

# 1. INTRODUCTION

## 1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of Knocknamork Ltd, who intend to apply to An Bord Pleanála (ABP), Cork County Council (CCC) and Kerry County Council (KCC) for planning permission for works associated with the permitted Knocknamork Renewable Energy Development (Permitted Development), located near Ballyvourney, Co. Cork. The proposed works will consist of a 110kV Electricity Substation, underground electrical cabling, road and junction upgrades, new access roads, borrow pit and associated works.

The proposed 110kV electrical substation, 110kV underground cabling to Ballyvouskill Substation and associated works represents Strategic Infrastructure Development (SID) and therefore a planning application will be submitted directly to ABP, under the provisions of Section 182A of the Planning and Development Act 2000 (as amended). A proposed borrow pit adjacent to the proposed substation will be included in the planning application to be submitted to ABP and also partially included in the application to be submitted to KCC given that it will serve the 110kV infrastructure and 33kV cable infrastructure.

The site of the Proposed Development which straddles the county boundary between Co. Kerry and Co. Cork is located approximately 6 kilometres southwest of the town of Millstreet and 3 kilometres northwest of the village of Ballyvourney. The Grid Reference co-ordinates of the approximate start and end points for the Proposed Development site are E514036, N581567 and E525824, N584341 respectively. Land-use on the site and in the wider area comprises a mix of commercial forestry, wind farm development, cutover peat bog and some agricultural pastures.

The Permitted Development comprises 7 no. turbines, up to 70,000m<sup>2</sup> of solar panels on ground mounted steel frames, 38kV electricity substation including up to 4 no. battery storage units, and all associated works. Planning permission was granted by Cork County Council on 2<sup>nd</sup> January 2020 (Ref. No. 19/4972).

The planning history at the Permitted Development site is detailed further, below in Section 1.3 and in Chapter 2 of this EIAR.

The EIAR will assess all component parts of the proposed works that will be submitted within the planning applications to ABP, CCC and KCC. All elements of the proposed works included as part of the planning application will henceforth be referred to as the 'Proposed Development' throughout the EIAR.

## 1.2 Brief Description of the Proposed Development

This section of the EIAR describes the development and its component parts (the 'Proposed Development') including the works subject of a proposed application for planning permission to ABP, CCC and KCC.

The full description of the Proposed Development, as per the public planning notices, is as follows:

### Overall Development Description

- i. 110 kV electrical substation with 2 no. control buildings with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, waste water holding tank and all ancillary works;*
- ii. Underground electrical cabling (110kV);*

- iii. Underground electrical cabling (33kV);*
- iv. Access Roads (new and upgrade of existing)*
- v. Temporary access road;*
- vi. Upgrade of access junctions;*
- vii. Amendments to the Permitted Development (Ref. No. 19/4972), including extension to the borrow pit and the omission of the 38kV Electrical Substation, 38KV underground cabling and Battery Storage compound;*
- viii. Borrow pit;*
- ix. Site Drainage;*
- x. Forestry Felling; and*
- xi. All associated site development works and apparatus.*

### An Bord Pleanála – Planning Notice Project Description

- i. 110 kV electrical substation with 2 no. control buildings with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, waste water holding tank and all ancillary works;*
- ii. Underground electrical cabling (110kV);*
- iii. New access roads;*
- iv. Borrow pit;*
- v. Site Drainage;*
- vi. Forestry Felling; and*
- vii. All associated site development works and apparatus.*

### Cork County Council – Planning Notice Project Description

- i. Underground electrical cabling (33kV);*
- ii. Access roads (new and upgrade of existing);*
- iii. Amendments to the Permitted Development (Ref. No. 19/4972), including extension to the borrow pit and the omission of the 38kV Electrical Substation, 38KV underground cabling and Battery Storage compound;*
- iv. Site Drainage; and*
- v. All associated site development ancillary works and apparatus.*

### Kerry County Council – Planning Notice Project Description

- i. Underground electrical cabling (33kV);*
- ii. Upgrade of access junctions;*
- iii. Access roads (new and upgrade of existing);*
- iv. Temporary access road;*
- v. Borrow pit;*
- vi. Site Drainage;*
- vii. Forestry Felling; and*
- viii. All associated site development works and apparatus.*

There are 3 no. occupied dwellings within 500m of the Proposed Development. The closest dwelling is located approximately 157 metres to the north of the proposed road upgrade works at its nearest point.

All elements of the Proposed Development, which includes forestry felling have been assessed as part of this EIAR.

## 1.2.2 References to Proposed Development Site

For the purposes of this EIAR, where the ‘site’ is referred to in this EIAR, this means the primary study area for the EIAR. Generally, the study area extends beyond the planning application site boundary depending on the requirements of individual assessments. Individual topics for assessment purposes, i.e., each chapter, will indicate the study area used for that topic. The actual site boundary for the purposes of each planning permission application occupies a smaller area within the primary EIAR Site Boundary. The EIAR Site Boundary represents the primary area of study and not necessarily areas where proposed works will occur as part of the Proposed Development.

The primary study area for the development, is delineated in green on Figure 1-1.

Where the Permitted Development is referred to, this means the development permitted under Cork County Council planning reference number 19/4972.

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

## 1.2.3 Townlands of the Proposed Development

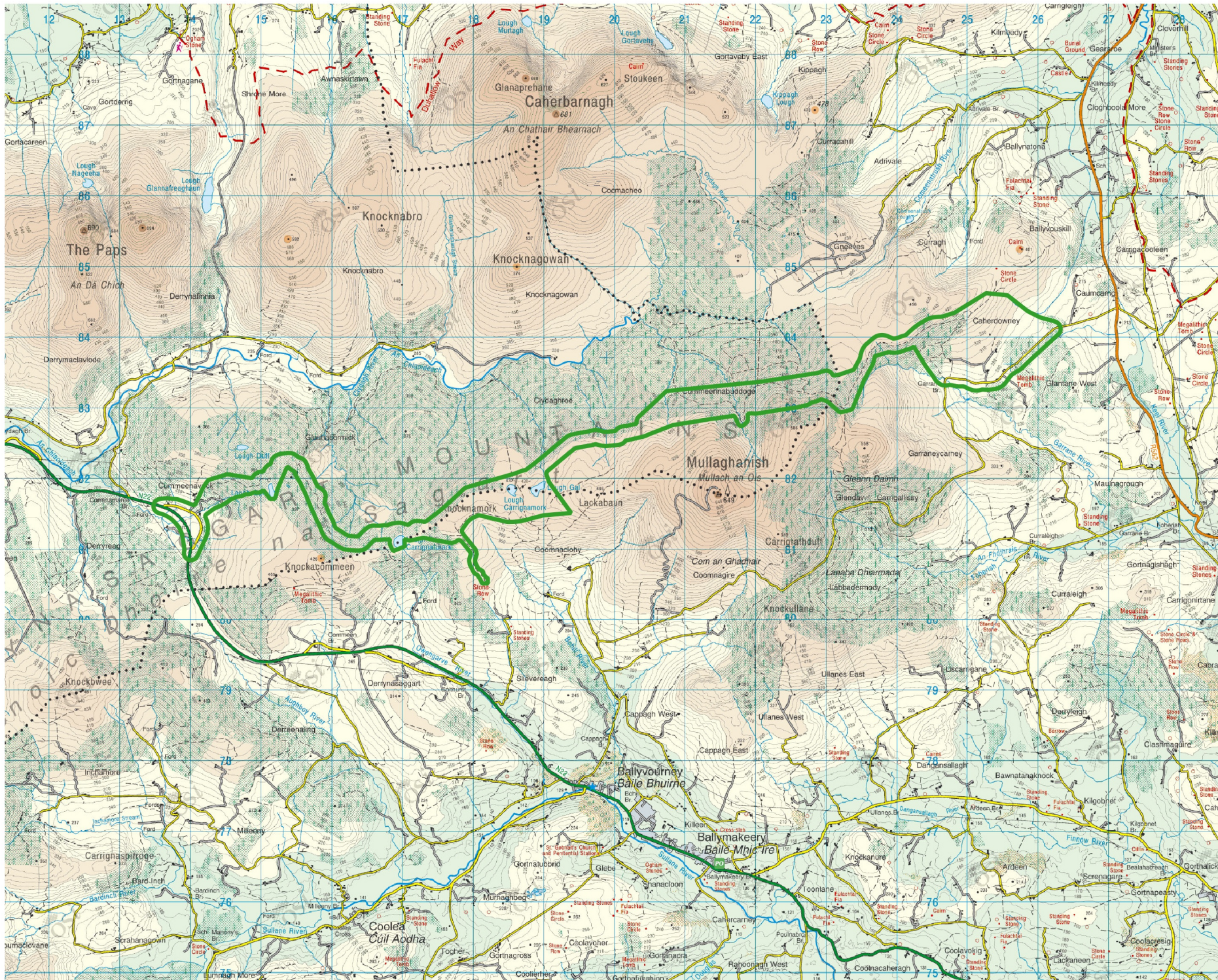
The townlands in which the Proposed Development is located, are listed in Table 1-1.

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


Development Works	Townland	
	Co. Kerry	Co. Cork
Access roads (new and upgrade of existing)	Cummeenavrick, Glashacormick, Clydaghroe, Cummeennabuddoge	Slievereagh, Coomnaclohy, Caherdowney
Upgrade of access junctions	Cummeenavrick	-
33kv Underground Cabling (Permitted Development to the proposed Substation)	Clydaghroe, Cummeennabuddoge	Slievereagh, Coomnaclohy
110kV Underground Cabling (Proposed Substation to Ballyvouskill Substation)	Cummeennabuddoge	Caherdowney,
110kV Substation	Cummeennabuddoge	-
Borrow pit	Cummeennabuddoge	Caherdowney
Extension to permitted borrow pit	-	Coomnaclohy

## 1.3 Project History

A planning application was lodged with Cork County Council for a renewable energy development comprising 7 no. turbines and a solar photovoltaic array in April 2019. Planning permission was granted by Cork County Council in January 2020 (Ref. No. 19/4972).




### Map Legend

 EIAR Study Boundary



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Drawing Title	
<b>Site Location</b>	
Project Title	
Proposed Substation, Underground Cabling & Access Roads to Knocknaree Renewable Energy Development	
Drawn By	Checked By
NMCh	EOS
Project No.	Drawing No.
210732	Figure 1-1
Scale	Date
1:70000	04.07.2022
	
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The planning application did not include for the connection to the national grid, however the accompanying EIAR assessed 2 no. underground grid connection options located in the townlands of Clydaghroe and Cummeennabuddoge, Co. Kerry. It was intended that the renewable energy development would be connected to the National Grid via an underground cabling connection to the existing Garrow 110kV substation in the townland of Cummeennabuddoge. Eirgrid have subsequently identified the existing Ballyvouskill 220kV substation as the connection node for the Permitted Development. Consent is therefore being sought to connect the Permitted Development to the existing Ballyvouskill 220kV Substation in line with Eirgrid requirements and to upgrade access junctions and existing tracks and roads to facilitate access to the Permitted Development and the proposed underground cabling.

1.4

## 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, is currently 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 European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The European Union Directive 2011/92/EU, amended by EU Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (the 'EIA Directive'), requires Member States to ensure that a competent authority carries out an assessment of the likely significant effects of certain types of project, as listed in the Directive, prior to development consent being given for the project.

The Environmental Impact Assessment (EIA) of the Proposed Development will be undertaken by both ABP, CCC and KCC as the competent authorities.

This EIAR complies with the EIA Directive in terms of the structure and content of the information required.

Article 5 of the EIA Directive provides where an EIA is required, the developer shall prepare and submit an EIAR previously referred to as an Environmental Impact Statement ('EIS'). 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.

MKO was appointed as environmental consultants on the Proposed Development and commissioned to prepare this EIAR in accordance with the requirements of the EIA Directive.

The Permitted Development underwent a mandatory EIA and subsequent EIAR and therefore, an EIAR is required for the Proposed Development.

The EIAR provides information on the receiving environment and assesses the likely significant effects of the Proposed Development and proposes mitigation measures to avoid or reduce these effects. The function of the EIAR is to provide information to allow the competent authority to conduct the Environmental Impact Assessment (EIA) of the Proposed Development.

All elements of the Proposed Development as detailed in Section 1.2 above have been assessed as part of this EIAR.

### 1.4.1 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.

### 1.4.2 Wind Energy Development Guideline 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.

The '*Wind Energy Development Guidelines for Planning Authorities*' (DoEHLG, 2006) were the subject of a targeted review in 2013. The proposed changes to the assessment of impacts associated with onshore wind energy developments are outlined in the document '*Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review*' (December 2013). A consultation process in relation to the document is currently being undertaken by the Department of Communications, Climate Action and Environment (DCCAE) and as of December 2019, the proposed changes to the assessment of impacts associated with onshore wind energy developments are outlined in the document '*Draft Revised Wind Energy Development Guidelines*' (December 2019). A consultation process in relation to the 2019 document commenced on the 12<sup>th</sup> December 2019 by the Department of Housing, Planning and Local Government (DoHPLG). The consultation period closed on 19<sup>th</sup> February 2020.

## 1.5 The Applicant

The applicant for the proposed renewable energy development, Knocknamork 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 2021, Enerco associated companies had over 625 Megawatts (MW) of wind generating capacity in commercial operation, 200MW in construction, with a further 400MW of projects at various stages in its portfolio to assist in meeting Ireland's renewable energy targets.

## 1.6

# Need for the Proposed Development

A connection between the Permitted Development and the national electricity grid will be necessary to export electricity from the renewable energy development. Eirgrid have identified the existing Ballyvouskill substation as the connection node for the permitted development. It is therefore proposed to construct a 110kV substation, underground cabling connecting the Permitted Development to the proposed 110kV substation and 110kV grid connection cabling from the proposed 110kV substation to the Ballyvouskill 220kV Substation in the townland of Coomnaclohy, Co. Cork. The Proposed Development is therefore crucial in order to facilitate the supply of electricity generated at the Permitted Development to the national grid. By providing the Permitted Development with a connection to the national grid, the Proposed Development will contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

The Proposed Development, alongside the Permitted Development provides the opportunity to realise the valuable renewable energy resource. If the Proposed Development were not to proceed the opportunity to capture this additional part of Cork's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

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

### 1.6.1

## 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 2021<sup>1</sup> announcing a renewable electricity target of 80% by 2030, without compromising security of energy supply. The Permitted Development will be operational before 2030 and would therefore contribute to this 2030 target. In June 2022, the EPA<sup>2</sup> reported that the latest EPA projections show that currently implemented measures (With Existing Measures) will achieve a reduction of 5% on 2005 levels by 2030, significantly short of the 30% reduction target. 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.

<sup>1</sup> Government of Ireland (2021) Climate Action Plan 2021

<sup>2</sup> EPA (June 2022) - Ireland's Greenhouse Gas Emissions Projections 2021-2040

The need for the Proposed Development is driven by the following factors:

1. *A legal commitment from Ireland to limit greenhouse gas emissions under the Kyoto protocol to reduce global warming;*
2. *A requirement to increase Ireland's national energy security as set out in the Energy White Paper;*
3. *A requirement to diversify Ireland's energy sources, with a view to achievement of national renewable energy targets and an avoidance of significant fines from the EU (the EU Renewables Directive);*
4. *Provision of cost-effective power production for Ireland which would deliver local benefits; and*
5. *Increasing energy price stability in Ireland through reducing an over reliance on imported gas.*

The Climate Action Plan 2021 (CAP) was published on the 4<sup>th</sup> of November 2021 by the Department of Communications, Climate Action and Environment (DoCCAE). The CAP sets out an ambitious course of action over the coming years to address the impacts which climate may have on Ireland's environment, society, economic and natural resources. This CAP clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The CAP identifies the need to increase the share of electricity demand generated from renewable sources by to up to 80% where achievable and cost effective, without compromising security of electricity supply. The CAP presents clear and unequivocal support for the provision of additional renewable energy generation and presents yet further policy support for increased wind energy.

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

## 1.6.2 Climate Change and Greenhouse Gas Emissions

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. The 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 International Panel on Climate Change (IPCC) has put forward its clear assessment 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 we are to limit global warming to below 2 degrees<sup>3</sup> 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 Report<sup>4</sup>, 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,

<sup>3</sup> IPCC Fifth Assessment Synthesis Report, Intergovernmental Panel on Climate Change AR5 Report

<sup>4</sup> IPCC, 2021: Climate Change 2021: The Physical Science Basis. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report



*rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach*". The IPCC published the second part of the Sixth Assessment Report<sup>5</sup> 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 CO<sub>2</sub> are imperative.

In October 2021, the EPA published Ireland's Provisional Greenhouse Gas Emissions Report stating that emissions in the Energy Industries sector show a decrease of 7.9% or 0.74 Mt CO<sub>2</sub>eq in 2020. Electricity generated from wind increased by 15.3% in 2020, the increase of which contributed to the 8.1% decrease in the emissions intensity of power generation in 2020 to 295g CO<sub>2</sub>/kWh.

The carbon losses and savings for the renewable energy development were assessed in the original planning application which was granted by Cork County Council in January 2020 (Ref. No. 19/4972). The carbon calculations as set out in Section 9.2.3 of Chapter 9 Air and Climate estimated that 36,577 tonnes of carbon dioxide will be displaced per annum from the largely carbon-based traditional energy mix by the renewable energy development. Over the proposed thirty-year lifetime of the renewable energy development, 1,097,310 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation.

### 1.6.3 Energy Security

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

A report by the Sustainable Energy Authority of Ireland (SEAI), published in September 2020 (Energy Security in Ireland, 2020 Report), presents national energy statistics on energy production and consumption in Ireland during 2018. Renewable energy sources (which include wind) accounted for 32.5% of Ireland's gross electricity consumption in 2018, which was well over halfway to Ireland's 2020 target of 40%. EirGrid in their *'All Island Generation Capacity Statement 2021 - 2030'* (September 2021), states that new wind farms commissioned in Ireland in 2020 brought total wind capacity to over 4,300MW, contributing to the increase in the overall RES-E percentage of 43.3%.

As set out in the National Energy & Climate Plan 2021-2030 (DECCA, 2021) it is estimated that in 2015 the cost of all energy imports to Ireland was approximately €4.6 billion; this fell to €3.4 billion in 2016 due mainly to reduced gas imports but increased again in 2017 to €4 billion and in 2018 to €5 billion. Ireland's import dependency varied between 85% and 90% until 2016, where it fell to 69% with the Corrib gas field starting production and then has fallen further to 66% in 2017, however Ireland is still one of the more import dependent countries in the EU, with the EU average being just over 50%.

In 2018, renewables made up 11% of gross final consumption relative to a 2020 target of 16%. This avoided 4.1 million tonnes of CO<sub>2</sub> emissions and €439 million of fossil fuel import (*'Energy in Ireland - 2019 Report'*, SEAI, December 2019). SEAI have estimated that the cost of all energy imports to Ireland in 2019 was approximately €4.5 billion. This was down from approximately €5.0 billion in 2018, due mainly to lower prices for oil and gas (*'Energy in Ireland - 2020 Report'*, SEAI, December 2020).

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<sup>5</sup> IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report

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*”.

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 still generates almost 25% of Ireland’s electricity, but the Programme for Government<sup>6</sup> called for a review of options to replace it with low carbon alternatives within a decade. Any steps to reduce this dependence on imported fossil fuels will add to financial autonomy and stability in Ireland. The use of Ireland’s indigenous energy resources, such as wind, will contribute to a reduction in energy imports.

The Energy White Paper 2015<sup>7</sup> 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”.*

In a Communication from the European Parliament on Joint European Action for more affordable, secure and sustainable energy<sup>8</sup>, 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.*”.

## 1.6.4 Competitiveness of Wind Energy

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

In fact, the cost of support is more than offset by the fact that adding large quantities of wind to the wholesale market drives down auction prices in any half hour trading period when the wind is blowing, i.e. for 80% of the hours of the year. Wind 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

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<sup>6</sup> Department of Communications, Climate Action and Environment, National Climate Policy, available at: <https://www.dccae.gov.ie/en-ie/climate-action/topics/climate-action-at-a-national-level/Pages/default.aspx>

<sup>7</sup> Ireland’s Transition to a Low Carbon Energy Future 2015-2030 (Department of Communications, Energy & Natural Resources, 2015)

<sup>8</sup> 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](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511)

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.

## 1.6.5 EU 2020 Renewable Energy Targets

The burning of fossil fuels for energy creates greenhouse gases, which contribute significantly to climate change. These and other emissions also create acid rain and air pollution. Sources of renewable energy that are utilised locally with minimal impact on the environment are necessary to meet the challenges of the future. The EU adopted Directive (2009/28/EC) on the Promotion of the Use of Energy from Renewable Sources in April 2009 which includes a common EU framework for the promotion of energy from renewable sources.

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). The contribution of renewables to gross final consumption (GFC) was 12% in 2019, compared to the 2020 target of 16% (*Energy in Ireland – 2020 Report*, SEAI). Reporting on Ireland's target status for 2020 is due for publication in October 2021.

For RES-E alone, Ireland had set a national target of 40% by 2020 as outlined in NREAP. 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%<sup>9</sup>. In addition, the EPA published data on its Greenhouse Gas emissions for the period 2021-2040 relative to EU 2030 targets. As previously mentioned the latest EPA projections show that currently implemented measures (With Existing Measures) will achieve a reduction of 5% on 2005 levels by 2030, significantly short of the 30% reduction target<sup>10</sup>.

## 1.6.6 EU 2030 Renewable Energy Targets

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

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

<sup>9</sup> *Energy in Ireland 2020 (SEAI, December 2021)* - [https://www.seai.ie/publications/Energy-in-Ireland-2021\\_Final.pdf](https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf)

<sup>10</sup> *Ireland Greenhouse Gas Emissions Projections 2021-2040 (EPA June 2022)*

In November 2021, the Government published the most recent Climate Action Plan 2021, announcing a renewable electricity target of 80% by 2030 for Ireland. This is a rise from the previous target of 70% by 2030, as announced in the Climate Action Plan 2019.

The Climate Action Plan 2021 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 8GW and 5GW of offshore wind. As published by the SEAI in December 2021, the current installed onshore capacity in Ireland is 4.3MW. As noted previously, Ireland missed it's 2020 renewable energy target of 40% with a renewable share in electricity of 39.1%. With a renewable share of electricity generation at 80% in mind and a target of 8GW installed 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.

## 1.6.7 Increasing Energy Consumption

As detailed above, the Climate Action Plan identifies a need for 8.2GW of onshore wind generation in order for Ireland to meet its 2030 targets. In their '*All Island Generation Capacity Statement 2021 - 2030*' (September 2021), EirGrid estimate that 4.5 – 6.6 GW on-shore wind capacity would be required to meet the 2030 RES-E targets for Ireland.

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'<sup>11</sup> concluded that '*potential costs of purchasing non-ETS GHG compliance for the Irish Exchequer for the 2020 to 2030 period could have a cumulative total in the billions in the absence of any further policy changes*'. If Ireland decided to backfill shortfalls in the RES-H target with additional renewable electricity this could significantly reduce these costs.

In April 2016<sup>12</sup> SEAI estimated the historic build rate for wind energy deployment as 180 MW per year since 2005. If this average build rate over the remaining period between 2018 and 2020 is assumed, then approximately 3.85 GW of wind would be built up to 2020. By January 2022, the installed wind capacity in the Republic of Ireland is over 4.3GW according to Wind Energy Ireland<sup>13</sup>.

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*'<sup>14</sup>. EirGrid analysis shows that demand from data centres could account for 31% of all demand by 2027 in a median demand scenario (accounts for the connection of all 1400MVA of potential demand in the connection process). The median demand scenario is now higher than for last year's forecast for high demand, indicating the progression of many of the data centre projects.

In 2015, IWEA commissioned a study '*Data Centre Implications for Energy Use in Ireland*' which concluded that an extra approx. 1 Gigawatt (GW) of electricity demand could materialise between 2015 and 2020 due to growth in data centres. More recently, data available from Bitpower<sup>15</sup> 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

<sup>11</sup> <https://igees.gov.ie/wp-content/uploads/2013/10/Future-Expenditure-Risks-associated-with-Climate-Change-Climate-Finance1.pdf>

<sup>12</sup> [https://www.seai.ie/Publications/Statistics\\_Publications/Energy\\_Modelling\\_Group\\_Publications/Ireland%E2%80%99s-Energy-Targets-Progress-Ambition-and-Impacts.pdf](https://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group_Publications/Ireland%E2%80%99s-Energy-Targets-Progress-Ambition-and-Impacts.pdf)

<sup>13</sup> <https://windenergyireland.com/about-wind/facts-stats>

<sup>14</sup> Eirgrid, SONI (2019). *All-Island Generation Capacity Statement 2019-2028*

<sup>15</sup> [http://www.bitpower.ie/images/Reports/2020\\_H2\\_Report.pdf](http://www.bitpower.ie/images/Reports/2020_H2_Report.pdf)

committing to using 100% renewable energy which will result in an increased demand for renewable electricity as detailed above.

In the context of increasing energy demand and prices, uncertainty in energy supply and the effects of climate change, our ability to harness renewable energy such as wind power plays a critical role in creating a sustainable future. The Department of the Environment, Climate and Communications set a target for Ireland of 70% 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.

Recent communications from SEAI<sup>16</sup> have noted that *'meeting 2020 renewable energy and energy efficiency targets could put Ireland on a low-carbon pathway and trajectory in terms of meeting future targets in 2030 and 2050.'*

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

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

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

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

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

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

Ireland will therefore have to meet even more demanding climate change and renewable energy supply obligations in order to play its part in achieving the European climate and energy ambitions. As announced in November 2021, the Irish Government have pledged to generate 80% of the country's electricity supply from renewable sources by 2030. The development of additional indigenous wind energy generating capacity, such as that proposed at the Permitted 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

<sup>16</sup> [https://www.seai.ie/resources/publications/Ireland\\_\\_\\_s-Energy-Targets-Progress-Ambition-and-Impacts.pdf](https://www.seai.ie/resources/publications/Ireland___s-Energy-Targets-Progress-Ambition-and-Impacts.pdf)

such as increasing electric vehicle penetration and electrification of heat. Further information on the 2030 commitments for Ireland are noted in Chapter 2, Section 2.1.

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

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

In 2014, a report prepared by UK consultant BW Energy for the Rethink Pylons campaign group has suggested that converting Moneypoint generation station (which runs solely on coal) from coal to biomass would enable Ireland to meet 2020 renewable energy targets. Dr Brian Motherway, Chief Executive SEAI<sup>17</sup> refutes this claim. While Dr Motherway agrees that biomass offers benefits and is helping Ireland to move away from fossil fuels he states that “*the conversion of Moneypoint to biomass has been considered a number of times over the years, including actual trials of small amounts of biomass in the station. However, the technical and economic challenges have proven far greater than some would have us believe*”.

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

Importation raises the question; would this be cost effective? As prices are volatile and availability of biomass is difficult to predict Ireland would become dependent on the uncertainty of imported biomass. It is also noted that there will be emissions from transport and distribution. The further the biomass is transported, the greater the greenhouse gas emissions<sup>18</sup>. So, while biomass is currently contributing to a move to renewable energy production, on its own it is not the sole answer to meeting Ireland’s renewable energy targets. Ireland has a legal obligation to diversify its energy sources requiring the development of renewable energy to avoid substantial fines.

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

The Climate Action Plan 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. Underlying drivers of changes in electricity demand include:

<sup>17</sup> [http://www.seai.ie/News\\_Events/Press\\_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html](http://www.seai.ie/News_Events/Press_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html)

<sup>18</sup> *Sustainability Criteria Options and Impacts for Irish Bioenergy Resources (SEAI 2019)*

- 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.

## 1.6.8 Reduction of Carbon Emissions and Other Greenhouse Gases

The production of renewable energy from the Proposed Development together with the Permitted 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 Permitted Development will result in the net displacement of approximately 36,577 tonnes of Carbon Dioxide (CO<sub>2</sub>) per annum, from the largely carbon-based traditional energy mix.

Under WHO and EU estimates, more than 417,000 premature deaths are attributable to poor air quality in Europe annually (*‘European Environmental Agency (EEA) Report, ‘Air Quality in Europe – 2020 Report’*). The EPA report *‘Air Quality in Ireland 2020’* noted that in Ireland, the premature deaths attributable to poor air quality are estimated at 1,300 people per annum. The EPA 2016 report *‘Ireland’s Environment – An Assessment’* states that the pollutants of most concern are NO<sub>x</sub>, (the collective term for the gases nitric oxide and nitrogen dioxide, PM (particulate matter) and O<sub>3</sub> (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 together with the Permitted Development therefore represents an opportunity to further harness Ireland’s significant renewable energy resources, with valuable benefits to air quality and in turn to human health. The consumption of fossil fuels for energy results in the release of particulates, sulphur dioxide and nitrogen dioxide to our air. The use of wind energy, by providing an alternative to electricity derived from coal, oil or gas-fired power stations, results in emission savings of carbon dioxide (CO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>), and sulphur dioxide SO<sub>2</sub>, thereby resulting in cleaner air and associated positive health effects.

### 1.6.9 Economic Benefits

In addition to helping Ireland avoid significant fines and reducing environmentally damaging emissions, the Proposed Development by facilitating the Permitted 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 above, in 2019 the cost of all energy imports to Ireland was approximately €4.5 billion with imported fossil fuels accounting for 69% of all energy consumed (*‘Energy in Ireland 2020’*, Sustainable Energy Authority of Ireland, 2020).

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

- Displaced €501 million in fossil fuel imports; and
- Reduced CO<sub>2</sub> 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.

The Permitted Development will be capable of providing power to over 22,432 households every year. At a Regional Level, the Proposed Development together with the Permitted Development will help to supply the rising demand for electricity, resulting from renewed economic growth. The EirGrid report *‘All-Island Generation Capacity Statement 2021-2030’* (SONI and Eirgrid, 2021) notes that electricity demand on the island of Ireland is expected to grow by between 28% and 43% over the next ten years. Much of this growth is expected to come from new data centres in Ireland.

The Proposed Development together with the Permitted 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 both Cork County Council and Kerry County Council each year, which will be redirected to the provision of public services within Co. Cork and Co. Kerry. 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 and Permitted Development will create up to 70 jobs during the construction, operational and maintenance phases. During construction, additional 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.



There are substantial opportunities available for areas where wind farms and other types of renewable energy developments are located, in the form of Community Gain Funds. Based on the current proposal, a Community Gain Fund in the region of up to €1 million will be made available over the lifetime of the Permitted Development. The value of this fund will be directly proportional to the level of installed MWs 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.

## 1.7 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 Proposed Development 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, Cork County Council and Kerry County Council, from the EIAR accompanying the planning applications. 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 relevant competent authority. The information to be contained in the EIAR is prescribed in Article 5 of the revised EIA Directive described in Section 1.2 above.

## 1.8 Structure and Content of the EIAR

### 1.8.1 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 human beings, biodiversity, 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.

The chapters of this EIAR are as follows:

- Introduction
- Background to the Proposed Development
- Site Selection, Design Evolution and Alternatives
- Description of the Proposed Development
- Population and Human Health

- Biodiversity
- Land, Soils and Geology
- Hydrology and Hydrogeology
- Air and Climate
- Noise and Vibration
- Landscape and Visual
- Cultural Heritage
- Material Assets (including Traffic and Transport, Services and Utilities)
- Interactions of the Foregoing
- 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.

## 1.8.2 Description of Likely Significant Effects and Impacts

As stated in the ‘*Guidelines on the Information to be contained in Environmental Impact Statements*’ (EPA, 2002), 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-frontier nature (if applicable) of the impact.

The classification of impacts in this EIAR follows the definitions provided in the Description of Effects 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 – May 2022’ (EPA, 2022).
- ‘*Environmental Impact Assessment of Projects: Guidance on Screening*’ (EC, 2017).
- ‘*Environmental Impact Assessment of Projects: Guidance on Scoping*’ (EC, 2017).
- ‘*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).
- ‘*Guidelines on the Information to be contained in Environmental Impact Statements*’ (EPA, 2002).

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

Impact Characteristic	Term	Description
<b>Extent &amp; Context</b>	Extent	Describe the size of the area, number of sites and the proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions
<b>Probability</b>	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
<b>Duration and Frequency</b>	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,

Impact Characteristic	Term	Description
		constantly – or hourly, daily, weekly, monthly, annually)
Type	Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
	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 effect is described in terms of its quality, significance, duration and type, where possible. A ‘Do-Nothing’ effect is also predicted in respect of each environmental theme in the EIAR. Residual effects 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.

## 1.9 Project Team

### 1.9.1 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*
<b>MKO</b>  Tuam Road, Galway, H91 VW84	Gus McCarthy Brian Keville Michael Watson Eoin O’Sullivan Jimmy Green Meabhann Crowe William Arnold Pat Roberts John Hynes Aoife Joyce Keith Costello Inga Reich Kevin McElduff Dervla O’Dowd Pdraig Cregg Eoin Hurst Niamh McHugh Jack Workman Maria Ines Timoteo Darragh Buckley 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. Site Selection & Alternatives 4. Description of the Proposed Development 5. Population & Human Health 6. Biodiversity 9. Air & Climate 12. Landscape & Visual 13. Material Assets (non-Traffic) 14. Interaction of the Foregoing
<b>Hydro Environmental Services</b>  22 Lower Main Street Dungarvan Co. Waterford	Michael Gill David Broderick	Flood Risk Assessment, Drainage Design, Preparation of EIAR Sections: 7. Land, Soils & Geology 8. Hydrology & Hydrogeology
<b>Fehily Timoney &amp; Company</b>  The Grainstore Singletons Lane Bagnelstown Co. Carlow	Ian Higgins	Preparation of Peat Stability Assessment & Peat Management Plan

Consultants	Principal Staff Involved in Project	EIAR Input*
<b>AWN Consulting</b>  The Tecpro Building Clonshaugh Business & Technology Park Dublin 17	Dermot Blunnie Mike Simms	Baseline Noise Survey, Preparation of EIAR Section 10. Noise and Vibration
<b>Tobar Archaeological Services</b>  Saleen Midleton Co. Cork	Annette Quinn Miriam Carroll	Preparation of EIAR Section 1. 11. Cultural Heritage
<b>Alan Lipscombe Traffic and Transport Consultants</b>  Claran, Headford, Co. Galway	Alan Lipscombe	Swept Path Analysis, Preparation of EIAR Section 13. 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.

## 1.9.2 Project Team Members

### 1.9.2.1 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.

#### 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.

#### Meabhann Crowe BA (Hons), M.Sc.

Meabhann Crowe is a Project Planner with MKO with over 10 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 and 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.

#### William Arnold BA (Hons), M.Sc.

William Arnold is a Graduate Planner with MKO having joined the company in October 2021. William holds a BA (Hons) Degree in Archaeology and Classical Studies, a HDip in Sociology, and a Masters (Hons) in Town Planning and Sustainable Development where he focused his studies on environmental planning. His key strengths and expertise are in research and report writing and excellent interpersonal communication skills with the ability to develop good working relationships across different disciplines. Prior to joining MKO William gained experience in the preparation of planning inputs required for planning applications for telecoms infrastructure projects and solar farm applications. Since joining MKO William has gained experience in the preparation of planning inputs required for planning applications for solar farm and wind energy projects and has gained experience in a range of planning issues having been involved in projects at various stages. William is a graduate member of the Irish Planning Institute and a Licentiate Member the Royal Town Planning Institute, with the objective to progress to charter membership of the IPI and the RTPI.

#### Pat Roberts B.Sc. (Env.)

Pat Roberts is a Principal Ecologist with MKO with over 12 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.Sc.(Hons) in Environmental Science. Pat has extensive experience of providing ecological consultancy on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He has designed numerous Environmental Operating Plans and prepared many environmental method statements in close conjunction with project teams and contractors. He has worked extensively on the identification, control and management of invasive species on numerous construction sites. Prior to taking up his position with MKO in June 2005, Pat worked in Ireland, USA and UK as a Tree Surgeon and as a nature conservation warden with the National Trust (UK) and the US National Park Service. Pats key strengths

include his depth of knowledge and experience of a wide range of ecological and biodiversity topics and also in his ability to understand the requirements of the client in a wide range of situations. He 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 Project Director with MKO with over ten 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 EIAR Reports. John has project managed a range of strategy and development projects across 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.

#### Keith Costello BSc

Keith Costello is a Graduate Ecologist with MKO having joined the company in March 2021. Keith Costello holds a BSc (Hons) Environmental Science, and a where he focused his studies on Conservation Ecology. Keith's key strengths and expertise are Mapping, Site Surveying, Data Analysis, Project Management. Since joining MKO, Keith Costello has been involved in a range of Ecological/Windfarm projects. In his role as a Graduate Ecologist, Keith works with and co-ordinates surveys and data analysis with members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of Ecological Impact Assessments.

#### Inga Reich PhD

Inga Reich is an ecologist with MKO since October 2020. She holds a German Diploma in Biology and a PhD in Applied Ecology focused on e.g., the impact of forestry operations on the Kerry slug. Prior to taking up her position with MKO, Inga has worked as a postdoctoral researcher investigating the

biological control potential of ground beetles for slugs and other invertebrate pests in Oregon and Ireland and as a sampling technician for Complete Laboratory Solutions. She has previously worked for MKO in a temporary matter, aiding to prepare a UNESCO report and has conducted Kerry slug surveys and written accompanying reports on a freelance basis for Feehily, Timoney & Co and RPS Consulting Engineers. Inga's key strengths and areas of expertise are in Kerry slug and terrestrial invertebrate surveys, data analysis and report writing. Within MKO, Inga has been involved in conducting multi-disciplinary ecological surveys and in preparing Stage 1 and Stage 2 Appropriate Assessment reports and Ecological Impact Assessments.

### Kevin McElduff B.Sc

Kevin Mc Elduff is an ecologist with MKO, having joined the company in June 2021. Kevin holds a BSc (Hons) in Environmental Science where he focused his studies on wildlife and ecology. Kevin's key strengths and expertise are flora and fauna identification, report writing and mapping. Since joining MKO, Kevin has been involved in a range of projects such as wind farm, residential and commercial developments, as well as site supervision. In his role as a ecologist, Kevin works with 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 maps and reports such as Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Environmental Impact Assessment Reports (EIAR), Invasive Species Management Plans (ISMP) and briefing notes.

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

Dervla O'Dowd is a Senior Ecologist and Project Director 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 ten 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 Pádraig 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 EIA and NIS Reports.

#### Eoin Hurst BE, M.Sc.

Eoin Hurst was a Project Environmental Engineer with MKO from 2019 to 2022. Eoin holds a BE Civil Engineering and a MSc in Environmental Technology. Prior to taking up his position with MKO in September 2019, Eoin worked as an Environmental Engineer with Tetra Tech in the United States (Washington DC) and held previous positions in the US with Apex Companies, in the UK with Arcadis (Cambridge) and CDP (London) and in Ireland with Egis Projects in Dublin. Eoin has specialist knowledge of environmental and geotechnical site investigations, contaminated land remediation, environmental due diligence, climate change policy development (with a focus on the O&G sector), water management policy and technology and research methods. Eoin's key strengths and areas of expertise are in the management and planning of complex site assessments, technology appraisals and feasibility studies relating to groundwater, soil, sediment and surface water, environmental risk assessment, data analysis and regulatory compliance. Since joining MKO Eoin has been involved as a Project Environmental Engineer on a range of renewable energy infrastructure (wind and solar), public infrastructure (roads), commercial, and residential developments. Within MKO Eoin plays a role in the management and training of junior members of staff and works as part of a large multi-disciplinary team to deliver EIS Reports. He currently holds full professional membership with Engineers Ireland (MIEI).

#### Niamh McHugh BSc.

Niamh is a Graduate Environmental Scientist with MKO Ltd having graduated in 2021. Niamh graduated with an honours B.Sc. degree in Environmental Science from NUI, Galway in 2021. Niamh is experienced in report writing and has been involved in the production of EIARs and SEAs for various projects including Watercourse Maintenance Programmes and Onshore Wind Energy developments. Niamh has carried out a wide range of ecological surveying work through her college education, including small mammal surveys, bat surveys and freshwater invertebrate surveys. Niamh also has considerable experience using QGIS mapping software for a wide variety of projects. Niamh's key strengths lie in the areas of report writing and communication, applications of GIS mapping software. Since joining MKO Niamh has been involved in a wide range of projects, acting as a graduate environmental scientist.

#### Jack Workman MSc

Jack Workman is an Environmental Scientist with MKO, he joined the company in February 2020. Jack's primary role at MKO is within the landscape team where he produces the Landscape Visual Impact Assessment chapter of Environmental Impact Assessment reports. Jack holds an MSc. in Coastal and Marine Environments (Physical Processes, Policy & Practice). 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. Jack has specialist knowledge in Landscape Visual Impact Assessment, coastal and marine environmental science, GIS and UAV remote sensing. Jack's key strengths and areas of expertise are in geospatial analysis, planning, and Environmental Impact Assessment reporting. Since joining MKO Jack has been involved as an environmental consultant on Landscape Visual Impact Assessments. Jack holds a graduate membership with the Chartered Institute of Water and Environmental Management.

#### Maria Ines Timoteo MLA; BLA

Maria Inês Timóteo is a Landscape Architect with MKO. Maria completed both Bachelor's and Master's degree in Landscape Architecture, at Instituto Superior de Agronomia (ISA) in Lisbon. During this time, she worked as a guide at the University's Botanical Garden, in Ajuda and proceeded to work in a variety of projects for planning, tender and construction throughout Portugal, for Lisbon's City

Council and different practices. Since moving to Dublin in 2016 she has worked in a wide variety of project contexts, including public parks, infrastructure, schools, historic landscapes, residential developments, data centres, infrastructures, and other spaces. In 2018 she accepted the role of Project Landscape Architect and took on further responsibilities in preparing Tender and Construction packs, while also representing the Landscape team during all project stages. Since joining MKO, Maria has been involved in a range of projects including wind energy developments as well as landscape design and implementation. In her role as a Landscape Architect within the Landscape Team, Maria works together with her team in the preparation and production of the Landscape and Visual Impact Assessment chapters of the EIA reports. Maria's key capabilities include report preparation and data analysis, usage of design software such as AutoCAD and Adobe suite for the provision of landscape architecture projects and use of modelling tools such as GIS and Sketchup to assist landscape and environmental requirements. Maria is a Council Member with the Irish Landscape Institute..

### Darragh Buckley

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

### Joseph O'Brien

Joseph O'Brien holds the position of CAD Technician. Joseph holds a BA Honours Level 8 Modelmaking, Design and Digital Effect, Institute of Art Design and Technology (IADT), Dun Laoghaire & City & Guilds Level 3 2D & 3D AutoCAD certificates. Joseph'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.

## 1.9.2.2 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.

### 1.9.2.3 Fehily Timoney

The geotechnical aspects of the report, which were incorporated into the Geology & Soils and Water sections of the EIAR, were completed by Fehily Timoney. Fehily Timoney has extensive experience in the production of Peat Stability Assessments for wind energy developments. Fehily Timoney provides specialist geotechnical engineering and engineering geology advice to local authorities, contractors and consultants, particularly for infrastructure projects forming part of the National Development Plan and also for private commercial and residential developments as they move on to sites with more complex ground conditions.

#### Ian Higgins

Ian is a geotechnical engineer with over 18 years' experience in the design and supervision of construction of bulk earthworks, geotechnical foundation design, geotechnical monitoring and reviewing, reinforced earth design and 3rd party checking of piling and ground improvement designs. Ian's experience also includes the design, supervision and interpretation of ground investigations, including desk studies, walkover surveys, hazard mapping of rock excavations and slopes.

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

### 1.9.2.4 AWN Consulting Ltd

AWN Consulting is a multidisciplinary engineering consultancy offering specialist design advice in respect of all aspects of environmental acoustics. It is an Irish owned company with its Head Office in Dublin. AWN Consulting's acoustics team comprises nine suitably qualified engineers with a total of some 100 man years spent working in the area, making it the largest and most experienced group of its type in Ireland, uniquely positioned to undertake a wide variety of projects.

#### Dermot Blunnie - Senior Acoustic Consultant

Dermot Blunnie (Senior Acoustic Consultant) holds a BEng in Sound Engineering, MSc in Applied Acoustics and has completed the Institute of Acoustics (IOA) Diploma in Acoustics and Noise Control. He has been working in the field of acoustics since 2008 and is a member of the Institute of Engineers Ireland (MIEI) and the Institute of Acoustics (MIOA). He has extensive knowledge of all aspects of environmental surveying, noise modelling and impact assessment for various sectors including, energy, industrial, commercial and residential. Dermot specialises in wind farm noise modelling, compliance and complaint investigations.

#### Mike Simms- Senior Acoustic Consultant

Mike Simms (Senior Acoustic Consultant) holds a Bachelor of Mechanical Engineering and Master of Engineering Science from University College Dublin he also holds a Diploma in Acoustics and Noise Control from the University of Ulster at Jordanstown. He has 16 years' experience in the field of environmental acoustics, in particular using computer-based noise modelling for environmental noise assessments..

### 1.9.2.5 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..

### 1.9.2.6 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.

### 1.10 Difficulties Encountered

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

### 1.11 Viewing and Purchasing of the EIAR

Copies of this EIAR will be available online, including the Non-Technical Summary (NTS), on the Planning Section of the Cork County Council and Kerry County Council websites.

<https://www.corkcoco.ie/en/planning> under the relevant Planning Reference Number (to be assigned on lodgement of the application).

<https://www.kerrycoco.ie/planning/development-management/planning-applications/>, under the relevant Planning Reference Number (to be assigned on lodgement of the application).

This EIAR and all associated documentation will also be available for viewing at the offices of ABP, CCC and KCC. 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

Cork County Council,  
Planning Section,  
Norton House,  
Cork Road,  
Skibbereen,  
Co. Cork  
P81 AT28

Kerry County Council,  
Planning Department  
Rathass,  
Tralee,  
Co. Kerry

This 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.knocknamorksid.com](http://www.knocknamorksid.com)