1. INTRODUCTION

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by McCarthy Keville O'Sullivan Ltd. (MKO) on behalf of Glenora Wind Farm Designated Activity Company (DAC), who intend to apply to An Bord Pleanála for planning permission for the construction of a wind energy development in Glenora and adjacent townlands, near the village of Ballycastle, Co. Mayo. The proposed development (fully described in Chapter 4 of this EIAR) is being brought forward in response to local, national, regional and European policy regarding Ireland's transition to a low carbon economy, associated climate change policy objectives and to reduce Ireland's dependence on imported fossil fuels for the production of electricity.

The proposed wind energy development will encompass 22 No. wind turbines with blade tip height of 180 metres (m) above the top of the foundation The application meets the threshold for wind energy set out in the Seventh Schedule of the Planning and Development Acts 2000 to 2023, on foot of a notice issued by An Bord Pleanála (the Board) on 9th May 2023 and is therefore being submitted directly to An Bord Pleanála as a Strategic Infrastructure Development (SID) in accordance with Section 37E of the Planning and Development Acts 2000 to 2023, as amended.

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

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

This EIAR accompanies the planning application for the proposed development submitted to the Board. The planning application is also accompanied by a Natura Impact Statement ('NIS').

The proposed development is located within existing commercial forestry properties in the townland of Glenora, and adjacent townlands (listed in Table 1-1 below), approximately 6 kilometres (km) south west of the village of Ballycastle and 21km northeast of the town of Ballina, Co. Mayo. The site location context is shown in Figure 1-1a and Figure 1-1b.

Access to the site for Heavy Goods Vehicles (HGV) and abnormal loads (e.g. turbine components) will be via an existing forestry access road at the northeastern corner of the site, off an unnamed local road in the townland of Ballyglass, (hereafter referred to as the Ballyglass local road) which in turn is accessed from the R314 Regional Road.

It is intended to connect the proposed development to the national electricity grid via a 110kV underground cable which will connect the Glenora wind farm substation to the existing Tawnaghmore 110kV substation, located 14km southeast of the intended on-site 110kV substation, in the townland of Tawnaghmore Upper, Co. Mayo. The grid connection cabling route will measure approximately 28km in length. Neither the on-site substation nor the grid connection cabling route form part of the planning application, however, they are assessed in this EIAR.

Works required along the intended turbine delivery route, between Galway Port and the junction between the Ballyglass local road and the R314 do not form part of the planning application, however, they have been assessed as part of this EIAR.

A full and detailed description of the proposed wind farm (Glenora Wind Farm) for the purposes of the planning application and the additional elements that form part of the overall project, assessed in this EIAR, is contained in Chapter 4 of this EIAR. For the purposes of this EIAR, the wind farm, substation,

Map Legend

EIAR Site Boundary

Drawing Title

Site Location Context

Project Title

Glenora Wind Farm

Drawn By	Checked By
ER	EMC
Project No.	Drawing No.
201120	Figure 1-1a
Scale	Date
1:250,000	24.10.23

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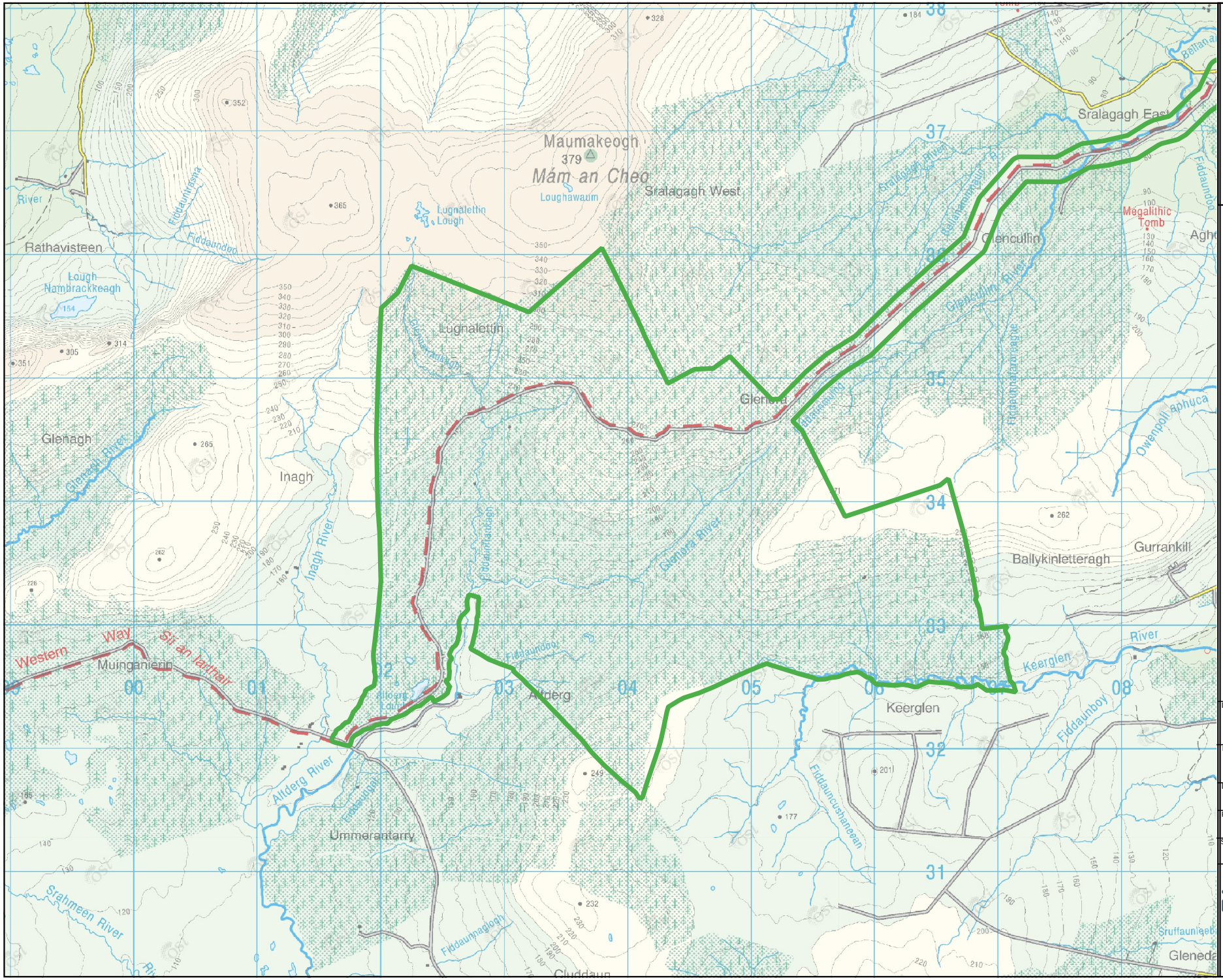

Map Legend

EIAR Site Boundary

Drawing Title
Core of EIAR Site Boundary

Project Title
Glenora Wind Farm

Drawn By	Checked By
ER	EMC
Project No.	Drawing No.
201120	Figure 1-1b
Scale	Date
1:40,000	04.12.2023

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grid connection, turbine delivery route accommodation works and habitat enhancement are collectively referred to as the "Proposed Development".

The townlands within which the project (i.e. the main proposed wind farm site, the on-site substation the grid connection cabling route and turbine delivery route accommodation works) is located are listed in Table 1-1. All townlands are located in Co. Mayo.

Table 1-1 Townlands within which the project is located

Townlands within which the project is located:	
Proposed Wind Farm Development (infrastructure subject of this planning application)	
Glenora	Lugnalettin
Altderg	Ballykinletter
Keerglen	Ballyglass
Glencullin	Aghoo
Killeena	Ballycastle
Intended Wind Farm Substation Location and Grid Connection Cabling Route	
Glenora	Glencullin
Aghoo	Sralagagh East
Ballyglass	Killeena
Ballinglen	Ballycastle
Anna Beg	Annagh More
Creevagh More	Creevagh Beg
Kincon	Farmhill
Kinnavally	Ardnagor
Ballinagavna	Rathnadoffy
Ballygowan	Lecarrowanteean
Knockaunderry	Killogunra
Coolcran	Cloonalough
Farragh	Cloonmaan
Cloonawillin	Cloonfadda
Mullafarry	Magherabrack

Townlands within which the project is located:	
Proposed Wind Farm Development (infrastructure subject of this planning application)	
Tawnaghmore Upper	Lisglennon
Other Intended Turbine Delivery Route Accommodation Works	
Ballyglass East	

1.2 Legislative Context

1.2.1 Strategic Infrastructure Development

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

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

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

> *"(a) the development would be of strategic economic or social importance to the State or the region in which it would be situate,*
>
> *(b) the development would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate,*
>
> *I the development would have a significant effect on the area of more than one planning authority."*

Background

On the 15th of June 2021, the applicant sought a determination, from the Board, in relation to the Strategic Infrastructure Development (SID) status or otherwise, of a proposed wind farm development at Glenora and adjacent townlands, County Mayo. This request was made in accordance with Section 37B of the Act (ABP-310528-21).

A pre-application consultation meeting between the Board and representatives of the applicant and MKO, in relation to the proposed development took place on the 22nd September 2021. At the meeting MKO presented the various background information with regards to the proposed development and development site. Further discussions were also had with regards to the policy context of the site. Following this meeting the Board outlined that its preliminary view was that the proposed wind farm development would constitute strategic infrastructure but expected a second meeting would be required.

A second meeting was held on the 3rd February 2022, during which an update on the design process of the proposed development and the progress of the environmental impact assessment process was provided. In addition, a discussion on the ecological and ornithological surveys and subsequent

findings took place between the project ecologist and An Bord Pleanála's ecologist. Following this second meeting the Board stated that it did not expect that any further meetings would be required and invited the applicant to request a formal closure of the pre-application consultation.

Such a request was made on the 17th of April 2023, on the basis of a 22 no. turbine layout, and the Board issued a notice to the applicant indicating its determination that the proposed development was SID on 9th May 2023 and, accordingly, that an application for permission should be made directly to the Board in accordance with Section 37A of the Act.

1.2.2 Environmental Impact Assessment

The consolidated 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 (the 'EIA Directive'), has been transposed into Irish planning legislation by the Act as amended and the Planning and Development Regulations 2001 as amended. Directive 2011/92/EU was amended by Directive 2014/52/EU which has been transposed into Irish law with the recent European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). Most of the provisions of the new regulations came into operation on the 1st of September 2018 with a number of other provisions coming into operation on the 1st of January 2019.

This EIAR complies with the EIA Directive as amended by Directive 2014/52/EU.

The EIA Directive requires Member States to ensure that a competent authority carries out an assessment of the likely significant effects of certain types of project, as listed in the Directive, prior to development consent being given for the project. The Environmental Impact Assessment (EIA) of the proposed project will be undertaken by the Board, as the competent authority

Article 5 of the EIA Directive provides where an EIA is required, the developer shall prepare and submit an environmental impact assessment report (EIAR). The information to be provided by the developer shall include at least:

a) *a description of the project comprising information on the site, design, size and other relevant features of the project;*
b) *a description of the likely significant effects of the project on the environment;*
c) *a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
d) *a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;*
e) *a non-technical summary of the information referred to in points (a) to (d); and*
f) *any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.*

In addition, summarised below is the information to be contained within an EIAR as per Annex IV of EU Directive 2014/52/EU:

a. *Description of the project;*
b. *A description of the reasonable alternatives;*
c. *A description of the relevant aspects of the current state of the environment;*
d. *A description of the factors specified in Article 3(1) likely to be significantly affected by the project;*
e. *A description of the likely significant effects of the project on the environment;*
f. *A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment;*

g. *A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment;*
h. *A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters;*
i. *A non-technical summary; and*
j. *A reference list detailing the sources used for the descriptions and assessments included in the report.*

MKO was appointed as environmental consultant on the proposed project and commissioned to prepare this EIAR in accordance with the requirements of the EIA Directive 2011/92/EU as amended by Directive 2014/52/Eu. and Schedule 6 of the Act.

Pursuant to section 172(1)(a)(ii) of the Act, Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended, identifies classes and scales of development that require Environmental Impact Assessment (EIA). The relevant class of development in this case relates to "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", as per Item 3(i) of Part 2 of the Schedule. The proposed development exceeds 5 Megawatts in scale and proposes more than 5 turbines, and therefore is subject to EIA.

The EIAR provides information on the receiving environment and assesses the likely significant effects of the proposed project on it and proposes mitigation measures to avoid or reduce these effects. The function of the EIAR is to provide information to allow the competent authority to conduct the Environmental Impact Assessment (EIA) of the proposed development and to facilitate an informed consent decision.

All elements of the overall project, (including the wind turbines and associated infrastructure, substation, grid connection, and turbine delivery route) have been assessed as part of this EIAR and are collectively referred to as the "Proposed Development" throughout.

1.2.3 EIAR Guidance

The Environmental Protection Agency (EPA) published its *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2022), which is intended to guide practitioners preparing an EIAR in line with the requirements set out in the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

In preparing this EIAR regard has also been taken of the provisions of the '*Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment*', published by the Department of Housing, Planning and Local Government (DHPLG) in August 2018 to the extent these guidelines are relevant having regard to the enactment of the revised EIA Directive.

The European Commission also published a number of guidance documents in December 2017 in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU as amended by 2014/52/EU) including '*Guidance on Screening*', '*Guidance on Scoping*' and '*Guidance on the preparation of the Environmental Impact Assessment Report*'. MKO has prepared the EIAR in accordance with these guidelines also.

1.2.4 Wind Energy Development Guidelines for Planning Authorities

The relevant considerations under the '*Wind Energy Development Guidelines for Planning Authorities*' (Department of the Environment, Heritage and Local Government (DOEHLG), 2006) have also been taken into account during the preparation of this EIAR.

The '*Wind Energy Development Guidelines for Planning Authorities*' (DoEHLG, 2006) are currently the subject of a targeted review. The proposed changes to the assessment of impacts associated with onshore wind energy developments are outlined in the document '*Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review*' (December 2013), the '*Review of the Wind Energy Development Guidelines 2006 – Preferred Draft Approach'* (June 2017), and the Draft Wind Energy Development Guidelines (December 2019). A consultation process in relation to the 2019 document concluded on the 19th of February 2020.

At time of writing, the Draft Guidelines have not yet been adopted, and the relevant guidelines for the purposes of section 28 of the Planning and Development Act 2000, as amended, remain those issued in 2006.

On the [2]1st December 2022, the Department of the Environment, Climate and Communications published the 'Climate Action Plan 2023' which states that new wind energy guidelines will be drafted in 2023 and finalised in 2024.

Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects and the commitment within the Climate Action Plan 2023 to publish new draft guidelines in 2023 and final guidelines 2024 ,it is possible that the new guidelines are adopted during the consideration period for the current proposed development. Towards this end it is anticipated that the proposed development will be capable of adhering to the relevant noise and shadow flicker standards albeit without sight of the final, adopted guidelines the processes by which the proposed development will comply with the same cannot be confirmed at this stage. It should also be noted that the proposed development layout complies with the required setback distance from residential properties (four times the proposed maximum tip height) in the Draft 2019 document.

1.2.4.1 Guidance document on wind energy developments and EU nature legislation (EC, 2020)

This document provides an update of the 2011 Commission guidance on wind energy and Natura 2000, as planned in the action plan for nature, people and the economy. An update of the guidance was considered necessary as EU policy and legislation on renewable energy and wind energy technology (especially at sea) has developed greatly since the guidance was first issued. In step with these developments, knowledge on the impacts of wind energy on biodiversity as well as good practice for addressing these impacts has also expanded significantly. In view of further significant expansion of wind energy in the context of tackling climate change on the one hand and growing pressures on biodiversity on the other hand, guidance based on the most recent insights and good practices on reconciling the respective policy goals and targets was considered by the Commission to be essential.

1.3 The Applicant

The applicant, Glenora Wind Farm DAC, is a joint venture between SSE Renewables and FuturEnergy Ireland.

SSE Renewables is a leading developer and operator of renewable energy across the UK and Ireland, with a portfolio of around 4GW of onshore wind, offshore wind and hydro. SSE Renewables owns over 700MW of operational onshore wind farms in locations across the Republic of Ireland. These include Ireland's largest wind farm, the 174MW Galway Wind Park in Connemara, County Galway, which is co-owned with Greencoat Renewables.

FuturEnergy Ireland is a new joint venture company owned on a 50:50 basis by Coillte and ESB. Their ambition is to develop more than 1GW of renewable energy capacity by 2030 and make a significant contribution to Ireland's commitment to produce 80% of electricity from renewable sources by the end of the decade.

FuturEnergy Ireland has recently received planning permission for Castlebanny Wind Farm (Co. Kilkenny) and Carrownagowan Wind Farm (Co. Clare) and also has a number of proposed wind energy projects currently in the planning system.

1.4 Brief Description of the Proposed Wind Farm Development and Overall Project

The proposed wind farm development comprises the construction of 22 No. wind turbines and all associated works. The proposed turbines will have a blade tip height of 162 metres above the top of the foundation. The applicant is seeking a ten-year planning permission. The full description of the proposed wind farm development, as per the public planning notices, is as follows:

1. *The construction of 22 no. wind turbines and all associated hard-standing areas with the following parameters:*
    a. *A total blade tip height of 180m,*
    b. *Hub height of 99m, and*
    c. *Rotor diameter of 162m.*
2. *1 no. permanent Meteorological Anemometry Masts with a height of 99 m and associated hardstanding area;*
3. *Upgrade of existing tracks and roads, provision of new permanent site access roads and upgrade of 1 no. existing site entrance including the provision of 1 no. security cabin with automatic traffic barriers;*
4. *Temporary widening of sections of public road in the townland of Ballyglass;*
5. *The provision of a new temporary roadway in the townland of Ballyglass to facilitate the delivery of turbine components and other abnormal loads;*
6. *1 no. wind farm operation and maintenance control building in the townland of Glenora;*
7. *3 no. borrow pits.*
8. *13 no. permanent peat placement areas.*
9. *5 no. temporary construction compounds with temporary site offices and staff facilities;*
10. *Permanent recreation and amenity works, including marked trails, seating areas, amenity car park, and associated amenity signage;*
11. *Site drainage;*
12. *Site Signage;*
13. *Ancillary forestry felling to facilitate construction and operation of the proposed development;*
14. *All works associated with the habitat enhancement and biodiversity management within the proposed wind farm site;*
15. *All associated site development works and ancillary infrastructure.*

This application is seeking a ten-year permission and 35 year operational life from the date of commissioning of the renewable energy development.

Current and future wind turbine generator technology will ensure that the wind turbine model, chosen for the proposed development, will have an operational lifespan greater than the 35 year operational life that is being sought as part of this application.

For assessment purposes, it has been assumed that each of the proposed turbines will have a minimum output of 6MW and a maximum output of 9MW. It is likely that future wind turbine generator technology will facilitate greater outputs from turbines of the dimensions proposed as part of this application.

The layout of the Proposed Development has been led by consideration of constraints and facilitators, thereby avoiding the environmentally sensitive parts of the site. The roads layout for the proposed

development maximises the use of the existing onsite access roads and tracks where possible, with approximately 15.4 kilometres of existing roadway/ tracks requiring upgrading and approximately 10.5 kilometres of new access road to be constructed.

It is intended to construct a 110 kV substation within the site and to connect this to the existing Tawnaghmore 110kV substation, located 14km southeast of the intended on-site substation location, in the townland of Tawghnamore Upper. The intended grid connection route will be via underground cabling located within existing forestry tracks, local county roads and national secondary roads. The cabling route measures approximately 28km in total. The construction of the grid connection cabling route will, in the event that planning consent is granted, be undertaken by a statutory undertaker having a right or interest to provide services in connection with the proposed wind farm development.

The majority of the area encompassed by the EIAR Site Boundary is currently used for commercial forestry, a small proportion of which will be felled to accommodate the wind farm development. A total area of approximately 116 hectares of commercial forestry will require replacement elsewhere in the State, subject to licence. Details regarding the area to be felled are outlined in Chapter 4 of this EIAR.

The overall project, including the wind farm, grid connection, turbine delivery route accommodation works and habitat enhancement have been assessed as part of this EIAR and is collectively referred to as the "Proposed Development" throughout.

A minimum separation distance of approximately 1,170m between occupied, residential dwellings and the proposed wind turbines has been achieved with the project design. This exceeds the requirements for seetback distances from residential dwellings as set out in the Draft Wind Energy Development Guidelines (December 2019).

The proposed development is described in detail in Chapter 4 of this EIAR.

1.4.1 EIAR Site Boundary

The EIAR Site Boundary for the proposed development encompasses an area of approximately 1,810 hectares, the majority of which comprises commercial forestry plantation. Where the 'site' is referred to in this EIAR, this means the primary study area for the EIAR, as shown in Figure 1-1b. The study area extends beyond the planning application red line boundary depending on the requirements of individual assessments. Where this occurs, the extent of the study area will be outlined in the relevant chapter, as required. The permanent footprint of the proposed development measures approximately 67 hectares, which represents approximately 3.7% of the primary study area.

The EIAR Site Boundary is illustrated on Figure 1-1b. An aerial view of the EIAR Site Boundary is shown in Figure 1-2. For clarity, the Planning Application Site Boundary (red line) is shown in Figure 1-3 and in the drawings included in Appendix 4-1 of this EIAR.

Map Legend

EIAR Site Boundary

N

Drawing Title

Aerial Photograph

Project Title

Glenora Wind Farm

Drawn By	Checked By
ER	EMC
Project No.	Drawing No.
201120	Figure 1-2
Scale	Date
1:40,000	24.10.23

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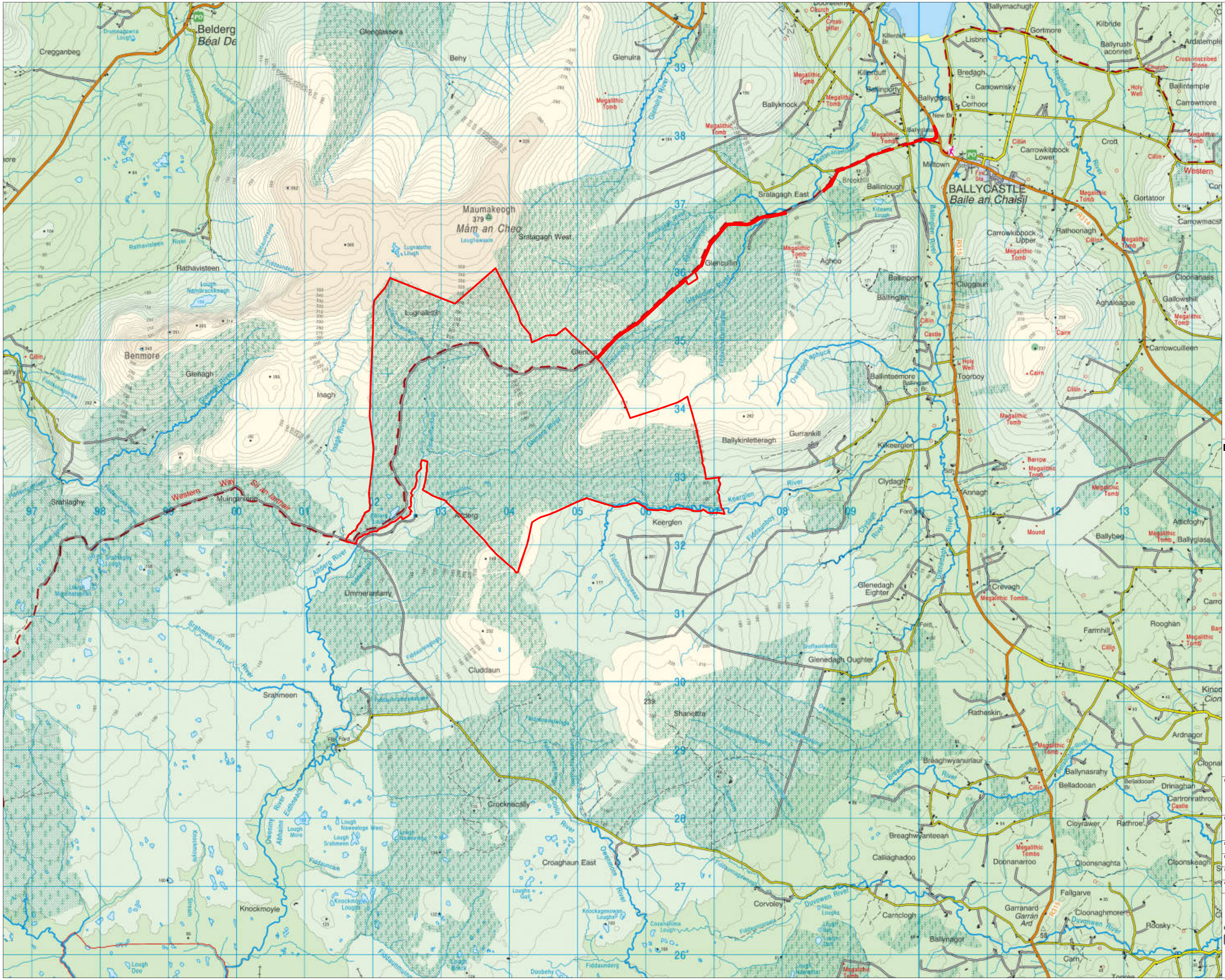

Project Design Drawing Notes

1. Drawings issued are for planning application purposes only.
2. Drawings not to be used for construction/contract conditions.
3. Copyright, all rights reserved. No part herewith may be copied or reproduced partially or wholly in any form whatsoever without the prior notice of the copyright owner McCarthy Keville O'Sullivan.
4. Do not scale off this drawing. Figured metric dimensions only should be taken off this drawing.
5. All contractors, whether main or sub-contractors, must visit the site and are responsible for taking and checking any and all dimensions and levels that relate to the works.
6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing.
7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.

Drawing Legend

Planning Application Boundary

Figure 1-3

N

DRAWING TITLE:
Location Context Map

PROJECT TITLE:
Glenora Wind Farm, Co. Mayo

DRAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy
PROJECT No.: 201120	DRAWING No.: 201120 - 01
SCALE: 1:50,000 @ A3	DATE: 06.12.2023
OS SHEET No.: OS0832, OS1032	

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1.5 Need for the Proposed Development

Ireland faces significant challenges to its efforts to meet European Union (EU) targets for renewable energy by 2030 and its commitment to transition to a low carbon economy by 2050. Further detail can be found in Chapter 2, Section 2.2 of this EIAR.

The proposed Glenora Wind Farm development provides the opportunity to capture an additional part of County Mayo's valuable renewable energy resource. If the Proposed Development were not to proceed the opportunity to capture this additional part of Mayo's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

The opportunity to generate local employment and investment associated with the Proposed Development would also be lost, and the local economy would continue to rely primarily on agriculture and commercial forestry as the main source of income.

1.5.1 Overview

In July 2021, the Climate Action and Low Carbon Development (Amendment) Act 2021 was signed into law, committing Ireland to reach a legally binding target of net-zero emissions no later than 2050, and a cut of 51% by 2030 (compared to 2018 levels). On this pathway to decarbonisation, the Government published the Climate Action Plan 2023[1] which includes renewable electricity target of 80% by 2030, without compromising security of energy supply. The Proposed Development, if granted planning permission, is expected to be operational before 2030 and would therefore contribute to this 2030 target.

In July 2022, the EPA[2] reported for the 2021 year, the total national greenhouse gas emissions are estimated to have increased by 4.7% on 2020 levels to 61.52 million tonnes carbon dioxide equivalent (Mt CO2eq). This increase in total emissions was driven by increased use of coal and oil for electricity generation and increases in both the Agricultural and Transport sectors. It highlights that transformative measures will be needed to meet National Climate ambitions. The report also states that Emissions in the Energy Industries sector increased by 17.6% or 1.53 Mt CO2eq in 2021, attributed to a tripling of coal and oil use in electricity generation as gas fired plant were offline while simultaneously, electricity generated from wind and hydro decreased by 16% and 20% respectively in 2021. As such, the Proposed Development is critical to helping Ireland address these challenges as well as addressing the country's over-dependence on imported fossil fuels.

The need for the proposed project is driven by the following factors:

1. *A legal commitment from Ireland to limit greenhouse gas emissions under the Kyoto protocol to reduce global warming*
2. *A requirement to increase Ireland's national energy security as set out in Ireland's Transition to a Low Carbon Energy Future 2015-2030;*
3. *A requirement to diversify Ireland's energy sources, with a view to achievement of national renewable energy targets and an avoidance of significant fines from the EU (the EU Renewables Directive);*
4. *Climate Action Plan 2023 which aims to ensure that Ireland achieves its legally binding target (the Climate Action and Low Carbon Development (Amendment) Act 2021) of net-zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030,*

[1] *Government of Ireland (2022) Climate Action Plan 2023 https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/*
[2] *EPA (July 2022) - Ireland's Provisional Greenhouse Gas Emissions 1990-202. https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf*

5. *Increasing energy price stability in Ireland through reducing an over reliance on imported fossil fuels; and*
6. *Provision of cost-effective power production for Ireland which would deliver local benefits.*
7. *To facilitate the Government in meeting its ambitious 80% renewable energy target by 2030.*

The 2023 Climate Action Plan (CAP) was published on the 21st December 2022 by the Department of Communications, Climate Action and Environment (DoCCAE). The CAP sets out an ambitious course of action over the coming years to address the impacts which climate may have on Irelands environment, society, economic and natural resources. This Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The CAP identifies the need to increase the share of electricity demand generated from renewable sources by up to 80% where achievable and cost effective, without compromising security of electricity supply and a need for 9GW of onshore wind generation. Only 4.3GW is in place in Ireland as of May 2022, therefore Ireland needs to significantly increase its installed capacity of wind generation. The CAP presents clear and unequivocal support for the provision of additional renewable energy generation and presents yet further policy support for increased wind energy.

These factors are addressed in further detail below. Section 2.2 in Chapter 2 of this EIAR on Background to the Proposed Development, presents a full description of the international and national renewable energy policy context for the Proposed Development. Section 2.3 addresses climate change, including Ireland's current status with regard to meeting greenhouse gas emission reduction targets.

1.5.2 Climate Change and Greenhouse Gas Emissions

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal, the Paris Agreement. The Paris Agreement sets out a global action plan to avoid dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels. Under the Paris Agreement, the EU and Governments also agreed on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries to achieve and to undertake rapid reductions thereafter in accordance with the best available science. The Sharm el- Sheikh climate conference (COP 27) in November 2022 pushed increases to financing for adaptation measures globally and reiterated the agreement to work towards a limit well below below 2°C global warming.

In March 2021 the government approved the Climate Action and Low Carbon Development (Amendment) Bill which provide plans to facilitate the 'transition to a climate resilient and climate neutral economy by the end of year 2050' and includes for a 51% reduction in emissions by 2030. Furthermore, government approval was given in February 2021 to draft amendments to the Petroleum and Other Minerals Development Act 1960 which will give statutory effect to ending the issuing of new licences for the exploration and extraction of gas. The Bill, entitled an Act, was passed into law in July 2021 and will manage the implementation of a suite of policies to assist in achieving a 7% average yearly reduction in overall greenhouse gas emissions over the next decade.

In August 2021, the IPCC published the first part of the Sixth Assessment Report[3] , which focused on the foundational consensus of the climate science behind the causes and effects of human greenhouse gas emissions. The main point that can be taken from the report, is that unless there are "immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach". The IPCC published the second part of the Sixth Assessment Report[4]

[3] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report
[4] *IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report*

in February 2022, a comprehensive examination of the intensifying impacts of climate change and future risks, particularly detailing which climate adaptation approaches are most effective and feasible. An overarching takeaway of the report is that 'Global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. Near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems, compared to higher warming levels, but cannot eliminate them all.". In both reports, the importance of limiting global warming to 1.5°C is stressed and drastic reductions in CO2 are imperative.

In February 2022, the International Panel on Climate Change (IPCC) released the report 'Working Group II-Climate Change 2022: Impacts, Adaptation and Vulnerability' regarding the impacts of climate change on nature and human activity. The report states that global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO2 and other greenhouse gas emissions occur in the coming decades. the report identifies four key risks for Europe with most becoming more severe at 2 °C global warming levels (GWL) compared with 1.5 °C GWL. From 3°C GWL, severe risks remain for many sectors in Europe. The four key risks identified are:

1. Key Risk 1: Mortality and morbidity of people and changes in ecosystems due to heat
2. Key Risk 2: Heat and drought stress on crops
3. Key Risk 3: Water scarcity
4. Key Risk 4: Flooding and sea level rise

As discussed above, the July 2022 EPA Provisional Greenhouse Gas Report referenced above states that emissions in the Energy Industries sector show an increase of 17.6% or 1.53 Mt CO2eq in 2021. Electricity generated from wind reduced by 16% in 2021, the decrease of wind generation in combination with an increase in coal and oil used contributed to the 11.9% increase in the emissions intensity of power generation in 2021 to 331g CO2/kWh.

The 2023 Climate Action Plan (CAP)[5] was published on the 21st December 2022 by the Department of Communications, Climate Action and Environment (DoCCAE). Following on from Climate Action Plans 2019 and 2021, CAP 2023 sets out the roadmap to deliver on Ireland's climate ambition. It aligns with the legally binding economy-wide carbon budgets and sectoral ceilings that were agreed by Government in July 2022 following the Climate Action and Low Carbon Development (Amendment) Act 2021, which commits Ireland to a legally binding target of net-zero greenhouse gas emissions no later than 2050, and the reduction of 51% by 2030 mentioned above. The CAP sets out an ambitious course of action over the coming years to address the impacts which climate may have on Irelands environment, society, economic and natural resources. This Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The CAP identifies the need to increase the share of electricity demand generated from renewable sources by to up to 80% where achievable and cost effective, without compromising security of electricity supply and a need for 9GW of onshore wind generation. Only 4.3GW is in place in Ireland as of May 2022, therefore Ireland needs to increase its installed capacity of wind generation. The CAP presents clear and unequivocal support for the provision of additional renewable energy generation and presents yet further policy support for increased wind energy.

CAP 2023 has set out the following targets for electricity generation and transmission:

- share of electricity demand generated from **renewable sources to up to 80%** where achievable and cost effective, without compromising security of electricity supply;
  - Onshore Wind Capacity: up to 9GW
  - Offshore Wind Capacity: 5GW (minimum)

[5] *Government of Ireland (2022) Climate Action Plan 2023 https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/*

- Solar PV Capacity: 8GW
- Green Hydrogen Production: 2GW

- Phase out and end the use of coal and peat in electricity generation;
- Ensure that 20-30% of system demand is flexible by 2030;
- Ensure electricity generation grid connection policies and regular rounds of connection offers which facilitate timely connecting of renewables, provides a locational signal and supports flexible technologies;
- Support at least 500 MW of local community-based renewable energy projects and increased levels of new micro-generation and small-scale generation; and
- New, dynamic Green Electricity Tariff will be developed by 2025 to incentivise people to use lower cost renewable electricity at times of high wind and solar generation.

It is estimated that the proposed wind farm development, with a potential output of 132MW to 198MW from the proposed wind turbines will result in the net displacement of up to approximately 179,692 tonnes of Carbon Dioxide (CO_2) per annum. The carbon offsets resulting from the proposed development are described in detail in Section 11.5 of Chapter 11 of this EIAR.

1.5.3 Energy Security

At a national level, Ireland currently has one of the highest external dependencies on imported sources of energy, such as coal, oil and natural gas.

A report by the Sustainable Energy Authority of Ireland (SEAI), published in September 2020 (Energy Security in Ireland, 2020 Report), presents national energy statistics on energy production and consumption in Ireland during 2018. Renewable energy sources (which include wind) accounted for 32.5% of Ireland's gross electricity consumption in 2018, which was well over halfway to Ireland's 2020 target of 40%, however, 2020 targets were not reached. EirGrid, in their 'All Island Generation Capacity Outlook 2022 - 2031' (October 2022), states that new wind farms commissioned in Ireland brought total wind capacity to over 4.3GW by the end of 2021.

It is estimated that in 2015 the cost of all energy imports to Ireland was approximately €4.6 billion; this fell to €3.4 billion in 2016 due mainly to reduced gas imports but increased again in 2017 to €4 billion. Irelands import dependency varied between 85% and 90% until 2016, where it fell to 69% with the Corrib gas field starting production and then has fallen further to 66% in 2017 but has increased again to 69% in 2019, however Ireland is still one of the more import dependent countries in the EU, with the EU average being just over 50%. In 2019, although noted that the cost of energy imports to Ireland was approximately €4.5 billion; renewables made up 12% of gross final consumption relative to a 2020 target of 16%. This avoided 5.8 million tonnes of CO2 emissions and €500 million of fossil fuel imports ('Energy in Ireland - 2020 Report, SEAI, December 2020).

Ireland continues to be hugely energy import-dependent leaving it exposed to large energy price fluctuations as a minimum and possibility of fuel shortages if a major energy crisis were to occur. The international fossil fuel market is growing increasingly expensive and is increasingly affected by international politics which can add to price fluctuations. This volatility will be increased as carbon prices increase in the future. This has implications for every Irish citizen.

The Sustainable Energy Authority of Ireland (SEAI), published a report in 2022 (Energy in Ireland, 2022 Report), which states that our heavy dependence on imported fossil fuels,

'Ireland imports most of its energy. ...[...]...Oil and natural gas are by far our largest energy imports, but we also import significant quantities of coal...[...]...When averaged over the full year of 2021, we imported three times as much electricity as we exported'.

The cost of carbon credits is included in all electricity traded, and the price of electricity generated by coal is particularly vulnerable due to its high carbon emissions per unit of electricity generated.

As discussed above, coal and oil use for electricity increased in 2021 Coal, but the Climate Action Plan 2023b calls for an aggregate reduction in carbon dioxide emissions of at least 80% (compared to 1990 levels) by 2050. Any steps to reduce this dependence on imported fossil fuels will add to financial autonomy and stability in Ireland. The use of Ireland's indigenous energy resources, such as wind, will contribute to a reduction in energy imports.

The Energy White Paper 2015 notes "There will be a substantial increase in the cost of carbon in the short and medium term, through the EU Emissions Trading Scheme". Any steps to reduce dependence on imported fossil fuels will add to financial autonomy and stability in Ireland. As the White Paper notes:

> *"In the longer term, fossil fuels will be largely replaced by renewable sources".*

1.5.3.0 REPowerEU

In a Communication from the European Parliament on Joint European Action for more affordable, secure and sustainable energy [6], the European Commission proposed an outline of a plan to make Europe independent from Russian fossil fuels well before 2030 in light of Russia's invasion of Ukraine. Commission President Ursula von der Leyen stated:

> *"We must become independent from Russian oil, coal and gas. We simply cannot rely on a supplier who explicitly threatens us. We need to act now to mitigate the impact of rising energy prices, diversify our gas supply for next winter and accelerate the clean energy transition. The quicker we switch to renewables and hydrogen, combined with more energy efficiency, the quicker we will be truly independent and master our energy system."*

In May 2022, the EU published the REPowerEU Plan[7] in light of Russia's invasion of Ukraine in February 2022. The core purpose of the plan, in addition to accelerating the EU's transition from the use of fossil fuel to renewable energy sources, is to end the dependence on Russian fossil fuels.

1.5.4 Competitiveness of Wind Energy

While Ireland has a range of renewable resources, as the White Paper states "[Onshore Wind] is a proven technology and Ireland's abundant wind resource means that a wind generator in Ireland generates more electricity than similar installations in other countries. This results in a lower cost of support."

In fact, the cost of support is more than offset by the fact that adding large quantities of wind to the wholesale market drives down auction prices in any half hour trading period when the wind is blowing, i.e. for 80% of the hours of the year. Wind is capable of an average capacity factor of 31.7%[8], which is its average output throughout the year relative to its maximum output. However, wind is generating power at some level for 80% of the hours of the year. EirGrid's website has more detailed information. A Pöyry study from 2015 showed that reaching our targets in 2020 would reduce wholesale prices by more than costs of new grid infrastructure, backup and the subsidies paid to wind, resulting in a net saving of €43m per year in 2020. The EU has noted that Ireland has one of the lowest costs of supporting renewables mainly because onshore wind is on a par with the cost of power from conventional generation when a full cost benefit analysis is undertaken.

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[6] *European Commission (March 2022) REPowerEU: Joint European Action for more affordable, secure and sustainable energy. Strasbourg.* https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

[7] *https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131*

[8] *Energy in Ireland 2019 Report (Table 17) (SEAI, December 2019). Report available at: https://www.seai.ie/publications/Energy-in-Ireland-2019-.pdf*

1.5.5 EU 2020 Renewable Energy Targets

The burning of fossil fuels for energy creates greenhouse gases, which contribute significantly to climate change. These and other emissions also create acid rain and air pollution. Sources of renewable energy that are utilised locally with minimal impact on the environment are necessary to meet the challenges of the future. The EU adopted the Renewable Energy Directive (2018/2001 EU) on the Promotion of the Use of Energy from Renewable Sources in December 2018 which sets EU 2030 Renewable Energy Targets.

The Directive sets a legally binding mandatory national target for the overall share of energy from renewable sources for each Member State. This package is designed to achieve the EU's overall 20:20:20 environmental target, which consists of a 20% reduction in greenhouse gases, a 20% share of renewable energy in the EU's total energy consumption and a 20% increase in energy efficiency by 2020. To ensure that the mandatory national targets are achieved, Member States must follow an indicative trajectory towards the achievement of their target as outlined in Ireland's National Renewable Energy Action Plan (NREAP).

Ireland's mandatory national target for 2020 was to supply 16% of its overall energy needs from renewable sources. This target covered energy in the form of electricity (RES-E), heat (RES-H) and transport fuels (RES-T). Government policies identify the development of renewable energy, including wind energy, as a primary strategy in implementing national energy policy. The Energy in Ireland 2021 report, published December 2021, reported Ireland missed its 40% renewable energy target for 2020 with a share of renewable electricity recorded at 39.1%[9]. Ireland fell short of the national 2020 target of 16% for the contribution of renewables to gross final consumption (GFC) with the recorded renewable share of GFC for 2020 of 13.5%. In addition, the EPA published data on its Greenhouse Gas emissions for the period 2020-2040 relative to EU 2020 targets. Ireland's target was to achieve a 20% reduction by 2020 on 2005 levels and the data shows that their non ETS emissions are projected to be 7% below 2005 levels in 2020 under both the With Existing *Measures* and *With Additional Measures* scenarios[10].

1.5.6 EU 2030 Renewable Energy Targets

The Climate Action and Low Carbon Development (Amendment) Act 2021 commits Ireland to reach a legally binding target of being a climate neutral economy no later than 2050, and a cut of 51% by 2030 (compared to 2018 levels). Under the 2021 Act, Ireland's national climate objective requires the state to pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy.

Ireland's statutory national climate objective and 2030 targets are aligned with Ireland's obligations under the Paris Agreement and with the European Union's objective to reduce GHG emissions by at least 55% by 2030, compared to 1990 levels and to achieve climate neutrality in the European Union by 2050.

In December 2022, the Government published the most recent Climate Action Plan 2023, announcing a renewable electricity target of 80% by 2030 for Ireland. This is in line with the previous target of 80% by 2030, as announced in the Climate Action Plan 2021.

The Climate Action Plan 2023 states that in order to meet the required level of emissions reduction by 2030 and the 80% renewable electricity generation target by 2030, the installed generation capacity of onshore will need to reach 9GW and at least 7GW of offshore wind. By May 2022, the installed wind capacity in the Republic of Ireland is over 4.3GW according to Wind Energy Ireland[11].As noted

[9] *Energy in Ireland 2020 (SEAI, December 2021) - https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf*
[10] *Ireland Greenhouse Gas Emissions Projections 2020-2040 (EPA June 2021) - https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Irelands-Greenhouse-Gas-Emissions-Projections-report-2020-2040v2.pdf*
[11] *https://windenergyireland.com/about-wind/facts-stats*

previously, Ireland missed it's 2020 renewable energy target of 40% with a renewable share in electricity of 39.1%, and by the end of 2021, Irelands renewable energy share for electricity generation was 32.5%. With a renewable share of electricity generation at 80% in mind and a target of 8GW installed onshore wind by 2030, it is now more critical than ever that we continue to progress renewable energy development in Ireland so that we are successful in meeting our 2030 targets. Further detail on the EU 2030 targets is noted in Chapter 2.

1.5.7 Increasing Energy Consumption

As detailed above, the Climate Action Plan 2023 identifies a need for 9GW of onshore wind generation in order for Ireland to meet its 2030 targets. In Eirgrid's '*Ireland Capacity Outlook 2022-2031,* it is stated that 12GW of onshore and offshore wind energy is needed to meet the 2030 targets.

Failure to meet Ireland's targets for renewable energy will result in substantial EU sanctions. The Department of Public Expenditure and Reform (DPER) in their report 'Future Expenditure Risks associated with Climate Change/Climate Finance'[12] concluded that *'potential costs of purchasing non-ETS GHG compliance for the Irish Exchequer for the 2020 to 2030 period could have a cumulative total in the billions in the absence of any further policy changes'.* If Ireland decided to backfill shortfalls in the RES-H target with additional renewable electricity this could significantly reduce these costs.

In April 2016[13] SEAI estimated the historic build rate for wind energy deployment as 180 MW per year since 2005. If this average build rate over the remaining period between 2018 and 2020 is assumed, then approximately 3.85 GW of wind would be built up to 2020. By January 2022, the installed wind capacity in the Republic of Ireland is over 4.3GW according to Wind Energy Ireland[14].

It is noted that the key driver for electricity demand in Ireland for the next number of years is the connection of new large energy users, such as data centres. This statement notes that '*Large industrial connections normally do not dominate a country's energy demand forecast but this is the case for Ireland at the moment*'[15]. EirGrid analysis shows that demand from data centres could account for 31% of all demand by 2027 in a median demand scenario (accounts for the connection of all 1400MVA of potential demand in the connection process). The median demand scenario is now higher than for last year's forecast for high demand, indicating the progression of many of the data centre projects.

In 2015, IWEA commissioned a study '*Data Centre Implications for Energy Use in Ireland'* which concluded that an extra approx. 1 Gigawatt (GW) of electricity demand could materialise between 2015 and 2020 due to growth in data centres. More recently, data available from Bitpower[16] at the end of 2020 noted that there is currently 66 operational data centres in Ireland, totalling 834MW; with an additional 778MW having received planning approval and 295MW under construction. The increase in growth of data centres means an increase in electricity demand, with many of the proposed data centres committing to using 100% renewable energy which will result in an increased demand for renewable electricity as detailed above.

In the context of increasing energy demand and prices, uncertainty in energy supply and the effects of climate change, our ability to harness renewable energy such as wind power plays a critical role in creating a sustainable future. The Department of the Environment, Climate and Communications set a target for Ireland of 80% of total electricity consumption to come from renewable resources by 2030, This target forms part of the Government's strategy to make the green economy a core component of its economic recovery plan for Ireland.

[12] https://igees.gov.ie/wp-content/uploads/2013/10/Future-Expenditure-Risks-associated-with-Climate-Change-Climate-Finance1.pdf
[13] https://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group_Publications/Ireland%E2%80%99s-Energy-Targets-Progress-Ambition-and-Impacts.pdf
[14] *https://windenergyireland.com/about-wind/facts-stats*
[15] *Eirgrid, SONI (2019). All-Island Generation Capacity Statement 2019-2028*
[16] *http://www.bitpower.ie/images/Reports/2020_H2_Report.pdf*

Recent communications from SEAI[17] have noted that '*meeting 2020 renewable energy and energy efficiency targets could put Ireland on a low-carbon pathway and trajectory in terms of meeting future targets in 2030 and 2050.*

The Department of Communications, Energy & Natural Resources (DCENR) noted in their Draft Bioenergy Plan 2014, that achieving the anticipated renewable energy usage in the three energy sectors will be challenging, with the 12% for renewable heat being particularly so. SEAI estimate that the shortfall could be in the region of 2% to 4% of the 12% RES-H target. Given that individual member states 2030 targets are set at a more challenging level than 2020, fines could persist for an extended number of years, and so the total cost to Ireland could run to billions. For comparison, the entire wholesale electricity market has an annual value of around €3bn.

In the medium-term, with the introduction of electric vehicles and uptake of smart demand such as storage heating and heat pumps, emissions in the heat and transport sector will be substantially reduced. A high renewables electricity system is the foundation of such a transformation.

The Energy White Paper published by DCENR in December 2015 expanded on the vision set out above. It outlines a radical transition to a low carbon future which will involve amongst other things, *'generating our electricity from renewable sources of which we have a plentiful indigenous supply'* and *'Increasing our use of electricity and biogas to heat our homes and fuel our transport'*.

The DCENR confirmed in the publication of the White Paper '*Ireland's Transition to a Low Carbon Future' 2015 – 2030*, that wind is the cheapest form of renewable energy:

> *"(Onshore wind) is a proven technology and Ireland's abundant wind resource means that a wind generator in Ireland generates more electricity than similar installations in other countries. This results in a lower cost of support."*

EU countries have agreed on a new 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030. These targets aim to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas reductions target. It is noted that a binding EU target of 32% for renewable energy by 2030 has been set by the EU 2030 Framework for Climate and Energy, with Ireland confirming its own targets for 2030 as detailed below.

Ireland will therefore have to meet even more demanding climate change and renewable energy supply obligations in order to play its part in achieving the European climate and energy ambitions. As announced in November 2021, the Irish Government have pledged to generate 80% of the country's electricity supply from renewable sources by 2030. The development of additional indigenous wind energy generating capacity, such as that at the Proposed Development, will not only help to reduce carbon emissions but will also improve Ireland's security of energy supply. Such penetration levels of wind are technically and economically feasible once paired with other energy system changes suchng electric vehicle penetration and electrification of heat. Further information on the 2030 commitments for Ireland are noted in Chapter 2, Section 2.2.

These sources of 'flexible demand' allow the system to match intermittent renewable energy resources with minimal extra cost. Additional interconnection is also planned with the UK and France, further assisting in the integration of wind (and in the future solar) on the power system.

A number of alternative energy types have been considered and assessed when considering how best to meet this renewable energy target.

[17] https://www.seai.ie/resources/publications/Ireland___s-Energy-Targets-Progress-Ambition-and-Impacts.pdf

In 2014, a report prepared by UK consultant BW Energy for the Rethink Pylons campaign group has suggested that converting Moneypoint generation station (which runs solely on coal) from coal to biomass would enable Ireland to meet 2020 renewable energy targets. Dr Brian Motherway, Chief Executive SEAI[18] refutes this claim. While Dr Motherway agrees that biomass offers benefits and is helping Ireland to move away from fossil fuels he states that "*the conversion of Moneypoint to biomass has been considered a number of times over the years, including actual trials of small amounts of biomass in the station. However, the technical and economic challenges have proven far greater than some would have us believe*".

The reason being that the move of Moneypoint from coal to biomass would not entail a clean swap. In fact, '*to allow for combustion of biomass, a full redesign and rebuild of much of the station would be required*'. In the UK where this has been done, energy generation stations have required significant financial support to make the process viable and with each unit of energy in the UK being worth approx. 13 cents, almost double that of Ireland which is approx. 7 cents, wind energy works out cheaper in Ireland. Also, the amount of biomass required to feed Moneypoint would require 300,000ha of land; an equivalent area of Counties Wexford and Carlow being planted with willow which is far more than Ireland currently produces which means we would need to import.

Importation raises the question; would this be cost effective? As prices are volatile and availability of biomass is difficult to predict Ireland would become dependent on the uncertainty of imported biomass. It is also noted that there will be emissions from transport and distribution. The further the biomass is transported, the greater the greenhouse gas emissions[19]. So, while biomass is currently contributing to a move to renewable energy production, on its own it is not the sole answer to meeting Ireland's renewable energy targets. Ireland has a legal obligation to diversify its energy sources requiring the development of renewable energy to avoid substantial fines.

More recently, and with the 2030 targets being released; the Joint Committee on Climate Action has published its cross-party report entitled, '*Climate Change: A Cross- Party Consensus for Action'* (March 2019). This report highlights the requirements for alternate energy production. More specifically, the report notes that it is currently planned to stop burning coal at Moneypoint by 2025 as well as peat at Bord na Mona and ESB stations by 2030. In November 2021, the Department of Communications, Climate Action and Environment published its Climate Action Plan (CAP), which notes the need for renewable alternatives to coal and peat. Further information on the CAP can be seen in Chapter 2.

The Climate Action Plan 2023 states that in Ireland, total electricity demand over the next ten years is forecast to grow by between 19% and 50%, largely driven by new large energy users, many of which are data centres, based on existing policies and strategies. In the high demand scenario outlined in the Programme for Government, electricity demand will almost double by 2030, while electricity emissions are to be reduced by 60-80% at the same time. Underlying drivers of changes in electricity demand include:

- Data centres are forecast to continue to grow by up to ~9 TWh in 2030 (~2316% of total demand)
- Transport electricity demand is forecast to grow (~23% p.a.) as a result of fast uptake of EV charging
- Electrical heating in industry will increase by more than 2.5 times in 2030 from 2017 levels
- Building energy efficiency improvements from an extensive retrofit programme will moderate the growth in electricity demand from new heat pumps in buildings

Against this backdrop, the importance of wind energy as the main component of Ireland's renewable energy development is acknowledged, and wind energy is accepted as the main contributor to meeting

[18] http://www.seai.ie/News_Events/Press_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html
[19] *Sustainability Criteria Options and Impacts for Irish Bioenergy Resources (SEAI 2019)*

the country's national climate change and energy supply obligations. Notwithstanding this, it must also be acknowledged that not every part of Ireland is well endowed with wind resources and therefore, not all counties will be able to deliver wind-based renewable energy. Furthermore, whilst it is accepted that there are other renewable energy technologies in operation, for the foreseeable future many areas will be unable to deliver significant renewable energy output. This primarily applies to the more populous areas.

National and international renewable energy and climate change targets must be achieved and it is crucial that these are appropriately translated and implemented at regional and local levels. Wind farm development and design involves balancing the sometimes-conflicting interests of constraints (e.g. natural and built heritage, human beings, ecological, ground conditions, hydrological, etc.) with visual amenity and the technological/economic requirements/realities of the specific project and turbines.

1.5.8 Reduction of Carbon Emissions and Other Greenhouse Gases

The production of renewable energy from the proposed development will assist in achieving the Government's and EU's stated goals of ensuring safe and secure energy supplies, promoting an energy future that is sustainable and competitively priced to consumers whilst combating energy price volatility and the effects of climate change. The Energy White Paper in 2015 outlines an ambitious Greenhouse gas reduction target of between 80% to 95%, compared to 1990 levels, by 2050. Furthermore, if national carbon emissions targets are divided out amongst each county, each Local Authority may be responsible for meeting its own targets.

In addition to a reduced dependence on oil and other imported fuels, the generation of electricity from wind power by the proposed development will displace up to approximately 179,692 tonnes of carbon emissions per annum from the largely carbon-based traditional energy mix, the detail of which is presented in Section 11.5.2 in Chapter 11 of this EIAR.

EU and World Health Organisation reports estimate that poor air quality accounted for premature deaths of almost 600,000 people in Europe in 2012[20]. In Ireland, the premature deaths attributable to air pollution are estimated at 1,200 people per annum as outlined in 'Ireland's Environment – An Assessment' (EPA, 2016.) The report states that the pollutants of most concern are NO_x, (the collective term for the gases nitric oxide and nitrogen dioxide, PM (particulate matter) and O_3 (ozone). The EPA report goes on to state that:

> *"Ireland has considerable renewable energy resources, only a fraction of which are utilised to address our energy requirements.*
>
> *Wind, ocean, solar, hydro and geothermal energy do not produce GHG (greenhouse gas) emissions or emissions of air pollutants such as particulates, sulphur dioxide and nitrogen dioxide. Use of these renewable resources can have* ***considerable co-benefits for human health and ecosystems****. Meeting energy requirements from renewable resources can provide significant economic and employment benefits at local to national scales."*

The proposed development therefore represents an opportunity to further harness Ireland's significant renewable energy resources, with valuable benefits to air quality and in turn to human health. The consumption of fossil fuels for energy results in the release of particulates, sulphur dioxide and nitrogen dioxide to our air. The use of wind energy, by providing an alternative to electricity derived from coal, oil or gas-fired power stations, results in emission savings of carbon dioxide (CO_2), oxides of nitrogen (NO_x), and sulphur dioxide SO_2, thereby resulting in cleaner air and associated positive health effects.

20 www.euro.who.int/en/health-topics/environment-and-health/air-quality/news/news/2014/03/almost-600-000-deaths-due-to-air-pollution-in-europe-new-who-global-report

1.5.9 Economic Benefits

In addition to helping Ireland avoid significant fines and reducing environmentally damaging emissions, the proposed project will have significant economic benefits. At a national level, Ireland currently has one of the highest external dependencies on imported sources of energy, such as coal, oil and natural gas. As detailed above, in 2019 the cost of all energy imports to Ireland was approximately €4.5 billion with imported fossil fuels accounting for 69% of all energy consumed ('Energy in Ireland 2020', Sustainable Energy Authority of Ireland, 2020).

The SEAI report 'Energy in Ireland 2020' indicated that renewable electricity (mostly wind energy)in 2019:

- Displaced €501 million in fossil fuel imports; and
- Reduced CO2 emissions by 4.8 million tonnes.

The 2014 report 'The Value of Wind Energy to Ireland', published by Pőyry, stated that growth of the wind sector in Ireland could support 23,850 jobs (construction and operational phases) by 2030. If Ireland instead chooses to not develop any more wind, then by 2030 the country will be reliant on natural gas for most of our electricity generation, at a cost of €671 million per annum in fuel import costs.

A 2021 MaREI report includes a prospective view of Ireland's energy sector in 2050 whereby an additional 25,000 jobs would be created in the development of onshore and offshore wind to meet the zero carbon targets as pledged in the Climate Action and Low Carbon Development Act 2021 discussed in section 1.5.1.1 above.

Likewise, the Proposed Development will have several significant long-term and short-term benefits for the local economy including job creation, landowner payments, local authority commercial rate payments and a Community Benefit Scheme

The proposed development will be capable of providing power to supply between 96,360 and 144,540 households every year, as presented in the calculations in Section 4.3.1.5 of this EIAR.

At a Regional Level, the Proposed Development will help to supply the rising demand for electricity, resulting from renewed economic growth. The EirGrid report 'All-Island Generation Capacity Statement 2020 – 2029' (August 2020) notes that electricity demand on the island of Ireland is expected to grow by 33% and 50% over the next ten years. Much of this growth is expected to come from new data centres in Ireland.The proposed development will have several significant long-term and short-term benefits for the local economy including job creation, local authority commercial rate payments and a Community Benefit Scheme.

The annual commercial rate payments from the proposed development to Mayo County Council will be redirected to the provision of public services within those counties. These services include items such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives.

It is estimated that the proposed project will create approximately 100-120 jobs during the construction phase and 2-3 jobs during the operational and maintenance phases of the proposed development. During construction, additional employment will be created in the region through the supply of services and materials to the development. In addition to this, there will also be income generated by local employment from the purchase of local services i.e. travel and lodgings.

Should the proposed development receive planning permission, there are substantial opportunities available for the local area in the form of Community Benefit Funds. Based on the current proposal, a Community Benefit Fund in the region of €10.5million will be made available over the lifetime of the project. The value of this fund will be directly proportional to the installed capacity and/or energy

produced at the site and will support and facilitate projects and initiatives including youth, sport and community facilities, schools, educational and training initiatives, and wider amenity, heritage, and environmental projects.

Further to the above, the recent Renewable Energy Support Scheme (RESS) Terms and Conditions, published by the Department of Communications, Climate Action and Environment on the 29th October 2021, make some high level provisions for how this type of benefit fund will work. Any project which wants to export electricity to the national grid, and is in receipt of a RESS contract, must abide by these broad principles. These include the following:

1. *a minimum of €1,000 shall be paid to each household located within a distance of a 1 kilometre radius from the Project;*
2. *a minimum of 40% of the funds shall be paid to not-for-profit community enterprises whose primary focus or aim is the promotion of initiatives towards the delivery of the UN Sustainable Development Goals, in particular Goals 4, 7, 11 and 13, including education, energy efficiency, sustainable energy and climate action initiatives;*
3. *a maximum of 10% of the funds may be spent on administration. This is to ensure successful outcomes and good governance of the Community Benefit Fund.*
4. *the balance of the funds shall be spent on initiatives successful in the annual application process, as proposed by clubs and societies and similar not-for-profit entities, and in respect of Onshore Wind RESS 1 Projects, on "near neighbour payments" for households located outside a distance of 1 kilometre from the Project but within a distance of 2 kilometres from such Project.*

Further details on the proposed Community Gain proposals are presented in Section 4.5 and Appendix 2-2 of this EIAR.

1.5.10 Recreational Benefits

In addition to the economic and environmental benefits of the proposed development, there will be social and recreational benefits associated with the recreational and amenity proposals that will form part of the project.

The proposed development and all its associated infrastructure creates a unique opportunity to develop an amenity area for use by members of the local and wider community alike. The upland nature of the site is attractive to both locals and visitors to the area. It is proposed to develop recreational walks as part of the Glenora Wind Farm project which will utilise existing forest tracks and include new wind farm roads and designated walkways . This proposal is based on the current use of the wider area as an informal walking route; where the proposed amenity facilities will allow for a safer and improved visitor experience and allow the site to be more openly available to walkers, trail runners, cyclists and other recreational users, as outlined in Section 4.6 of Chapter 4 of this EIAR.

This will provide a long-term benefit to both the local community and visitors to the area.

1.6 Purpose and Scope of the EIAR

The purpose of this EIAR is to document the current state of the environment in the vicinity of the proposed development site and to quantify the likely significant effects of the proposed development on the environment in accordance with the requirements of the EIA Directive, as amended. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative impacts arising from the proposed development.

It is important to distinguish the Environmental Impact Assessment (EIA) to be carried out by the competent authorities, from the EIAR and the accompanying planning application. The EIA is the

assessment carried out by the competent authority, which includes an examination that identifies, describes and assesses in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, the direct and indirect significant effects of the proposed development on the following:

- Population and Human Health,
- Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC
- Land, Soil, Water, Air, Climate,
- Material Assets, Cultural Heritage and the Landscape
- Interactions between these factors.

The effects referred to above in relation to the EIA process also includes the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned.

The EIAR provides the relevant environmental information to enable the EIA to be carried out by the competent authorities. The information to be contained in the EIAR is prescribed in Article 5 of the EIA Directive, as amended and described in Section 1.2.2 above.

1.7 Structure and Content of the EIAR

Volume 1 of this EIAR uses the grouped structure method to describe the existing environment, the potential impacts of the proposed development thereon and the proposed mitigation measures. Background information relating to the proposed development, scoping and consultation undertaken and a description of the proposed development are presented in separate sections. The grouped format sections describe the effects of the proposed development in terms of population and human health, biodiversity, ornithology soils and geology, hydrology and hydrogeology, air and climate, noise and vibration, landscape and visual, cultural heritage and material assets such as traffic and transportation, together with the interaction of the foregoing, as well as the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned..

The chapters of this EIAR are as follows:

- Introduction
- Background to the Proposed Development
- Consideration of Reasonable Alternatives
- Description of the Proposed Development
- Population and Human Health
- Biodiversity (excluding Birds)
- Ornithology
- Land, Soils and Geology
- Hydrology and Hydrogeology
- Air Quality
- Climate
- Noise and Vibration
- Archaeology and Cultural Heritage
- Landscape and Visual
- Material Assets (including Traffic and Transport, Telecommunications, Aviation and Other Utilities)
- Major Accidents and Natural Disasters
- Interaction of Effects
- Schedule of Mitigation and Monitoring Measures

The EIAR also includes a Non-Technical Summary, which is a condensed and easily comprehensible version of the EIAR document. The non-technical summary is laid out in a similar format to the main EIAR document and comprises a description of the proposed development followed by the existing environment, impacts and mitigation measures presented in the grouped format.

The photomontage booklet, pertaining to Chapter 14: Landscape and Visual, is included as Volume 2 of this EIAR.

Appendices to the chapters listed above are included in Volume 3 of this EIAR.

Each technical assessment included in the EIAR has followed the same general format:

- **Assessment Methodology and Significance Criteria:** A description of the methods used in baseline surveys and in the assessment of the significance of effects;
- **Baseline Description:** A description of Proposed Development site (defined in Section 1.4 above) baseline relevant for the assessment, based on the results of surveys, desk information and consultations, and a summary of any information required for the assessment that could not be obtained and how this affects the description of the baseline (this also includes the "Do-Nothing" scenario which is an outline of the likely evolution of the baseline without implementation of the project 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);
- **Assessment of Potential Environmental Effects:** A description of how the baseline environment could potentially be affected by the Proposed Development, including a summary of the measures taken during the design of the EIA Development to minimise effects;
- **Mitigation Measures and Residual Effects** - A description of proposed measures that will be implemented to minimise and/or avoid potential negative effects and a summary of the assessed level significance of the effects of the Proposed Development and/or the EIA Development after mitigation measures have been implemented;
- **Cumulative Effects**: A description identifying the potential for effects of the Proposed Development to combine with those from other existing and/or permitted developments to affect resources;

1.7.1 Description of Likely Significant Effects and Impacts

As stated in the *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2022), an assessment of the likely impacts of a proposed development is a statutory requirement of the EIA process. The statutory criteria for the presentation of the characteristics of potential impacts requires that potential significant impacts are described with reference to the extent, magnitude, complexity, probability, duration, frequency, reversibility and trans-boundary nature (if applicable) of the impact.

The classification of impacts in this EIAR follows the definitions provided in the Glossary of Impacts contained in the following guidance documents produced by the European Commission (EC) and the Environmental Protection Agency (EPA):

- 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, May 2022)
- 'Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report' (EC, 2017)
- 'Advice Notes for Preparing Environmental Impact Statements – Draft September 2015' (EPA, 2015).

- 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (EPA, 2003)

The European Commission published a number of guidance documents in December 2017 in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU as amended by 2014/52/EU) including 'Guidance on Screening', 'Guidance on Scoping' and 'Guidance on the preparation of the Environmental Impact Assessment Report', which have also been consulted.

Table 1-2 below, presents the glossary of impacts as published in the EPA guidance documents. Standard definitions are provided in this glossary, which permit the evaluation and classification of the quality, significance, duration and type of impacts associated with a proposed development on the receiving environment. The use of pre-existing standardised terms for the classification of impacts ensures that the EIA employs a systematic approach, which can be replicated across all disciplines covered in the EIAR. The consistent application of terminology throughout the EIAR facilitates the assessment of the proposed development on the receiving environment.

Table 1-2 Impact Classification Terminology (EPA, 2017)

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative	A change which reduces the quality of the environment
Significance	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
	Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment

Impact Characteristic	Term	Description
	Profound	An effect which obliterates sensitive characteristics
Extent & Context	Extent	Describe the size of the area, number of sites and the proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions
Probability	Likely	Effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented
	Unlikely	Effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented
Duration and Frequency	Momentary	Effects lasting from seconds to minutes
	Brief	Effects lasting less than a day
	Temporary	Effects lasting less than a year
	Short-term	Effects lasting one to seven years
	Medium-term	Effects lasting seven to fifteen years
	Long-term	Effects lasting fifteen to sixty years
	Permanent	Effect lasting over sixty years
	Reversible	Effects that can be undone, for example through remediation or restoration
	Frequency	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Type	Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway

Impact Characteristic	Term	Description
	Cumulative	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	'Do Nothing'	The environment as it would be in the future should the subject project not be carried out
	'Worst Case'	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable	When the full consequences of a change in the environment cannot be described
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents

Each impact is described in terms of its quality, significance, extent, duration and frequency and type, where possible. A 'Do-Nothing' impact is also predicted in respect of each environmental theme in the EIAR. Residual impacts are also presented following any impact for which mitigation measures are prescribed. The remaining impact types are presented as required or applicable throughout the EIAR.

Any potential interactions between the various aspects of the environment assessed throughout this EIAR are presented in Chapter 16: Interaction of the Foregoing.

1.8 Project Team

1.8.1 Project Team Responsibilities

The companies and staff listed in Table 1-3 were responsible for completion of the EIAR of the proposed development. Further details regarding project team members are provided below.

The EIAR project team comprises a multidisciplinary team of experts with extensive experience in the assessment of wind energy developments and in their relevant area of expertise. The qualifications and experience of the principal staff from each company involved in the preparation and scripting of this EIAR are summarised in Section 1.8.2 below. Each chapter of this EIAR has been prepared by a competent expert in the subject matter. Further details on project team expertise are provided in the Statement of Authority at the beginning of each impact assessment chapter.

Table 1-3 EIAR Project Team

Consultants	Principal Staff Involved in Project	EIAR Input
MKO Tuam Road, Galway Ireland, H91 VW84	Michael Watson Colm Ryan John Willoughby Eoin McCarthy Pat Roberts Padraig Cregg Inga Reich Colin Murphy Aoife Joyce Patrick Manley Jack Smith Jack Workman Karen Mulryan Shaun Doolin Tommy Harlin Jonny Fearon Edward Ryan Ellen Costello	Project Managers, Scoping and Consultation, Preparation of Natura Impact Statement, Report Sections: › 1. Introduction › 2. Background to the Proposed Development › 3. Consideration of Alternatives › 4. Description of the Proposed Development › 5. Population & Human Health (Shaun Doolin, Edward Ryan) › 6. Biodiversity (Colin Murphy Pat Roberts) › 10. Air Quality(Eoin McCarthy) › 11. Climate (Catherine Johnson, Ellen Costello › 14. Landscape & Visual (Jack Workman, Jack Smith) › 15. Material Assets (non-Traffic)

Consultants	Principal Staff Involved in Project	EIAR Input
	Catherine Johnson Darragh Buckley Joseph O'Brien	(Edward Ryan, Eoin McCarthy) 16. Vulnerability of the Project to Accidents and Natural Disasters (Shaun Doolin, Eoin McCarthy) 17. Interaction of the Foregoing (Edward Ryan) 18. Schedule of Mitigation Measures
CDM Smith Ireland Ltd. 15 Wentworth Eblana Villas Dublin 2	Henning Moe Jon Hunt Ruairi O'Carroll	Flood Risk Assessment, Drainage Design, Preparation of Chapter 9. Water
Fehily Timoney & Company (formerly Applied Ground Engineering Consultants Ltd.) The Grainstore Singletons Lane Bagnelstown Co. Carlow	Ian Higgins Emily Archer	Preparation of Report Section 8. Land, Soils and Geology Preparation of Geotechnical & Peat Stability Assessment and Peat & Spoil Management Plan
TNEI 7th Floor, West One, Forth Banks,	Gemma Clark Jason Baldwin Ewan Watson Jim Singleton	Baseline Noise Survey, Preparation of Chapter 12: Noise and Vibration

Consultants	Principal Staff Involved in Project	EIAR Input
Newcastle upon Tynes, NE1 3PA		
Tobar Archaeological Services Saleen Midleton Co. Cork	Miriam Carroll	Preparation of Chapter 13: Cultural Heritage and Archaeology
Alan Lipscombe Traffic and Transport Consultants Claran, Headford, Co. Galway	Alan Lipscombe	Swept Path Analysis, Preparation of Chapter 15: Material Assets – Traffic and Transport
Malachy Walsh & Partners Park House, Bessboro Road, Blackrock, Cork.	Hazel Dalton	Ornithological (Bird) Surveys, Preparation of Bird Impact Assessment Report (Appendix 7-1)
BioSphere Envionmental Services La Touche Park, Rathdown Lower, Greystones, Co. Wicklow	Brian Madden	Preparation of Bird Impact Assessment Report

1.8.2 Project Team Members

1.8.2.0 MKO

Michael Watson, MA; Miema CEnv PGeo

Michael Watson is a Director in MKO. Michael has over 21 years' experience in the environmental sector. Following the completion of his Master's Degree in Environmental Resource Management, Geography, from National University of Ireland, Maynooth he worked for the Geological Survey of Ireland and then a prominent private environmental & hydrogeological consultancy prior to joining MKO in 2014. Michael's professional experience includes managing Environmental Impact Assessments, EPA License applications, hydrogeological assessments, environmental due diligence and general environmental assessment on behalf of clients in the wind farm, waste management, public sector, commercial and industrial sectors nationally. Michaels key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, Environmental Protection Agency (EPA) and statutory consultees as well as coordinating the project teams and sub-contractors. Michael is a key member of the MKO senior management team and as head of the Environment Team has responsibilities to mentor various grades of team members, foster a positive and promote continuous professional development for employees. Michael also has a Bachelor of Arts Degree in Geography and Economics from NUI Maynooth, is a Member of IEMA, a Chartered Environmentalist (CEnv) and Professional Geologist (PGeo).

Colm Ryan

Colm Ryan is a Director at MKO, Planning & Environmental Consultants, and manager of the Planning Team with 17 years' experience post-graduation. His areas of expertise include Planning Strategy and Knowledge of the Planning Process. Colm has extensive experience dealing with planning projects across a wide spectrum of land uses with a particular focus on residential, mixed use, medical and renewables. This experience of working with clients, design teams, local authorities and An Bord Pleanála has given Colm an in-depth knowledge of the planning issues that arise during all phases of a project.

John Willoughby

John is a Project Planner in MKO with over 7 years experience across planning consultancy and environmental management. John holds a BA (Hons) in Geography, Planning and Environmental Policy, and an MSc (Hons) in Environmental Policy, both from UCD, and recently completed an Advanced Diploma in Planning and Environmental Law at Kings Inns. Prior to taking up his position with MKO in 2022, John worked in planning consultancy since 2017, managing and assisting with the coordination of development projects throughout the statutory planning process, from feasibility stage to final grant and planning compliance, carrying out due diligence, feasibility assessments, development potential reports, appeals, submissions and bespoke planning advice on a wide range of development projects. John also has previous experience in environmental management in both the Pharmaceutical and Infrastructure sectors.

Through both his professional and academic experience, John has gained skills in urban planning, Environmental Impact Assessment, regeneration, development management, project management, strategic planning and policy research. John is a corporate member of the IPI with specialist knowledge in national, regional and local planning policy and guidance, development management and strategic planning analysis for a wide range of projects across the residential, commercial, mixed-use, retail and renewable energy sectors. Within MKO, John works as part of a larger multidisciplinary team to coordinate the development of planning applications for renewable energy infrastructure for submission to both Local Authorities and An Bord Pleanála.

Eoin McCarthy B.Sc. (Env.)

Eoin is a Senior Environmental Scientist with McCarthy O'Sullivan Ltd. with over 12 years of environmental consultancy experience. Eoin holds B.Sc. (Hons) in Environmental Science from NUI, Galway. Eoin took up his position with McCarthy Keville O'Sullivan in June 2011. Eoin's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Since joining MKO Eoin has been involved as a Graduate, Assistant and Project Environmental Scientist on a significant range of energy infrastructure, tourism, waste permit, flood relief scheme and quarrying projects. He has overseen some of the largest SID wind energy in Ireland in recent years. In his role as project manager, Eoin works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs. Eoin is also involved in the development of project strategy for the projects that he manages. He has held the role of project manager on over 500MW worth of wind energy projects. Within MKO Eoin plays a large role in the management of and sharing of knowledge with junior members of staff and works as part of a large multi-disciplinary team to produce EIA Reports.

Pat Roberts

Pat Roberts is Principal Ecologist with MKO with over 18 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.Sc.(Hons) in Environmental Science. Pat has extensive experience of providing ecological consultancy on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He has designed numerous Environmental Operating Plans and prepared many environmental method statements in close conjunction with project teams and contractors. He has worked extensively on the identification, control and management of invasive species on numerous construction sites. Prior to taking up his position with MKO in June 2005, Pat worked in Ireland, USA and UK as a Tree Surgeon and as a nature conservation warden with the National Trust (UK) and the US National Park Service. Pats key strengths include his depth of knowledge and experience of a wide range of ecological and biodiversity topics and also in his ability to understand the requirements of the client in a wide range of situations. He is currently responsible for staff development, training and ensuring that the outputs from the ecology team are of a very high standard and meet the requirements of the clients and relevant legislation and guidelines. He is a full member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM).

Padraig Cregg B.Sc. (Zoo.), M.Sc. (Eco.)

Padraig Cregg is a Senior Ornithologist with McCarthy O'Sullivan Ltd. with over 10 years of experience in both private practice and NGOs. Padraig holds a BSc (Hons) in Zoology and Masters in Evolutionary and Behavioural Ecology. Prior to taking up his position with McCarthy Keville O'Sullivan in December 2018, Padraig worked as a Senior Ornithologist and held previous posts with TOBIN Consulting Engineers, Energised Environments Ltd in Scotland, WSP Environment and Energy Ltd in Scotland and BirdWatch Ireland. Padraig has specialist knowledge in designing, executing and project managing ornithological assessments, primarily in the renewable industry. Padraig's key strengths and areas of expertise are in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and the Biodiversity chapter of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. Since joining MKO Padraig has been involved in designing, executing and project managing the ornithological assessment on over 20 proposed wind farm developments. He has played a key role in project managing these planning applications through the statutory planning system, with more projects in the pipeline. Within MKO Padraig plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR and NIS Reports.

Inga Reich.

Inga Reich is an Ecologist with MKO since October 2020. She holds a German Diplom in Biology and a PhD in Applied Ecology focused on e.g., the impact of forestry operations on the Kerry slug. Prior to taking up her position with MKO, Inga has worked as a postdoctoral researcher investigating the biological control potential of ground beetles for slugs and other invertebrate pests in Oregon and Ireland and as a sampling technician for Complete Laboratory Solutions. She has previously worked for MKO in a temporary matter, aiding to prepare a UNESCO report and has conducted Kerry slug surveys and written accompanying reports on a freelance basis for Feehily, Timoney & Co and RPS Consulting Engineers. Inga's key strengths and areas of expertise are in Kerry slug and terrestrial invertebrate surveys, data analysis and report writing. Within MKO, Inga has been involved in conducting multi-disciplinary ecological surveys and in preparing Stage 1 and Stage 2 Appropriate Assessment reports and Ecological Impact Assessments.

Colin Murphy

Colin Murphy is a project ecologist with MKO who took up his position in March 2020. Colin holds an B.Sc. degree in Ecology and Environmental Biology from University College Cork and an M.Sc. degree in Ecosystem Science and Policy from University College Dublin. Colin's key strengths and areas of expertise are in habitat and ecological surveying, report writing, GIS and data analysis/interpretation. Colin has a broad range of ecological experience in vegetation surveys, freshwater invertebrate surveys and pollinator surveys. Colin also has experience in hydromorphological surveying using the MoRPH surveying technique.

Aoife Joyce B.Sc. (Env.), M.Sc. (Ag.)

Aoife Joyce is a Project Director with MKO Planning and Environmental Consultants with experience in research, consultancy and drilling contractors. Aoife is a graduate of Environmental Science (Hons.) at NUIGalway, complemented by a first class honours MSc in Agribioscience. Prior to taking up her position with MKO in May, 2019, Aoife worked as an Environmental Scientist with Irish Drilling Ltd. and held previous posts with Inland Fisheries Ireland and Treemetrics Ltd. She has a wide range of experience from bat roost identification, acoustic sampling, sound analysis, soil and water sampling, Waste Acceptability Criteria testing, electrofishing, mammal and habitat surveying to GIS, Environmental Impact Assessments (EIAs) and mapping techniques. Since joining MKO, Aoife has been involved in managing bat survey requirements for a variety of wind farm planning applications, as well as commercial, residential and infrastructure projects. This includes scope development, roost assessments, deploying static bat detectors and weather stations nationwide, dawn and dusk bat detection surveys, sonogram analysis, mapping, impact assessment, mitigation and report writing. Within MKO, she works as part of a multidisciplinary team to help in the production of ecological reports and assessments. Aoife is a member of Bat Conservation Ireland and CIEEM and holds a current Bat Roost Disturbance licences.

Patrick Manley

Patrick Manley is an ornithologist at McCarthy Keville O'Sullivan. He attended University College Dublin where he completed a BSc (Hons) in Geology. Prior to joining the company in September 2016 Patrick worked as part of the conservation team in BirdWatch Ireland, on projects such as the Dublin bay birds project, Kilcoole Little Tern conservation project and the results based agri-environmental scheme for breeding waders. He has extensive experience surveying birds through other projects such as the Irish wetlands bird survey, the Inishmurray all-island breeding birds survey, the national Hen Harrier survey and the countryside bird survey. Patricks key strengths and areas of expertise are in bird surveying and data management. Since joining MKO Patrick has been involved in a wide variety of bird surveys for wind farms, solar farms and the NPWS.

Jack Smith

Jack Smith is a Project Environmental Scientist and Landscape and Visual Impact Assessment (LVIA) Specialist with MKO, he took up his position in May 2021, upon completion of his MSc. in Environmental Leadership from NUIG. Jack is an Affiliate member of the British Landscape Institute and holds membership with the Landscape Research Group. Jack is also a Practitioner member of the Institute for Environmental Management and Assessment. Jack's key strengths and expertise lie in conducting Landscape and Visual Impact Assessments (LVIA) (both as standalone reports and as part of the preparation of Environmental Impact Assessment Reports (EIAR)), GIS Mapping and Analysis, and Project Management. Jack specialises in preparing Landscape and Visual Impact Assessment Reports for large-scale renewable energy projects including wind farms, solar farms, as well as a range of other projects such as large-scale habitat restoration schemes, quarry extraction and large-scale housing schemes. In addition, Jack has experience in preparing strategic level and project level landscape feasibility reports for large wind farm projects. Jack also has legal and regulatory knowledge and expertise due to his LL.M. in International Environmental and Energy Law.

Jack Workman

Jack is the Landscape & Visual Project Director at MKO and is chartered as a Technician Member with the British Landscape Institute. Jack is a Landscape and Visual Impact Assessment Specialist with an academic background in the field of Environmental Science and Geography. Jack's primary role at MKO is conducting Landscape and Visual Impact Assessment (LVIA) for Environmental Impact Assessment reports. Jack holds a BSc. in Psychology, and an MSc. in Coastal and Marine Environments (Physical Processes, Policy & Practice) where he was awarded the Prof. Máirín De Valéra distinction in science research award. Prior to taking up his position with MKO, Jack worked as a Geospatial Analyst and Research Assistant with NUIG and also held previous posts in the coastal engineering sector with Royal Haskoning DHV and Saltwater Technologies. Since joining MKO in February 2020, Jack has conducted and project managed all aspects of LVIA for a broad range of commercial infrastructure developments including wind and solar energy projects, grid infrastructure, extraction industry and Strategic Housing Developments. Jack holds a membership with the Chartered Institute of Water and Environmental Management and is also a member of the Landscape Research Group.

Karen Mulryan BA MSc ACIfA IAI

Karen is a Project Environmental Scientist with MKO with over 7 years' experience in the consultancy sector. Karen holds a BA International in Archaeology from NUI Galway and a MSc in Archaeology from the University of Edinburgh. Karen's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Since joining MKO, Karen has gained experience managing and assisting managers on wind farm projects of various scales including SID applications across Ireland. Karen's previous project management role included coordinating Environmental Assessments and site work for a wide range of developments such as solar, energy storage, single wind applications, retail, EV stations etc., for full, amendment, FI, Clarification FI, exempted development and SID applications in Ireland and the UK. Karen has experience in report writing, input into EIAR chapters, feasibility studies and EIA screening reports, liaising with planning authorities and managing subconsultants. Karen has a wide range of experience in the commercial sector including watching briefs on behalf of SouthEast Water England; watching briefs during the ground works of a solar farms in the UK; field excavation and survey of Iron Age, Roman and Medieval sites in Ireland and the UK; and desk-based assessments and heritage walk over surveys. Karen holds memberships with the Chartered Institute for Archaeologists (ACIfA) and the Institute of Archaeologists of Ireland (IAI).

Shaun Doolin BA. (Hons.), M.Sc. (Hons.)

Shaun is a Graduate Environmental Scientist with MKO having joined the company in March 2021. Shaun holds an MSc (Hons) in Environmental Science and a BA (Hons) in General Science/Geography

from Trinity College Dublin, where he focused his studies on environmental data analysis. Shaun's key strengths and expertise are GIS, data analysis, fieldwork, project management and report writing. Since joining MKO, Shaun has been involved in a range of large-scale onshore wind farm developments. In his role as an Environmental Scientist, Shaun works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs to accompany Planning Applications for various large-scale renewable energy developments.

Jonny Fearon

Jonny Fearon is an Environmental Scientist with MKO having joined the company in March 2022. Jonny holds a BSc (Hons) Environmental Science, and a MSc (Hons) in Environmental Leadership and a Specialist Diploma in Corporate Environmental Planning. Jonny's key strengths are GIS, data analysis, fieldwork and report writing. Since joining MKO, Jonny has been involved in a range of wind farm projects. In his role as an Environmental Scientist, Jonny works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs.

Edward Ryan B.Sc. (Env), M.Sc.

Edward is an Environmental Scientist with a B.Sc. (Hons) in Environmental Science from the University of Limerick and a M.Sc. (hons) in Environmental Systems from Atlantic Technological University: ATU (formally GMIT). Edward has been involved in a myriad of environmental service offerings at MKO including EIA Screenings and Reports, and renewable energy infrastructure projects.

Ellen Costello

Ellen Costello is a Project Environmental Scientist at MKO, Ireland's largest planning and environmental consultancy. Ellen holds an MSc in Climate Change from the University of Copenhagen where she focused her studies on climate policy, renewable energy development in Europe and its implications on the environment and society. Ellen has over four years environmental consultancy experience with MKO as a project manager and lead coordinator of environmental impact assessments on over 250MW worth of renewable energy infrastructure projects.

Catherine Johnson

Catherine is a Climate Practitioner and Environmental Scientist with MKO with over one year of private consultancy experience and expertise in climate and sustainability matters. Catherine holds a BSc in Earth and Ocean Science and a LLM in Global Environment and Climate Change Law. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise regarding international climate law and policy, earth processes, ocean science, and sustainability/ESG. Catherine has been involved in a myriad of environmental service offerings at MKO including EIA Screenings and Reports, climate and sustainability related work and renewable energy infrastructure projects.

Tommy Harlin

Tommy is Graduate Planner with MKO and has 1 year of professional experience. He holds a BSc. in City Planning and Environmental Policy and a MSc. in Urban and Regional Planning from University College Dublin. Tommy also a member of Irish Planning Institute.

Darragh Buckley

Darragh Buckley currently holds the role of Graphics Technician within MKO. Darragh has achieved a B. Eng. in Video and Sound Technology awarded from the Limerick Institute of Technology. Prior to taking up his position with MKO in November 2019, Darragh worked as a graphic designer within the design and print industry. Darragh has worked for print / design companies such as Cube Printing (Limerick) and Dyna Signs (Galway), as well as operating his own freelance design business. His key skills involve the proficient use of the Adobe Suite, e.g. Photoshop, InDesign, and Illustrator. These acquired skills have greatly benefited him when applying them to the production of EIAR Photomontages, Website design and other MKO graphic requirements.

Joseph O'Brien

Joseph O'Brien holds the position of CAD Technician. Joseph holds a BA Honours Level 8 Modelmaking, Design and Digital Effect, Institute of Art Design and Technology (IADT), Dun Laoghaire & City & Guilds Level 3 2D &3D AutoCAD certificates. Joseph joined MKO in 2016 and his role entails mapping, aerial registration and detailed design drawings for renewable, commercial and residential projects. Prior to joining us, Joseph worked as a free-lance CAD Technician for various projects.

1.8.2.1 CDM Smith Ireland Ltd.

Henning Moe P.Geo

Henning Moe is a registered professional geologist (P. Geo.) with the Institute of Geologists of Ireland and has more than 30 years of practical experience conducting hydrological and hydrogeological site investigations in Ireland and around the world. He has worked on several projects for EPA related to the implementation of the European Union Water Framework Directive (WFD). This included working with EPA's Catchment Science and Management Unit to prepare guidance on Investigative Assessments of rural catchments involving peat- and forestry-related pressures, and relevant mitigation measures to protect water quality. Henning has also worked on projects with the National Parks and Wildlife Service (NPWS) and both the Pesticide Control and Forestry Services of the Department of Agriculture, Food and Marine (DAFM). With MKO, he assisted the review of potential impacts of planned improvement works along the Kiltiernan-Ballinderreen Flood Mitigation Scheme on Natura 2000 sites (specifically, fens), and for Kerry County Council, he reviewed flood risk downstream of a proposed major quarry development based on a discharge of 25,000 m^3/d.

Henning is experienced with the preparation and review of hydrology and hydrogeology chapters of EIARs, including proposed developments that involve forestry pressures and peat bogs, and which are characterised by artificial drainage networks and potential effects on water quality. For Irish Water, he provided peer review of the Land, Soils, Geology and Hydrogeology chapter of the draft EIAR for the Shannon Pipelines project which traverses more than 25 km of peatland. For Bord na Móna, he is leading the preparation of the Soils, Geology and Hydrogeology, and Water, chapters for a proposed expanded landfill development in Timahoe Bog. Henning is an experienced presenter at public meetings, workshops, training courses and conferences.

Henning was supported by Dr Jon Hunt who contributed technically to the planning stage drainage plan. Jon has 20 years of experience which has included mapping upland and peat terrains through his geological research (e.g., mapping 34 km^2 at 1:10,560 scale in upland areas of the west of Ireland), and managing flood risk assessments of housing developments using modelling techniques and mitigation measures to alleviate potential downstream risks and impacts.

Technical review was provided by Ruairi O'Carroll BE MEng Sc CEng MIEI, a chartered engineer with over 20 years of experience in the management and delivery of environmental and engineering projects. Ruairi has prepared feasibility studies, preliminary reports and assessment studies for a range

of water and environmental projects, and has extensive expertise in the preparation of tender documents, procurement and contract management.

1.8.2.2 Fehily Timoney & Company

Fehily Timoney & Company Ltd. (FT) recently acquired AGEC Ltd. adding to their growing geotechnical team. The geotechnical aspects of the report, which will be incorporated into the Geology & Soils and Water sections of the EIAR, will be completed by Fehily Timoney & Company Ltd. FT (previously AGEC) has extensive experience in the production of Peat Stability Assessments for wind energy developments. They provide specialist geotechnical engineering and engineering geology advice to local authorities, contractors and consultants, particularly for infrastructure projects forming part of the National Development Plan and also for private commercial and residential developments as they move on to sites with more complex ground conditions.

Ian Higgins

Ian is a geotechnical engineer with over 25 years' experience in the design and supervision of construction of bulk earthworks, geotechnical foundation design, geotechnical monitoring and reviewing, reinforced earth design and 3rd party checking of piling and ground improvement designs. Ian holds a BSc (Hons) Engineering Geology from University of Sunderland, and a MSc in Geotechnical Engineering from the Heriot-Watt University. Ian's experience also includes the design, supervision and interpretation of ground investigations, including desk studies, walkover surveys, hazard mapping of rock excavations and slopes.

Ian has experience in many areas of civil engineering including highways, railways, energy projects and commercial developments. Ian's responsibilities include managing junior engineers, reviewing work carried out for ground investigation, reporting and design. Ian has also experience in using a number of geotechnical software packages including slope stability, finite element, pile design and retaining wall design.

Emily Archer

Emily Archer (BSc Geology, MSc Applied Environmental Geology) is a Geotechnical Engineer with 5 years' experience and has been involved in the preparation of several peat stability reports and Land, Soils & Geology Chapters for EIAR's for wind farm developments.

1.8.2.3 TNEI

The noise assessments were carried out by TNEI Services Ltd. TNEI is a specialist energy consultancy with an Acoustics team that has undertaken noise assessments for over 4.5 GW of onshore wind farm developments.

The construction noise assessment was undertaken by Ewan Watson (BEng, Dip, AMIOA). Ewan Is a Senior Consultant with over seven years experience of undertaking construction noise assessments. Ewan holds the Diploma in Acoustics and Noise Control and is an associate member of the Institute of Acoustics. The construction noise assessment was reviewed and approved by Jim Singleton (BSc, Dip, MIOA). Jim is a Principal Consultant who has over 16 years experience in undertaking a wide variety of noise assessments. Jim holds the Diploma in Acoustics and Noise Control and is a full member of the institute of Acoustics.

The operational noise assessment was undertaken by Gemma Clark (BSc, MSc, AMIOA). Gemma is a Principal Consultant with over sixteen years experience of undertaking wind farm noise assessments. Gemma is an associate member of the Institute of Acoustics. The operational noise assessment was reviewed and approved by Jason Baldwin (BSc, Dip, AMIOA). Jason is a Principal Consultant with

over ten years experience of undertaking wind farm noise assessments. Jason holds the Diploma in Acoustics and Noise Control and is an associate member of the Institute of Acoustics.

1.8.2.4 Tobar Archaeological Services Ltd.

Tobar Archaeological Services is a Cork-based company in its 17th year in business. They offer professional nationwide services ranging from pre-planning assessments to archaeological excavation, and cater for clients in state agencies, private and public sectors.

Tobar's Director, Miriam Carroll, is a licensed by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs to carry out excavations in Ireland and have carried out work directly for the National Monuments Services of the Department of the Environment, Heritage and Local Government. Tobar Archaeological Services has a proven track record and extensive experience in the wind farm industry from EIS/EIAR stage through to construction stage when archaeological monitoring is frequently required.

Miriam holds a Degree in Archaeology (1993-1996) and a 2 year Masters in Methods and Techniques in Irish Archaeology (1996-1998) from UCC and has over 20 years' experience in private sector archaeology. Miriam has managed and co-ordinated numerous projects from commencement stage to completion on behalf of numerous small and large companies.

1.8.2.5 Alan Lipscombe Traffic and Transport Consultants

Alan Lipscombe (B.Eng. Hons.) MIHT

In January 2007 Alan Lipscombe set up an independent traffic and transportation consultancy providing advice for a range of clients in the private and public sectors. Prior to this Alan was a founding member of Colin Buchanan's Galway office having moved there as the senior transportation engineer for the Galway Land Use and Transportation Study. Since the completion of that study in 1999, Alan has worked throughout the West of Ireland on a range of projects including: major development schemes, the Galway City Outer Bypass, Limerick Planning Land-Use and Transportation Study, Limerick Southern Ring Road Phase II, cost benefit analyses (COBA) and various studies for the NUI Galway. Before moving to Galway in 1997, Alan was involved in a wide variety of traffic and transport studies for CBP throughout the UK, Malta and Indonesia. He has particular expertise in the assessment of development related traffic and transport modelling and is an accomplished analyst who has experience of a wide variety of modelling packages and methods.

1.8.2.6 Malachy Walsh & Partners

Hazel Dalton (B.Sc., BBus.)

Hazel is a Senior Ecologist with over seven years full-time experience with MWP since graduating in 2015 (B.Sc (Hon) in Ecology/Environmental Science), having worked with the company on a periodic part-time basis prior to that. She has experience in ecological surveying and impact assessment for both Appropriate Assessment (AA) and EIA and has authored and contributed to numerous screening reports for AA, Natura Impact Statements (NIS) and Ecological Impact Assessment (EcIA) reports. She has completed assessments for a wide variety of projects including for renewable energy, infrastructure, coastal development, and other development projects. She is an experienced field ecologist and has a diverse ecological survey profile including for habitats and flora, mammals and birds.

1.8.2.7 BioSphere Environmental Services

Brian Madden (BA. Mod., Ph.D., MCIEEM)

Brian graduated in Natural Sciences from the University of Dublin in 1984 and earned a Ph.D. degree in 1990 from the National University of Ireland for his research on ecosystem processes in raised bogs. Since then, he has carried out botanical surveys and habitat assessments for most terrestrial habitats which occur on the island of Ireland. Brian is an experienced ornithologist, with particular interests in birds of prey and peatland birds. Brian is the principal ecologist with BioSphere Environmental Services. The consultancy specialises in energy related developments, including wind farms, solar farms, overhead power lines and substations. Brian has been the lead ecologist on the Oweninny Wind Farm Project since 2010.

1.9 Difficulties Encountered

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

1.10 Viewing and Purchasing the EIAR

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

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

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

- An Bord Pleanála,
  64 Marlborough Street,
  St. Rotunda,
  Dublin 1

- Mayo County Council,
  Áras and Chontae,
  The Mall,
  Castlebar,
  Co. Mayo

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

(https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal)

The EIAR will also be available to view online on its dedicated SID website: www.glenorawfplanning.com.