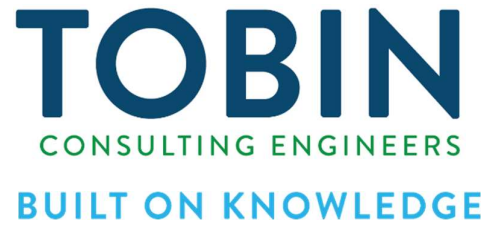


Appendix 1-3 – Environmental Scoping Report





Cloghercor Wind Farm Limited



**CLOGHERCOR WIND FARM, CO. DONEGAL
ENVIRONMENTAL IMPACT ASSESSMENT
SCOPING REPORT**



CLOGHERCOR WIND FARM

EIA SCOPING REPORT

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1.0 INTRODUCTION

The applicant (see Section 1.3) intends to develop Cloghercor Wind Farm, near Doochary village, County Donegal and have commenced the process of Environmental Impact Assessment. It is proposed that the Cloghercor Wind Farm will be built within a site that extends to approximately 1,962 hectares (ha) of which approximately 299 ha is commercial forest, owned by Coillte and the remaining area is third party property. The site location and current site study area are shown in Figure 1.1. below.

It is currently proposed that up to 23 no. wind turbines will be located across the proposed wind farm site.

Note: The site boundary shown in Figure 1.1 is indicative only and is subject to change.



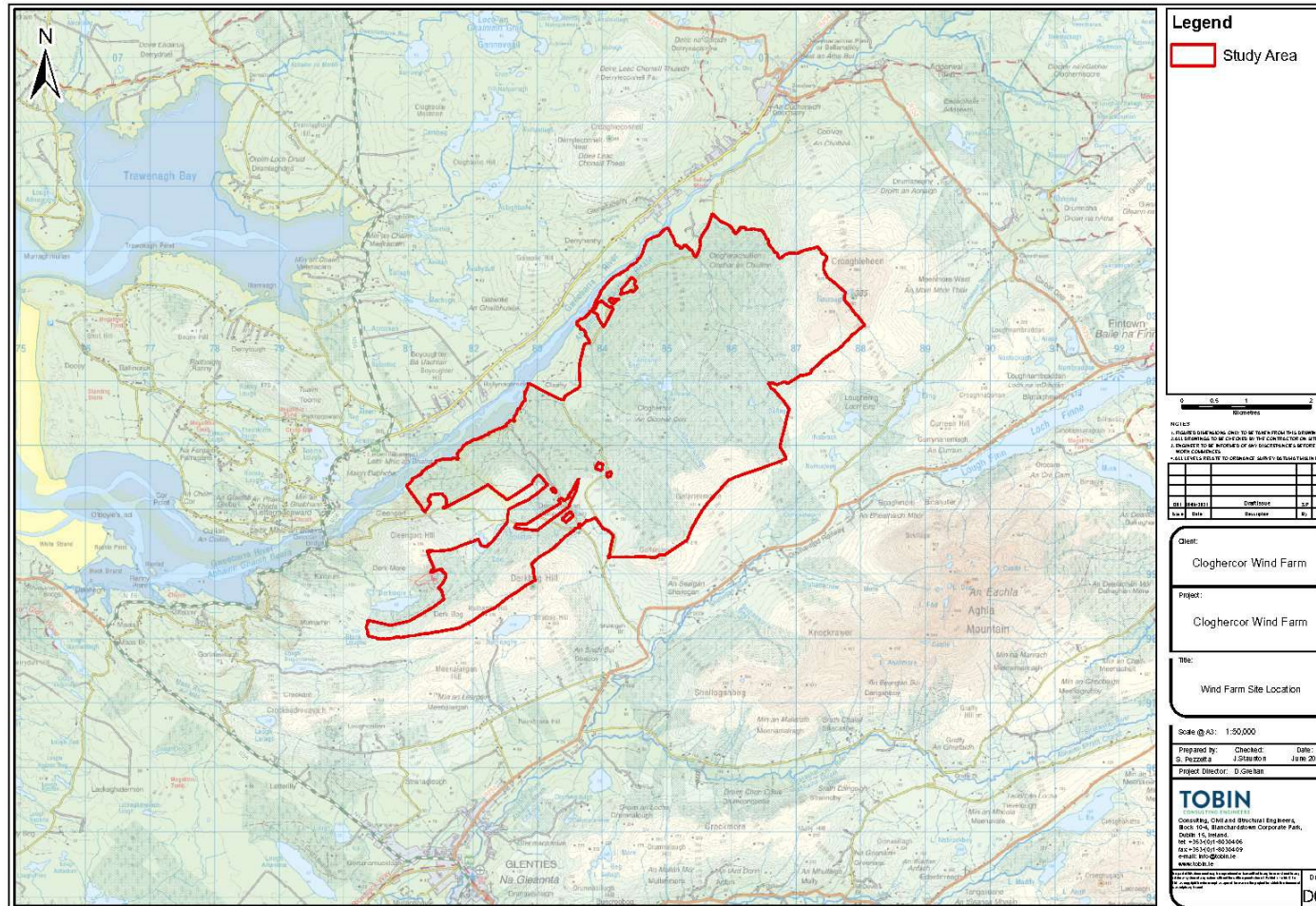


Figure 1-1 - Site Location Map



1.1 LEGISLATIVE FRAMEWORK

1.1.1 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment (EIA) of Projects is a key instrument of European Union environmental policy. It is currently governed by the terms of European Union Directive 2011/92/EU, as amended by Directive 2014/52/EU on the assessment of the effects of certain public and private Projects on the environment (EIA Directive). Since the adoption of the first EIA Directive in 1985 (Directive 85/337/EEC), both the law and EIA practices have evolved. The EIA Directive was amended by Directives 97/11/EC, 2003/35/EC, and 2009/31/EC. The Directive and its three amendments were codified in 2011 by Directive 2011/92/EU. The codified Directive was subsequently amended by Directive 2014/52/EU.

These Directives have been transposed into Irish law through Section 176 of the Planning and Development Act 2000, as amended, and Article 93 and Schedule 5 of the Planning and Development Regulations 2001, as amended.

The applicant and TOBIN Consulting Engineers (hereafter referred to as TOBIN) consider that the proposed development of the Cloghercor 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 wind farm will exceed the thresholds for completion of an Environmental Impact Assessment (EIA), as detailed in the Planning and Development Regulations 2001 (as amended), Schedule 5, Part 2, Class 3(I), which states:

“Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts”¹.

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 through the process of Environmental Impact Assessment. It is proposed to accompany the Planning Application for the wind farm with an Environmental Impact Assessment Report.

¹ <http://www.irishstatutebook.ie/eli/2010/act/30/section/78/enacted/en/html>



The European Commission's, "Guidance on EIA Scoping" (EU 2001) (replaced by "Guidance on Scoping"(EC 2017)) 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 Cloghercor Wind Farm is subject to the requirements set out in the provisions of Part X of the Planning and Development Act 2000, as amended.

1.1.2 STRATEGIC INFRASTRUCTURE DEVELOPMENT

The Strategic Infrastructure Development (SID) thresholds for wind energy set out in the 7th Schedule of the Planning and Development Act 2000, as amended, are 25 no. turbines or 50 Megawatts (MW). It is intended that the proposed development will have an output in excess of 50 Megawatts. Should the project be of this scale, an application will be made to An Bord Pleanála (Board) seeking a determination in relation to the SID status, or otherwise, of the proposed wind energy development. If the Board determines that the development is indeed SID, the planning application will be submitted directly to An Bord Pleanála, under the provisions of Planning and Development (Strategic Infrastructure) Act 2006. Should the project be of a scale lower than the SID thresholds, an application for planning permission will be made to the local County Council.

1.2 PURPOSE OF EIA SCOPING

The purpose of the scoping for the Environmental Impact Assessment 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 planning and environmental stakeholders as part of the environmental assessment work. The scoping report also sets out a structure for the preparation of the Environmental Impact Assessment Report (EIAR) to be prepared and the information required to be included therein.

The European Commission's, " *Guidance on Scoping*" (EC 2017) notes the following in Part A of the guidance, as being the benefits of scoping:

- ***“Identifies key issues to be addressed:*** *Scoping helps to ensure that the environmental information used for decision-making provides a comprehensive picture of the Project’s important effects, including issues of particular concern to the groups and individuals affected.;*
- ***Saves time and money:*** *Scoping helps focus resources on the important issues for decision-making and avoids wasted effort on issues of little relevance. In addition, it reduces the risk of delays caused by requests for further information after the submission of the Development Consent application and the provision of environmental information.*
- ***Stimulates early consultation:*** *A consultation session about the Project and its environmental impacts is carried out during Scoping, between the Developer and the Competent Authority, as well as with environmental authorities and local and regional authorities, other interested parties, and the public.*
- ***Sets appropriate time and space boundaries:*** *Scoping aids in effective planning, management, and with resourcing of the EIA Report. It can identify other legislation or regulatory controls that may be relevant to the Project and can provide opportunities for the necessary assessment work, for different control systems, to be undertaken in parallel, thereby avoiding the duplication of effort and costs for all concerned.*
- ***Helps to identify preliminary alternatives and Mitigation Measures:*** *Scoping should identify preliminary alternatives to the proposed Project as well as preliminary mitigating measures that ought to be considered by the Developer.”*

This 2017 European guidance outlines what should be covered in a scoping document, including details of the developer, characteristics of potential impacts, project characteristics, and location of the project with respect to designated sites. This document fulfils these requirements.



Due to the size of the proposed Cloghercor Wind Farm and its potential to accommodate approximately 23 no. wind turbines (subject to further constraint investigations, scoping and public consultation), the project has been initially directed into the pre-planning consultation phase with An Bord Pleanála utilising the Strategic Infrastructure Development (SID) process.

1.3 THE APPLICANT

The applicant for permission (Cloghercor Wind Farm Limited) is a joint venture company between Ørsted (previously known as Brookfield Renewable Ireland Limited (BRIL)) and Coillte Cuideachta Ghníomhaíochta Ainmnithe (Coillte). Brookfield recently went through a sales process following an agreement reached with Ørsted to acquire Brookfield's Irish and U.K. renewable platform. Ørsted develops, constructs, owns and operate onshore wind solar and energy storage projects internationally with 1.7GW operational onshore wind capacity and 6.8GW offshore operational capacity.

The Ørsted Irish business consists of more than 300 megawatts of operating wind capacity across 23 wind farms in 10 counties and employs approximately 70 people from its Cork office. With a development pipeline of over 360 MW in Ireland, Ørsted plan to continue bringing new renewable energy onto the system over the decade, further contributing to decarbonisation of the Irish economy.

It is also advised that the renewable energy business of Collite will be changing in the coming months. Subject to final shareholder approvals, the renewable energy business unit of Coillte will be transferred to a newly formed joint venture, co-owned on a 50:50 basis by Coillte and ESB. A significant milestone was reached in relation to this on 5th Feb. 2021 when the Competition and Consumer Protection Commission (CCPC) provided its regulatory approval for the joint venture.

Coillte manages approximately 7% of Ireland's land and operates three businesses (including Forestry, Land Solutions and MEDITE SMARTPLY.) with the core business being commercial forestry. Coillte is responsible for harnessing the wind energy in the vicinity of Coillte forests and aims to build responsible projects that are good for the environment, for Irish society and positively benefit the neighbouring community. 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. The majority of these wind farms are operated by third party developers but, in recent years, Coillte's strategy has been to lead the development process and also take responsibility for bringing wind farms into construction and operation. Coillte has now been involved in the development of 4 operational wind farms on their lands with a capacity of 240 megawatts in



conjunction with 3 joint venture partners and has an aspiration to develop a further 1 gigawatt (GW) over the next ten years.



Figure 1-2 – Example Photo of Operational Wind Turbines at Sliabh Bawn Wind Farm in Co. Roscommon (Source: Coillte)



Figure 1-3 – Example Photo of Operational Wind Turbines at Sliabh Bawn Wind Farm in Co. Roscommon (Source: Coillte)

Social Responsibility

Coillte and Ørsted have developed a bespoke wind farm Community Engagement process for communities close to their wind farms to ensure that they are appropriately involved and can share the benefits of these projects. When developing their projects, they aspire to work with the communities surrounding their projects and wish to be good neighbours and to build a healthy relationship based on trust and respect. Community engagement should be undertaken in an appropriate manner with the communities in the environs of the development, at all stages of the project lifecycle, from Development, Construction through to Operations.

Coillte and Ørsted believe that living in the locality of their Wind Farm should be a positive experience not only from a sustainable energy perspective but also from a local development perspective. It is proposed therefore, to develop a bespoke wind farm Community Benefit Scheme for communities close to the wind farm that runs for the lifetime of the wind farm. The design of the scheme is unique to each project and this design is driven by the community that administer and avail of it.



1.4 EIA TEAM

TOBIN have been engaged by Coillte to coordinate the Environmental Impact Assessment 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 surveys and environmental evaluation of the following topics: Planning, Reasonable Alternatives, Biodiversity, Land, Soils & Geology including Slope Stability, Hydrology & Hydrogeology, Flood Risk Assessment, Traffic, Population and Human Health, Shadow Flicker, Telecommunications, Aviation, Electromagnetic Interference and Air Quality & Climate;
- Ground Investigations Ireland – Geotechnical Site Investigation;
- Ciaran Reilly and Associates – Soil stability
- Tom Gittings Environmental Consultant –Ornithology;
- Macro Works – Landscape & Visual Impact Consultants & Production of Photomontages;
- AWN Consultants – Noise & Vibration;
- TLI Group – Substation and Grid Connection Design;
- Western Forestry Co-Op – Forestry Report; and
- Moore Group – Cultural Heritage.

1.5 PROJECT DESCRIPTION

The project at this stage is anticipated to comprise of a development of a wind farm of 23 no. wind turbines and all associated infrastructure including turbine foundations, hardstanding areas, borrow pits, access tracks, an on-site 110kV electrical substation and a grid connection comprising either a loop-in connection into the 110 kV Ardnagappary to Tievebrack 110 kV line or alternatively a tail-fed connection into the Tievebrack 110 kV Substation. The environmental surveys, desk studies, public consultation and this scoping exercise will guide the final proposed development description that will be put forward for planning. The project will also comprise facilitating works on the public road network and at private properties to accommodate the delivery of turbine components.

1.6 SITE LOCATION

The site of the proposed Cloghercor Wind Farm is located 2 km south of Doochary in north west County Donegal as shown in Figure 1.1 above.



The elevation of the site ranges from 50m AOD in the north and west rising to 292m AOD in the south of the site with a peak of 146m in the centre of the site. The Clochar an Chuilinn, a tributary of the IE_NW_38M290990 flows through the site as well as several small watercourses and all flow into the Gweebarra/Owenwee [Doochary] IE_NW_38O070250 river adjacent to the site. Two lakes, the Aneane More and Aneane Beg are within the site boundary.

Current land cover within the site, based on the available Environmental Protection Agency (EPA) CORINE land cover maps and examination of aerial imagery, the site comprises predominantly of 'Coniferous Forest', with some small areas classified as 'Peat Bogs' or 'Transitional Woodland-Shrub'. Within the wider landscape, peatland and commercial forestry comprises the primary land-uses in the area with some small areas of agricultural grassland also present. Access to the site is via a local access road which connects the site to the R252 to the northeast. The site can also be accessed via the southwest from the R250 and L6363.

1.7 THE PROPOSED DEVELOPMENT

1.7.1 INTERNAL ACCESS ROUTE AND TURBINE LOCATIONS

The initial site layout design (based on desktop study constraints) has determined that the site should be suitable for 23 no. turbines as shown in Figure 1.4. The exact number, siting and scheme layout for the turbines will be decided as part of the design and EIA process.

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 as part of the ongoing design and EIA process. The initial layout design has just been agreed and assessment of potential access points through which turbine components and construction related deliveries will now commence.



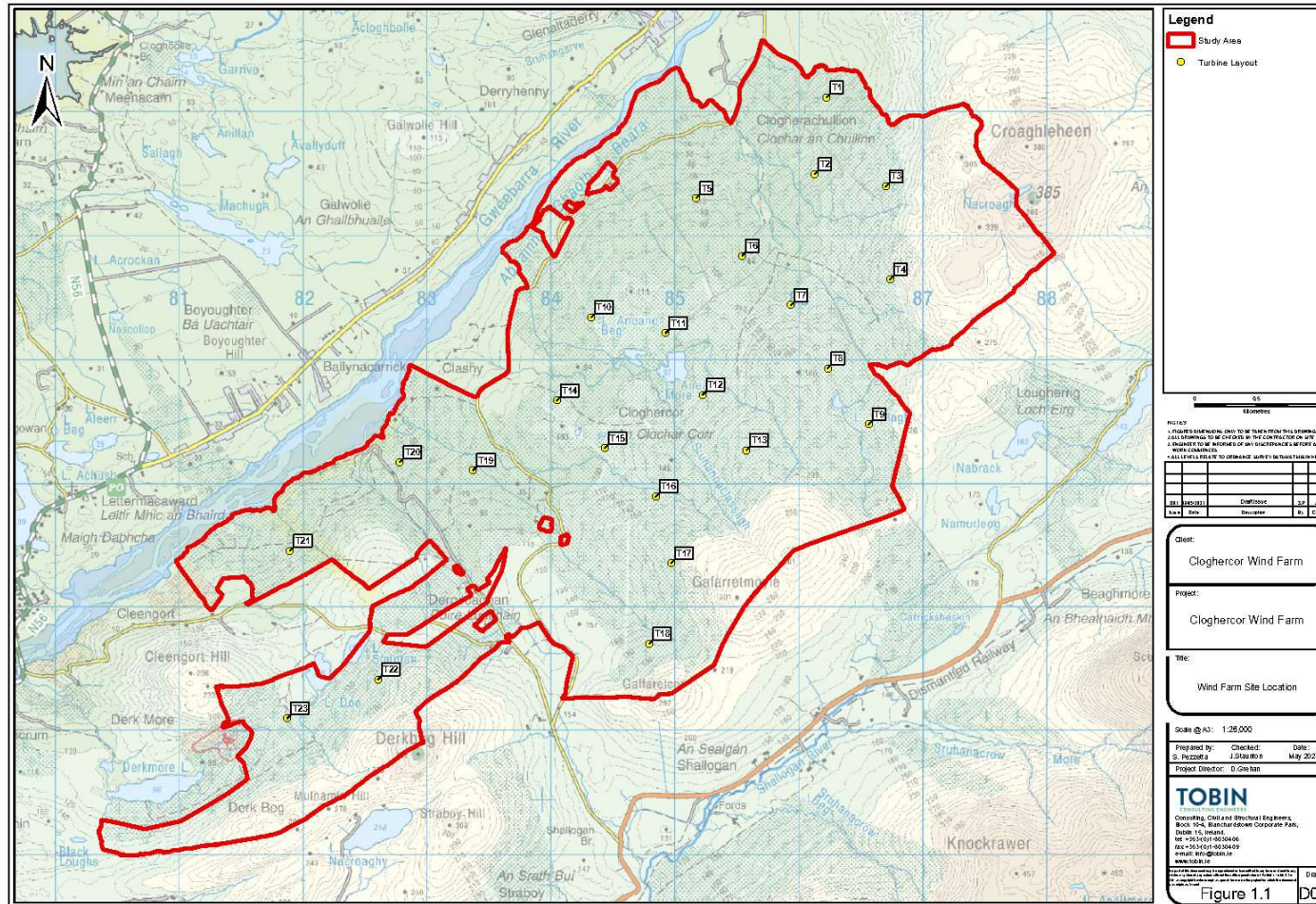


Figure 1-4 Proposed turbine layout



1.7.2 WIND TURBINE SPECIFICATIONS

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. The initial wind turbine specifications are based on a maximum tip height of 200 m. 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 would be in the region of 110 - 140 MW.

1.7.3 ELECTRICAL/MECHANICAL EQUIPMENT

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

- Turbine components (tower sections, nacelle, hub, rotor blades);
- 110 kV on-site Substation;
- Electrical cable;
- SCADA cable; and
- Main and assist cranes.

1.7.4 FORESTRY OPERATIONS MANAGEMENT

The applicant will ensure that the main forestry operations stakeholders are involved in the layout design and phasing of the Cloghercor Wind Farm. In particular, the forestry consultant contributing to the EIAR will liaise with the Forestry Operations division of Coillte to confirm relevant details including 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.

1.7.5 GRID CONNECTION

The applicant has identified a number of potential grid connection options for the Cloghercor Wind farm and are focusing on two potential options to be explored further. These are:



1. Tievebrack Substation - A dedicated 110kV tail-fed underground cable connection to Tievebrack 110kV Substation (approx. 8.4km)
2. Loop in - A 110kV Loop-In Connection into the Ardnagappary - Tievebrack 110kV Line that passes through the proposed site

1.7.6 DECOMMISSIONING

The proposed turbine will have a design lifetime of approximately 30 years without replacement of major components. In certain circumstances, the applicant 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 them 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 latest (at the time of decommissioning) waste legislation and best practice guidelines.

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.

1.7.7 REHABILITATION/CONCURRENT OR FUTURE USE OF THE SITE

The land on which the wind turbines will be located are a combination of private commercial forestry lands and Coillte's own commercial forestry enterprise. The use of the afforested areas of the site for the purpose of forestry operations will continue during the operation of the wind farm. Any areas of high biodiversity identified during the initial constraints study and the EIA site surveys will remain intact.



2.0 ENVIRONMENTAL IMPACT ASSESSMENT

2.1 PROJECT SUMMARY

At the planning application and EIAR submission stage, 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:

- Guidelines on the Information to be contained in Environmental Impact Statements” (EPA, 2002);
- “Advice Notes on Current Practice in the Preparation of Environmental Impact Statements” (EPA, 2003);
- “Draft Guidelines on the Information to be contained in Environmental Impact Statements” (EPA, September 2015);
- “Draft Advice Notes on Preparing Environmental Impact Statements” (EPA, September 2015);
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, August 2017);
- “Guidance in the preparation of the Environmental Impact Assessment Report” (EU, 2017); and,
- “Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment” (Department of Housing, Local Government and Heritage, 2018).

In addition to the Regulations and Guidelines above, the Cloghercor Wind Farm 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)”.

A Screening for Appropriate Assessment (AA) and (if found to be required) 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). AA is an assessment of whether a plan or project, alone or in combination with other plans or projects could affect the integrity of any European sites as designated under the EU Habitats Directive and the conservation objectives for their qualifying species and habitats.

2.2 STRUCTURE OF THE EIAR

The EIAR will be presented in a number of volumes which include:

- Non-Technical Summary
- Main Report
- Appendices
- Photomontages

Each is described in more detail in the following sub-sections.

2.2.1 NON-TECHNICAL SUMMARY

This document will give an overview of the main EIAR using non-technical language. It will be 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 which could result from the proposed development and mitigation measures adopted into the design of the development to minimise impacts on the surrounding environment.

2.2.2 EIAR – MAIN REPORT

The information to be contained in an EIAR is specified in Schedule 6 of the Planning and Development Regulations, 2001, as amended and in the EIA Directive as amended by Directive 2014/52/EU. The structure of the Main EIAR Report will be based on the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft) (EPA, 2017). The EIAR will use the grouped structure method to describe the existing environment, the likely significant effects of the proposed development and the proposed mitigation measures. Individual specialists will undertake their evaluations of the environment including evaluation under following topics:

- Introduction
- Background to the Proposed Development
- Description of the Proposed Development
- Consideration of Reasonable Alternatives



-
- Policy, Planning and Development Context
 - Population and Human Health
 - Biodiversity – Flora and Fauna
 - Biodiversity – Ornithology
 - Soils and Geology
 - Hydrology and Hydrogeology
 - Air Quality and Climate
 - Noise and Vibration
 - Shadow Flicker
 - Landscape and Visual Impact
 - Material Assets including Aviation and Telecommunications
 - Traffic and Transportation
 - Forestry
 - Cultural Heritage
 - Interaction of the Foregoing
 - Schedule of Mitigation Measures.

Background information relating to the applicant, the proposed development site, scoping and consultation undertaken and a description of the proposed development, including both the construction and operational phases, will be presented in in Chapters 1 to 3 inclusive of the EIAR. The scope and content of the remaining chapters is outlined in detail in the sections that follow in this scoping report.

2.2.3 APPENDICES

The EIAR will contain the various appendices that are referred to in the individual chapters of the Main EIAR Report. These will include graphics and tabular data that if they were included in the main EIAR Report, would make that report difficult to read. Photomontages will be contained in a separate Volume of the EIAR.

2.3 THE SCOPING PROCESS

This report will form the basis for the scoping process to be undertaken by the applicant with An Bord Pleanála and the prescribed Statutory Bodies.

The scoping will allow all relevant planning and environmental stakeholders with the opportunity to provide information, data or additional guidance to 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.

The project will be initially directed into the pre-planning consultation phase with An Bord Pleanála utilising the Strategic Infrastructure Development process. It is proposed that this Scoping Report will be used as a framework to facilitate all relevant planning and environmental stakeholders to provide feedback into the EIA process.

2.4 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 (as per the EPA EIAR Guidelines).
- 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.

2.5 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. A do-nothing scenario will also be included (i.e. in the absence of the proposed development).

- **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.

2.6 ASSESSMENT OF EFFECTS

As stated in the “Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ (EPA, August 2017), 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, complexity, probability, duration, frequency, reversibility, cumulative effect and transboundary nature (if applicable) of the effect.

The classification and description of effects in the Cloghercor Wind Farm EIAR will follow the terms provided in Table 3.3 of the Draft EPA Guidelines (2017) referenced above (and duplicated in Table 2.1 below for information purposes).

According to the Guidelines, 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 3.3 of the August 2017 Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports).

<p>Quality of Effects</p> <p>It is important to inform the non-specialist reader whether an effect is positive, negative or neutral</p>	<p>Positive Effects</p> <p>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).</p>
	<p>Neutral Effects</p> <p>No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.</p>
	<p>Negative/adverse Effects</p> <p>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).</p>
<p>Describing the Significance of Effects</p> <p>‘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 <i>Determining Significance</i> below.).</p>	<p>Imperceptible</p> <p>An effect capable of measurement but without significant consequences.</p>
	<p>Not significant</p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences.</p>
	<p>Slight Effects</p> <p>An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.</p>
	<p>Moderate Effects</p> <p>An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.</p>
	<p>Significant Effects</p>



	<p>An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.</p>
	<p>Very Significant</p> <p>An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.</p>
	<p>Profound Effects</p> <p>An effect which obliterates sensitive characteristics</p>
<p>Describing the Extent and Context of Effects</p> <p>Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.</p>	<p>Extent</p> <p>Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.</p>
	<p>Context</p> <p>Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)</p>
<p>Describing the Probability of Effects</p> <p>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.</p>	<p>Likely Effects</p> <p>The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.</p>
	<p>Unlikely Effects</p> <p>The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.</p>
<p>Describing the Duration and Frequency of Effects</p> <p>‘Duration’ 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.</p>	<p>Momentary Effects</p> <p>Effects lasting from seconds to minutes</p>
	<p>Brief Effects</p> <p>Effects lasting less than a day</p>
	<p>Temporary Effects</p>



	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)	

2.7 POTENTIAL MITIGATION

The strategies for identification of appropriate Mitigation Measures, as detailed in the EPA EIAR Draft Guidelines (2017), will be followed in the preparation of the Cloghercor Wind Farm EIAR.

There are four established strategies for effects mitigation - avoidance, prevention, reduction and remedy/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.



In accordance with the guidelines, 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 Remedy/Offsetting*
When an adverse impact is resolved by a remedial action or balanced by a positive impact.

2.8 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.



3.0 REASONABLE ALTERNATIVES

As set out in the EIA Directive, the EIAR is required to provide a description of the reasonable alternatives studied by the applicant, 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 applicant which will include consideration of suitable land banks held in ownership or agreement by the applicant. Details on the assessments carried out to identify the proposed site location as appropriate for this project will be provided.

3.2 ALTERNATIVE LAYOUTS AND 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. Alternative mitigation measures will also be considered.

3.3 ALTERNATIVE TECHNOLOGY/ ALTERNATIVE PROCESSES

The proposed wind farm development at Cloghercor will support European and National policy in decarbonising electricity generation and contribute to Ireland's target to generate 70% 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.



4.0 POLICY, PLANNING AND DEVELOPMENT CONTEXT

The planning assessment 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.

At an international and European level, this will include:

- The European Green Deal 2019;
- 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 2019;
- Climate Action and Low Carbon Development (Amendment) Bill 2020;
- Ireland 2040 - Our Plan (National Planning Framework) [2018];
- National Development Plan 2018-2027;
- Government White Paper – Ireland’s Transition to a Low Carbon Energy Future 2015-2030;
- National Renewable Energy Action Plan 2010;
- 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);
 - Code of Practice for Wind Energy Development in Ireland on Guidelines for Community Engagement (DCCAIE, 2016).

At a regional level, the assessment will consider the Regional Spatial and Economic Strategy (RSES) for the North West Region. Figure 4.1 illustrates the operational windfarms in the NWRA region. In addition, Table 4.1 identifies the Regional Policy Objectives which are relevant to wind energy and wider renewable energy projects.



Figure 4-1 – Windfarms in RSES Spatial Area

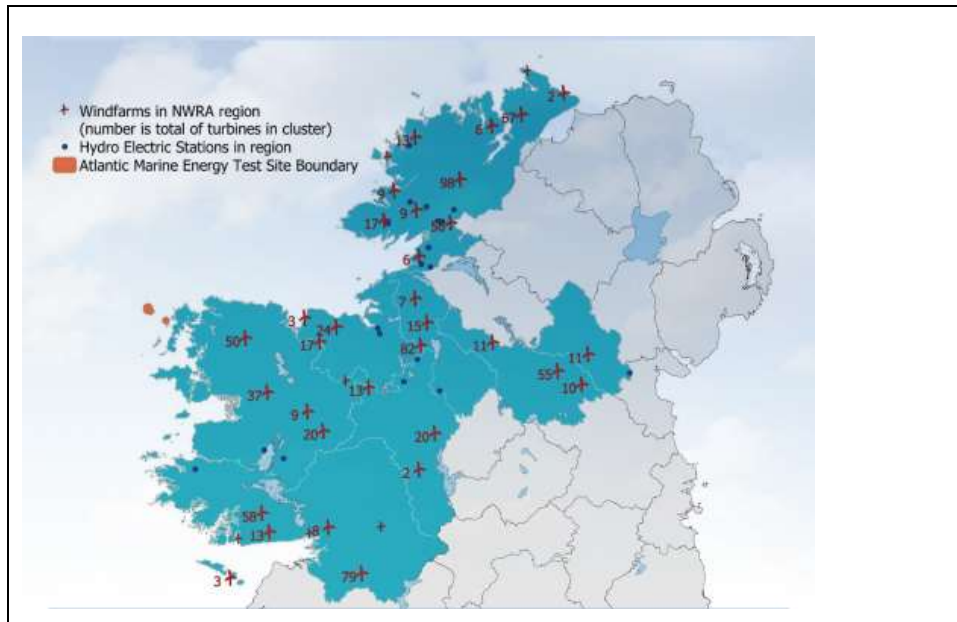


Table 4.1: RSES Regional Policy Objectives (Wind & Renewables)

Regional Policy Objective	Description
RPO 4.16	The NWRA shall co-ordinate the identification of potential renewable energy sites of scale in collaboration with Local Authorities and other stakeholders within 3 years of the adoption of the RSES. The identification of such sites (which may extend to include energy storage solutions) will be based on numerous site selection criteria including environmental matters, and potential grid connections
RPO 4.17	<p>To position the region to avail of the emerging global market in renewable energy by:</p> <ul style="list-style-type: none"> • Stimulating the development and deployment of the most advantageous renewable energy systems • Supporting research and innovation • Encouraging skills development and transferability • Raising awareness and public understanding of renewable energy and encourage market opportunities for the renewable energy industry to promote the development and growth of renewable energy businesses • Encourage the development of the transmission and distribution grids to facilitate the development of renewable energy projects and the effective utilization of the energy generated from renewable sources having regard to the future potential of the region over the lifetime of the Strategy and beyond



RPO 4.18	Support the development of secure, reliable, and safe supplies of renewable energy, to maximise their value, maintain the inward investment, support indigenous industry, and create jobs
RPO 4.19	Support the appropriate development of offshore wind energy production through the adequate provision of land-based infrastructure and services, in line with national policy and in a manner that is compatible with environmental, ecological and landscape considerations
RPO 5.1	The Assembly will support through Climate Change Action Plans (CARO) and Local Authorities the preparation and implementation of Local Climate Strategies which will, inter alia, address vulnerability to climate risks and provide prioritised actions in accordance with the guiding principles of the National Adaptation Framework.

In addition, at local level all relevant planning and wind energy development policies included in the Donegal County Development Plan (CDP) 2018 - 2024 and any emerging County Development Plan will be considered. It should be noted that the CDP states that it is a policy of the Council to facilitate the appropriate development of renewable energy from a variety of sources in accordance with all relevant material considerations and proper planning and sustainable development. The CDP seeks to ensure that wind energy development will not adversely impact upon existing residential amenity if residential properties and other centres of human habitation or would not compromise the integrity of any environmentally sensitive area. It is also worth noting that certain elements of the Donegal Wind Energy Policy for this edition of the CDP, including the wind energy map, were removed from the CDP in 2018 following judicial review (proceedings bearing Record Number 2018/533JR) pending any possible future variation of same. The development plan (without the above-mentioned elements) still provides guidance on locations where wind farms are considered inappropriate. The CDP also contains a range of policies and objectives that relate to wind energy developments which can be used to guide the planning application decision.

Table 4.2 identifies the policies relating to renewables, wind and electrical grid infrastructure.

Table 4.2: CDP Policies (Renewables, Wind & Electrical Grid Infrastructure)

CDP Policy / Objective	Description
E-O-1	To develop sustainably a diverse renewable energy portfolio to meet demands and capitalize on the County's competitive locational advantage
E-O-4	To facilitate a sustainable and diverse mix of developments which limit the net adverse impacts associated with global warming such as promoting renewable energy, the growth of local farm produce and the promotion of sustainable modes of public transport.



E-O-5	To ensure that wind energy developments meet the requirements and standards set out in the DEHLG Wind Energy Development Guidelines 2006, or any subsequent related Guidelines (or as may be amended).
E-O-6	To ensure that wind energy developments do not adversely impact upon the existing residential amenities of residential properties, and other centres of human habitation (as defined at Para. 6.6, 'Wind Energy', Appendix 3, Development Guidelines and Technical Standards, Part B, Objectives and Policies of the Plan)
E-P-2	It is a policy of the Council to facilitate the appropriate development of renewable energy from a variety of sources, including, hydro power, ocean energy, bioenergy, solar, wind and geothermal and the storage of water as a renewable kinetic energy resource, in accordance with all relevant material considerations and the proper planning and sustainable development of the area.

5.0 POPULATION AND HUMAN HEALTH

5.1 INTRODUCTION

This chapter will assess a number of topics under the umbrella of Population and Human Health, including (but not limited to): Population; Human Health/Health and Safety; Socio-economics; Land Use; Tourism/Recreation & Amenities. A review of the current census data will be completed. The existing local population will be described and the projected change in the population, if any, will be assessed. This section will address, in particular, the effects of the Cloghercor Wind Farm on nuisance and residential amenities in the surrounding area. Any impacts on recreational activities as a result of the wind farm will be discussed in this chapter. In addition, the positive economic impacts will be examined, as employment will be created during the construction and operational phase of the wind farm. The wind farm will also generate a community benefit fund and create investment opportunities for the local community. This section will also consider public access, adjacent landowners / dwellings and local services such as existing electricity lines / masts on site. The Human Health assessment will be prepared in accordance with the relevant guidelines produced by the Environmental Protection Agency (EPA), as detailed in 5.4 below. Aspects examined in this section of the chapter will primarily relate to impacts from the wind farm 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 1km of the proposed wind farm site boundary or 10 times the potential rotor diameter from turbine locations (whichever is greater).



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 of four times tip height buffer will be extended from the location of any proposed turbines to sensitive receptors, which will inform the turbine layout.

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;

- EPA Guidelines - Information to be contained in Environmental Impact Assessment Reports, Draft August 2017 (EPA, 2017);
- Revised Guidelines on the Information to be contained in Environmental Impact Statements, Draft September 2015 (EPA, 2015);
- IWEA Best Practice Guidelines for the Irish Wind Energy Industry 2012;
- IWEA Best Practise Principles in Community Engagement and Community Commitment 2013;
- OSI mapping and Aerial Photography to identify land use and possible amenity sites;
- Donegal County Development Plan 2018-2024;
- 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;
- Health Impact Assessment Resource and Tool Compilation (US EPA, 2016);
- Guidelines for Community Noise (WHO, 1999);
- *Night-time Noise Guidelines for Europe* (WHO, 2009);
- 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);
- Air Quality Guidelines (WHO, 2005);



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- 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
 - WHO Environmental Noise Guidelines for the European Region 2018.

The Population and Human Health impact assessment evaluates the receiving environment/land use and includes analysis of local population patterns. The assessment also includes a review of appropriate demographic documentation and incorporates Census Reports and Electoral Division Information, Land use, Population, Employment and Planning Permissions. In addition, the evaluation will provide details of the Community Benefit proposals and any consultation with regard to the same.

There are separate health profiles available for all local authority areas. The most recent profile published for Donegal will be used to establish a community health profile for the proposed wind farm. The assessment of human health for the proposed development, in terms of health protection, will follow the approach set out in the EPA 2017 Guidelines, Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) and in the Commission’s SEA Implementation Guidance.

5.5 CUMULATIVE EFFECTS

The potential cumulative impact of the proposed wind farm with other relevant projects in the area (including existing and consented projects and zoned lands) 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.

6.0 BIODIVERSITY

6.1 INTRODUCTION

Potential impacts on the biodiversity from the wind farm project 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 (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal;
- DEHLG (2006) Wind Energy Development Guidelines and Draft Revised Wind Energy Development Guidelines (December 2019);
- IWEA (2012) Best Practice Guidelines for the Irish Wind Energy Industry;
- Accepted specific best guidance for assessing wind farm impacts on birds, bats and other sensitive ecological receptors; and,
- NRA (2009) Guidelines for Assessment of Ecological Impacts of National Road Schemes.

To date, a significant amount of desktop study and field survey has been undertaken since Autumn 2019 to gather information on the biodiversity of the study area and surrounds. This information will be used to inform the draft design of the wind farm.

6.2 STUDY AREA

The study area is the site of the proposed wind farm and the surrounding environs. 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. These include designated areas, habitats, birds and bats.



The site is located in close proximity to Inishkeel SPA (approximately 12.8km) and West of Ardara/Maas Road SAC (approximately 0.5km). While the ecological receptors are extremely sensitive, effects on them are likely to be avoidable through good engineering design. The effects on these European Sites have been assigned a yellow risk rating. Some wintering Annex I wading bird species (i.e. curlew) have been recorded in the 10km hectad in which the site is located. However, the potential for effects on bird species has been assigned a yellow risk rating as it is considered unlikely that the site provides significant habitat for these species due to dominant habitat consisting of conifer plantation.

There are no European sites, i.e. Special Areas of Conservation (SAC) or Special Protection Area (SPA), within the site, however the West of Ardara/Maas Road Special Area of Conservation (SAC) is adjacent to the site, while there are a number within approximately 2 kilometres including Gannivegil Bog SAC and Coolvoy Bog SAC. The Derryveagh and Glendowan Mountains SPA is located within approximately 3km from the site. An example of the qualifying interest of these European sites, include.

- Estuaries
- Mudflats and sandflats not covered by seawater at high tide
- Blanket Bogs
- Oligotrophic waters containing very few minerals of sandy plains (*Litterorelletalia uniflorae*)
- Northern Atlantic Wet Heath with *Erica tetralix*
- Merlin
- Peregrine
- Golden Plover
- Dunlin

There are a number of watercourses within and around the proposed wind farm site with hydrological connectivity to some of these European 2000 sites. It should also be noted that the Meenmore West Bog Natural Heritage Area (NHA) overlaps slightly with the current site boundary.

Work to date has not identified any rare, threatened or legally protected plant species within the zone of influence of the site, though surveys have not yet concluded.



6.4 DESKTOP AND FIELD SURVEY

6.4.1 DESKTOP SURVEY

Desktop surveys are being carried out. The primary data sources for the desktop surveys are:

- National Biodiversity Data Centre records
- 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
- Aerial photography

6.4.2 FIELD SURVEYS

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

- Winter Bird Surveys (WBS) 2019/2020
 - Vantage Point Surveys 2019/2020
 - Winter Bird Walkover Surveys 2019/2020
 - Waterbird survey 2019/2020
- Breeding Bird Surveys (BBS) 2020
 - Vantage point surveys 2020
 - Breeding Moorland surveys
 - Breeding Merlin surveys
 - Breeding red-throated diver surveys
- WBS 2020/21
 - Vantage Point Surveys 2020/2021
 - Water Bird Walkover Survey 2020/2021
 - Waterbird Survey 2020/2021



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- Bat surveys –
 - Bat Spring/Summer/Autumn/Winter Surveys
 - Bat static detector surveys
 - Bat Roost Surveys
 - Habitat survey 2020
 - A habitat survey/site walkover was conducted as part of the Met mast planning application and AA screening. Only the land immediately surrounding the met mast site boundary was surveyed.
 - Preliminary habitat surveys

Upcoming field work that has been programmed includes (but is not limited to):

- BBS 2021
 - Vantage point surveys 2021
 - Breeding Moorland surveys
 - Breeding Merlin surveys
 - Breeding red-throated diver surveys
 - Golden Eagle Surveys
- Habitat, vegetation and general walkover survey 2021
 - These surveys are proposed for August and September 2021
- Aquatic surveys scheduled for Q3 2021
- Further bat surveys
- Winter Bird Surveys (WBS) 2021/2022
 - Vantage Point Surveys 2021/20220
 - Winter Bird Walkover Surveys 2021/2022
 - Waterbird survey 2021/2022

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.

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 as set out in Section 17.

6.6 APPROPRIATE ASSESSMENT

If found to be required, a Natura Impact Statement (NIS) will be prepared and submitted to assess potential effects on the integrity of European 2000 sites within the zone of influence of the project. The NIS will be prepared with due regard to the European Commission's (2010) guidelines on *Wind Energy Developments and Natura 2000*. In line with best practice, the NIS will be a separate document to the EIAR. The requirements for Appropriate Assessment (AA) are set out in Article 6 of the Habitats Directive (92/43/EEC) and Part XAB of the Planning and Development Act 2000, as amended. There are potentially four stages in the AA process; derived from the "Assessment of Plans and Projects Significantly affecting European 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC". The result of each stage determines whether a further stage in the process is required. These are:

- Stage One: Screening – This process identifies the likely significant effects upon a European site from a proposed project or plan.
- Stage Two: Appropriate Assessment – In this stage, consideration is given to ascertain whether the plan or project would adversely affect the integrity of a European site(s), either alone or in-combination with other plans or projects, with respect to the European site's structure and function and its conservation objectives.
- Stage Three: Assessment of Alternative Solutions – Where adverse effects on a European site are identified at the end of Stage Two despite the application of mitigation, this third stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site.
- Stage Four: Assessment Where Adverse Impacts Remain – The fourth and final stage applies where the project can only proceed for Imperative Reasons of Overriding Public Interest (IROPI), despite the plan or project resulting in adverse effects on a European site(s).

The documents will be prepared with due regard towards (among others):

- the European Commission's Methodological Guidance (2002)



- the European Commission's Managing Natura 2000 Sites (2018)
- the European Commission's Wind Energy Developments and Natura 2000 (2010)
- the European Commission's Guidance Document on Wind Energy Developments and EU Nature Legislation (2020)
- DEHLG's Appropriate Assessment of Plans and Projects in Ireland (2009)
- IWEA Best Practice Guidelines (Fehily Timoney & Company, 2012)



7.0 LAND, SOILS AND GEOLOGY

7.1 INTRODUCTION

The principal objectives of the Soils, Geology and Hydrogeology 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.

A desktop study shall be undertaken to acquire all available topographic, geological, geotechnical and hydrogeological data (including geotechnical and site stability data) for the proposed development site and surrounding area. The desktop study will include a geotechnical risk assessment to identify and mitigate potential issues that may arise during the construction stage (including geohazard, geomorphology features). This shows the site as being predominately comprised of 'Conifer Plantation' with small pockets of 'Transitional Woodland Scrub' and 'Peat Bogs'. The desktop study will inform the field surveys in addition to the impact assessment itself.

7.2 STUDY AREA

The EIAR study area of the soils, geology and hydrogeology will primarily focus on the project red line boundary. In addition, the assessment will consider the lands adjacent to the site boundary, environs downstream of the site area to an appropriate extent as well as proposed forestry replacement lands off-site.

7.3 SENSITIVE RECEPTORS

There are currently several geological sensitive receptors identified at the outset of the scoping process and prior to site investigation.

The GSI Bedrock Aquifer is classed as 'Poor Aquifer (PI) - Bedrock which is Generally Unproductive except for Local Zones'. Poor bedrock aquifers are capable of supplying small abstractions (e.g. domestic supplies, small group schemes), or 'moderate' to 'low' yields (<100m³/d). Groundwater flow occurs predominantly through a limited and poorly Connected network of fractures, fissures and joints. The groundwater vulnerability of the site is categorised as Extreme Vulnerability (E) for most of the site with small pockets marked as having Rock at or near the surface (X).



The GSI's Landslide Susceptibility Mapping was used to assist in the identification of areas which are subject to landslides and is measured from low to high. The southern portion of the site has been identified to be low in landslide susceptibility. The central and northern portion of the site has been identified as moderate to high.

7.4 DESKTOP AND FIELD SURVEY

A desktop study shall be undertaken to acquire all available topographic, geological, geotechnical and hydrogeological data (including geotechnical and site stability data) for the proposed development site and surrounding area. The desktop study will include a geotechnical risk assessment to identify and mitigate potential issues that may arise during the construction stage (including karst risk and geomorphology features).

The chapter will be prepared having regard to the following guidelines:

- Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2017);
- Revised Guidelines on the Information to be Contained in Environmental Impact Statements (Environmental Protection Agency, draft September 2015);
- Advice Notes for Preparing Environmental Impact Statements (Draft September 2015);
- Guidelines on the Information to be contained in Environmental Impact Statements (EPA 2002);
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA 2003);
- Geology in Environmental Impact Statements – a Guide (Institute of Geologists of Ireland (IGI) 2002);
- Groundwater Directives (80/68/EEC) and (2006/118/EC);
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008);
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI 2013); and
- Peat Landslide Hazard and Risk Assessments, Best Practice Guide for Proposed Electricity Generation Developments, Natural Scotland Scottish Executive, 2nd Ed, 2017.

Consultations will be undertaken and feedback requested from a number of statutory bodies, including:

- 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;
- Irish Peatland Conservation Council;
- Inland Fisheries Ireland (IFI);



-
- The Environmental Protection Agency (EPA);
 - The Local Authority (Donegal) 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.

One of the main potential impacts is the potential for peat instability. The evaluation will include:

- Desktop study of soils, subsoils, bedrock, geological, groundwater vulnerability, groundwater resources maps and aerial photography;
- Geomorphology assessment and mapping will be undertaken of geomorphological features;
- Aquifer assessment, in terms of the underlying aquifer and shallow groundwater system within the peat;
- Impact assessment on water schemes/ water supplies within 2km radius;
- Surface water and groundwater interaction (if existent);
- Desk top assessment for the identification of potential karst features or landforms;
- Geological site walkover scheduled for 2021, to include assessment of potential interaction with ecological features;
- Site Investigation works will be specified in conjunction with the requirements of the designers and undertaken during 2021. The site investigation will provide detail on soils, geology, peat types and depths and potential requirements for water management and drainage. Investigations may include:
 - Trial pitting;
 - Cobra Probes;
 - Geophysics Transects
 - In-situ Standard Penetration Test (SPT) testing and sampling; and
 - Ground Water Monitoring Installation.
- The nature and requirements of the potential peat management will be informed by the information from the site investigation, site surveys and visits and the evaluations undertaken by the multi-disciplinary team;
- Development of Geotechnical Risk register;



- 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 peat across the site & any required specialist peat parameters e.g. shear vane strength etc;
 - Access routes construction methodology;
 - Cable route construction methodology;
 - Foundation construction methodology;
 - Borrow Pits / quarry potential;
 - Earthworks and Material Balance calculations (rock won on site in relation to rock fill required during construction of roads, hardstands, crane pads etc.);
 - Peat Management Works;
 - Groundwater management, as required;
 - Drainage Design;
 - Overburden (Soils/Peat) 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, verifying landslide hazards and associated risk if identified; and
- Interpretation and reporting of all geological, hydrogeological & geotechnical data collected from preliminary site investigations, with reference to data within the Geotechnical & Soil Stability Report.

7.5 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 of the proposed wind farm.



8.0 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 wind farm 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 boundary and include watercourses which will receive surface water from the proposed development site.

8.3 SENSITIVE RECEPTORS

The proposed development is located adjacent to the Clochar an Chuilinn, along with several small watercourses which flow into the Gweebarra/ Owenwee (Doochary). There are also two lakes within the site boundary, Aneane More and Aneane Beg. The subject site is located in the Gweebarra Sub-Catchment (SC_010), which in turn is located within the Gweebarra-Sheephaven Catchment (WFD 38).

8.4 DESKTOP AND FIELD SURVEYS

A desktop 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
- Environmental Protection Agency (EPA).



8.5 HYDROLOGICAL ASSESSMENT

As part of the EIAR, TOBIN will establish baseline/existing hydrological conditions, identify potential impacts and proposed 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;
- Hydrological site walkover scheduled for 2021, to include assessment of potential interaction with ecological features; 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. The assessment of the water quality will be undertaken with the support of the ecological team who will also be analysing the aquatic ecology and water quality in the vicinity of the site.

TOBIN will also assess the potential for siltation as a result of the proposed wind farm, 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.

The hydrology and hydrogeology section of the EIAR will be carried out in accordance with guidance contained in the following:

- “Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports” (EPA, 2017);
- “Draft Advice Notes on Preparing Environmental Impact Statements” (EPA, September 2015);
- Inland Fisheries Ireland (2016) “Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites”
- IGI Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (2013);
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford;
- Good Practice During Wind Farm Construction (Scottish Natural Heritage, 2010);



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- CIRIA (Construction Industry Research and Information Association) 2006: Guidance on 'Control of Water Pollution from Linear Construction Projects' (CIRIA Report No. C648, 2006); and
 - CIRIA C697 SuDS Manual.

In addition to the Regulations and Guidelines above, the EIAR will be prepared in accordance with the currently adopted "Wind Energy Development Guidelines for Planning Authorities (2006)", with cognisance of the Department of Housing, Planning and Local Government (DHPLG, 2019) Draft Revised Wind Energy Development Guidelines.

8.6 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;
- Interpret and identify surface and groundwater linkages through specific water quality parameters;
- Establish baseline/existing conditions, identify potential impacts and propose appropriate mitigation measures.

8.7 FLOOD RISK ASSESSMENT

The OPW's National Flood Risk Assessment (PFRA) mapping and Flood Maps were reviewed. The site is not located in any Arterial Drainage Scheme Benefited Lands provided by the OPW. There have been no past flood event identified in or adjacent to the proposed site.

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;



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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 Cloghercor 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;
 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.

8.8 CUMULATIVE EFFECTS

Based on the evaluation 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 of the proposed wind farm.

9.0 AIR QUALITY AND CLIMATE

9.1 INTRODUCTION

The purpose of the Air Quality and Climate assessment will be to assess the potential impacts of the proposed wind farm on the Climate and Air environments. The development of renewable energy is identified as having the potential to be a clean form of energy production and as such to have a potential net beneficial effect on the Air Quality and Climate environments.

The climate impact assessment will consider the targets and objectives of the Climate Action Plan 2019 and how the project will contribute to achieving these targets. The assessment will also consider the direct and indirect effects of the project on climate change in the context of the current and proposed land use and consideration of national objectives on forestry development. It will be assessed in accordance with the EPA guidance document Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), Draft, August 2017² and the currently adopted “Wind Energy Development Guidelines for Planning Authorities (2006)”, with cognisance of the Department of Housing, Planning and Local Government (DHPLG, 2019) Draft Revised Wind Energy Development Guidelines.

9.2 STUDY AREA

The site of the proposed Cloghercor Wind Farm is located approximately 2km south of Doochary in western Donegal.

9.3 SENSITIVE RECEPTORS

Measurement results from the nearest suitable EPA air monitoring stations (Sligo Town and Letterkenny) will be reviewed and evaluated in order to assess the current environment in relation to sensitive (residential) receptors.

9.4 DESKTOP AND FIELD SURVEY

The climate assessment within the EIAR will consist of a general overview of the climate for the North-West Region. Specific meteorological data for the site will be obtained from the nearest meteorological and synoptic stations (data from Met Éireann). This information will provide historical and existing baseline information for the regional climate in this area.

² <https://www.epa.ie/pubs/advice/ea/EPA%20EIAR%20Guidelines.pdf>



The positive effects that wind farm developments have on climate will also be discussed in this chapter, as well as a CO₂ balance calculation for the proposed construction, operation and decommissioning of the development as well as the production and transport of turbine components to the site.

This air quality assessment will include the findings of a desk-based air quality assessment using available data from the Environmental Protection Agency in consideration of the Air Quality Standards Regulations, 2002 (SI No. 271 of 2002) and the EU Air Framework Directive.

9.5 CUMULATIVE EFFECTS

The air quality and climate assessment will also consider the potential cumulative impacts of other developments in the area including the cumulative contribution to decarbonisation strategies and national greenhouse gas reduction targets.



10.0 SHADOW FLICKER

10.1 INTRODUCTION

The purpose of the Shadow Flicker assessment will be to assess the potential shadow flicker-related impacts of the proposed wind farm to sensitive receptors (i.e. residential dwellings) 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 *“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 ten rotor diameters 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 EFFECTS

Cumulative impacts of shadow flicker from existing operational or consented wind farms will also be included in the assessment. 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.



11.0 MATERIAL ASSETS: AVIATION, TELECOMMUNICATIONS & ELECTROMAGNETIC INTERFERENCE

11.1 INTRODUCTION

This chapter will detail the telecommunications baseline environment of the Cloghercor Wind Farm 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 Telecommunications and Aviation Consultants will identify operators of telecommunications and aviation assets and determine, through consultation with them, whether there is 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 Cloghercor Wind Farm, 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:



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- 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 other wind farm developments and relevant infrastructure as part of this assessment.



12.0 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 during the construction, operational and decommissioning phases. The principal objectives of the Noise and Vibration assessment will be to specify appropriate limit values and mitigation measures to ensure that the impact on the noise sensitive receptors is minimised to an acceptable level.

12.2 STUDY AREA

The study area for the operational phase will cover at least the area predicted to exceed 30 dB L_{A90} when all existing and proposed turbines are at their maximum output noise level and will include all identified Noise Sensitive Locations (NSL's) that are within this area.

For the construction phase, all properties within 500m of the proposed construction activities or the nearest NSL if greater than 500m will be considered in the assessment.

Potential NSL's will include residential dwellings, commercial properties, derelict buildings, and pre-planning infrastructure (including relevant properties with 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.

12.3 RECEIVING ENVIRONMENT

Initial iterations of the noise model will be developed and expected noise levels predicted at the nearest noise sensitive locations. This initial exercise will be used to inform the selection of appropriate baseline noise monitoring locations in the vicinity of the site.

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. 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*" (GPG) and the associated supplementary guidance notes. The data analysis and reporting will be carried out applying relevant sections from the IOA Good Practice Guide and the following supplementary notes:



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- Supplementary Guidance Note 2: Data Processing and Derivation of ETSU-R-97 Background Curves, September 2014
 - Supplementary Guidance Note 4: Wind Shear, July 2014

Wind speeds during the surveys will be monitored at the onsite meteorological mast.

12.4 ASSESSMENT OF IMPACTS

The baseline work will characterise the noise climate existing in the area and facilitate the quantification of potential noise impact which may arise from the proposed development. The potential noise and vibration impacts will be considered for the following phases:

- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

12.4.1 CONSTRUCTION PHASE

Construction noise levels associated with various elements of the proposed development will be predicted at the facades of the closest noise-sensitive locations in the vicinity of the development by developing detailed construction calculations. All predictions 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 during construction will also be considered regarding the potential impact of residential amenity and structural damage to buildings.

12.4.2 OPERATIONAL PHASE

Noise levels will be predicted at all the identified noise sensitive locations. All predictions will be free field and done in accordance with appropriate guidance using a proprietary noise modelling package. The use of a computer-based noise model lends itself to ongoing evaluation of proposal and provides output that is detailed and extensive. Noise contour maps will be generated for the site noise models illustrating noise levels in the vicinity of the proposed turbines while the predicted noise levels at each receptor will be used for the impact assessment itself.



The results obtained from the prediction calculations will be used to assess the likely noise impact of the operation of the proposed turbines. This will include appropriate downwind assessments at various noise sensitive locations. Where necessary and possible, 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 existing and permitted windfarms will be undertaken.



13.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

13.1 INTRODUCTION

The Landscape chapter will describe the methods to be applied in the identification and assessment of landscape and visual impacts associated with the proposed Cloghercor Wind Farm.

13.2 STUDY AREA

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

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

In the case of this project, the blade tips will be over 100m high and, thus, the minimum ZTV radius required is 20 km 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 in addition to set back distances to receptors.

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.

Wind Energy within the Donegal County Development Plan is addressed in section 4. The CDP identifies a number of environmental sensitivity areas which include 'Areas of Especially High Scenic Amenity', 'Areas of High Scenic Amenity' and 'Areas of Moderate Scenic Amenity'. The CDP notes that no areas of County Donegal are classed as Low Value.



The Donegal Landscape Character Assessment identified the wind farm within LCA 29 – Fintown Valley and An Gaeltacht, an area of ‘Moderate Scenic Amenity (MSA)’.

There are a number of designated scenic views in the region (i.e. 25km) of the site, as shown in Figure 13-1 and described below:

- 1 - Views south and west across Dunlewy Lough from R251
- 2 - Views west towards Arranmore from the coastline north of Burtonport
- 3 - Views east and southeast across Lough Anure from Loughanure
- 4 - Views from the R254 Glendowan to Doochary Road
- 5 - Views northeast along Gweebarra River corridor from Docharry
- 6 - Views west from Crohy Head and southwest across Gweebarra Bay
- 7 - Views west across Gweebarra Bay from Dooey
- 8 - Views southeast across Lough Finn from R250
- 9 - Views from the R252 at Drumnaha and Cullion
- 10 - Views northeast and southwest across Gweebarra River from Gweebarra Bridge
- 11 - Views west from N56 at Maas
- 12 - Views north towards Inishkeel from Portnoo
- 13- Views in various directions from the R253 at north of the Reelan River
- 14- Views north from Lakaduff
- 15- Views northeast from the R230 west of Common Mountain
- 16- Views northwest from local road at Letterfad
- 17- Views along Eglisk River Valley
- 18- Views north and east from Edergole Bridge
- 19- Views northeast along the Barnesmore Gap from the N15
- 20- Views northwest towards Lough Eske from the N15.

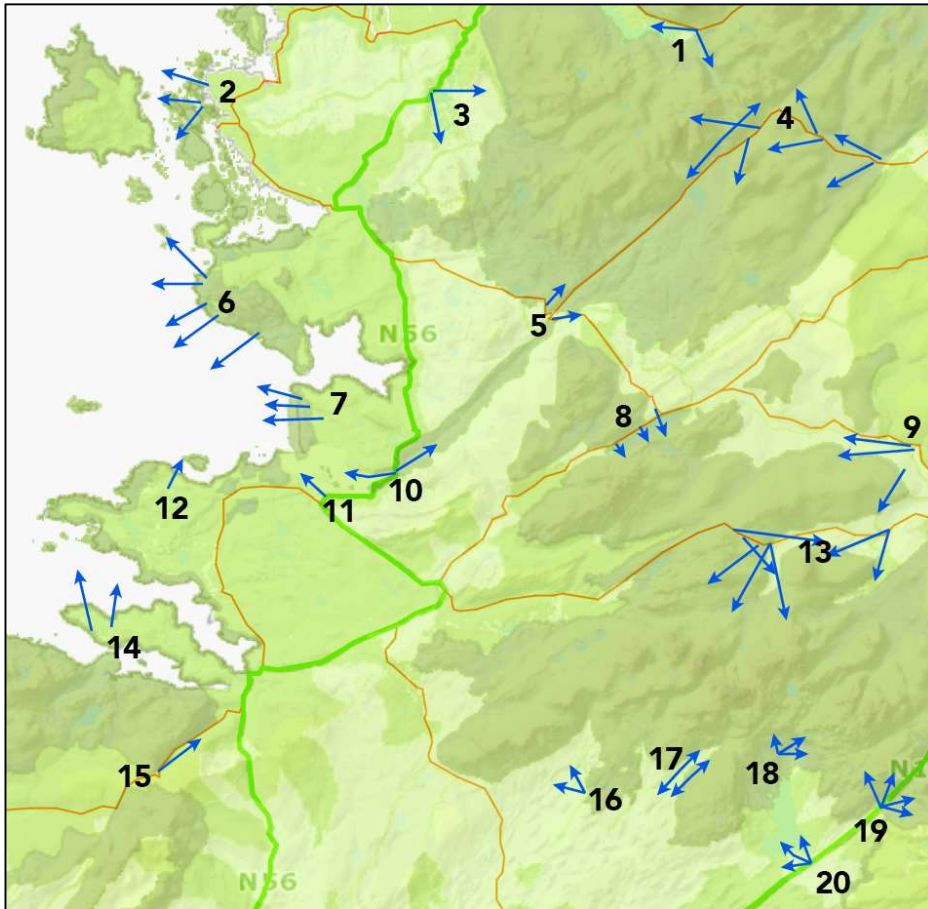


Figure 13-1 Designated scenic views near the proposed development site

Whilst the development is wholly located in County Donegal, it is important to consider wind energy policy/designations in the adjoining counties, as the proposed development may have the potential to influence these landscapes areas.

Visual receptors will be selected from the following categories;

- Designated scenic routes / views (CDP)
 - Protected views and prospects are identified in Table 20 of the current CDP.
- Local Community views (roads and residences within approximately 5km)
- Centres of Population
- Major Transport Routes
- 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 Zone of Theoretical Visibility (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.
- 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 (2013), the method for estimating the significance of landscape impacts and visual impacts is very similar. This is summarised in the diagram below.



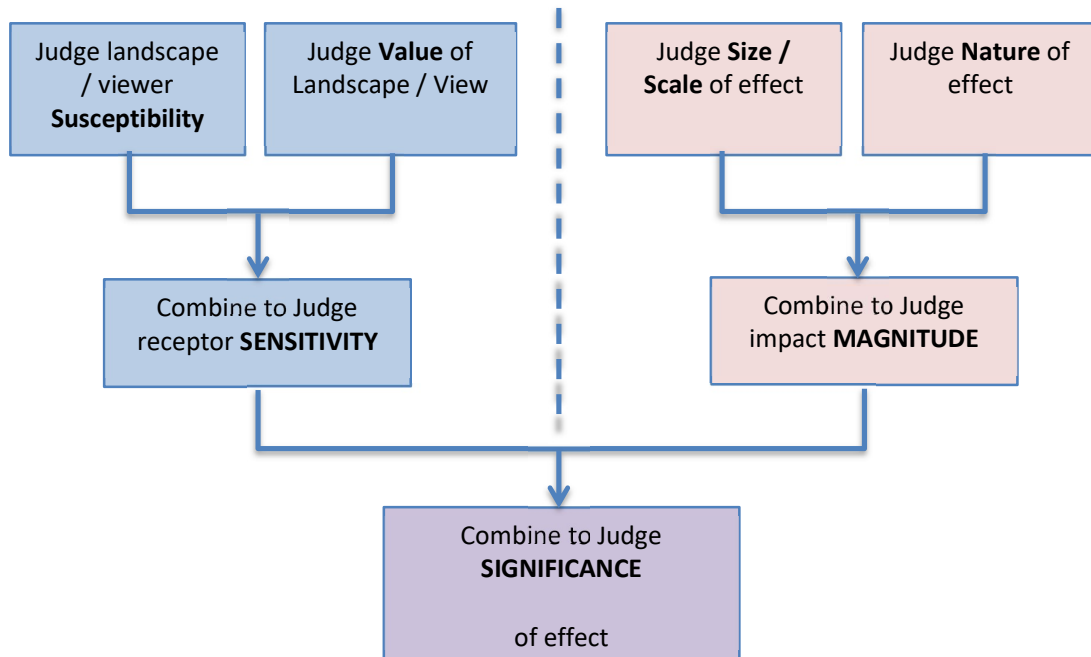


Figure 13-2 - Method for assessing Landscape Impact significance and Visual Impact significance (based on GLVIA - 2013)

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 SNH guidelines (2014).

In the case of Cloghercor Wind Farm, 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.

13.6 CUMULATIVE EFFECTS

There are no wind farms situated within 8km from the proposal site. Loughderryduff Wind Farm is situated c.4.8km to the southwest of the site, whilst Anarget Wind Farm c. 10.2km southeast of the site. A number of other wind farms are also situated in the wider study area.

Cumulative impacts will be assessed in accordance with the SNH 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.



14.0 FORESTRY

14.1 INTRODUCTION

The objectives of the Forestry section of the EIAR will be to describe the existing forest environment and the impact of the wind farm in relation to the ongoing operation of the forestry. Further environmental impacts associated with forestry felling and replanting e.g. ecology, water quality, etc. will be addressed in the relevant technical sections of the EIAR. The impacts associated with replacement planting required on suitable lands which will be identified by the applicant will also be addressed in the EIAR. These replacement lands may not be proximate to the Project.

14.2 IMPACT ASSESSMENT

The forestry impact assessment will include:

- Modelling of the temporary and permanent felling required for the wind farm as well as other silvicultural felling ongoing in the area to assess impacts in terms of felling coupe size, runoff and nutrient mobilisation and present mitigation measures against all impacts; and
- Assessment of all mitigation measures including replanting and any replacement lands required for the project.

Permanent felling requirements, while ensuring constructability, will be the minimal possible and will be determined based on turbine manufacturers requirements and any environmental or other mitigation measures proposed.

14.3 METHODOLOGY

The typical methodology for completing this assessment is as follows:

- 1) Establish Baseline/existing conditions of area to be felled (including adjacent felled areas):
 - Area of impacted forest (temporary and permanent felling area)
 - Ages of forest
 - Species planted
 - Standing Volume (Carbon)
 - Soil Conditions
 - Aquatic areas
 - Archaeological features



-
- Biodiversity and habitat features
 - Landscape Assessment
 - Proximity to Natura site
- 2) Potential Forest Impacts: The potential impacts that will be identified and monitored are:
- Soil disturbance and compaction
 - Carbon loss
 - Water quality (sediment & nutrient)
 - Archaeological sites
 - Biodiversity impact
 - Landscape impact
- 3) Site Mitigation Measures: Comprehensive planning and operations will protect environmental resources outlined in the forestry felling and harvest plans.

14.4 MITIGATION MEASURES

Buffer and Exclusion Zones

Identify the appropriate buffer width and exclusion zones for aquatic, biodiversity, landscape and archaeological features in the felling area.

Ancillary structures

Provide details and location for ancillary structures, such as:

- temporary bridges where machine routes cross aquatic zones;
- sediment traps/silt fences in drains where considerable sediment flow is expected;
- brash mats to reinforce short sections of soft ground subject to high traffic usage;
- log steps on steep routes to prevent the flow of sediment-laden surface water.

Site restoration

Outline site restoration procedures to be undertaken, including replace damaged culverts, clearing and repairing drains, sediment traps, correctly disposal of hazardous materials, and removing log bridges and other temporary structures as necessary.

Wildlife habitats and biodiversity

Ensure that biodiversity zones and important wildlife habitats retained for biodiversity are protected during harvesting. Assess harvest operations with due regard to the breeding and nesting seasons of important species, and associated features such as badger setts and



heronries. Important species to consider include birds of prey, badger, bats, red deer, hare, hedgehog, otter, pine marten and red squirrel.

Method of harvesting and the harvesting machinery

Assess impact on soil, road network, habitats, water courses etc. and identify machinery to suit harvest system, soils, terrain, environment and forest road network.

Replanting Lands

Identification of replacement land area in line with the Forest Service Policy on the Granting of Felling Licences for Wind Farm Development. An environmental assessment of the planting of replacement land will be assessed as part of the EIAR.



15.0 CULTURAL HERITAGE

15.1 INTRODUCTION

The principle aim of the Cultural Heritage Assessment is to anticipate and avoid impacts on the cultural heritage resource. Detailed constraints mapping in 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.

15.2 STUDY AREA

The Study Area will be mapped in GIS and the cultural heritage resources will be identified 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.

15.3 SENSITIVE RECEPTORS

Archaeological and architectural sites will be reviewed in GIS to ascertain whether there is a potential for direct or indirect impacts or for impacts on their setting. Where sites are in visually prominent locations and may be susceptible to impacts on their setting these will also be mapped. Sensitive receptors within and in the vicinity of the study area of the proposed Cloghercor Wind Farm will be identified as part of the scoping, constraints and EIA process. There are no recorded archaeological monuments (Record of Monuments and Places) or architectural sites (Record of Protected Structures) within the site boundary, though there are several vernacular heritage features. Close to the northwest of the site is a megalithic structure (DG058-005); other monuments in the surroundings include a holy well and bullaun stone (DG058-002) on the west side of the Gweebarra River. Further afield, Inishkeel is the location of a medieval monastery founded by St Connell in the 6th century which is a National Monument (NM658, DG064-003).

15.4 DESKTOP AND FIELD SURVEYS

This study will aim to assess the baseline archaeological, architectural and cultural heritage environment to evaluate the potential or likely impacts that the proposed development will have on the environment and, where appropriate, to suggest mitigation measures to ameliorate potential impacts, in accordance with the policies of:



- Department of Housing, Local Government and Heritage;
- The National Monuments Acts (1930-2005);
- Donegal County Development Plan (2018-2024); and
- Best practice guidelines, policies and frameworks as listed below:
 - Department of Culture, Heritage and the Gaeltacht, 1999. Frameworks and Principles for the Protection of the Archaeological Heritage, Government publications, Dublin.
 - Department of Culture, Heritage and the Gaeltacht, 1999. Policy and Guidelines on Archaeological Excavation. Government Publications, Dublin.
 - Department of the Communications, Climate Action and Environment 2000. Landscape and Landscape Assessment. Guidelines for Planning Authorities.
 - EPA 2015. Revised Guidelines on the Information to be contained in Environmental Impact Statements - Draft
 - EPA 2015. Advice Notes for Preparing Environmental Impact Statements – Draft.
 - The Heritage Council 2000. Archaeology & Development: Guidelines for Good Practice for Developers. Kilkenny: The Heritage Council of Ireland.
 - Donegal County Development Plan 2018-2024. Donegal County Council.
 - The Planning and Heritage Section of the Department of Communications, Climate Action and Environment. Sites and Monuments Record, County Dublin.
 - MoLAS 1994. Museum of London Archaeology Service Archaeological Site Manual. Third Edition.
 - National Monuments Act 1930-2004.

All known cultural heritage sites within the project area and buffer zones will be reviewed on the Archaeological Survey of Ireland (ASI) along with aerial photography and Ordnance Survey Ireland (OSI) mapping. Sites to be mapped include the following:

- UNESCO World Heritage Sites including the tentative list of candidate sites;
- National Monuments, be they in the ownership or guardianship of the State, in the ownership of a local authority or monuments under preservation orders;
- Record of Monuments & Places (RMP) and Sites and Monuments Record (SMR) from www.archaeology.ie;
- Records of Protected Structures from Donegal County Council;
- National Inventory of Architectural Heritage (NIAH) for Co. Donegal; and
- Demesnes Landscapes and Historic Gardens indicated on the OSI First Edition Mapping.

The initial studies of the site have shown archaeological features and monuments within and around the site that include:

- Megalithic structure (DG058-005) in Clogherachullion
- Tobar Shorcha – holy well (DG058-001) in Doocharry
- Holy well (DG058-002001) and bullaun stone (DG058-002002) in Derryleconnel
- Lettermacaward Church (DG065-010001), graveyard (DG065-010002) and ecclesiastical enclosure (DG065-010003)
- Inishkeel monastic complex (NM658, DG064-003)



Following completion of the preliminary baseline study and preliminary assessment of impacts, and, subsequent to developing the site layout, a final programme of fieldwork will be undertaken to ground truth the results of the desk-based work and ascertain the likely potential significance of the impacts that the proposed development may have on the cultural heritage resource. Sites that may experience impacts from the proposed development will be visited and the potential impacts qualified and quantified in line with EPA guidelines.

The authors of the Cultural Heritage EIA chapter will work with the Landscape specialists to highlight the most important archaeological and architectural sites and coordinate with them in the production of photomontages from the most sensitive archaeological and architectural receptors as required.

The scope and extent of the cultural heritage chapter will be appropriate to form the basis of the EIA to be submitted with the application. A detailed assessment will be carried out on any potential impacts that the proposed development may have on the cultural heritage resource, based on analysis of the data sources listed above and elsewhere herein. This will include both direct and indirect impacts. Any potential impacts identified will be discussed with the project team and amendments made to the proposed design where possible to eliminate or minimise the potential impact.

15.5 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.

16.0 TRAFFIC AND TRANSPORT

16.1 INTRODUCTION

The purpose of the traffic impact assessment will be to assess the potential impacts of the proposed wind farm 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.

16.2 STUDY AREA

The national road, the N56, is approximately 1.6km from the current proposed Cloghercor Wind Farm site. A network of regional and local roads including the R250, R252, and the L6363 are in the vicinity of the site with local access to the existing site access and internal haul roads.

16.3 SENSITIVE RECEPTORS

As detailed in Section 5, sensitive receptors in the vicinity of the proposed wind farm will be identified as part of the scoping and EIAR process.

16.4 DESKTOP AND FIELD SURVEY

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 primarily focus on the impacts that will be associated with the construction of the wind farm. Traffic volumes arising from the operational and decommissioning phases will also be assessed, but are anticipated to be significantly lower. 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 reducing 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 EIA 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 construction methodology, 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 Donegal County Council 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. A Pavement Assessment will include a Video Survey of existing route and development of development specific million standard axle design data to inform the Pavement Assessment output. A separate report, a Traffic and Transportation Assessment Report, will be appended to the EIAR.

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 N56 national road, with links to ports in Galway, Dublin and Killybegs is a benefit to the site location.



A Construction Traffic Management Plan will be prepared for the Haul Route for the construction traffic and the abnormal load haul route, outlining

- Objectives
- Existing site conditions
- Proposed Construction (Traffic volumes, staffing levels, construction equipment and Abnormal Loads)
- Proposed Traffic Management Plan (Accesses, Signage, Vehicle Routing, Material Deliveries, Construction Speed Limits, Road Cleaning and CTMP Enforcement); an
- Proposed Emergency Procedures for the Construction Stage

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

16.5 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.



17.0 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.

18.0 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.

19.0 CONSULTATION

19.1 SCOPING CONSULTATION

Following the preliminary design of the Cloghercor Wind Farm layout and turbine locations, the project team is currently consulting with the bodies listed below, which will allow sufficient time for receipt of meaningful feedback, which will be incorporated into the baseline studies and assessments for the EIAR and Planning Application

A request to enter into pre-application consultation with An Bord Pleanála will shortly be submitted to the Board.

Consultee List
Prescribed Bodies
Donegal County Council -
Department of Environment, Climate and Communications
Department of Culture, Heritage and the Gaeltacht
Department of Housing, Local Government and Heritage
Department of Agriculture, Food and Marine
Transport Infrastructure Ireland
An Taisce - The National Trust for Ireland

Fáilte Ireland
The Heritage Council
Northern and Western Regional Assembly
Inland Fisheries Ireland
Waterways Ireland
Irish Aviation Authority
Ireland West Airport (Knock Airport)
Donegal Airport
Coras Iompair Éireann (CIE)
Department of Transport
Health and Safety Executive
Commission for Regulation of Utilities
Irish Water
Department of Defence
Other Consultees
Geological Survey of Ireland
BirdWatch Ireland
Teagasc
Irish Raptor Study Group
The Arts Council
Environmental Protection Agency
Health & Safety Authority
Sustainable Energy Authority of Ireland
Irish Wildlife Trust
Bat Conservation Ireland
Office of Public Works



Forest Service
Mountaineering Ireland
Irish Trails/Sport Ireland
Met Eireann

Additional consultees will be added to this list as required throughout the preparation of the EIA and through discussions with the planning authority and local authority.

19.2 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. While the restrictions associated with the Covid-19 pandemic have meant that such consultation is not in the traditional face-to-face format, it is nonetheless an important part of the process that is utilising alternative formats such as virtual consultation rooms, leaflets and a website.

A Community Liaison Officer (CLO) has been appointed as the point of the contact for the Project and has begun engaging with the local community. 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. An initial newsletter drop has been carried out in April 2021 for all properties within 5km of the proposed development as a way to introduce the project to the community while adhering to the ongoing Covid-19 restrictions..

Contact details for the project team have been provided via the local newsletter drop, for local residents to get in touch with any queries or comments regarding the design and assessment of the proposed project as it progresses.

TOBIN and its sub-consultants will be providing assistance to the applicant Engagement Team where needed, particularly in areas where technical specialist knowledge is required.



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