

1. INTRODUCTION

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of Umma More Ltd, who intends to apply to An Bord Pleanála for planning permission to construct a renewable energy development which will comprise 9 No. wind turbines, and associated infrastructure in the townland of Umma More, and adjacent townlands, in Co. Westmeath, and a 110kV on-site substation and associated works, including underground 110kV cabling to connect to the national grid at Thornsberry 110kV substation, in the townland of Derrynagall or Ballydaly, near Tullamore, Co. Offaly.

Due to the nature of the proposed renewable energy development, which will have a potential generating capacity of greater than 50 megawatts (MW) and requires the provision of 110 kV infrastructure which will form part of the national electricity transmission network, two separate planning applications are required.

One planning application will be submitted to An Bord Pleanála seeking permission for the proposed 9 No. wind turbines and associated infrastructure with a potential generating capacity of greater than 50 megawatts (MW). The application meets the threshold for wind energy set out in the Seventh Schedule of the Planning and Development Act 2000, as amended (being ‘*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*’) 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 Act, 2000 as amended. This approach has been confirmed following consultations with the Board under the provisions of Section 37B of the Planning and Development Act 2000 as amended (case reference ABP-313351-22). This EIAR accompanies the planning application for the proposed 9 No. wind turbines and associated infrastructure submitted to the Board. The planning application is also accompanied by a Natura Impact Statement (‘NIS’). The grid connection 110kV infrastructure and associated works will not form part of this planning application, however, it is assessed in this EIAR.

Should the planning application submitted to the Board under Section 37E of the Planning and Development Act, 2000 as amended, receive successful grant of planning permission, a second planning application regarding the grid connection 110kV infrastructure and associated works will be submitted to An Bord Pleanála in accordance with Section 182A of the Planning and Development Act 2000, as amended. This approach has been confirmed following consultations with the Board under the provisions of, Section 182E of the Planning and Development Acts 2000 as amended (case reference ABP-313352-22). An updated EIAR and NIS will accompany the planning application for the grid connection 110kV infrastructure however, as clarified above, it is assessed in this EIAR.

Full details of the pre-application consultation undertaken with regards both planning applications can be found in Section 2.6.5 in Chapter 2 of this EIAR.

1.1.1 References to Proposed Development

For the purposes of this EIAR:

- Where the ‘Proposed Development’ is referred to, this relates to all the project components described in detail in Chapter 4 of this EIAR i.e Wind Farm Site and Grid Connection as detailed below.
- Where ‘the Site’ is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-1.

- Where the ‘Wind Farm Site’ is referred to, this refers to turbines and associated foundations and hard-standing areas, meteorological mast, junction accommodation works, access roads, temporary construction compound, underground cabling, spoil management, site drainage, tree felling and all ancillary works and apparatus. The planning application for the Wind Farm Site is made to An Bord Pleanála in accordance with the provisions of Section 37E of the Planning and Development Act 2000, as amended.
- Where ‘Grid Connection’ is referred to, this refers to the temporary construction compound and 110kV onsite substation, and associated underground 110kV cabling connecting to the existing Thornsberry 110kV substation, subject to a future planning application under Section 182A of the Planning and Development Act, 2000, as amended.

This EIAR, along with a Natura Impact Statement (‘NIS’), will accompany the planning permission application for the Wind Farm Site which will be made to An Bord Pleanála in accordance with the provisions of 37A of the Planning and Development Act 2000, as amended. Both the EIAR and NIS contain the information necessary for An Bord Pleanála to complete the Appropriate Assessment and Environmental Impact Assessment as required for this planning permission application. The Grid Connection is an integral part of the Proposed Development and is assessed in this EIAR, however, it will be subject to a separate planning permission application. The planning permission application for the Grid Connection will be made to An Bord Pleanála in accordance with the provisions of 182A of the Planning and Development Act 2000, as amended.

Both the EIAR and NIS take into account the combined impacts of these individual elements of the Proposed Development.

For clarity in this EIAR, all elements of the Proposed Development will be assessed cumulatively and in combination with other plans and projects to aid the competent authority in carrying out an EIA.

The EIAR Site Boundary identifies the primary EIAR site area for the Proposed Development, however, each individual topic, i.e chapter, has its own study area for assessment purposes relevant to that topic which will be clearly identified in the relevant chapters. The actual site outline (red line boundary) for the purposes of this planning permission application occupies a smaller area within the primary EIAR Site Boundary., The EIAR Site Boundary encompasses an area of approximately 949 hectares. The permanent footprint of the Proposed Development measures approximately 8.2 hectares, which represents approximately 0.9% of the Site.

The Proposed Development is described in detail in Chapter 4 of this EIAR.

1.1.2 Proposed Development Site Location

The Wind Farm Site is located approximately 2 kilometres southwest of Ballymore, Co. Westmeath, 6.6 kilometres to the north of Moate, Co Westmeath and 12.2 kilometres northeast of Athlone, Co. Westmeath. It is proposed to access the Wind Farm Site via an existing access track off the L5363 Local road to the northwest of the Wind Farm Site. The Wind Farm Site is served by a number of existing agricultural roads and tracks.

The Grid Connection includes for underground 110kV cabling from the proposed onsite 110kV substation within the Wind Farm Site to the existing Thornsberry 110kV substation in the townland of Derrynagall or Ballydaly, County Offaly. The underground cabling route, measuring approximately 31 km in length, is primarily located within the public road corridor.

Current land-use on the Wind Farm Site comprises coniferous forestry, and agriculture. Current land-use along the Grid Connection comprises of public road corridor, public open space, discontinuous urban fabric and agriculture. Land-use in the wider landscape of the Site comprises a mix of agriculture, peat cutting, quarrying, low density residential and commercial forestry.

The Proposed Development is being brought forward in response to local, national, regional and European policy regarding Ireland's transition to a low carbon economy and associated climate change policy objectives. The Wind Farm Site is located within an area designated in the Westmeath County Development Plan, 2021-2027 as '**Low Capacity**' for wind energy development.

The townlands in which the Proposed Development is located are listed in Table 1-1.

Table 1-1 Townlands within which the Proposed Development is Located

Development Works	Townland
Wind Farm Site	
Wind Turbines and Associated Foundations and Hardstanding Areas, Permanent Meteorological Mast, Junction Accommodation Works, Access Roads, Underground Cabling, Temporary Construction Compound, Spoil Management, Site Drainage, Tree Felling, Operational Stage Site Signage and all ancillary works and apparatus	Ballynafearagh, Baskin High, Baskin Low, Lissanode, Raheen, Umma Beg or Moneynahanagh, Umma More
Grid Connection	
Onsite 110kV Substation and Temporary Construction Compound	Umma More
Underground Cabling Route connecting to the existing Thornsberry 110kV substation	Acantha, Aghancarman, Ardan, Ballinderry Big, Ballinderry Little, Ballinlig, Ballybought, Ballybrickoge, Ballynagrenia, Ballynasrah or Tinnycross, Brackagh, Cappydonnell Little, Cartron Glebe, Curragh, Cloncruff, Custorum, Dunard, Durrow Demense, Derrynagall or Ballydaly, Gormagh, Hallsfarm, Kilcumreragh,, Kilbeg, Kilbeggan, Kilbeggan South, Kilmurragh, Meadowpark, Meeldrum, Newtown, Pallas, Raheen, Rostalla, Shureen and Ballynasuddery, Tonaphort, Umma Beg or Moneynahanagh, Umma More

1.2

Legislative Context of Environmental Impact Assessment

The consolidated European Union Directive 2011/92/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 Planning and Development Act 2000 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 Environmental Impact Assessment (EIA) of the Proposed Development will be undertaken by An Bord Pleanála, as the competent authority.

Article 5 of the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU 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, Article 94 of the Planning and Development Regulations 2001 (as amended) sets out the information to be contained in an EIAR, with which this EIAR complies.

MKO was appointed as environmental consultant on the Proposed Development 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.

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 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 Development 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 EIA of the Proposed Development.

All elements of the Proposed Development, i.e the Wind Farm Site and Grid Connection have been assessed as part of this EIAR.

1.2.1 EIAR Guidance

The Environmental Protection Agency (EPA) published its ‘*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*’ in 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.

1.2.2 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 been taken into account during the preparation of this EIAR.

The ‘*Wind Energy Development Guidelines for Planning Authorities*’ (DoEHLG, 2006) (referred to as the Guidelines) were the subject of a targeted review. The proposed changes to the assessment of impacts associated with onshore wind energy developments were outlined in the document Draft Wind Energy Development Guidelines (December 2019) (referred to as the draft Guidelines). A consultation process in relation to the draft Guidelines closed on 19th February 2020. The proposed changes presented in the draft Guidelines give certain focus on the setback distance from residential properties (four times the proposed maximum tip height), along with shadow flicker and noise requirements relative to sensitive receptors.

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. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects and the commitment within the Climate Action Plan 2021 to publish the final version of the guidelines in Q2 of 2023 (refer to Section 1.5.1.1 below), it is possible that the draft Guidelines are adopted during the consideration period for the current planning application. Should the draft Guidelines be adopted in advance of a planning decision being made on the Proposed Development, the Wind Farm Site will be capable of achieving the requirements of the draft Guidelines as currently proposed. The distance from proposed turbines to third party sensitive receptors will achieve the proposed 4 times turbine tip height and any revised noise and shadow flicker requirements can be achieved by implementing mitigation through use of the turbine control systems.

1.3 The Applicant

The applicant for the Proposed Development, Umma More Ltd, is an associated company of Enerco Energy Ltd., which is an Irish-owned, Cork-based company with extensive experience in the design, construction and operation of wind energy developments throughout Ireland, with projects currently operating or in construction in Counties Cork, Kerry, Limerick, Clare, Galway, Mayo and Donegal.

By the end of 2023, Enerco and its associated companies had over 825 Megawatts (MW) of wind generating capacity under construction or in commercial operation, with a further 400MW of projects at various stages in its portfolio to assist in meeting Ireland’s renewable energy targets.

Brief Description of the Proposed Development

The Proposed Development will comprise the construction of 9 No. wind turbines with a blade tip height of 185 metres and all associated works, and a 110 kV substation and associated works, including underground 110kV cabling to connect to the national grid at Thornsberry 110kV substation. The full description of the Proposed Development is detailed in Chapter 4 of this EIAR. The current planning application, relating to the Wind Farm Site, is being made to An Bord Pleanála under Section 37E of the Planning and Development Act, 2000, as amended.

The development description for the current planning application as appears in the public notices is as follows:

The Proposed Development will consist of the provision of the following:

- i. 9 No. wind turbines with an overall ground-to-blade tip height of 185 metres; a rotor blade diameter of 162 metres; and hub height of 104 metres, and associated foundations and hard-standing areas;*
- ii. A thirty-year operational life from the date of full commissioning of the wind farm and subsequent decommissioning;*
- iii. A meteorological mast with a height of 30 metres, and associated foundation and hard-standing area;*
- iv. Junction accommodation works and temporary access roads to facilitate turbine delivery to an existing entrance on L5363.*
- v. Upgrade of existing entrance on L5363 for provision of site entrance;*
- vi. Upgrade of existing tracks/roads and provision of new site access roads, junctions and hardstand areas;*
- vii. Underground electrical (33kV) and communications cabling;*
- viii. A temporary construction compound;*
- ix. Spoil Management;*
- x. Site Drainage;*
- xi. Tree Felling;*
- xii. Operational stage site signage; and*
- xiii. All ancillary works and apparatus.*

The application is seeking a ten-year planning permission.

The Grid Connection, which will be subject to a separate planning application, includes for a 110kV on-site substation compound (2 no. control buildings with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, waste water holding tank, site drainage and all ancillary works), a temporary construction compound and approximately 31km of underground 110kV electrical cabling connecting the proposed on-site substation to the existing Thornsberry 110kV substation, near Tullamore, Co. Offaly.

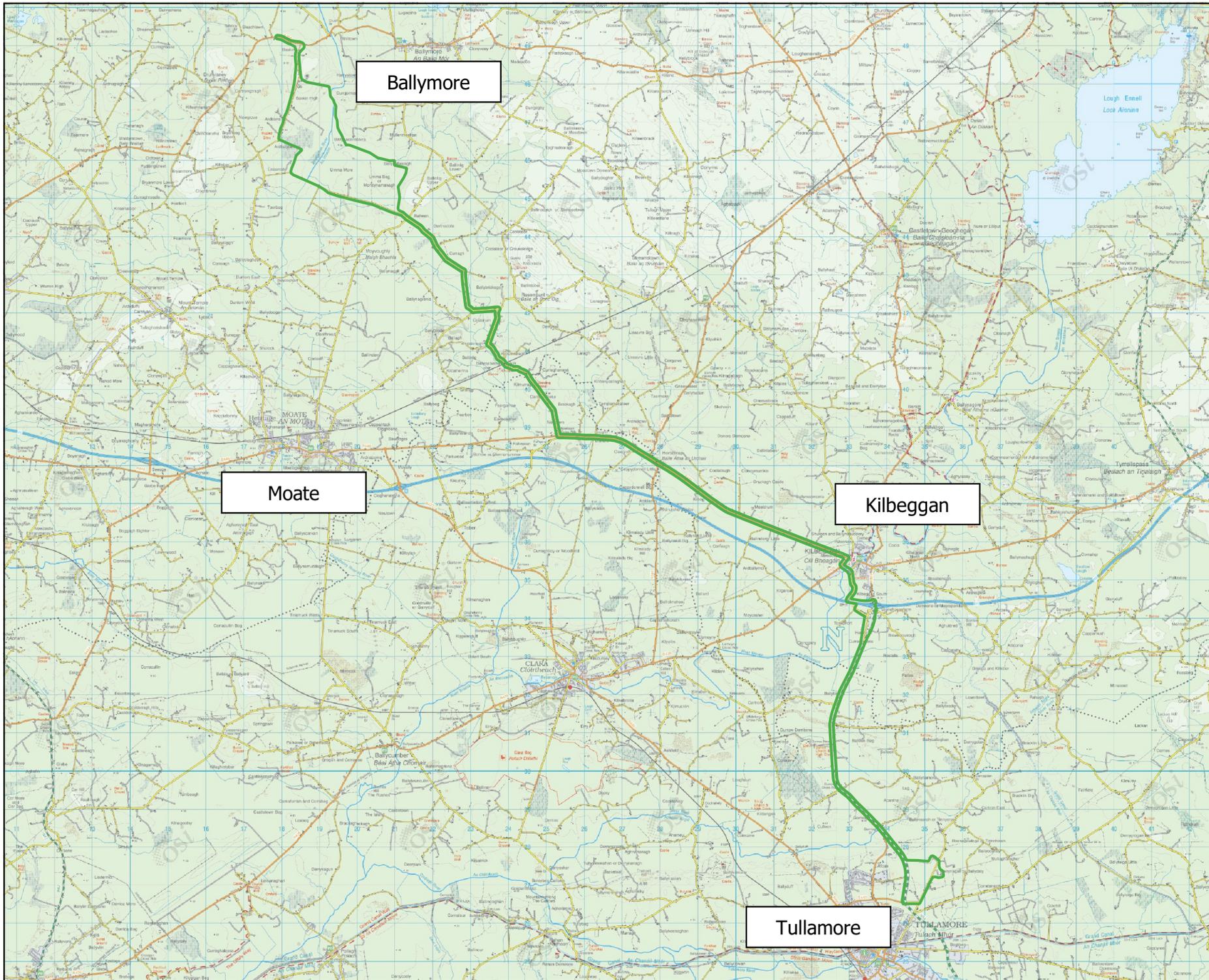
Current and future wind turbine generator technology will ensure that the wind turbine model, chosen for the Proposed Development, will have an operational lifespan greater than the 30-year operational life that is being sought as part of the planning application.

Modern wind turbine generators currently have a typical generating capacity in the 4 to 7 MW range, with the generating capacity continuing to evolve upwards as technology improvements are achieved by the turbine manufacturers. For the purposes of this EIAR it is assumed that the wind turbine model installed as part of the Proposed Development will have an output of 6.2MW. Therefore, on this basis, the proposed 9 no. wind turbines would have a combined generating capacity of 55.8MW. The actual turbine procured as part of a competitive tender process may have a power output that is marginally lower or greater than the 6.2MW turbine described in the EIAR. Irrespective of the power output of the actual turbine procured, the conclusions of the EIAR will not be materially affected.

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 Wind Farm Site makes the use of the existing onsite access roads and tracks where possible, with approximately 1.1 kilometres of existing roadway/ tracks requiring upgrading and approximately 7.6 kilometres of new access road to be constructed.

There are 41 inhabitable dwellings located within 1 kilometre of the proposed turbine locations with 8 of those properties belonging to the landowners who form part of the Proposed Development. There is no inhabitable dwelling located within 757 metres from any proposed turbine location.

All elements of the Proposed Development, including the Wind Farm Site, and Grid Connection have been assessed as part of this EIAR.



Map Legend

 EIAR Site Boundary



Drawing Title

Site Location

Project Title

Umma More Renewable Energy Development

Drawn By

BT

Checked By

EC

Project No.

201050

Drawing No.

Figure 1-1

Scale

1:130,000

Date

2023-02-07



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1.5 Need for the Proposed Development

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 2021¹ announcing a renewable electricity target of 80% by 2030, without compromising security of energy supply. The Proposed Development is expected to be operational before 2030 and would therefore contribute to this 2030 target. In October 2021, the EPA² reported that Ireland had a cumulative carbon emissions reduction target exceedance over the period 2013-2020, despite climate action measures in the National Development Plan³ and Climate Action and Low Carbon Development (Amendment) Act 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 Development is driven by the following factors:

- i. A legal commitment from Ireland to limit greenhouse gas emissions under the Kyoto protocol to reduce global warming;*
- ii. A requirement to increase Ireland's national energy security as set out in the Energy White Paper;*
- iii. 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);*
- iv. Provision of cost-effective power production for Ireland which would deliver local benefits; and*
- v. Increasing energy price stability in Ireland through reducing an over reliance on imported gas.*

These factors are addressed in further detail below. Section 2.1 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 2.2 addresses climate change, including Ireland's current status with regard to meeting greenhouse gas emission reduction targets.

1.5.1.1 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 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 agreement, Governments also agreed on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries and to undertake rapid reductions thereafter in accordance with the best available science. The most recent Sharm el- Sheikh climate conference (COP27) in November 2022 pushed increases to financing for adaptation measures globally and reiterated the agreement to work towards a limit well below 2°C global warming.

The International Panel on Climate Change (IPCC) put forward its clear assessment in their Fifth Assessment Report⁴, that the window for action on climate change is rapidly closing and that renewable energy sources such as wind will have to grow from 30% of global electricity at present to 80% by 2050 if

¹ Government of Ireland (2021) Climate Action Plan 2021

² EPA (October 2021) - Ireland's Provisional Greenhouse Gas Emissions 1990-2020

³ Government of Ireland (2021) National Development Plan 2021-2030

⁴ IPCC Fifth Assessment Synthesis Report, Intergovernmental Panel on Climate Change AR5 Report

we are to limit global warming to below 2 degrees and in accordance with the COP 21 agreement to limit global warming to well below 2°C above pre-industrial levels. Former Minister Kelly remarked in 2015 that “*As a nation we must do everything in our power to curb our emissions*”.

In August 2021, the IPCC published the first part of the Sixth Assessment Report⁵, 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 Report⁶ 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 June 2022, the EPA published Ireland’s Provisional Greenhouse Gas Emissions 1990 – 2021 Report stating 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.

It is estimated that the Proposed Development will have a potential output of 55.8 MW. On this basis, the Proposed Development will result in the net displacement of approximately 59,503 tonnes of carbon dioxide (CO₂) per annum, including accounting for back-up generation. The carbon offsets resulting from the Proposed Development are described in detail in Section 10.3.3 of Chapter 10 of this EIAR: Air and Climate.

1.5.2 Energy Security

At a national level, Ireland currently has one of the highest external dependencies on imported sources. 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%. EirGrid in their ‘*All Island Generation Capacity Statement 2022 - 2031*’ (October 2022), states that new wind farms commissioned in Ireland in 2021 brought total wind installed capacity to over 4,300MW, contributing to the overall RES-E percentage of 36.4% with wind energy accounting for 32.5%. Prior to 2015, Ireland’s import dependency of energy was over 90% but dropped to 71% in 2016 with the Corrib gas field starting production. Since 2018, Ireland’s import dependency has been increasing as the output from the Corrib gas field reduces faster than we are adding new renewable sources. In 2021, our import dependency for energy was 80% compared to the EU average of 57.5%⁷.

Total indigenous energy production in Ireland reached the highest level ever in 2018 of 5,048 ktoe but has fallen since due to declining natural gas and peat production. The overall renewable energy share for gross final energy consumption for 2021 was 12.5%, however, due to a low wind year for renewable generation in 2021, we used more coal and oil for electricity generation, which increased the carbon

⁵ IPCC, 2021: Climate Change 2021: The Physical Science Basis. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report

⁶ IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report

⁷ *Energy in Ireland – 2022 Report, SEAI, December 2022*

intensity of our electricity by 12.5%. We also supplemented our indigenous electricity generation with 1600 GWh of net imports through the interconnects with Northern Ireland (*Energy in Ireland – 2022 Report*, SEAI, December 2022).

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 SEAI has stated that our heavy dependence on imported fossil fuels, *“is a lost opportunity in terms of keeping this money here in Ireland and further developing our abundant renewable resources”*⁸.

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. Coal and peat generate almost 5% of Ireland’s electricity, while gas generates 51%, but the Climate Action Plan calls for an aggregate reduction in carbon dioxide emissions in the electricity sector of 62-81% (compared to 2018 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 2015⁹ 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”.

1.5.2.1 REPowerEU

In a Communication from the European Parliament on Joint European Action for more affordable, secure and sustainable energy¹⁰, 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 Plan¹¹ 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.

In April 2022, the Government published the National Energy Security Framework (NESF) providing a single overarching and initial response to address Ireland’s energy security needs in the context of the war in Ukraine. This framework mirrors that of the EU, in which accelerating Ireland’s transition from the use of fossil fuel to renewable energy sources is a key objective.

⁸ Dr Eimear Cotter, Head of Low Carbon Technologies, SEAI - *“Energy Security in Ireland 2015”*

⁹ *Ireland’s Transition to a Low Carbon Energy Future 2015-2030* (Department of Communications, Energy & Natural Resources, 2015)

¹⁰ 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

¹¹ https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

1.5.3 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 has a capacity factor of approx. 35%, 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. 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.

1.5.3.1 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%¹². 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* scenarios¹³.

1.5.3.2 EU 2030 Renewable Energy Targets

The Climate Action and Low Carbon Development (Amendment) Act 2021 commits Ireland to reach a legally binding target of net-zero emissions no later than 2050, and a cut of 51% by 2030 (compared to

¹² *Energy in Ireland 2020 (SEAI, December 2021)* - https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf

¹³ *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>

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 Ireland¹⁴. As noted previously, Ireland missed its 2020 renewable energy target of 40% with a renewable share in electricity of 39.1%, and by the end of 2021, Ireland’s 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.

1.5.4 Increasing Energy Consumption

As detailed above, the Climate Action Plan identifies a need for 9GW of onshore wind generation in order for Ireland to meet its 2030 targets. In their ‘*All Island Generation Capacity Statement 2022 - 2031*’ (October 2022), EirGrid estimate that installed capacity of wind generation is set to increase to at least 12 GW between onshore and offshore capacity as Ireland endeavours to meet its renewable targets in 2030 and beyond.

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*’¹⁵ 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 2016¹⁶ 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. As of February 2023, the installed wind capacity in the Republic of Ireland is over 4.3GW according to Wind Energy Ireland¹⁷.

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*’. EirGrid analysis shows that demand from data centres could account for 28% of all demand by 2031 in a median demand scenario (accounts for the connection of all 1400MVA of

¹⁴ <https://windenergyireland.com/about-wind/facts-stats>

¹⁵ <https://dgees.gov.ie/wp-content/uploads/2013/10/Future-Expenditure-Risks-associated-with-Climate-Change-Climate-Finance1.pdf>

¹⁶ https://www.seai.ie/publications/Ireland___s-Energy-Targets-Progress-Ambition-and-Impacts.pdf

¹⁷ <https://windenergyireland.com/about-wind/facts-stats>

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 Bitpower¹⁸ 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 have 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. It is envisaged that wind energy will provide the largest source of renewable energy in achieving this target, with a target of 9GW onshore wind installed generation capacity and a target of 5GW offshore wind installed generation capacity.

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.

¹⁸ http://www.bitpower.ie/images/Reports/2020_H2_Report.pdf

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 December 2022, 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 proposed 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 such as increasing 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 examined when considering how best to meet this renewable energy target.

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 have enabled Ireland to meet 2020 renewable energy targets. Dr Brian Motherway, Chief Executive SEAI¹⁹ 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 emissions²⁰. 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.

The Joint Committee on Climate Action 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 December 2022, the Department of Environment, Climate and Communications 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, Section 2.2.

¹⁹ http://www.seai.ie/News_Events/Press_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html

²⁰ *Sustainability Criteria Options and Impacts for Irish Bioenergy Resources (SEAI 2019)*

The Climate Action Plan 2021 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. While building upon the demands identified in the Climate Action Plan 2021, the Climate Action Plan 2023 identified specifically the increase of 3.5 TWh of electricity demand from the electrification of heat in industry.

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 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.

1.5.5 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 out to 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 approximately 59,503 tonnes of carbon emissions per annum from the largely carbon-based traditional energy mix, the detail of which is presented in Section 10.3.3 in Chapter 10 of this EIAR.

The Environmental Protection Agency (EPA) report '*Air Quality in Ireland 2021*' noted that in Ireland, the premature deaths attributable to poor air quality are estimated at 1,300 people per annum. A more recent European Environmental Agency (EEA) Report, '*Air Quality in Europe - 2021 Report*' highlights the negative effects of air pollution on human health. The report assessed that poor air quality accounted for premature deaths of approximately 307,000 people in the 27 EU Member States in 2019,

with regards to deaths relating to PM_{2.5}. The estimated impacts on the population in Europe of exposure to NO₂ and O₃ concentrations in 2019 were around 40,400 and 16,800 premature deaths per year, respectively. From this, 1,300 Irish deaths were attributable to fine particulate matter (PM_{2.5}), 30 Irish deaths were attributable to nitrogen oxides (NO₂) and 50 Irish deaths were attributable to Ozone (O₃) (Source: *Air Quality in Europe – 2021 Report*, EEA, 2021).

The EPA 2016 report ‘*Ireland’s Environment – An Assessment*’ 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 O₃ (ozone). The EPA 2016 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 (CO₂), oxides of nitrogen (NO_x), and sulphur dioxide SO₂, thereby resulting in cleaner air and associated positive health effects.

1.5.6 Economic Benefits

In addition to helping Ireland avoid significant fines and reducing environmentally damaging emissions, the Proposed Development 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 in the SEAI Report ‘*Energy in Ireland 2021*’, Ireland has a high import dependence on oil and gas and is essentially a price-taker on these commodities. 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 Póry, 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.

In April 2021, Wind Energy Ireland published a report produced by KPMG on the ‘*Economic Impact of Onshore Wind in Ireland*’ stating that Irish wind farms are worth €400 million to the economy every year and it is expected to rise to €550 million by the end of the decade. If Ireland are to achieve the 8,200 MW target set in the Climate Action Plan 2021, the total industrial output across operating and capital activities would rise from 1.1bn in 2020 (from the 4,200 MW installed capacity) to 1.5bn in 2030.

The Proposed Development will be capable of providing power to over 40,734 households every year, as presented in the calculations in Section 4.3.1.1.6 of this EIAR.

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 2022 – 2031*’ (December 2022) notes that the median electricity demand forecast on the island of Ireland is expected to grow by 21% in 2030. Much of this growth is expected to come from new data centres in Ireland.

The Proposed Development will have both long-term and short-term benefits for the local economy including income to local landowners, job creation, work opportunities for local businesses and service providers, local authority commercial rate payments and a Community Benefit Scheme.

Commercial rate payments from the Proposed Development will be provided to Westmeath County Council each year and to Offaly County Council during the construction phase, which will be redirected to the provision of public services within Co. Westmeath and Co. Offaly. These services include provisions 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 Development has the potential to create up to 100 jobs during the construction phase and 3-4 jobs during operational and maintenance phases of the Proposed Development. During construction, additional indirect employment will be created in the region through the supply of services and materials to the renewable energy development. There will also be income generated by local employment from the purchase of local services i.e. travel, goods and lodgings. Further details on employment associated with the Proposed Development are presented in Section 5.9 of this EIAR.

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 would attract a community contribution in the region of approx. €340,000/year for the local community over the lifetime of the Proposed Development. 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 details on the proposed Community Gain proposals are presented in Appendix 2-2 and Section 4.5 in Chapter 4 of this EIAR.

1.6 Purpose and Scope of the EIAR

The purpose of this EIAR is to document the current state of the environment on and in the vicinity of the Site and to quantify the likely significant effects of the Proposed Development on the environment. 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 An Bord Pleanála, from the EIAR accompanying the 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:

- a) *population and human health*
- b) *biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC*
- c) *land, soil, water, air and climate*
- d) *material assets, cultural heritage and the landscape*
- e) *the interaction between the factors referred to in points (a) to (d)*

The EIAR submitted by the applicant provides the relevant environmental information to enable the EIA to be carried out by the competent authority. The information to be contained in the EIAR is prescribed Article 5 of the revised EIA Directive described in Section 1.2 above.

1.7 Structure and Content of the EIAR

1.7.1 General Structure

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 impacts of the Proposed Development in terms of population and human health, biodiversity, with specific attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EEC; land, soils and geology, water, 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, schedule of mitigation and monitoring, and vulnerability to natural disasters.

The chapters of this EIAR are as follows:

- > Introduction
- > Background to the Proposed Development
- > Considerations of Reasonable Alternatives
- > Description of the Proposed Development
- > Population and Human Health
- > Biodiversity (excluding Birds)
- > Birds
- > Land, Soils and Geology
- > Water
- > Air and Climate
- > Noise and Vibration
- > Landscape and Visual
- > Cultural Heritage
- > Material Assets (including Traffic and Transport, Telecommunications and Aviation)
- > Interactions of the Foregoing
- > Major Accidents and Natural Disasters
- > Schedule of Mitigation 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.

1.7.2 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 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).
- *Revised Guidelines on the Information to be contained in Environmental Impact Statements – Draft September 2015* (EPA, 2015).
- *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 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 this EIAR. The consistent application of terminology throughout this EIAR facilitates the assessment of the Proposed Development on the receiving environment.

Table 1-2 Impact Classification Terminology (EPA, 2022)

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
	Profound	An effect which obliterates sensitive characteristics
Extent & Context	Extent	Describe the size of the area, number of sites and the

Impact Characteristic	Term	Description
		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)

Impact Characteristic	Term	Description
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
	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, duration 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 15: 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 this 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 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.

Table 1-3 Companies and Staff Responsible for EIAR Completion

Consultants	Principal Staff Involved in Project	EIAR Input*
MKO Tuam Road, Galway, H91 VW84	Gus McCarthy Brian Keville Michael Watson Ellen Costello Eoin O’Sullivan Jimmy Green Meabhann Crowe William Arnold Pat Roberts John Hynes Aoife Joyce Patrick Ellison Dervla O’Dowd Pdraig Cregg Susan Doyle Owen Cahill Jack Workman James Newell Joseph O’Brien	Project Managers, Scoping and Consultation, Preparation of Natura Impact Statement, EIAR Report Sections: 1. Introduction 2. Background to the Proposed Development 3. Considerations of Reasonable Alternatives 4. Description of the Proposed Development 5. Population & Human Health 6. Biodiversity 7. Birds 10. Air & Climate 12. Landscape & Visual 14. Material Assets (non-Traffic) 15. Interaction of the Foregoing 16. Major Accidents and Natural Disasters 17. Schedule of Mitigation
Hydro Environmental Services 22 Lower Main Street Dungarvan Co. Waterford	Michael Gill David Broderick Adam Keegan	Flood Risk Assessment, Drainage Design, Preparation of EIAR Sections: 8. Land, Soils & Geology 9. Water
TNEI Ireland Ltd. Unit S12, Synergy Centre TU Dublin Tallaght Campus, Tallaght, Dublin.	James Mackay Jason Baldwin Gemma Clark	Baseline Noise Survey, Preparation of EIAR Section 11. Noise and Vibration

Consultants	Principal Staff Involved in Project	EIAR Input*
Tobar Archaeological Services Saleen Midleton Co. Cork	Annette Quinn Miriam Carroll	Preparation of EIAR Section 13. Cultural Heritage
Alan Lipscombe Traffic and Transport Consultants Claran, Headford, Co. Galway	Alan Lipscombe	Swept Path Analysis, Preparation of EIAR Section 14. Material Assets - Traffic and Transport

* (A Statement of Authority is included in each chapter of this EIAR detailing the experts who contributed to the preparation of this report, identifying for each such expert the part or parts of the report which he or she is responsible for or to which he or she contributed, his or her competence and experience, including relevant qualifications in relation to such parts, and such additional information in relation to his or her expertise that demonstrates the expert’s competence in the preparation of the report and ensures its completeness and quality.

1.8.2 Project Team Members

1.8.2.1 MKO

Gus McCarthy BA, MRUP, MIPI

Augustine (Gus) McCarthy is a Company Director with MKO and is a professional planner with over 35 years of experience in both private practice and local authorities combined. Prior to establishing AP McCarthy Planning Consultants in 2000, Gus worked as a Senior Planner for both Galway County Council and Galway City Council. Gus has significant experience in a wide range of projects and extensive experience in both terrestrial and coastal/marine based developments. He is retained as planning advisor for development programmes of large organisations and has been the lead planning consultant on a wide range of infrastructure, energy, commercial and other projects throughout the Country.

Brian Keville B.Sc. (Env.)

Brian Keville has over 18 years’ professional experience as an environmental consultant having graduated from the National University of Ireland, Galway with a first class honours degree in Environmental Science. Brian was one of the founding directors of environmental consultancy, Keville & O’Sullivan Associates Ltd., prior to the company merging in 2008 to form McCarthy Keville O’Sullivan Ltd. Brian’s professional experience has focused on project and environmental management, and environmental impact assessments. Brian has acted as project manager and lead-consultant on numerous environmental impact assessments, across various Irish counties and planning authority areas. These projects have included large infrastructural projects such as roads, ports and municipal services projects, through to commercial, mixed-use, industrial and renewable energy projects. The majority of this work has required liaison and co-ordination with government agencies and bodies, technical project teams, sub-consultants and clients.

Michael Watson, MA; MIEMA, CEng, PGeo

Michael Watson is Project Director and head of the Environment Team in MKO. Michael has over 19 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. Michael's 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).

Jimmy Green BA, MRUP; MIPI

Jimmy Green was a Principal Planner with MKO from 2004 to 2022. Jimmy holds a Bachelor of Arts Degree (BA) in both Human and Physical Geography from the National University of Ireland, Galway as well as a Masters in Regional and Urban Planning (MRUP) from University College Dublin. Prior to taking up his position with McCarthy Keville O'Sullivan in 2004, Jimmy worked as an Assistant Planner, Executive Planner and Senior Executive Planner in Galway County Council and as an Assistant Planner in Donegal County Council. Jimmy is primarily involved in co-ordinating and preparing Environmental Impact Assessment Reports, leading significant and complex development proposals through the planning process (from feasibility, through application, appeals and judicial processes) and has a strong ability to work with many other disciplines and individuals, as well as with Council officials, elected members and members of the public. Jimmy also manages a planning team within MKO in order to ensure timely delivery of project outputs. Jimmy has significant experience in dealing with Strategic Infrastructure Development proposals, Environmental Impact Assessment Reports, Environmental Impact Assessment, Renewable Energy, Electrical Infrastructure proposals, as well as the full range of Commercial, Retail, Residential and Industrial developments. Jimmy is a corporate member of the Irish Planning Institute.

Meabhann Crowe BA (Hons), M.Sc.

Meabhann Crowe is a Project Planner with McCarthy O'Sullivan Ltd with over 12 years private sector experience. She is a fully chartered member of the Royal Town Planning Institute (MRTPI). Meabhann holds a BA (Hons) in Geography, Sociological and Political Science and a Masters in Urban and Regional Planning. Prior to taking up her position with McCarthy Keville O'Sullivan in October 2018, Meabhann was employed as an Associate Director with Colliers International in their Edinburgh office, prior to which she was employed for several years with Halliday Fraser Munro. In her time in the industry Meabhann has been active on a number of instructions across a broad spectrum of mixed-use, residential, commercial, renewable energy and retail projects.

Meabhann brings particular expertise in initial development feasibility appraisals and development strategies. Her experience in managing large multi-disciplinary teams in the preparation of local and major planning applications across residential, mixed-use and retail developments means she has a wealth of knowledge to draw on in the early stages of development. She has particular experience in preparing and managing site strategies which include both responding to emerging planning policy whilst also preparing and progressing planning applications and appeals.

Ellen Costello M.Sc., B.Sc., PIEMA

Ellen Costello is a Project Environmental Scientist with MKO with over three years of experience in private consultancy. Ellen holds a BSc (Hons) in Earth Science, and a MSc (Hons) in Climate Change: Integrated Environmental and Social Science Aspects where she focused her studies on renewable energy development in Europe and its implications on environment and society. Ellen's key strengths and expertise are Environmental Protection and Management, Environmental Impact Statements, Project Management, and GIS Mapping and Modelling. Since joining MKO, Ellen has been involved in a range of renewable energy infrastructure projects. In her role as a project manager, Ellen 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. Ellen is a Practitioner Member of the Institute of Environmental Management & Assessment.

Eoin O'Sullivan M.Sc., B.Sc., CWEM; CEnv

Eoin O'Sullivan is a Senior Environmental Consultant with MKO with over 12 years of experience in the assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin has wide experience in the project management of large scale infrastructural projects and brownfield developments which includes all aspects of geo-environmental and geotechnical investigation. Eoin holds a BSc (Hons) in Environmental Science & Technology and a MSc in Environmental Engineering. Prior to taking up his position with MKO in July 2017, Eoin worked as a Chartered Senior Engineer with CGL in Surrey, UK. Prior to this Eoin worked as a Project Engineer with RPS Consulting Engineers in Belfast. Eoin has wide experience in the project management of large scale brownfield developments and has routinely undertaken detailed quantitative risk assessment for the protection of controlled waters and ground gas risk assessments. Eoin has also experience in completing PPC Permit Applications and in the preparation of Environmental Impact Statements/Environmental Impact Assessment Reports for renewable energy projects, quarries and a number of non-hazardous landfill sites and anaerobic digesters for both public and private clients. Other key strengths and areas of expertise include remediation options appraisals, remediation method assessments and waste management planning. Eoin is a Chartered Member of the Chartered Institute of Water and Environmental Management and Chartered Environmentalist with the Society of Environment.

Pat Roberts B.Sc. (Env.)

Pat Roberts is a Principal Ecologist with McCarthy O'Sullivan Ltd. with over 16 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. Pat's 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 currently manages the ecological team within MKO and ensures that the outputs from that 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).

John Hynes M.Sc. (Ecology), B.Sc.

John Hynes is a Senior Ecologist and director of the Ecology team with McCarthy O'Sullivan Ltd. with over 9 years of experience in both private practice and local authorities. John holds a B.Sc in Environmental Science and a M.Sc. in Applied Ecology. Prior to taking up his position with MKO in March 2014, John worked as an Ecologist with Ryan Hanley Consulting Ltd. and Galway County Council. John has specialist knowledge in Flora and Fauna field surveys. Geographic Information Systems, data analysis, Appropriate Assessment, Ecological Impact Assessment and Environmental Impact Assessment. John's key strengths and areas of expertise are in project management. GIS and impact assessment. Since joining MKO John has been involved as a Senior Ecologist on a significant range of energy infrastructure, commercial, national roads and private/public development projects. Within MKO John 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 EIS/EIAR Reports. John has project managed a range of strategy and development projects across the Ireland and holds CIEEM membership.

Aoife Joyce M.Sc. (Agribioscience), B.Sc

Aoife Joyce is an Ecologist with MKO Planning and Environmental Consultants with experience in research, consultancy and drilling contractors. Aoife is a graduate of Environmental Science (Hons.) at NUI Galway, 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, roost assessments, deploying static bat detectors and weather stations nationwide, dawn and dusk bat detection surveys, acoustic 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 licence.

Patrick Ellison B.Sc. (Bio.), M.Sc. (Bio.)

Patrick is a Project Ecologist with MKO with over 5 years' of experience in professional ecological consultancy. Patrick holds a B.Sc. (Hons) in Applied Marine Biology and an M.Sc. in Wildlife Biology and Conservation. Prior to joining MKO in January 2021, Patrick worked as an Ecologist for an Ecological Consultancy based in the UK, where he undertook a wide range of habitat and protected species survey work and successfully delivered a large variety of ecological projects. Prior to that he worked as a wildlife consultant for a small consultancy based in Greater London. He has also worked for and with a number of other wildlife conservation organisations and charities including the Wildwood Trust, The Fox Project, American Conservation Experience, Hesselhead Wildlife Rescue and the Scottish Wildlife Trust. Patrick's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including habitat mapping, protected species sign surveys, with a particular focus on terrestrial mammals, and bat surveys, including specialist licensed tree climbing inspections and assessment for bats. Since joining MKO Patrick has been overseeing project management of a suite of our renewable energy projects, as well as carrying out a variety of habitat and protected species survey work. Within MKO Patrick plays a large role in carrying out Stage 1 and Stage 2 Appropriate Assessment Reports and contributing to Environmental Impact Statements. Patrick is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Dervla O'Dowd B.Sc. (Env.)

Dervla O'Dowd is a Senior Ecologist and Project Manager with MKO with fifteen years of experience in environmental consultancy. Dervla graduated with a first class honours B.Sc. in Environmental Science from NUI, Galway in 2005 and joined Keville O'Sullivan Associates in the same year. Dervla has gained extensive experience in the project management and ecological assessment of the impacts of various infrastructural projects including wind energy projects, water supply schemes, road schemes and housing developments nationwide and has also been involved in the compilation of Environmental Impact Statements, with emphasis on sections such as Flora & Fauna, and acted as EIS co-ordinator on many of these projects. Dervla has also provided site supervision for infrastructural works within designated conservations areas, in particular within aquatic habitats, and has also been involved in the development of environmental/ecological educational resource materials and major ecological surveys of inland waterways. Currently, Dervla is responsible for coordinating ecological work, in particular ornithological surveys required on major infrastructural projects, with emphasis on wind energy projects. Dervla's key strengths and areas of expertise are in project management, project strategy, business development and survey co-ordination to ensure the efficient operation of the Ornithology team's field survey schedule. Dervla holds full membership of the Chartered Institute of Ecology and Environmental Management and current Safe Pass card.

Padraig Cregg M.Sc., B.Sc.

Padraig Cregg is a Senior Ornithologist with MKO with over 9 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.

Ian Hynes B.Sc. (Env.)

Ian Hynes was an Ecologist with McCarthy Keville and O'Sullivan Ltd., joining in December of 2017. Ian holds a B.Sc. (Hons) in Environmental Science from National University of Ireland, Galway. Ian has a broad knowledge of ecology including invertebrate surveys and identification, vegetation surveys, small mammal surveys and habitat identification. Ian also has over two years of experience using GIS software systems including ArcGIS and QGIS and MapInfo to present ecological data. As part of his final year thesis Ian gained valuable experience in report writing, data input, invertebrate and plant identification. Ian also liaised with members of the AranLIFE project and local landowners on Inis Oirr, Aran Islands in the summer of 2016 while completing his thesis. Ians key strengths are in Data management and GIS/MapInfo software. Since joining the Ornithology team at McCarthy Keville & O'Sullivan Ltd. He has been involved in a number of windfarm projects, utilizing his skills to compile data and create maps for surveys and figures.

Owen Cahill B.Sc., M.Sc.

Owen is an Environmental Engineer with McCarthy O'Sullivan Ltd. with over 15 years of experience in the environmental management and construction industries. Owen holds BSc. (Hons) and MSc. in

Construction Management and a Masters in Environmental Engineering. Prior to taking up his position with McCarthy Keville O'Sullivan in October 2013, Owen worked as an Environmental Officer with Kepak and prior to which he held a post with Pentland Macdonald Contaminated Land & Water Specialist in Northern Ireland. Prior to working in planning and environmental consultancy, Owen was employed within the construction industry where he gained significant experience on a variety of civil, residential and commercial projects. Owen's wide ranging multi sector experience has provided him with specialist knowledge and understanding of the challenges in the planning and delivery of developments with the minimum environmental impact and with practicality and constructability in mind. Owen's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy & solar energy construction & environmental management planning and waste permit management. Since joining MKO Owen has been involved as a Project Manager on a range of energy infrastructure, commercial, residential, waste facility and quarry projects as well as managing the licensing requirements of a number of EPA licensed facilities. Within MKO Owen 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 EIS Reports. Owen has project managed the Environmental Impact Assessment of a range of development projects across the Ireland and is a Full Member with the Institute of Environmental Management & Assessment and is a Chartered Environmentalist.

Jack Workman MSc

Jack is the Landscape & Visual Team manager at MKO and is a Technician Member with the British Landscape Institute. He 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.

James Newell

James holds the position of CAD and Information Technology Technician with MKO since joining the Company in May 2006. Prior to joining MKO, he worked as a graphic designer and illustrator for over eight years. In recent years James' role has extended to include all wind farm visual modelling completed by the company. He is proficient in the use of MapInfo GIS software in addition to AutoCAD and other design and graphics packages.

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's role entails various wind and solar farm projects which require various skills such as mapping, aerial registration and detailed design drawings for projects. Prior to joining us, Joseph worked as a free-lance Modelmaker and CAD Technician. His previous experience included designing various models and props through CAD and then making them for various conventions such as Dublin Comic Con and Arcade Con.

1.8.2.2 Hydro Environmental Services Ltd

Michael Gill

Michael Gill is an Environmental Engineer with over eighteen years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments of wind farms in Ireland. He has also managed EIA/EIS assessments for infrastructure projects and private residential and commercial developments. In addition, he has substantial experience in wastewater engineering and site suitability assessments, contaminated land investigation and assessment, wetland hydrology/hydrogeology, water resource assessments, surface water drainage design and SUDs design, and surface water/groundwater interactions.

David Broderick

David Broderick is a hydrogeologist with over thirteen years' experience in both the public and private sectors. Having spent two years working in the Geological Survey of Ireland working mainly on groundwater and source protection studies. David moved into the private sector. David has a strong background in groundwater resource assessment and hydrogeological/hydrological investigations in relation to developments such as quarries and wind farms. David has completed numerous geology and water sections for input into EIARs for a range of commercial developments.

Adam Keegan

Adam Keegan (BSc, MSc) is a hydrogeologist with three years of experience in the environmental sector in Ireland. Adam has been involved in Environmental Impact Assessment Reports (EIARs) for numerous projects including wind farms, grid connections, quarries and small housing developments. Adam holds an MSc in Hydrogeology and Water Resource Management. Adam has worked on several wind farm EIAR projects and associated Flood Risk Assessments, including Derrinlough WF, Lyrenacarriga WF (SID), Cleanrath WF and Carrownagowan WF (SID) as well as flood risk assessments for commercial urban developments.

1.8.2.3 TNEI Ireland Ltd.

James Mackay

James is Director of Environment and Engineering and has significant experience of all aspects of noise assessment work associated with energy developments having been involved with all stages of development for initial site finding and feasibility assessments, baseline surveys, impact assessments through to appeals and compliance monitoring. Since joining TNEI in 2006 James has worked on over 5 GW of onshore wind projects during which time his work has primarily focused on the technical aspects of energy developments particularly, site assessment, layout design, GIS mapping and analysis, noise and shadow flicker assessments.

James holds the Diploma in Acoustics and Noise Control, is a Member of the Institute of Acoustics and has presented papers at International Wind Farm Noise conferences. James has delivered training on a range of topics from noise to GIS both in the UK and Asia. Training clients range from developers, Local Authorities, other consultancies, Government and Utilities. In 2013/2014, James formed part of the peer review group for the UK Institute of Acoustics Good Practice Guide for wind farm noise assessments (IOA GPG). In addition to baseline noise assessments James also has experience of wind turbine compliance testing, complaints investigations and Planning Appeals.

Jason Baldwin

Jason is a Principal Technical Consultant with over 8 years experience working on noise related assessments for renewable energy developments. He holds the Diploma in Acoustics and Noise Control, and is an Associate of the Institute of Acoustics.

For a given project, Jason will become involved during feasibility assessments, baseline surveys, impact assessments, in addition to compliance and complaints investigations. Since joining TNEI in 2013, he has primarily worked on wind farm noise projects (specifically site assessment, layout design, and noise and shadow flicker assessments); his role also involves the development of noise models, and the analysis of operational turbine data during compliance exercises (to understand better the conditions in which noise is an issue). Jason moved to the Republic of Ireland in 2020 to set up a team and further extend the services that TNEI offer.

Gemma Clark

Gemma is a Principal Consultant with over 18 years experience working in the Environmental Consultancy Sector. Gemma holds a BSc in Environmental Science and an MSc in Clean Technology. Since joining TNEI in 2007, Gemma has primarily worked on wind farm noise projects. She has been involved with all stages of development for initial feasibility assessments, baseline surveys, impact assessments through to assisting with collating information for Appeals and compliance monitoring.

Gemma is an experienced Project Manager and has managed a range of projects from single turbine developments through to 300 MW+ applications in the UK and Ireland. Gemma is also proficient in the use of ArcGIS and provides GIS support across the business including site finding analysis, feasibility assessments and constraints mapping.

1.8.2.4 Tobar Archaeological Services

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 Directors, Annette Quinn and Miriam Carroll, are 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.

Annette Quinn

Annette holds a Degree in Archaeology and Geography (1993-1996) and a 2 year Masters in Methods and Techniques in Irish Archaeology (1996-1998) from UCC. With 20 years' experience in both the public and private sector she has project managed many of the large-scale projects and Environmental Impact Assessments that Tobar Archaeological Services have been involved in.

Miriam Carroll

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

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, including for numerous wind farm developments, and is an accomplished analyst who has experience of a wide variety of modelling packages and methods.

1.9 Difficulties Encountered

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

1.10 Viewing and Purchasing of the EIAR

Copies of this EIAR will be available online for the planning application, 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 An Bord Pleanála, and Westmeath 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

Westmeath County Council,
Áras An Chontae,
Mount St,
Mullingar,
Co. Westmeath

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.ummamoreplanning.com