consideration in accordance with the Traffic and Transportation Assessment Guidelines, May 2014 (PE-PAV-02045).

The Traffic Chapter of the EIAR will be completed, taking into consideration the information generated during the processes described above, identifying impacts, and proposing mitigation measures where appropriate.

Typically, wind farms are located in rural areas, and this poses challenges for the delivery of abnormal load turbine components to site. The proposed wind farm is no different in this respect and so one of the key roads and traffic issues will be identifying a suitable haul route for the successful and safe delivery of turbine components to site. The close proximity of the M9 national road, with links to ports in Kilkenny and Waterford (i.e., Port of Waterford locations (along the River Suir)), Dublin and Cork, is a benefit to the site location.

A separate report, a Traffic Management Plan (TMP), will be appended to the EIAR. This report is a 'living document' that incorporates the commitments outlined in the EIAR at planning stage and shall be developed further by the Designers at Detailed Design Stage and Contractor at Construction Stage. The TMP will consider measures to ensure that any increase in activity along the public road network during construction, operation and decommission does not result in an increase in safety hazards.

The requirement for the preparation of a Stage 1 Road Safety Audit (RSA) will be considered and discussed with the traffic department in Kilkenny County Council. Where required, this will be completed by a suitably qualified traffic expert and included in the EIAR.

15.5 Cumulative Effects

Based on the site investigation findings and the likely impacts and risks that may be anticipated, and the potential cumulative effects that may arise, guidance will be provided towards the mitigation of these impacts and minimisation of the associated risks during construction, operation, and decommissioning. Cumulative impacts will be determined with consideration of all relevant developments in the surrounding areas, including existing wind farms.

16. INTERACTION OF THE FOREGOING

A section of the EIAR entitled “Interaction of the Foregoing” will summarise the primary interrelationships of aspects of the various environmental topics with the potential for significant effects as a result of the proposed development.

17. SCHEDULE OF MITIGATION MEASURES

A summary chapter collating all of the mitigation measures relevant to the proposed development will be included in a standalone section of the EIAR i.e., a Schedule of Mitigation Measures.

18. CONSULTATION

18.1 SCOPING CONSULTATION

It is proposed that the project team will commence consultation initially with the bodies listed below, in order to allow sufficient time for receipt of meaningful feedback on the proposed development. Preplanning consultation has also been undertaken with Kilkenny County Council who are the local authority for the proposed development area.

Table 18-1 Consultee List

Consultee List
Prescribed Bodies
Department of Environment, Climate and Communications (DECC)
Department of Tourism, Culture, Arts, Gaeltacht, Sport, and Media (DTCAGSM)
Department of Housing, Local Government, and Heritage (DHLGH) (Development Applications Unit)
Department of Agriculture, Food, and the Marine (DAFM)- Forestry Division
Department of Defence
Department of Transport
Department of Health
Department of Rural and Community Development
Department of Enterprise, Trade and Employment
Transport Infrastructure Ireland (TII)
An Taisce - The National Trust for Ireland
Fáilte Ireland
The Heritage Council
Southern Regional Assembly
Inland Fisheries Ireland (IFI)
Waterways Ireland
Irish Aviation Authority (IAA)
Kilkenny Airport
Waterford Airport
Córas Iompair Éireann (CIÉ)

Health Service Executive (HSE) South
Commission for Regulation of Utilities (CRU)
Uisce Éireann
Other Consultees
Kilkenny County Council - Planning, Environment, Roads
Wexford County Council - Planning, Environment, Roads
Waterford City & County Council – Planning, Environment, Roads
EirGrid Group
Geological Survey of Ireland (GSI)
BirdWatch Ireland
Teagasc
Irish Raptor Study Group
The Arts Council (An Chomhairle Ealaíon)
Environmental Protection Agency (EPA)
Health & Safety Authority (HSA)
Sustainable Energy Authority of Ireland (SEAI)
Irish Wildlife Trust (IWT)
Bat Conservation Ireland (BCI)
South East Energy Agency
Office of Public Works (OPW)
Mountaineering Ireland
Irish Trails/Sport Ireland
Met Éireann
Irish Hang Gliding and Paragliding Association
An Bord Pleanála

Additional consultees will be added to this list throughout the preparation of the EIAR and through discussions with the planning authority.

18.2 Public Consultation

The Community Engagement Strategy for the project is based around engaging with the local community in an open, honest, and transparent manner with the aim to not only provide clear and understandable information but also to gain feedback to understand the views of the local community. This feedback and information will be used to inform the design process, thereby allowing the local community an opportunity to have an influence on the project design.

A Community Liaison Officer (CLO) has been appointed as the point of the contact for the Project. The purpose of the CLO is to introduce the project to the local community, engage and establish a line of dialogue with the local community and facilitate one-to-one consultation meetings, or group meetings as appropriate. The CLO will also disseminate information on the project to the local community as it becomes available and as the project progresses.

Contact details for the CLO will be provided, for local residents to get in touch with any queries or comments regarding the design and assessment of the proposed project as it progresses.

APPENDIX A

WIND FARM STUDY AREA

GENERAL LEGEND

PLANNING APPLICATION BOUNDARY

D01	31.07.24	DRAFT ISSUE FOR REVIEW	EB	AM
Rev	Date	Description	By	Chkd.

Client:

MANOGATE LTD.

Project:

BALLYFASY
WIND FARM

Title:

REGIONAL SITE
LOCATION MAP

Scale @ A1: 1:25,000

Prepared by: M. Nolan | Checked: A. Murphy | Date: July 2024

Project Director: S. Tinnelly

Drawing Status: Draft

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