FEHILY TIMONEY
30 YEARS

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED CROAGHAUN WIND FARM, CO. CARLOW

VOLUME 2 – MAIN EIAR

CHAPTER 1 - INTRODUCTION

Prepared for: Coillte

COILLTE
GROW · TRANSFORM · SUSTAIN

Date: December 2020

Core House, Pouladuff Road, Cork
T12 D773, Ireland

T: +353 21 496 4133 | E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Fehily Timoney & Company (FT) has prepared this environmental impact assessment report (EIAR) on behalf of Coillte CGA. Coillte intends to apply to Carlow County Council for planning permission to construct the proposed Croaghaun Wind Farm, near Myshall, County Carlow. The location of the proposed wind farm is shown on Figure 1-1.

The proposed turbines are located at Croaghaun Hill on the northern slopes of the Blackstairs Mountains, approximately 2.5km south east of the village of Myshall and approximately 6km west of Bunclody. The proposed Croaghaun Wind Farm site as indicated in Figure 1-1 includes lands contained within the following townlands: Aclare, Bealalaw, Cranemore, Kilbrannish North, Raheenliegh and Rossacurra.

The proposed turbine delivery route passes through the following townlands: Ballinturner, Ballynabarney, Ballynahallin, Barnahask, Carrickduff, Clavass, Clonmullen, Collnahorna, Coolattin, Deerpark New, Farmley, Kilcanon Killbranish North, Killbranish South, Mountfin Lower, Moyeady, Newtownberry, Ryland Lower, Ryland Upper, Skeahanagh, Tomacurry, Tombrick and Tomgarrow.

The underground grid connection route connecting the wind farm to the national grid at the Kellistown Substation traverses the following townlands; Aclare, Ardbearn, Ballaghmore, Ballinrush, Ballycurragh, Ballynunnery, Bealalaw, Bendinstown, Cappawater, Croanruss, Emlicon, Gilbertstown, Kellistown East, Kellistown West, Killane, Kilknock, Kilmaglush, Lasmaconly, Myshall, Raheenkillane, Rathtoe, Rossacurra, Shangarry and Turtane.

The proposed grid connection to the national grid at Kellistown substation including the associated new off-site substation are considered as part of the project's assessment in this EIAR but does not form part of this application for consent. Equally an assessment has been carried out for replant lands at Crag, Co. Limerick and Sroove, Co. Sligo and is also not included in the application for consent.

All elements described above form part of the project and are assessed in this EIAR.

1.1 Applicant

The application for the proposed Croaghaun Wind Farm is being made by Coillte CGA (Coillte). Coillte manages approximately 7% of Ireland's land and operates three businesses with the core business being commercial forestry. Coillte is harnessing wind energy on the estate and aims to build responsible projects that are good for the environment, for Irish society and positively benefit the neighbouring community. 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) up to 2030.

1.2 Outline of the Proposed Development

The proposed project consists of four main elements:

- Croaghaun Wind Farm;
- Turbine delivery route (TDR);
- Grid connection;
- Replant Lands.

The proposed Croaghaun Wind Farm will consist of up to 7 no. wind turbine generators (WTG's), 1 no. meteorological mast, construction of new site tracks, the upgrade of existing forestry tracks and 1 no. substation compound along with ancillary civil and electrical infrastructure.

The total Maximum Export Capacity (MEC) of the wind farm is up to 38.5MW. The exact MEC will be dependent on the output power of the models available at procurement stage. However, for the purpose of this assessment the proposed turbines will have the following specifications:

- Three bladed, horizontal axis type turbine;
- Maximum height envelope of up to 178m from top of foundation to blade tip height;
- Maximum rotor diameter of up to 138m.

The exact make and model of the turbine will be dictated by a competitive tender process, but it will not exceed the maximum size envelope set out above. Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics with only minor cosmetic differences differentiating one from another.

The associated grid connection cable which will connect the on-site substation to the existing 220kV substation at Kellistown within the townland of Kellistown East, County Carlow will be ca. 21.5km in length with ca. 20.3 km to be constructed primarily within the existing road corridor. The 38kV grid connection cable will follow public roads and shall feature horizontal directional drilling (HDD) at up to 8 no. locations to cross existing watercourses and the N80 National Road.

Works will also be required in proximity to the existing substation at Kellistown to accommodate the proposed project. The works will allow the voltage from the wind farm grid connection to be 'stepped up' to 110kV. This will comprise a self-contained substation compound located adjacent the existing substation in a neighbouring field. Two locations have been assessed for this off-site substation as part of this EIAR.

Large components associated with the wind farm construction will be transported to site via the identified turbine delivery route (TDR). It is proposed that turbine deliveries shall approach the site from the East via Dublin Port, the M11, the N80 and the L2026 Barkers Road through the town of Bunclody. Turbine delivery vehicles shall turn at Kilbrannish North and enter the site from the West.

Temporary accommodation works will be required at selected locations along the TDR to facilitate the oversized deliveries to the site in the townlands of Ballynahallin and Carrickduff, County Wexford and Kilbrannish North and Kilbrannish South, County Carlow.

The development shall include the opening of 1 no. borrow pit on site. The proposed borrow pit shall provide site-won stone that will significantly reduce the amount of construction aggregates that would need to be delivered to site. The proposed borrow pit shall also act as a soil deposition area which will avoid the need to export excess spoil to off-site facilities.

The proposed development will include the upgrade of 2.74 km of existing forest tracks and paths that shall be re-purposed as recreational amenity trails for community use as part of the project, including signage and way markers.

Replant lands have been identified at Sroove, Co. Sligo and Crag, Co. Limerick. These lands will be planted in lieu of the proposed tree felling required to accommodate the project. Tree felling will be subject to a felling licence.

The construction of the project in its entirety is expected to take between 12 – 18 months.

All elements of the project as described above are assessed in this EIAR, however, the proposed grid connection to the national grid at the Kellistown substation including the associated new off-site substation and works required along the turbine delivery route do not form part of this application for consent. Equally an assessment has been carried out for replant lands at Crag, Co. Limerick and Sroove, Co. Sligo and is also not included in the application for consent. The replant lands are assessed in Appendix 3.3 and 3.4 and are considered cumulatively under each EIAR chapter.

A detailed description of the proposed Croaghaun Wind Farm is included in Chapter 3: Description of the Proposed Development.

The development description as per the statutory newspaper notice and the application form for which consent from Carlow County Council is being sought is as follows:

- Construction of up to 7 no. wind turbines with a maximum overall blade tip height of up to 178m;
- Construction of turbine foundations and crane pad hardstanding areas;
- Construction of new site tracks and associated drainage infrastructure;
- Upgrading of existing tracks and associated drainage infrastructure where necessary including upgrade of entrance onto L2026.
- All associated drainage and sediment control including , the Installation of new watercourse or drain crossings and the re-use or upgrading of existing internal watercourse and drain crossings;
- Construction of 1 no. permanent onsite 38kV electrical substation to ESBN specifications including:
    - Control building with welfare facilities;
    - Electrical infrastructure;
    - Parking;
    - Wastewater holding tank;
    - Rainwater harvesting;
    - Security fencing;
    - All associated infrastructure, services and site works.
- 1 no. Temporary construction site compound and associated ancillary infrastructure including parking;
- 1 no. on site borrow pit (the borrow pit shall be accessed via wind farm access tracks);

- Tree felling to facilitate construction and operation of the proposed development;
- Installation of medium voltage (20/33kV) and communication underground cabling between the proposed turbines and the proposed on-site substation and associated ancillary works;
- Erection of 1 no. permanent meteorological mast to a maximum height of 100m above ground level;
- Upgrade of existing forest tracks and paths that shall be re-purposed as recreational amenity trails for community use including signage;
- All associated site development works;
- A 10 year planning permission and 35 year operational life from the date of commissioning of the entire wind farm.

Path: R:\Map Production\2019\P1913\Workspace\EIAR\P1913_GIS_Fig1_SiteLocation_A3.mxd

BALTINGLASS

AUGHRIM

CARLOW

CASTLECOMER-DONAGUILE

TULLOW

MUINEBEAG

KILKENNY BOROUGH KILKENNY

BUNCLODY-CARRICKDUFF

GRAIGUENAMANAGH-TINNAHINCH

THOMASTOWN

Dublin

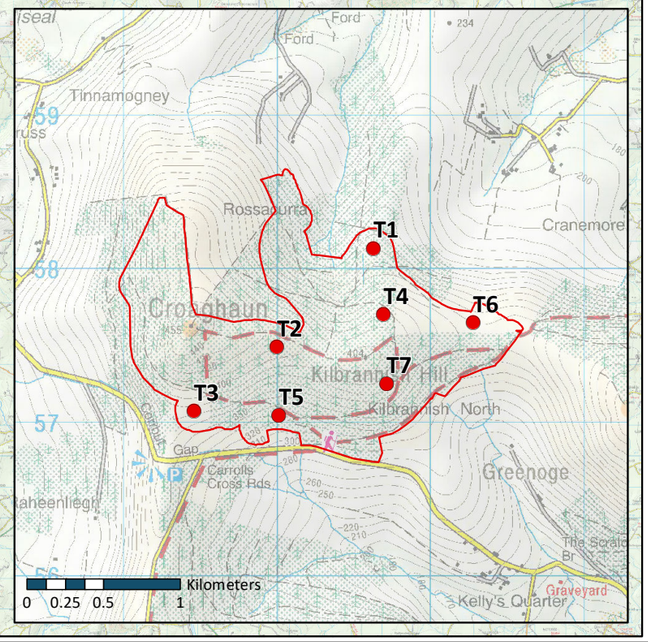
IRELAND

St. George's Channel

Proposed Turbine Layout

Proposed Development Boundary

County Carlow Boundary



N W E S

Kilometers
0 2.5 5 10

TITLE:	Site Location		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	1		
CLIENT:	Coillte		
SCALE:	1:200000	**REVISION:**	0
DATE:	16/11/2020	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

1.3 Requirement for EIAR

Under Section 172 of the Planning and Development Act (the Planning Act), as amended, a planning application for a development which comes within a class of development specified under Schedule 2 of Part 5 of the Planning and Development Regulations must be accompanied by an Environmental Impact Assessment Report. Accordingly, as the proposed development has more than 5 no. turbines and generating capacity of greater than 5MW this proposed development has been subject to impact assessment studies and an EIAR has been prepared in accordance with the Planning and Development Regulations 2001 as amended.

This report constitutes an Environmental Impact Assessment Report (EIAR) in accordance with the Directive 2011/92/EU (the EIA Directive) as amended by Directive 2014/52/EU and complies fully with the EIA Directive as amended.

A Natura Impact Statement (NIS) has also been submitted with this application.

1.4 EIAR Methodology and Structure

The Environmental Impact Assessment Report (EIAR) is a report of the effects, if any, which a proposed development, if carried out, would have on the environment. The EIAR provides the Competent Authority and the public with a comprehensive understanding of the project, the existing environment, the impacts and the mitigation measures proposed.

The Competent Authority is obliged to carry out an Environmental Impact Assessment (EIA). The obligations imposed on the Competent Authority by the EIA Directive are set out in Part X of the Planning Act.

Article 3 of the EIA Directive as amended states that an *"environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in points (a) to (d)"

1.4.1 EIAR Methodology

The EIAR has been prepared in accordance with Directive 2011/92/EU as amended by Directive 2014/52/EU (the EIA Directive). Schedule 6 of the Planning and Development Regulations 2001 (as amended) and Article 5 of the EIA Directive set out the information to be contained in an EIAR.

In addition, in the preparation of this EIAR a scoping of possible impacts of the proposed development was carried out to identify impacts thought to be potentially significant, not significant or uncertain.

Consultation with the relevant private and public agencies ensured that the most significant impacts and the areas of key concern were addressed. Details of the consultation carried out to date for the proposed development are outlined in Chapter 5: EIA Scoping, Consultation and Key Issues of this EIAR.

Schedule 6 of the Planning and Development Regulations 2001 (as amended) describes the information to be contained in EIAR:

1.

a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development;

b) A description of the likely significant effects on the environment of the proposed development;

c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development;

d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.

2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:

a) A description of the proposed development, including in particular –

i. A description of the location of the proposed development;

ii. A description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;

iii. A description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and;

iv. An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during construction and operation phases.

b) A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;

c) A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;

d) A description of the factors specified in paragraph (b)(i) (I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for

example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;

e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things-

(I) the construction and existence of the proposed development, including, where relevant, demolition works,

(II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,

(III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,

(IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),

(V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,

(VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and

(VII) the technologies and the substances used, and;

(ii) the description of the likely significant effects of the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;

f) A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;

g) A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;

h) A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

The assessment of environmental impacts has been conducted having regard to the guidance set out in the following:

- *Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)*
- *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, Draft, 2017)*
- *Advice Notes for Preparing Environmental Impact Statements (EPA, Draft 2015)*
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, 2018)*
- *Wind Energy Development Guidelines for Planning Authorities (DoEHLG, 2006)*
- *Draft Revised Wind Energy Development Guidelines (DoHPLG, 2019)*
- *European Commission Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment, EU 2013*
- *Planning and Development Acts 2000-2019*

The EIAR firstly sets out the planning context, the background to the project, the need for the development, a description of the evolution of the project through the alternatives considered and a description of the proposed development. This sets the reader in context as to the practical and dynamic process undertaken, in order to arrive at the layout and design of the proposed development that will cause least impact on the environment.

Subsequent chapters deal with specific environmental topics for example, traffic & transportation, air quality & climate change, hydrology & water quality, noise, etc. These assessments involve specialist studies and evaluations. The methodology applied during these specific environmental assessments is a systematic analysis of the proposed development in relation to the existing environment. The broad methodology framework for these assessments is outlined below and is designed to be clear, concise and allow the reader to logically follow the assessment process through each environmental topic. In some instances, more specific topic related methodologies are outlined in the relevant chapters of the EIAR.

The broad methodology framework used in all chapters includes:

- Introduction
- Methodology
- Existing Environment
- Potential Impacts
- Mitigation Measures
- Residual Impacts

Introduction

This section generally introduces the environmental topic to be assessed and the areas to be examined in the assessment.

Methodology

Specific topic related methodologies are outlined in this section. This will include the methodology used in describing the existing environment and undertaking the impact assessment. It is important that the methodology is documented so that the reader understands how the assessment was undertaken. This can also be used as a reference if future studies are required.

Existing Environment

An accurate description of the existing environment is necessary to predict the likely significant impacts of a proposed development. Existing baseline environmental monitoring data can also be used as a valuable reference for the assessment of actual impacts from a development once it is in operation.

To describe the existing environment, desktop reviews of existing data sources were undertaken for each specialist area. This literature review relied on published reference reports and datasets to ensure the objectivity of the assessment.

Desktop studies may also be supplemented by specialised field walkovers or studies in order to confirm the accuracy of the desktop study or to gather more baseline environmental information for incorporation into the EIAR.

The existing environment is evaluated to highlight the character of the existing environment that is distinctive and what the significance of this is. The significance of a specific environment can be derived from legislation, national policies, local plans and policies, guidelines or professional judgements. The sensitivity of the environment is also described.

Potential Impacts

In this section, individual specialists predict how the receiving environment will interact with the proposed development. The full extent of the proposed development's potential effects and emissions before the proposed mitigation measures are introduced is outlined here. Potential impacts from the construction, operational and decommissioning phases of the proposed development are outlined. Interactions and cumulative impacts with other environmental topics are also included in this evaluation.

The evaluation of the significance of the impact is also undertaken. Where possible, pre-existing standardised criteria for the significance of impacts will be used.

Such criteria can include Irish legislation, international standards, European Commission and Environmental Protection Agency (EPA) guidelines or good practice guidelines. Where appropriate criteria do not exist the assessment methodology section states the criteria used to evaluate the significance.

Mitigation Measures

If significant impacts are anticipated mitigation measures are devised to minimise impacts on the environment. Mitigation measures by avoidance, by reduction and by remedy can be outlined.

Residual Impacts

The assessment identifies the likely impact that will occur after the proposed mitigation measures have been put in place. These impacts are described in detail and assessment of their significance undertaken.

1.4.2 EIAR Structure

The EIAR has been prepared using the "grouped format structure" as outlined in EPA guidance documents (EPA, 2002; EPA, 2003) and in line with the draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2017). The format of this EIAR is designed to ensure that standard methods are used to describe all sections of the EIAR.

Using this structure there is a separate chapter for each topic, e.g. air quality and climate, biodiversity, hydrology. The description of the existing environment, the proposed development and the potential impacts, mitigation measures and residual impacts are grouped in the chapter. The grouped format makes it easy to investigate topics of interest and facilitates cross-reference to specialist studies.

The Main EIAR consists of the following chapters:

- Chapter 1 - Introduction
- Chapter 2 - Need for the Development and Alternatives Considered
- Chapter 3 - Description of the Proposed Development
- Chapter 4 - Policy
- Chapter 5 - EIA Scoping, Consultation and Key Issues
- Chapter 6 - Air Quality and Climate
- Chapter 7 - Noise and Vibration
- Chapter 8 - Biodiversity
- Chapter 9 - Land, Soils & Geology
- Chapter 10 - Hydrology and Water Quality
- Chapter 11 – Population, Human Health & Materiel Assets
- Chapter 12 – Shadow Flicker
- Chapter 13 - Traffic & Transportation
- Chapter 14 - Archaeology, Architectural and Cultural Heritage
- Chapter 15 - Landscape & Visual
- Chapter 16 - Telecommunications and Aviation
- Chapter 17 - Interactions of the Foregoing

The EIAR is structured as follows:

Volume 1 – Non-Technical Summary (NTS) (including figures)
Volume 2 – Main EIAR
Volume 3 – Appendices to the Main EIAR
Volume 4 – Landscape and Visual Maps and Photomontages

It should also be noted, for the sake of completeness, that a separate Natura Impact Statement (NIS) has also been submitted with the application. The application is also supported by a Planning Cover Letter and Planning Drawings.

1.4.3 Cumulative Impact

The potential cumulative impact of the Project has been assessed in line with Annex IV of the EIA Directive which provides that the EIAR must contain a description of the likely significant effects of the project on the environment resulting from the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.

The assessment of projects in combination with other projects has four principal aims:

1. To establish the range and nature of existing projects within the cumulative impact study area of the Project.
2. To summarise the relevant projects which have a potential to create cumulative impacts.
3. To establish anticipated cumulative impact findings from expert opinions within each relevant field. Detailed cumulative impact appraisals are included in each relevant section of the EIAR.
4. To identify the projects that hold the potential for cumulative or in combination effects and screen out projects that will neither directly or indirectly contribute to cumulative or in combination impacts.

Assessment material for this cumulative impact appraisal was compiled on relevant developments within the vicinity of the proposed Croaghaun Wind Farm project, including the length of the proposed grid connection route and TDR. For the purpose of Cumulative Assessment of Landscape and Visual, all existing and approved wind farms and wind farms pending a decision from the planning authority within 20km from the outermost turbines of the proposed Croaghaun Wind Farm were identified for Cumulative Visual Assessment. This study area is derived from the Wind Energy Development Guidelines (2006) and is further detailed in Section 15.1.3 of the EIAR.

All existing and approved projects and projects pending a decision from the planning authority within 15km of the proposed Croaghaun Wind Farm were considered for potential Cumulative Assessment in all other chapters of this EIAR. This measurement was taken from the outermost turbines of the proposed Croaghaun Wind Farm.

All existing and approved projects and projects pending a decision from the planning authority within 15km of the existing Kellistown Substation (where the proposed project connects to the national grid) were considered for potential Cumulative Assessment in all other chapters of this EIAR.

All existing and approved projects and projects pending a decision from the planning authority within 100m of the grid route and TDR were considered for potential Cumulative Assessment in all other chapters of this EIAR.

The material for the cumulative assessment was gathered through a search of relevant County Councils' Online Planning Registers, the An Bord Pleanála website and the EIA Portal. Relevant EIA documents, planning application details and planning drawings were reviewed, which served to identify the locations of existing and approved projects and projects pending a decision from the planning authority, their activities and their environmental impacts.

The relevance of the projects was considered on a case by case basis in each chapter as necessary depending on the interaction and likelihood of in combination impacts.

The lands at Sroove, Co. Sligo and Crag, Co. Limerick form part of the overall project and relate to replant lands. These, given their location have been assessed in detail in Appendix 3.3 and 3.4 of this EIAR but are considered cumulatively with other elements of the wind farm project in each chapter in the main EIAR. For information it is noted that there will be no commercial forestry activity in the surrounding forest during the construction period and hence no potential for cumulative effects.

A full list of projects identified for cumulative assessment is set out in Appendix 1.2 of Volume 3 of this EIAR. Some of the existing and approved projects and projects pending decision from the planning authority listed in Appendix 1.2 which were found to be relevant for the cumulative assessment include:

- Existing Greenoge Wind Farm
- Existing Kellistown Substation
- Consented Battery Storage Facility at Kellistown
- 3 no. solar farm developments in proximity to the Grid Route
- Existing and permitted wind farms within 20km of the study area for visual impact assessment
- Existing forestry activities in proximity to the wind farm site.

1.4.4 Approach to the Wind Energy Development Guidelines

Croaghaun Wind Farm has been designed in accordance with the current Section 28 Ministerial Guidelines (section 28 of the Planning and Development Act 2000, as amended), Wind Energy Guidelines 2006. We are aware that these guidelines are subject to targeted review. The layout and design of the wind farm has the ability to comply broadly with the "Draft Revised Wind Energy Development Guidelines", published by the Department of Housing, Planning and Local Government (December 2019).

Further to this the proposed layout has sought to achieve an optimum separation distance between dwellings and the proposed turbines by providing a separation distance of a minimum 750m between turbines and the closest dwellings. The Draft Revised Guidelines outlines a minimum 500m or 4 times tip height set back. There is one dwelling located within 1km of the wind turbines at a distance of 984m.

1.5 Contributors to the EIAR

Fehily Timoney and Company (FT) is a consultancy based in Cork, specialising in civil and environmental engineering, and environmental science. FT is well established as a leading consultancy in wind farm development in Ireland. The company has established a professional team specialising in wind farm development. This team has the support of many in-house engineers, scientists and planners.

FT was retained by the applicant to undertake the detailed environmental assessment and prepare the EIAR for the proposed development, as well as preparing the application for consent for submission to Carlow County Council.

Specialist and competent experts that contributed to and are responsible for each EIAR chapter/topic are outlined in Table 1-1. Curricula Vitae of contributors are presented in Appendix 1.1 of Volume 3 of this EIAR wherein the competence, experience and relevant qualification(s) for each expert is detailed.

Table 1-1: Contributors to the EIAR

EIAR Topic	Company	Name and Qualifications
Chapter 1 – Introduction	FT	Eamon Hutton, BSc, MSc, MIPI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 2 - Need for the Development and Alternatives Considered	FT	Eamon Hutton, BSc MSc, MIPI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 3 – Description of the Development	FT	Trevor Byrne, BSc, MSc, MIEI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 4 – Policy	FT	Eamon Hutton, BSc MSc, MIPI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 5 – EIA Scoping, Consultation and Key Issues	FT	Eamon Hutton, BSc, MSc, MIPI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 6 – Air Quality and Climate	FT	Dr. Elaine Bennett, BSc, PhD (Co-author) Donna O' Halloran, Dip Hort., BSc Agr., MSc (Agr) ERM, MSc Ecology (Co-author and Reviewer) Crystal Leiker, BSoc.Sc., MPlan (Co-author)
Chapter 7 – Noise and Vibration	FT	Maureen Marsden, Meng (CO-author) Dr. John Mahon, PhD BA BAI, MIEI, MIOA (Co-author & Reviewer)
Chapter 8 – Biodiversity	FT	Donna O' Halloran, Dip Hort., BSc Agr., MSc (Agr) ERM, MSc Ecology (Co-author) Sinead Clifford, BSc. (Co-author) Jon Kearney, BSc Applied Ecology; MSc Ecology (Co-author & Reviewer))
Chapter 9 – Land, Soil & Geology	FT	Ian Higgins, BSc, MSc (Author) Tom Clayton CEng, MEng (Reviewer)
Chapter 10 – Hydrology and Water Quality	FT	Kristian Divjak MSc, B.Eng (Co-author) Trevor Byrne, BSc, MSc, MIEI (Co-author & Reviewer)
Chapter 11 – Population, Human Health & Material Assets	FT	Eamon Hutton, BSc MSc, MIPI (Author) David Moore, BA, MA, MBA, MSc, MIPI (Reviewer)

EIAR Topic	Company	Name and Qualifications
Chapter 12 – Shadow Flicker	TNEI Services Ltd	Mark Tideswell, BSc, Dip, AMIOA (Co-author) Jim Singleton, BSc, Dip, AMIOA (Co-author) David Moore, BA, MA, MBA, MSc, MIPI (Reviewer)
Chapter 13 – Traffic and Transportation	FT	Trevor Byrne, BSc, MSc, MIEI (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 14 Archaeology, Architectural and Cultural Heritage	John Cronin & Associates	Tony Cummins, BA, MA (Author) John Cronin, BA, MRUP, MUBC (Reviewer)
Chapter 15 – Landscape and Visual	Macro Works	Richard Barker BA PG Dip MLA (Author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 16 – Telecommunications and Aviation	FT	Dr. Elaine Bennett, BSc, PhD (Co-author) Crystal Leiker, BSoc.Sc., MPlan (Co-author) Jim Hughes, BA, EIA/SEA Dip, MSc (Reviewer)
Chapter 17 – Interactions of the Foregoing	FT	Eamon Hutton, BSc, MSc, MIPI (Author) David Moore, BA, MA, MBA, MSc, MIPI (Reviewer)

1.6 Permission Period

A ten-year consent is being requested for this development. That is, planning consent for the construction of the development would remain valid for ten years following the grant of permission. We note that the Wind Energy Development Guidelines (2006) state that "Planning Authorities may grant permission for a duration longer than 5 years if it is considered appropriate, for example, to ensure that the permission does not expire before a grid connection is granted. It is, however, the responsibility of the applicants in the first instance to request such longer durations in appropriate circumstances". This text also appears in section 7.22 of the Draft Revised Wind Energy Development Guidelines (2019).

A 10-year planning permission is considered appropriate for a development of this size to ensure all consents are in place. The expected physical lifetime of the turbine is approximately 35 years.

After this time, the developer will make a decision whether to replace the turbines (subject to obtaining the necessary permission) or decommission the turbines, as is proposed in this application. It should be noted that section 7.20 of the Wind Energy Development Guidelines (2006) includes for the following:

> *'The inclusion of a condition which limits the life span of a wind energy development should be avoided, except in exceptional circumstances'*

In this respect, the applicant requests the grant of permission is on the basis of a 35-year operational period from the date of full operational commissioning of the wind farm.

1.7 Difficulties Encountered

There were no difficulties encountered during the preparation of this EIAR.

1.8 Viewing and Purchasing of the EIAR

This EIAR is available for download at the project website: www.croaghaunwindfarm.com

Copies of this EIAR including the Non-technical Summary and the Appendices may be inspected free of charge or purchased by any member of the public during normal office hours at the Carlow County Council Planning Department:

- Civic Offices, Athy Road, Carlow, R93 E7R7

1.9 References

The Department of the Environment, Heritage and Local Government (2006), Wind Energy Development Guidelines. Available at: https://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/Planning/FileDownLoad%2C1633%2Cen.pdf

European Commission (2017), Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report. Available at: https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

EPA (2017), Guidelines on the Information to be contained in Environmental Impact Assessment Reports. Available from: https://www.epa.ie/pubs/advice/ea/EPA%20EIAR%20Guidelines.pdf

EPA (2015), Advice Notes for Preparing Environmental Impact Statements. Available at: https://www.epa.ie/pubs/consultation/reviewofdrafteisguidelinesadvicenotes/Draft%20Advice%20Notes%20for%20preparing%20an%20EIS.pdf

Department of Housing, Planning and Local Government (2018), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Available at: https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authorities_and_an_bord_pleanala_on_carrying_out_eia_-_august_2018.pdf

Department of Housing, Planning and Local Government (2019), Draft Revised Wind Energy Development Guidelines. Available at: https://www.housing.gov.ie/sites/default/files/public-consultation/files/draft_revised_wind_energy_development_guidelines_december_2019.pdf

European Commission (2013), Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment. Available at: https://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf

Government of Ireland (2000-2020), Planning and Development Acts 2000-2020. Available at: http://revisedacts.lawreform.ie/eli/2000/act/30/revised/en/html

Government of Ireland (2001-2020), Planning and Development Regulations 2001-2020. Available at: https://www.housing.gov.ie/sites/default/files/legislations/planning_and_development_regulations_2001-2020_unofficial_consolidationannotated16.09.2020.pdf

FEHILY TIMONEY

30 YEARS

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

www.fehilytimoney.ie

CORK OFFICE
Core House
Pouladuff Road,
Cork, T12 D773,
Ireland
+353 21 496 4133

Dublin Office
J5 Plaza,
North Park Business Park,
North Road, Dublin 11, D11 PXT0,
Ireland
+353 1 658 3500

Carlow Office
The Grain Store
Singleton's Lane, Bagenalstown
Co. Carlow, R21 XA66,
Ireland
+353 59 972 3800