1. INTRODUCTION

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of Orsted Onshore Ireland Midco Ltd (Orsted), who intend to apply to An Bord Pleanála for planning permission to remove the existing 28 no. turbines, replace them with 11 no. wind turbines, and upgrade the associated infrastructure on the Existing Kilgarvan Wind Farm site in the townlands of Inchincoosh, Lettercannon, Inchee, Coomacullen, and Cloonkeen in County Kerry.

The Proposed Development, which will have a potential generating capacity greater than 50 megawatts (MW) and will make use of the existing 110kV infrastructure built as part of the Existing Kilgarvan Wind Farm. This infrastructure will continue to connect the Proposed Development to the National Electricity Grid via the existing 110kV Coomagearlahy substation. There will be minor upgrades to the existing 110kV Coomagearlahy substation to ensure that it is in line with current EirGrid specifications.

As outlined further in Section 1.1.1 below, the site of the Proposed Development is the Existing Kilgarvan Wind Farm, which has 28 no. turbines, all of which are to be decommissioned as part of the Proposed Development. This Existing Kilgarvan Wind Farm has a current generating capacity of approximately 72 MW. The repowering of a brownfield site has many advantages, which are outlined and assessed in further detail throughout this EIAR. The repowering of the Existing Kilgarvan Wind Farm will ensure the supply of renewable energy to the national grid for an additional 35 years.

The planning application which will be submitted to An Bord Pleanála, will seek to decommission the existing 28 no. turbines and to construct 11 no. new turbines in their place. The 11 no. turbines will meet the potential generation capacity of greater than 50MW. The application meets the threshold for wind energy set out in the Seventh Schedule of the Planning and Development Act 2000, as amended (being '*An installation for the harnessing of wind power for energy production (a wind farm) with more than 25 turbines or having a total output greater than 50 megawatts'*) and is therefore being submitted directly to An Bord Pleanála as a Strategic Infrastructure Development (SID) in accordance with Section 37E of the Planning and Development Act, 2000 as amended. This approach has been confirmed following consultations with the Board under the provisions of Section 37B of the Planning and Development Act 2000 as amended (Case Reference ABP-314798). This EIAR accompanies the planning application for the proposed 11 no. turbines and associated infrastructure submitted to the Board. The planning application is also accompanied by a Natura Impact Statement ('NIS').

Full details of the pre-application consultation undertaken with regards both planning applications can be found in Section 2.6 in Chapter 2 of this EIAR.

1.1.1 Context of the Proposed Development

As detailed below in Section 1.1.2, there are various planning permissions within the Existing Kilgarvan Wind Farm site. Some of these permissions have expiry dates, in which the wind turbines need to be decommissioned, while some do not.

Regardless of the planning permissions and their operational expiry dates, the existing turbines on site will have reached their end of life. In order to maximise the potential of the site and increase efficiency, the Applicant plans to develop the full site of the Existing Kilgarvan Wind Farm. This will mean that all 28 turbines will be removed from site, regardless of planning permissions.

With advancements in technology, the Applicant has been able to design a project that overall reduces the development footprint on the site, but still supplies equivalent energy to the grid. By removing all 28

turbines, the Proposed Development has been able to be designed in a way that utilises the majority of existing infrastructure on the site.

1.1.2 Planning History

The Existing Kilgarvan Wind Farm (as termed for the purposes of the EIAR) is made up of both the Kilgarvan I and Kilgarvan II Wind Farm sites, which encompass a number of distinct wind farm projects, each with their own separate planning permissions. There is a total of 28 no. turbines that are operational at the Existing Kilgarvan Wind Farm, two different turbine types have been installed, including 13 no. Nordex N90s and 15 no. Vestas V90s.

As part of the Kilgarvan I Wind Farm site, permission was granted for the construction of 21 no. turbines under the following planning references:

- 02/1241 – permission to construct 17 turbines and associated structures;
- 03/2176 – Extended hub height from 60m to 80m;
- 03/992176 – Extended the expiry date of planning ref 03/2176; and
- 03/2306 – Extension of 4 no. turbines

15 no. of the 21 no. turbines consented have been constructed and these consist of Vestas V90 turbines with a total installed capacity of 42.5 MW. The planning permissions for Kilgarvan I Wind Farm was granted in 2007 and does not have a planning condition specifying an expiry date for its operational life.

The Kilgarvan II Wind Farm consists of several separate planning permissions, which were constructed together under the following planning permissions:

- Inchincoosh consisting of 6 no. turbines under Planning References 07/1605 and 07/4364
- Lettercannon consisting of 7 no. turbines under planning references PL. 08.209629, 07/4515 and 07/4701
- Sillahertane consisting of 10 no. turbines under planning reference Pl. 03/1359.

23 no. turbines were installed under the above planning permissions. It should be noted that the 10 no. Sillahertane turbines as detailed above are not planned to be decommissioned at this time and will not form part of the Proposed Development.

Kilgarvan II Wind Farm was commissioned in 2009 and planning conditions attached to the planning permissions for the wind farm specify a 20-year operation life from commencement of operation. The Kilgarvan II Wind Farm operational life is therefore due to expire in 2029.

1.1.2.1 Existing Kilgarvan Wind Farm Turbines

For the purposes of this assessment, the decision was made to renumber the Existing Kilgarvan Wind Farm turbines as they appear on the ground for the purposes of the EIAR. Please see the below Table 1-1 which shows the turbine numbering as it appears within the Existing Kilgarvan Wind Farm site, and the numbering that will be used for the purposes of this EIAR.

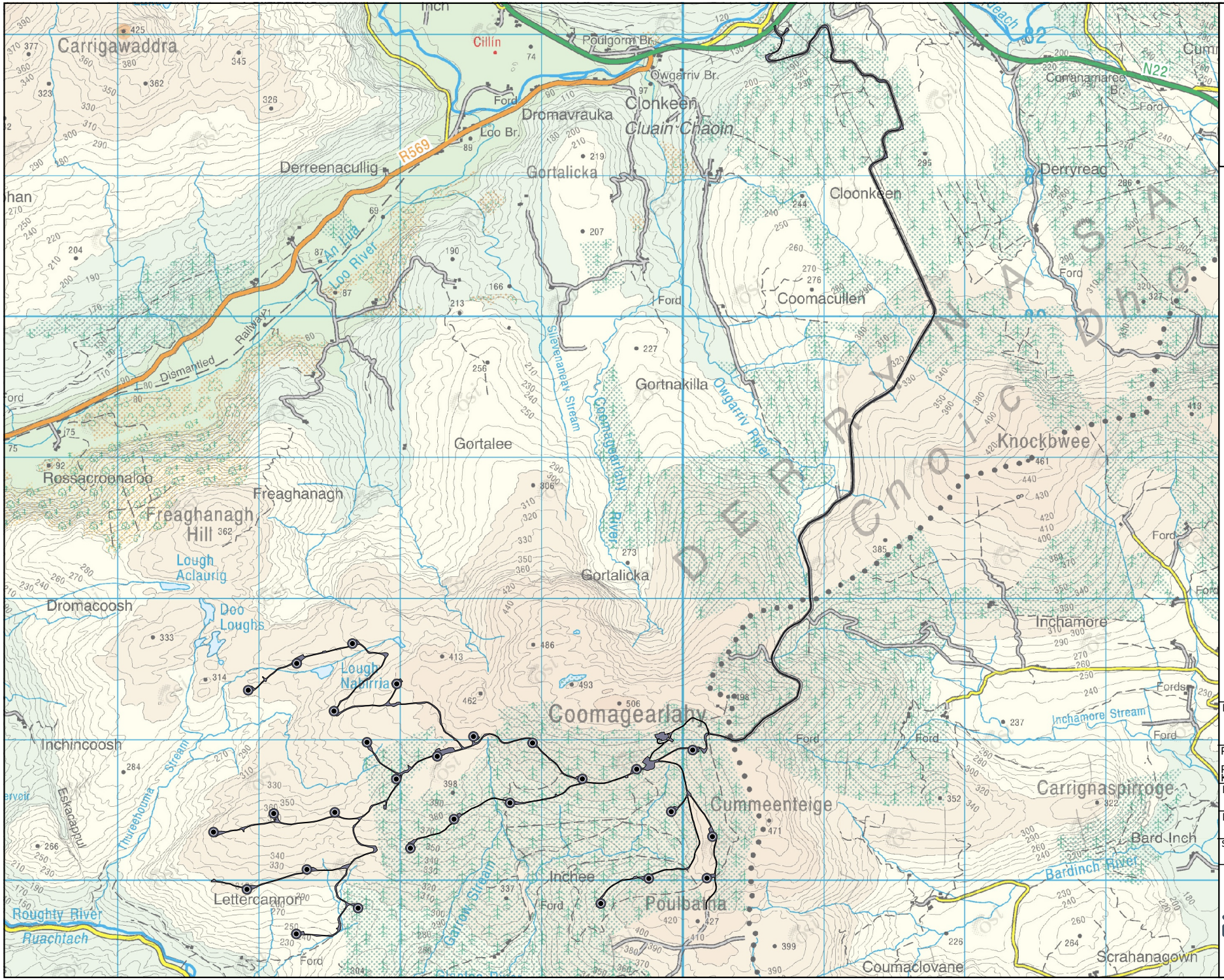
Table 1-1 Existing Kilgarvan Turbine Numbering

Existing Turbine Numbering	Turbine Numbering for the Purposes of the EIAR
Kilgarvan I	
1	12

Existing Turbine Numbering	Turbine Numbering for the Purposes of the EIAR
2	11
3	10
4	9
5	15
6	14
7	13
8	8
14	4
15	6
17	5
18	7
19	1
20	2
21	3
Inchincoosh (Kilgarvan II)	
1	16
2	17
3	18
4	19
5	20
6	21
Lettercannon (Kilgarvan II)	
7	22
8	23
9	24
10	26

Existing Turbine Numbering	Turbine Numbering for the Purposes of the EIAR
11	25
12	27
13	28

A map showing the Existing Kilgarvan Wind Farm and its turbine numbering for the purposes of the EIAR is shown in Figure 1-1.



Map Legend

- Existing Development Footprint
- Existing Kilgarvan Turbines

Drawing Title	Existing Kilgarvan Turbines
Project Title	Proposed Repowering of the Existing Kilgarvan Wind Farm
Drawn By: EL	Checked By: OM
Project No.: 211107	Drawing No.: Figure 1-1
Scale: 1:35,000	Date: 2024-04-11

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1.1.3 References to the Proposed Development

For the purposes of this EIAR:

- Where the 'Proposed Development' is referred to, this relates to the project components described in detail in Chapter 4 of this EIAR.
- Where 'the site' is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-2.
- Where the 'Existing Kilgarvan Wind Farm' is referred to, this relates to the Kilgarvan I and Kilgarvan II wind farm developments as outlined in Section 1.1.1 above.

In addition:

- Where the construction phase is detailed and assessed within the EIAR, this includes for the removal of the existing 28 turbines and the construction of the proposed 11 no. turbines and associated infrastructure in on site.
- Where the operational phase is detailed and assessed within the EIAR, this includes for the operation of the proposed 11 no. turbines on site.
- Where the decommissioning phase is detailed and assessed within the EIAR, this includes for the decommissioning of the proposed 11 no. turbines on site.

This EIAR, along with a Natura Impact Statement ('NIS'), will accompany the planning permission application for the wind farm site which will be made to An Bord Pleanála in accordance with the provisions of 37A of the Planning and Development Act 2000, as amended. Both the EIAR and NIS contain the information necessary for An Bord Pleanála to complete the Appropriate Assessment and Environmental Impact Assessment as required for this planning permission application.

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

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

The EIAR Site Boundary identifies the primary EIAR site area for the Proposed Development, however, each individual topic, i.e., chapter, has its own study area for assessment purposes relevant to that topic which will be clearly identified in the relevant chapters. The actual site outline (red line boundary) for the purposes of this planning permission application occupies a smaller area within the primary EIAR Site Boundary. The EIAR Site Boundary encompasses an area of approximately 775 hectares. The permanent footprint of the Proposed Development measures approximately 34.6 hectares, which represents approximately 4.4% of the site.

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

1.1.4 Proposed Development Site Location

The Proposed Development site is located approximately 5.5km northeast of the village of Kilgarvan Co. Kerry, and approximately 6km west of Coolea, Co. Cork. It is proposed to access the wind farm site via the existing wind farm entrance off the N22 at Cloonkeen.

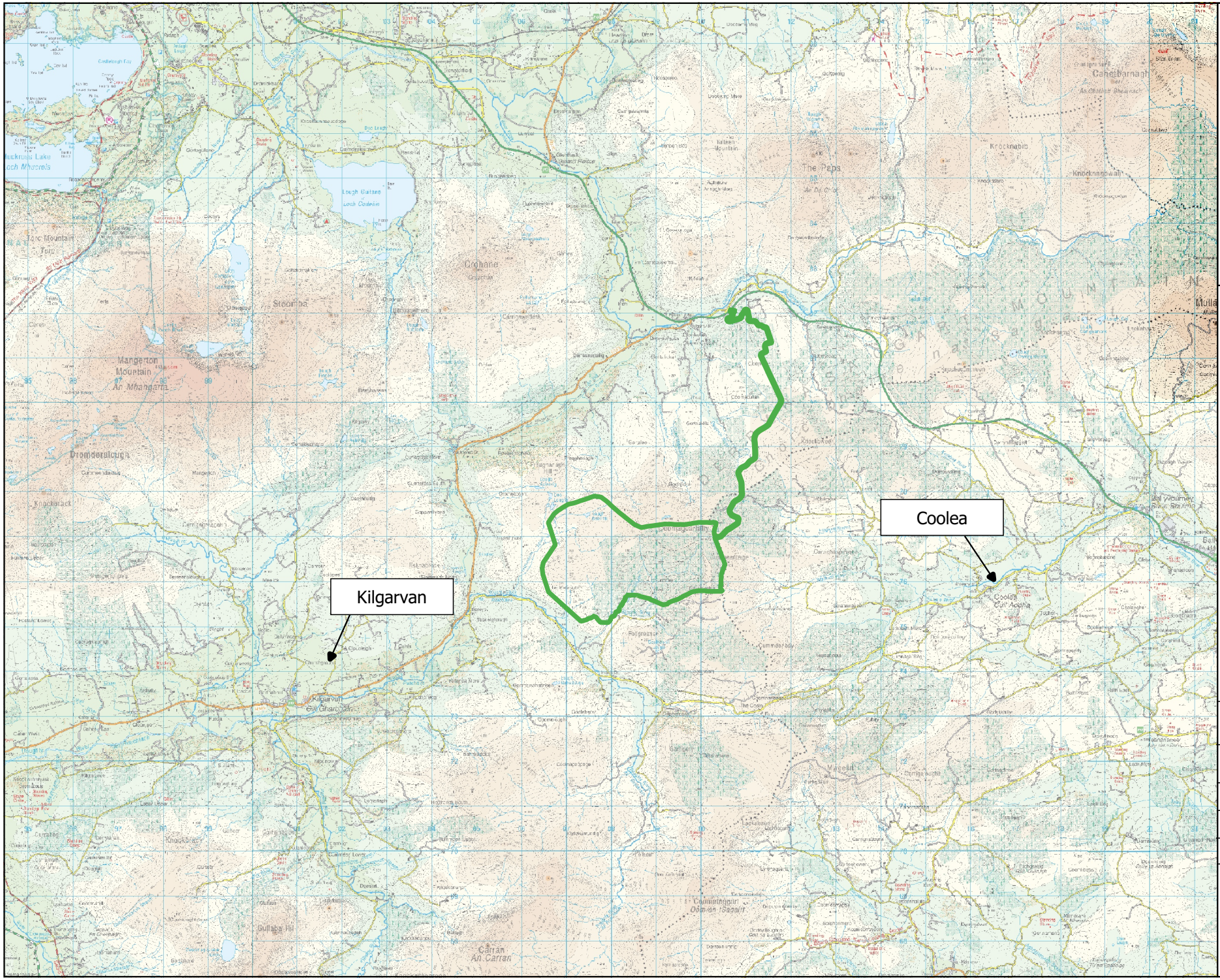
Current land use on the site comprises wind energy in relation to the Existing Kilgarvan Wind Farm, low-intensity agriculture and small areas of coniferous forestry. Land use in the wider landscape of the site comprises a mix of agriculture, low density residential areas, commercial forestry and wind energy. The site location context is shown in Figure 1-2. The EIAR Site Boundary is shown overlain on aerial imagery in Figure 1-3.

The Proposed Development is being brought forward in response to local, national, regional and European policy regarding Ireland's transition to a low-carbon economy and associated climate change policy objectives. The Proposed Development is located within an area designated in the Kerry County Development Plan, 2022-2028 as a 'Repower Area'.

The townlands in which the Proposed Development is located are listed in Table 1-2.

Table 1-2 Townlands within which the Proposed Development is Located

Development Works	Townland
Turbine Removal, Wind Turbines and associated Foundations and Hardstanding Areas, Permanent Meteorological Mast, Road Widening Works, Road Upgrade Works, New Access Road, Upgrade of existing onsite 110kV Coomagearlahy Substation, 2 no. Temporary Construction Compounds, Borrow Pit, Site Drainage, Tree Felling, Operational Stage Site Signage and all ancillary works and apparatus.	Inchincoosh, Lettercannon, Inchee, Coomacullen and Cloonkeen.



Map Legend

EIAR Site Boundary

Drawing Title

Site Location

Project Title: Proposed Repowering of the Existing Kilgarvan Wind Farm	
Drawn By: RK	Checked By: OM
Project No.: 211107	Drawing No.: Figure 1-2
Scale: 1:110,000	Date: 2024-03-05

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Map Legend

EIAR Site Boundary

N

Drawing Title

Site Location - Aerial

Project Title

Kilgarvan Wind Farm Repowering

Drawn By	Checked By
EL	NMcH
Project No.	Drawing No.
211107	Figure 1-3
Scale	Date
1:110,000	2024-04-11

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1.2 Legislative Context of Environmental Impact Assessment

The consolidated European Union Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the 'EIA Directive'), has been transposed into Irish planning legislation by the Planning and Development Act 2000 as amended and the Planning and Development Regulations 2001 as amended. Directive 2011/92/EU was amended by Directive 2014/52/EU which has been transposed into Irish law with the recent European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). Most of the provisions of the new regulations came into operation on the 1st of September 2018 with a number of other provisions coming into operation on the 1st of January 2019.

This EIAR complies with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU.

The Environmental Impact Assessment (EIA) of the Proposed Development will be undertaken by An Bord Pleanála, as the competent authority.

Article 5 of the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU provides where an EIA is required, the developer shall prepare and submit an environmental impact assessment report (EIAR). The information to be provided by the developer shall include at least:

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

In addition, Article 94 of the Planning and Development Regulations 2001 (as amended) sets out the information to be contained in an EIAR, with which this EIAR complies.

MKO was appointed as environmental consultant on the Proposed Development and commissioned to prepare this EIAR in accordance with the requirements of the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU.

Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended, identifies classes and scales of development that require Environmental Impact Assessment (EIA). The relevant class of development in this case relates to "installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts", as per Item 3(i) of the Schedule. The Proposed Development exceeds 5 Megawatts in scale and proposes more than 5 turbines, and therefore is subject to EIA.

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

All elements of the Proposed Development have been assessed as part of this EIAR.

1.2.1 EIAR Guidance

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

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

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

1.2.2 Wind Energy Development Guidelines for Planning Authorities

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

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

At time of writing, the draft Guidelines have not yet been adopted, and the relevant guidelines for the purposes of section 28 of the Planning and Development Act 2000, as amended, remain those issued in 2006. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects and the commitment within the Climate Action Plan 2023 to publish the final version of the Guidelines in Q2 of 2024 (refer to Section 1.5.1.1 below), it is possible that the draft Guidelines are adopted during the consideration period for the current planning application. Should the draft Guidelines be adopted in advance of a planning decision being made on the Proposed Development, the wind farm site will be capable of achieving the requirements of the draft Guidelines as currently proposed. The distance from proposed turbines to third party sensitive receptors will achieve the proposed 4 times turbine tip height and any revised noise and shadow flicker requirements can be achieved by implementing mitigation through use of the turbine control systems.

1.3 The Applicant

The Applicant for the Proposed Development is Ørsted Onshore Ireland Midco Ltd, hereafter to be referred to as Orsted. Orsted plans, constructs, and operates offshore and onshore wind farms, solar farms, energy storage facilities, renewable hydrogen and green fuels facilities, and bioenergy plants. Ørsted is recognised on the CDP Climate Change A List as a global leader on climate action and was

the first energy company in the world to have its science-based net-zero emissions target validated by the Science Based Targets initiative (SBTi). Headquartered in Denmark, Ørsted employs approx. 8,000 people. Across the island of Ireland, Orsted owns and operates a portfolio of onshore wind farms with a combined capacity of 327MW, all managed from its Ireland and UK onshore headquarters in Cork City. Additionally, Orsted has a further 45MW in construction and 298MW in the advanced development pipeline.

1.4 Brief Description of the Proposed Development

The Proposed Development will comprise the removal of 28 no. existing turbines and the construction of 11 new turbines with a blade tip of up to 200m, and all associated works. It is proposed that the Repowering of the site will utilise the existing 110kV Grid Infrastructure (i.e., existing onsite 110kV Coomagearlahy substation, existing overhead line). The full description of the Proposed Development is detailed in Chapter 4 of this EIAR. The current planning application, relating to the Proposed Development is being made to An Bord Pleanála under Section 37E of the Planning and Development Act, 2000, as amended.

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

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

i. *Removal of 28 no. existing turbines and relevant ancillary infrastructure permitted under Kerry County Council and An Bord Pleanála Planning References; 02/124, 03/2176, 03/2306, 07/1605, 07/4364, Pl. 08.209629, 07/4515, 07/4701, Pl. 08.232259 and 05/1351;*
ii. *Erection of 11 no. wind turbines with a blade tip height range from 199.5m to 200m, a hub height range from 118m to 125m and a rotor diameter range from 149m to 163m, along with associated foundations and hard standing areas;*
iii. *A thirty-five year operational life from the date of full commissioning of the wind farm;*
iv. *Underground electrical 33kV and communication cabling connecting the proposed turbines and meteorological mast to the existing 110kV Coomagearlahy substation in the townland of Inchee;*
v. *Upgrade of and the continued use of the existing onsite Coomagearlahy 110kV substation in the townland of Inchee, permitted under Kerry County Council References 07/3648, 04/1648, 06/1143, 06/2660;*
vi. *Upgrade of existing tracks, hardstand areas and provision of new site access roads and junctions;*
vii. *The extension and reuse of the 1 no. existing borrow pit;*
viii. *2 no. temporary construction compounds;*
ix. *Meteorological mast, with a height of 100m and upgrade of existing associated foundation and hard standing area;*
x. *Forestry felling;*
xi. *Site drainage;*
xii. *Biodiversity Enhancement measures;*
xiii. *Operational stage site signage; and,*
xiv. *All ancillary works and apparatus*

The application is seeking a ten-year planning permission.

Modern wind turbine generators currently have a typical generating capacity in the 4 to 7 MW range, with the generating capacity continuing to evolve upwards as technology improvements are achieved by the turbine manufacturers. For the purposes of this EIAR it is assumed that the wind turbine model installed as part of the Proposed Development will have an output of 6.6MW. Therefore, on this basis, the proposed 11 no. wind turbines would have a combined generating capacity of 72.6MW. The actual turbine procured as part of a competitive tender process may have a power output that is marginally

lower or greater than the 6.6MW turbine described in the EIAR. Irrespective of the power output of the actual turbine procured, the conclusions of the EIAR will not be materially affected.

The layout of the Proposed Development has been led by consideration of constraints and facilitators, thereby avoiding the environmentally sensitive parts of the site. The Proposed Development also aimed to make use of as much of the existing infrastructure from the Existing Kilgarvan Wind Farm (i.e., access roads, areas of hardstanding, electrical infrastructure) as possible in order to reduce the environmental impact. There will be c.17.9 km of existing roadways to be upgraded and used to facilitate the Proposed Development. There will only be approximately 1.1km of new access roads to be constructed as part of the Proposed Development.

There are 4 no. inhabitable dwellings located within 1 km of the proposed turbine locations, with all 4 no. of those properties belonging to participating landowners.

All elements of the Proposed Development have been assessed as part of this EIAR.

1.5 Need for the Proposed Development

1.5.1 Overview

In July 2021, the Climate Action and Low Carbon Development (Amendment) Act 2021 was signed into law, committing Ireland to reach a legally binding target of net-zero emissions no later than 2050, and a cut of 51% by 2030 (compared to 2018 levels). On this pathway to decarbonisation, the Government published the Climate Action Plan 2024[1] which includes a renewable electricity target of 80% by 2030, without compromising security of energy supply. The Proposed Development is expected to be operational before 2030 and would therefore contribute to this 2030 target.

In July 2023, the EPA published '*Irelands Provisional Greenhouse Gas Emissions 1990-2022*'[2] which stated a provisional total of national greenhouse gas emissions for 2022 to be 60.76 million tonnes carbon dioxide equivalent ($MtCO_2eq$) which is 1.9% lower (or 1.19 MtCO2eq) than emissions in 2021 (61.95 $MtCO_2eq$). In 2022, the energy industries, transport and agriculture sectors accounted for 74.1% of total greenhouse gas (GHG) emissions. Agriculture is the single largest contributor to the overall emissions, at 38.4%. Transport, energy industries and the residential sector are the next largest contributors, at 19.1%, 16.6% and 10.0%, respectively. The report further states that there was a substantial reduction in coal, oil and peat used in electricity generation (-16%, -29% and -25% respectively), and renewable energy usage increased from 35% in 2021 to 39% in 2022. The report highlights that whilst emissions are beginning to reduce, transformative measures will be needed to meet National Climate ambitions. As such, the Proposed Development is critical to helping Ireland address these challenges as well as addressing the country's over-dependence on imported fossil fuels.

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

1. *A legal commitment from Ireland to limit greenhouse gas emissions under the Kyoto protocol to reduce global warming*
2. *A requirement to increase Ireland's national energy security as set out in Ireland's Transition to a Low Carbon Energy Future 2015-2030;*
3. *A requirement to diversify Ireland's energy sources, with a view to achievement of national renewable energy targets and an avoidance of significant fines from the EU (the EU Renewables Directive);*
4. *Climate Action Plan 2024 which aims to ensure that Ireland achieves its legally binding target (the Climate Action and Low Carbon Development (Amendment) Act 2021) of net-zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030,*
5. *Increasing energy price stability in Ireland through reducing an over reliance on imported fossil fuels; and*
6. *Provision of cost-effective power production for Ireland which would deliver local benefits.*
7. *To facilitate the Government in meeting its ambitious 80% renewable energy target by 2030.*

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

[1] *Department of Environment, Climate and Communications (2023) Climate Action Plan 2024*
[2] *Ireland's Provisional Greenhouse Gas Emissions (1990-2022)* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/2023-EPA-Provisional-GHG-Report_Final_v3.pdf>

1.5.1.1 Climate Change and Greenhouse Gas Emissions

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. The agreement sets out a global action plan to avoid dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels. Under the agreement, Governments also agreed on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries and to undertake rapid reductions thereafter in accordance with the best available science. The most recent Sharm el- Sheikh climate conference (COP228) in December 2023 in Dubai resulted in the first agreement explicitly calling for the transition away from fossil fuels, the United Arab Emirates (UAE) Consensus. This text raised concerns over the achievement of limiting warming below 1.5°C, as the text to 'phase out as soon as possible inefficient fossil fuel subsidies' does not address energy poverty or the just transition. The UAE Consensus further calls for more explicit near-term goals in the lead up to 2050, calling for the world to cut greenhouse gas emissions by 43% as compared to 2019 levels.

The Intergovernmental Panel on Climate Change (IPCC) put forward its clear assessment in their Fifth Assessment Report[3], 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 and in accordance with the COP 21 agreement to limit global warming to well below 2ºC 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 February 2022, the Intergovernmental Panel on Climate Change (IPCC) released the report 'Working Group II-Climate Change 2022: Impacts, Adaptation and Vulnerability' regarding the impacts of climate change on nature and human activity. The report states that global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO_2 and other greenhouse gas emissions occur in the coming decades. the report identifies four key risks for Europe with most becoming more severe at 2°C global warming levels (GWL) compared with 1.5°C GWL. From 3°C GWL, severe risks remain for many sectors in Europe. The four key risks identified are:

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

In April 2022, the IPCC released the report 'Working Group-III – Climate Change 2022: Mitigation Of Climate Change', which assesses literature on the scientific, technological, environmental, economic and social aspects of mitigation of climate change. The report reflects new findings in the relevant literature and builds on previous IPCC reports, including the WGIII contribution to the IPCC's Fifth Assessment Report (AR5), the WGI and WGII contributions to Sixth Assessment Report (AR6) and the three Special Reports[4] in the Sixth Assessment cycle. This report outlines developments in emission reduction and mitigation efforts, assessing the impact of national climate pledges in relation to long-term emissions goals in a global context.; and states that '*Unless there are immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C will be beyond reach.*'

[3] IPCC Fifth Assessment Synthesis Report, Intergovernmental Panel on Climate Change AR5 Report
[4] *The three Special Reports are: Global Warming of 1.5°C: an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (2018); Climate Change and Land: an IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (2019); IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (2019)*

In June 2023, the EPA[5] reported, for the 2021 year, that the energy sector contributed to 17% of Ireland's total emissions. Under a With Existing Measures (WEM) scenario, emissions from the energy industries sector are projected to decrease by 50% from 10.3 to 5.2 $MtCO_2eq$; under a With Additional Measures (WAM) scenario, emissions from the energy sector are projected to decrease by 60% from 10.3 to 4.2 $MtCO_2eq$ over the period 2021-2030.

In November 2023, the IPCC published the '*AR6 Synthesis Report: Climate Change 2023*'[6], and is the final product of the AR6 of the IPCC. It summarizes the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation. It confirms that the unsustainable and unequal energy and land use as well as historical use of fossil fuels have unequivocally caused global warming, with global temperatures approximately 1.1°C above 1850-1900 levels. A substantial 'emissions gap' exists between global greenhouse gas emissions in 2030 associated with the implementation of NDCs announced prior to COP26, Parties to the Paris Agreement have two years to submit updated NDCs for the period up to 2035, ambition will need to be ratchetted up in order to limit warming to 1.5°C.

The EPA '*Ireland's Provisional Greenhouse Gas Emissions 1990-2022*'[7] report stated that in 2022, overall electricity generation in Ireland increased by a 2.1% and renewable electricity generation increased from 35.0% in 2021 to 38.6%, mainly due to an increase in wind energy production of 14.6%. The increase in renewables, combined with decreases in coal, oil, and peat use, resulted in the emissions intensity of power generation in 2022 decreasing by 4.8%, 331 g CO2/kWh compared with 348 g CO2/kWh in 2021.

The '*National Energy Projections 2023*'[8], published annually by the Sustainable Energy Authority of Ireland (SEAI), state that in 2022, 86% of all energy used in Ireland was from fossil fuels, 13% from renewable sources and the remainder from others such as waste and electricity imports. By 2030, fossil fuels could still provide most of Ireland's energy, ranging from 68% in the WEM scenario to 57% in the most ambitious WAM scenario. The deployment of renewables needs to outpace the growth of energy demand for the absolute reductions in greenhouse gas emissions that are required to be met. However, the SEAI National Energy Projections show that by the end of the second budget period, the total exceedance in the electricity sector is projected to be 20.1 $MtCO_2eq$, or 33%, and 13.8$MtCO_2eq$, or 23%, in the WEM and WAM scenarios, respectively.

It is estimated that the Proposed Development, with a potential output of 72.6MW from the proposed wind turbines will result in the net displacement of approximately 69,982 tonnes of Carbon Dioxide (CO_2) per annum. The carbon offsets resulting from the Proposed Development are described in detail in Section 11.5.3 of Chapter 11: Climate

1.5.2 Energy Security

At a national level, Ireland currently has one of the highest external dependencies on imported sources. In November 2023 the Department of the Environment, Climate and Communications (DECC) released *'Energy Security in Ireland to 2030'*[9]which states that 'Irelands future energy will be secure by moving from an oil-, peat-, coal, and gas-based energy system to an electricity-led system, maximising our renewable energy potential flexibility and being integrated in Europe's energy systems. This report proposes a package of a wide range of measures to implement to 2030 to improve Irelands energy security. Ireland is currently one of the most energy import dependent countries in the EU, having

[5] *Ireland's Greenhouse Gas Emission Projections 2022-2040* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-GHG-Projections-2022-2040_Finalv2.pdf>
[6] *IPCC Sixth Assessment Synthesis Report, Intergovernmental Panel on Climate Change AR6 Report: Climate Change 2023*
[7] *Ireland's Provisional Greenhouse Gas Emissions 1990-2022 (June 2023)* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/2023-EPA-Provisional-GHG-Report_Final_v3.pdf>
[8] *SEAI National Energy Projections 2023 Report.* <https://www.seai.ie/publications/National-Energy-Projections-2023.pdf>
[9] *Department of the Environment, Climate and Communications (2023) Energy Security in Ireland to 2030.* <https://assets.gov.ie/276471/2d15ce6d-e555-4ada-a3cf-b325a5d7ba20.pdf>

imported 77% of its energy supply in 2021 and 82% in 2022.[10] The 'Energy Security in Ireland to 2030' report provides a roadmap to energy security in Ireland, on the basis of current energy policies and project and to implement the measures proposed as part of the energy security package.

EirGrid in their '*All Island Generation Capacity Statement 2022 - 2031'* (October 2022), states that new wind farms commissioned in Ireland in 2021 brought total wind installed capacity to over 4,300MW, contributing to the overall RES-E percentage of 36.4% with wind energy accounting for 32.5%. Prior to 2015, Irelands import dependency of energy was over 90% but dropped to 71% in 2016 with the Corrib gas field starting production. Since 2018, Ireland's import dependency has been increasing as the output from the Corrib gas field reduces faster than we are adding new renewable sources.

In January 2024 the SEAI published their '*Energy in Ireland – 2023 Report*'[11], stating that in 2022, 49.2% of the electricity generated indigenously in Ireland came from gas, with renewables accounting for a further 38.9%. Coal, oil, non-renewable wastes (NRW), and peat accounted for the remainder of electricity generation in Ireland. The overall renewable energy share for gross final energy consumption for 2022 was 13.1%. 2022 had the lowest energy-related emissions of any year in the last quarter century, except for 2020 which was heavily influence by the COVID-19 lockdowns. The SEAI '*Energy in Ireland – 2023 Report'*, using early provisional data from January to September 2023, states that electricity emissions may be significantly reduced from 2022 levels in 2023 and the carbon intensity of the national grid may be down to 259 gCO2/kWh, which, if achieved, will be the lowest carbon intensity value ever reached in Ireland.

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 Irelands 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"*[12].

The cost of carbon credits is included in all electricity traded, and the price of electricity generated by coal is particularly vulnerable due to its high carbon emissions per unit of electricity generated. Coal and peat generate almost 5% of Ireland's electricity, while gas generates 51%, but the Climate Action Plan calls for an aggregate reduction in carbon dioxide emissions in the electricity sector of 62-81% (compared to 2018 levels) by 2050. Any steps to reduce this dependence on imported fossil fuels will add to financial autonomy and stability in Ireland. The use of Ireland's indigenous energy resources, such as wind, will contribute to a reduction in energy imports.

The Energy White Paper 2015[13] 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".*

[10] *Sustainable Energy Authority of Ireland (2023) Key insights from SEAIs 2022 National Energy Balance.* <https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-balance/Key-Insights-from-2022-National-Energy-Balance.pdf>
[11] *Sustainable Energy Authority Ireland (2024) Energy in Ireland – 2023 Report*
[12] *Dr Eimear Cotter, Head of Low Carbon Technologies, SEAI - "Energy Security in Ireland 2015"*
[13] *Ireland's Transition to a Low Carbon Energy Future 2015-2030 (Department of Communications, Energy & Natural Resources, 2015)*

1.5.2.1 REPowerEU

In a Communication from the European Parliament on Joint European Action for more affordable, secure and sustainable energy[14], the European Commission proposed an outline of a plan to make Europe independent from Russian fossil fuels well before 2030 in light of Russia's invasion of Ukraine. Commission President Ursula von der Leyen stated:

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

In May 2022, the EU published the REPowerEU Plan[15] in light of Russia's invasion of Ukraine in February 2022. The core purpose of the plan, in addition to accelerating the EU's transition from the use of fossil fuel to renewable energy sources, is to end the dependence on Russian fossil fuels.

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

The Proposed Repowering of the Existing Kilgarvan Wind Farm directly ties into the objectives in relation to the repowering of existing wind farms. As set out within the RePowerEU document, the repowering of renewable energy developments is an option for rapidly increasing renewable energy production with the least impact on the grid infrastructure and the environment. The repowering of existing renewable energy developments has a significant potential to rapidly increase renewable power generation, thus allowing to reduce gas consumption. Repowering enables the continued use of brownfield sites which have significant renewable energy potential, which reduces the need to designate new sites for renewable energy projects. The RePowerEU document also points out that the decommissioning of onshore wind farms instead of repowering them would lead to a substantial reduction of the currently installed renewable energy capacity, further complicating the situation in the energy situation. Immediate simplification and accelerated permitting for repowering are crucial for maintaining and increasing the renewable energy capacity in the Union.

The European Commission identified lengthy and complex administrative procedures as key obstacles hampering the speed and number of investments in renewables. To combat this, the proposed instrument sets out temporary and proportionate measures. The Commission proposes a maximum of six months for permitting processes applicable to the repowering of renewable energy projects. These emergency measures have been proposed in order to accelerate the green transition towards renewable energy and increased energy efficiency.

1.5.3 Competitiveness of Wind Energy

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

In fact, the cost of support is more than offset by the fact that adding large quantities of wind to the wholesale market drives down auction prices in any half hour trading period when the wind is blowing,

[14] *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
[15] https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

i.e. for 80% of the hours of the year. Wind has a capacity factor of approx. 35%, which is its average output throughout the year relative to its maximum output. However, wind is generating power at some level for 80% of the hours of the year. A Pöyry study from 2015 showed that reaching our targets in 2020 would reduce wholesale prices by more than costs of new grid infrastructure, backup and the subsidies paid to wind, resulting in a net saving of €43m per year in 2020. The EU has noted that Ireland has one of the lowest costs of supporting renewables mainly because onshore wind is on a par with the cost of power from conventional generation when a full cost-benefit analysis is undertaken.

1.5.3.1 EU 2020 Renewable Energy Targets

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

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

The first Renewable Energy Directive (RED)[16] is legislation that influenced the growth of renewable energy in the EU and Ireland for the decade ending in 2020. From 2021, RED was replaced by the second Renewable Energy Directive (REDII),[17] which continues to promote the growth of renewable energy out to 2030. 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). Ireland fell just short of this target with the total renewable share of gross final consumption (GFC) reaching 13.5%. REDII introduced a binding EU-wide target for overall RES of 32% in 2030 and requires Member States to set their national contributions to the EU-wide target. As per the National Energy and Climate Plan (NECP) 2021-2030, Ireland's overall RES target is 34.1% in 2030.

Under RED, the RES-E target was for 40% of gross electricity consumption to come from renewable sources in 2020 The actual RES-E achieved in 2020 by Ireland was 39.1%, falling just short of the national target. Under REDII, Ireland's National Energy and Climate Plan 2021-2030 included a planned RES-E of 70% in 2030, which has been replaced by the 80% by 2030 RES-E target as detailed in the more recent Climate Action Plan (2024), which will ensure that renewable electricity continues to form the backbone of Irish renewable energy use for the coming decade and beyond.

1.5.3.2 EU 2030 Renewable Energy Targets

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

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[16] *Directive 2009/28/EC on the promotion of the use of energy from renewable sources. Available from: https://eur-lex.europa.eu/legalcontent/EN/ALL/?uri=celex%3A32009L0028*

[17] *Directive (EU) 2018/2001 on the promotion of the use of energy from renewable resources (recast). Available from: https://eurlex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018L2001*

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.

Given the need to ratchet up the EUs clean energy transition, RED was revised in 2023, and the amending Directive EU/2023/2413 (REDIII)[18] entered into force on 20 November 2023. REDIII amended the EU-wide overall 2030 RES target from 32% to at least 42.5%, and it is assumed that Irelands 2030 RES target will increase accordingly.

In December 2023, the Government published the most recent Climate Action Plan 2024, announcing a renewable electricity target of 80% by 2030 for Ireland. This is in line with targets previously announced in the Climate Action Plan 2021 and 2023.

The Climate Action Plan 2024 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 wind will need to reach 9GW and at least 5GW of offshore wind. Installed capacity for wind generation in the Republic of Ireland at the end of 2023 was 4.7MW[19].As noted previously, Ireland missed it's 2020 renewable energy target of 40% with a renewable share in electricity of 39.1%, and by the end of 2021, Irelands renewable energy share for electricity generation was 32.5%. With a renewable share of electricity generation at 80% in mind and a target of 8GW installed onshore wind by 2030, it is now more critical than ever that we continue to progress renewable energy development in Ireland so that we are successful in meeting our 2030 targets. Further detail on the EU 2030 targets is noted in Chapter 2.

1.5.4 Increasing Energy Consumption

As detailed above, the Climate Action Plan 2024 identifies a need for 9GW of onshore wind generation in order for Ireland to meet its 2030 targets. In their '*All Island Generation Capacity Statement 2022 - 2031'* (October 2022), EirGrid estimate that installed capacity of wind generation is set to increase to at least 12 GW between onshore and offshore capacity as Ireland endeavours to meet its renewable targets in 2030 and beyond.

Failure to meet Ireland's targets for renewable energy will result in substantial EU sanctions. The Department of Public Expenditure and Reform (DPER) in their report 'Future Expenditure Risks associated with Climate Change/Climate Finance'[20] 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[21] the SEAI estimated the historic build rate for wind energy deployment as 180 MW per year since 2005. If this average build rate over the remaining period between 2018 and 2020 is assumed, then approximately 3.85 GW of wind would be built up to 2020. As of February 2023, the installed wind capacity in the Republic of Ireland is over 4.3GW according to Wind Energy Ireland[22].

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*

[18] *Directive (EU) 2023/2413 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources and repealing Council Directive (EU) 2015/652. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302413*
[19] *https://cms.eirgrid.ie/sites/default/files/publications/Wind-Installed-Capacities-Mar-24.png*
[20] https://igees.gov.ie/wp-content/uploads/2013/10/Future-Expenditure-Risks-associated-with-Climate-Change-Climate-Finance1.pdf
[21] *https://www.seai.ie/publications/Ireland___s-Energy-Targets-Progress-Ambition-and-Impacts.pdf*
[22] *https://windenergyireland.com/about-wind/facts-stats*

Ireland at the moment'. EirGrid analysis shows that demand from data centres could account for 28% of all demand by 2031 in a median demand scenario (accounts for the connection of all 1400MVA of 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[23] at the end of 2021 noted a 25% increase in completed data centre capacity over the past 12 months with a total of 70 operational data centres with a combined total of 900 MW of connected power capacity. Ten new data centres came online between the period of November 2020 and November 2021. The increase in growth of data centres means an increase in electricity demand, with many of the proposed data centres committing to using 100% renewable energy which will result in an increased demand for renewable electricity as detailed above.

In the context of increasing energy demand and prices, uncertainty in energy supply and the effects of climate change, our ability to harness renewable energy such as wind power plays a critical role in creating a sustainable future. The DECC have set a target for Ireland of 80% of total electricity consumption to come from renewable resources by 2030, this target forms part of the Government's strategy to make the green economy a core component of its economic recovery plan for Ireland. It is envisaged that wind energy will provide the largest source of renewable energy in achieving this target, with a target of 9GW onshore wind installed generation capacity and a target of 5GW offshore wind installed generation capacity.

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

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

The 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

[23] https://bitpower.ie/images/Reports/2021_H1_Report.pdf

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 December 2022, the Irish Government have pledged to generate 80% of the country's electricity supply from renewable sources by 2030. The development of continued indigenous wind energy generating capacity, such as that proposed at the Proposed Development, will not only help to reduce carbon emissions but will also improve Ireland's security of energy supply. Such penetration levels of wind are technically and economically feasible once paired with other energy system changes such as increasing electric vehicle penetration and electrification of heat. Further information on the 2030 commitments for Ireland are noted in Chapter 2, Section 2.2.

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

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

In 2014, a report prepared by UK consultant BW Energy for the Rethink Pylons campaign group has suggested that converting Moneypoint generation station (which runs solely on coal) from coal to biomass would have enabled Ireland to meet 2020 renewable energy targets. Dr Brian Motherway, Chief Executive SEAI[24] 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[25]. So, while biomass is currently contributing to a move to renewable energy production, on its own it is not the sole answer to meeting Ireland's renewable energy targets. Ireland has a legal obligation to diversify its energy sources requiring the development of renewable energy to avoid substantial fines.

The Joint Committee on Climate Action published its cross-party report entitled, '*Climate Change: A Cross- Party Consensus for Action'* (March 2019). This report highlights the requirements for alternate energy production. More specifically, the report notes that it is currently planned to stop burning coal at Moneypoint by 2025 as well as peat at Bord na Mona and ESB stations by 2030. In December 2023, the DECC published the Climate Action Plan 2024 which is the third annual update to Irelands Climate Action Plan 2019 and the second to be prepared under the Climate Action and Low Carbon

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

Development (Amendment) Act 2021. Climate Action Plan 2024 notes the need for renewable alternatives to coal and peat. Further information on the Climate Action Plan can be seen in Chapter 2, Section 2.2.

Climate Action Plan 2024 states that as electrification and decarbonisation of other sectors continues, there will be an increase in electricity demand, and a transferring of emissions from those sectors to the electricity sector. The deployment of renewables needs to outpace the growth in energy demand for it to deliver the absolute reductions in greenhouse gas emissions required. Therefore, the timing of the delivery of the renewable energy generation relative to the scale and pace of growth in electricity demand is a critical factor. In the high demand scenario outlined in the Programme for Government, electricity demand will almost double by 2030, while electricity emissions are to be reduced by 60-80% at the same time.

Underlying drivers of changes in electricity demand include:

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

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

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

1.5.5 Reduction of Carbon Emissions and Other Greenhouse Gases

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

In addition to a reduced dependence on oil and other imported fuels, the generation of electricity from wind power by the Proposed Development will displace approximately 69,982 tonnes of carbon emissions per annum from the largely carbon-based traditional energy mix, the detail of which is presented in Section 10.5.3 in Chapter 11 of this EIAR.

The World Health Organisation (WHO) in 2022 estimated that ambient (outdoor) air pollution caused 4.2 million deaths worldwide in 2019.[26] The Environmental Protection Agency (EPA) report '*Air Quality in Ireland 2022*'[27] noted that in Ireland, the premature deaths attributable to poor air quality are estimated at 1,300 people per annum. The European Environmental Agency (EEA) Report, '*Air Quality in Europe – 2022 Report*'[28] highlights the negative effects of air pollution on human health. The report assessed that poor air quality accounted for premature deaths of approximately 238,000 people in the 27 EU Member States in 2021. The estimated impacts on the population in Europe of exposure to NO_2 and O_3 concentrations in 2021 were around 49,000 and 24,000 premature deaths per year, respectively. Of these numbers, 610 deaths due to poor air quality were estimated in Ireland in 2020 with 490 Irish deaths attributed to $PM_{2.5}$, 50 Irish deaths attributed to nitrogen oxides (NO_2) and 70 Irish deaths attributed to Ozone (O_3). These emissions, along with others, including sulphur oxides (SO_x), are produced during fossil fuel-based electricity generation in various amounts, depending on the fuel and technology used, emissions from industry and power plants, vehicles emissions and transport fuels.

The EPA 2020 report '*Ireland's Environment - An Assessment*'[29] states that the pollutants of most concern are NOx, (the collective term for the gases nitric oxide and nitrogen dioxide, PM (particulate matter), O_3 (ozone) and PAHs (polycyclic aromatic hydrocarbons). The EPA 2020 report goes on to state that:

> *"Wind, bioenergy, and solar energy can provide additional opportunities for Irish businesses and consumers.*
>
> *Ireland has excellent indigenous renewable energy resources, and renewable energy is playing an increasing role in the domestic energy supply. Ireland has more onshore (land-based) and offshore energy potential than most other European countries. In 2019 wind power is estimated to have provided 31.5 per cent of electricity in Ireland. Currently, there is 12 GW worth of energy from offshore wind in active development. This will significantly add to the current renewable generation capacity of over 3.7 GW, almost all of which is onshore. This has resulted in reduced costs for consumers and reduced imports of fossil energy."*

The Clean Air Strategy for Ireland[30] report was published by the Irish Government in April 2023, provides the high-level strategic policy framework necessary to identify and promote the integrated measures across Government policy that are required to reduce air pollution and promote cleaner ambient air, while also delivering on wider national objectives. The strategy details the importance of "non-combustion renewables such as wind and solar power in contributing to both climate and clean air goals. These schemes and supporting actions are supporting a gradual shift away from more polluting forms of power generation (e.g., coal and peat generation); to enable higher shares of renewables alongside gas fired generation".

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

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[26] https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health
[27] *Air Quality in Ireland Report 2022* <https://www.epa.ie/publications/monitoring--assessment/air/Air_Quality_Report_22_v8v2.pdf>
[28] *Air Quality in Europe 2022* <https://www.eea.europa.eu/publications/air-quality-in-europe-2022>
[29] *Ireland's Environment – An Assessment (2020)* <https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf >
[30] *https://assets.gov.ie/255392/efe212df-d9a7-4831-a887-bea2703e2c64.pdf*

1.5.6 Economic Benefits

In addition to helping Ireland avoid significant fines and reducing environmentally damaging emissions, the Proposed Development will have significant economic benefits. At a national level, Ireland currently has one of the highest external dependencies on imported sources of energy, such as coal, oil and natural gas. As detailed in the SEAI Report '*Energy in Ireland 2023 Report*'[31] Ireland has a high import dependence on oil and gas and is essentially a price-taker on these commodities. The '*Energy in Ireland 2022 Report*'[32] stated that 2021 was the first year since 2016, in which Irelands indigenous production of energy from renewables (17,500 GWh) exceeded that of indigenous gas (14,600 GWh); however, in 2022 indigenous gas production once again exceeded renewables production. The SEAI estimates electricity emissions to be 7.3 $MtCO_2e$ in 2023, the addition of this best estimate for 2023 to the definitive 2021 and 2022 electricity emissions reported by the EPA identifies a 3-year 2021 - 2023 total of 27.0 $MtCO_2e$. The 5-year 2021-2025 sectoral emission ceiling for electricity is 40 $MtCO_2e$. This means that 13.0 $MtCO_2e$ of budgeted electricity emissions will remain for the last 2 years of the 2021-2025 carbon budget. To remain within its sectoral emission ceiling, electricity emissions would therefore need to remain below an average of 6.5 $MtCO_2e$ in both 2024 and 2025

The SEAI report '*Energy in Ireland 2023 Report'* indicated that renewable electricity (mostly wind energy) in 2023:

- Accounted for 85.7% of renewable energy generated in 2022
- Capacity at the end of 2023 was 4.59GW, this is a 1.1% increase from wind energy capacity in 2022.

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

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

The Proposed Development will be capable of providing power to over 56,026 households every year, as presented in the calculations in Section 4.3.2.6 of this EIAR.

The Proposed Development will help to supply the rising demand for electricity, resulting from renewed economic growth. The EirGrid report '*All-Island Generation Capacity Statement 2022 – 2031'* (December 2022) notes that the median electricity demand forecast on the island of Ireland is expected to grow by 21% in 2030. Much of this growth is expected to come from new data centres in Ireland.

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

Commercial rate payments from the Proposed Development will be provided to Kerry County Council each year, which will be redirected to the provision of public services within Co. Kerry. These services

[31] *Sustainable Energy Authority Ireland (2023) Energy in Ireland – 2023 Report* <<https://www.seai.ie/publications/Energy-in-Ireland-2023.pdf >>
[32] *Sustainable Energy Authority Ireland (2022) Energy in Ireland – 2022 Report*

include provisions such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives.

It is estimated that the Proposed Development has the potential to create up to 80-100 jobs during the construction and decommissioning phases and 2-3 jobs during operational and maintenance phases of the Proposed Development. During construction, additional indirect employment will be created in the region through the supply of services and materials to the renewable energy development. There will also be income generated by local employment from the purchase of local services i.e. travel, goods and lodgings. Further details on employment associated with the Proposed Development are presented in Section 5.9 of this EIAR.

Should the Proposed Development receive planning permission, there are substantial opportunities available for the local area in the form of Community Benefit Funds. The value of this fund will be directly proportional to the installed capacity and/or energy produced at the site and will support and facilitate projects and initiatives including youth, sport and community facilities, schools, educational and training initiatives, and wider amenity, heritage, and environmental projects. As part of the Existing Kilgarvan Wind Farm, there has been an annual sum of €85,000 provided to the local community via the Community Benefit Fund. This fund has been distributed to local sporting organisations and community groups and has provided funding for key services in the local community.

Further details on the proposed Community Gain proposals are presented in Appendix 2-3 and Section 4.5 in Chapter 4 of this EIAR.

1.6 Purpose and Scope of the EIAR

The purpose of this EIAR is to document the current state of the environment on and in the vicinity of the site and to quantify the likely significant effects of the Proposed Development on the environment. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative impacts arising from the Proposed Development.

It is important to distinguish the Environmental Impact Assessment (EIA) to be carried out by An Bord Pleanála, from the EIAR accompanying the planning application. The EIA is the assessment carried out by the competent authority, which includes an examination that identifies, describes and assesses in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, the direct and indirect significant effects of the Proposed Development on the following:

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

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

1.7 Structure and Content of the EIAR

1.7.1 General Structure

This EIAR uses the grouped structure method to describe the existing environment, the potential impacts of the Proposed Development thereon and the proposed mitigation measures. Background information relating to the Proposed Development, scoping and consultation undertaken and a description of the Proposed Development are presented in separate sections. The grouped format sections describe the impacts of the Proposed Development in terms of population and human health, biodiversity, with specific attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EEC; land, soils and geology, water, air quality and climate, noise and vibration, landscape and visual, cultural heritage and material assets such as traffic and transportation, together with the interaction of the foregoing, schedule of mitigation and monitoring, and vulnerability to natural disasters.

The chapters of this EIAR are as follows:

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

1.7.2 Description of Likely Significant Effects and Impacts

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

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

- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2022)
- *'Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report'* (EC, 2017).
- *'Revised Guidelines on the Information to be contained in Environmental Impact Statements – Draft September 2015'* (EPA, 2015).
- *'Advice Notes for Preparing Environmental Impact Statements – Draft September 2015'* (EPA, 2015).
- *'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements'* (EPA, 2003).

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

Table 1-3 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 1-3 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

Impact Characteristic	Term	Description
	Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends
	Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
	Profound	An effect which obliterates sensitive characteristics
Extent & Context	Extent	Describe the size of the area, number of sites and the proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions
Probability	Likely	Effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented
	Unlikely	Effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented
Duration and Frequency	Momentary	Effects lasting from seconds to minutes
	Brief	Effects lasting less than a day

Impact Characteristic	Term	Description
	Temporary	Effects lasting less than a year
	Short-term	Effects lasting one to seven years
	Medium-term	Effects lasting seven to fifteen years
	Long-term	Effects lasting fifteen to sixty years
	Permanent	Effect lasting over sixty years
	Reversible	Effects that can be undone, for example through remediation or restoration
	Frequency	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Type	Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
	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

Impact Characteristic	Term	Description
		reproductive capacity of an environment is permanently lost
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents

Each impact is described in terms of its quality, significance, duration and type, where possible. A 'Do-Nothing' impact is also predicted in respect of each environmental theme in the EIAR. Residual impacts are also presented following any impact for which mitigation measures are prescribed. The remaining impact types are presented as required or applicable throughout the EIAR. Any potential interactions between the various aspects of the environment assessed throughout this EIAR are presented in Chapter 17: Interaction of the Foregoing.

1.8 Project Team

1.8.1 Project Team Responsibilities

The companies and staff listed in Table 1-4 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 1-4 Companies and Staff Responsible for EIAR Completion

Consultants	Principal Staff Involved in Project	EIAR Input*
MKO Tuam Road, Galway, H91 VW84	Gus McCarthy Brian Keville Michael Watson Órla Murphy Niamh McHugh Pamela Harty Áine Bourke Martin Molloy Pat Roberts John Hynes Aoife Joyce Dervla O'Dowd Padraig Cregg Owen Cahill Jack Workman Saoirse Fitzsimmons	Project Managers, Scoping and Consultation, Preparation of Natura Impact Statement, EIAR Report Sections: 1. Introduction 2. Background to the Proposed Development 3. Considerations of Reasonable Alternatives 4. Description of the Proposed Development 5. Population & Human Health

Consultants	Principal Staff Involved in Project	EIAR Input*
	James Newell Joseph O'Brien	10. Air & Climate 12. Landscape & Visual 14. Material Assets (non-Traffic) 15. Interaction of the Foregoing 16. Major Accidents and Natural Disasters 17. Schedule of Mitigation
Gavin and Doherty Geosolutions Ltd. Unit 2A Nutgrove Office Park, Rathfarnham, Dublin 14	Paul Quigley Alastair Lewis Stephen Curtis Chris Engleman Brian McCarthy	Preparation of EIAR Appendices: › Peat and Spoil Management Plan › Peat Stability Risk Assessment
Ecology Ireland Ballyshanedehy, Effin Killmallock Co. Limerick	Dr. Gavin Fennessy Subcontractors Dr John Conaghan Tom O'Donnell (O'Donnell Environmental) John Deasy Athena Michaelides Ciaran Cronin(Wildeye) Abi Brewer (Wildeye)	Preparation of EIAR Sections: 6. Terrestrial Biodiversity AA/NIS
Aquatic Services Unit, UCC	Lauren Williams Ger Morgan	Preparation of EIAR Sections: 7. Aquatic Ecology
Hydro Environmental Services 22 Lower Main Street Dungarvan Co. Waterford	Michael Gill David Broderick Adam Keegan	Flood Risk Assessment and Drainage Design, Preparation of EIAR Sections: 8. Land, Soils & Geology 9. Water
TNEI Ireland Ltd. Unit S12, Synergy Centre TU Dublin Tallaght Campus, Tallaght, Dublin.	James Mackay Jason Baldwin	Baseline Noise Survey, Preparation of EIAR Section 12. Noise and Vibration
Tobar Archaeological Services Saleen Midleton Co. Cork	Annette Quinn Miriam Carroll	Preparation of EIAR Section 14. Cultural Heritage
Alan Lipscombe Traffic and Transport Consultants Claran, Headford, Co. Galway	Alan Lipscombe	Swept Path Analysis, Preparation of EIAR Section 15. Material Assets - Traffic and Transport

Consultants	Principal Staff Involved in Project	EIAR Input*
Ai Bridges Ltd, Unit 9, Block B, Quin Rd. Business Park Ennis, Co.Clare	Kevin Hayes	Preparation of EIAR Appendix: › Kilgarvan Wind Farm Re-Powering Project Telecommunications Report

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

1.8.2 Project Team Members

1.8.2.1 MKO

Gus McCarthy BA, MRUP, MIPI

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

Brian Keville B.Sc. (Env.)

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

Michael Watson, MA; MIEMA, CEng, PGeo

Michael Watson is a 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. Michaels key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, Environmental Protection Agency (EPA) and statutory consultees as well as coordinating the project teams and sub-contractors. Michael is a key member of the MKO senior management team and as head of the Environment Team has responsibilities to mentor various grades of team members, foster a positive and promote continuous professional development for employees. Michael also has a Bachelor of Arts Degree in Geography and Economics from NUI Maynooth, is a Member of IEMA, a Chartered Environmentalist (CEnv) and Professional Geologist (PGeo).

Órla Murphy M.Sc. B.Sc.

Órla Murphy is a Senior Environmental Scientist with MKO, with over 7 years of experience in private consultancy. Órla holds BSc (Hons) in Geography from Queens University Belfast & a MSc in Environmental Protection and Management from the University of Edinburgh. Prior to taking up her position with McCarthy Keville O'Sullivan in January 2018, Órla worked as an Environmental Project Assistant with ITPEnergised in Scotland. Órla's key strengths and areas of expertise are in Environmental Protection and Management, EIA, Project Management, Renewable Energy and Peatland Management, where she has carried out research projects and site work relating to restoration and management of peatland sites in both Scotland and Northern Ireland. On joining MKO Órla has been involved on a range of renewable energy infrastructure projects. In her role as a project manager, Órla works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs. Within MKO, Órla plays a role in the management of and sharing of knowledge with junior members of staff and works as part of a large multi-disciplinary team to produce EIA Reports.

Niamh McHugh B.Sc. (Env)

Niamh is an Environmental Scientist who has been working with MKO since June 2021. Niamh graduated with a First-Class Honours Degree in Environmental Science from the National University of Ireland, Galway. Since beginning her work with MKO, Niamh has been working as part of a multi-disciplinary team conducting tasks such as report writing, shadow flicker assessments, project management, and QGIS mapping. Niamh's particular strengths lie in report writing and project management and communication. Niamh has been involved in the preparation of Environmental Impact Assessment Screening Reports, Strategic Environmental Assessment Pre-Screening Reports, Planning and Environmental Reports, and Environmental Impact Assessment Reports for a wide range of projects, but mostly focusing on large-scale onshore renewable energy developments. In her role as an Environmental Scientist, Niamh has been charged with co-ordinating large multidisciplinary teams in order to produce robust Environmental Impact Assessment Reports to accompany Planning Applications for various large-scale developments.

Pamela Harty

Pamela is a Senior Planner with MKO with over 13 years of experience in both private practice and local authorities. Prior to taking up her position with MKO in 2015, Pamela worked as a Senior Planner with SLR Consulting Ltd. and held previous posts with Moray Council in Scotland, the Heritage Council of Ireland, Kilkenny Borough Council and North Tipperary County Council. A chartered member of both the Irish Planning Institute and Royal Town Planning Institute, Pamela has project managed a range of strategy and development projects across the Ireland and the UK. Pamela has extensive experience in strategic planning, regeneration, development consultancy, statutory plan preparation, environmental impact assessment, community engagement, urban design and masterplanning. Pamela's key strengths and areas of expertise are in project management, development

management/masterplanning, socio economic impact assessments and collaborative planning. Since joining MKO Pamela has been involved as a Senior Planning Consultant on a significant range of energy infrastructure, commercial, student housing and Strategic Housing Development. Within MKO Pamela 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 Reports.

Áine Bourke

Áine Bourke is a Project Planner with MKO with 6 years of experience as a planner in private practice. Áine holds BA (Major) in Geography & English and Masters in Planning and Sustainable Development (MPlan). Prior to taking up her position with MKO in May 2020, Áine worked as a Planner in the UK with Vail Williams LLP, where she gained experience as a graduate through to planner level following the successful completion of her Assessment of Professional Competence (APC) and promotion to Chartered Member of the Royal Town Planning Institute. Áine held previous positions as a clerical officer at Cork City Council, assisting the Planning Department with field research, and as a student intern with Tipperary County Council. Áine is a chartered town planner with experience across a range of sectors including commercial, residential, healthcare, tourism and industrial, as well as having experience with providing development advice and appraisals to clients, conducting strategic land searches, submitting planning applications for residential, commercial, tourism and health sector clients, along with providing strategic planning advice, preparing planning appeals, attending client meetings and conducting site visits. Áine's key strengths and areas of expertise are in development management, provision of planning advice and project management of small and medium sized projects. Since joining MKO Áine has been working alongside with the wider planning team, working on various projects including Strategic Housing Developments, providing planning advice, lodgement and management of a range of Planning Applications, preparing Development Plan submissions and preparing Development Potential Reports.

Áine holds chartered membership with the Royal Town Planning Institute and chartered membership with the Irish Planning Institute

Martin Molloy

Martin Molloy is a Planner with MKO since March 2022. Martin holds a Bachelors degree in Geography and Economics from National University of Ireland Galway and a Masters in Planning from Queens University Belfast. Prior to taking the position with MKO, Martin worked as a Planner in Belfast with Terraquest ltd. Martin is currently a Licentiate member of the RTPI working completing the Assessment of Professional Competence (APC) and promotion to Chartered Member of the Royal Town Planning Institute. Since joining MKO Martin has been working alongside with the wider planning team, working on various projects including Large Scale Residential Developments, providing planning advice, lodgement and management of a range of Planning Applications, preparing Development Plan submissions and preparing Development Potential Reports.

Pat Roberts B.SC. (Env)

Pat Roberts is a Principal Ecologist with MKO. with over 16 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.Sc.(Hons) in Environmental Science. Pat has extensive experience of providing ecological consultancy on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He has designed numerous Environmental Operating Plans and prepared many environmental method statements in close conjunction with project teams and contractors. He has worked extensively on the identification, control and management of invasive species on numerous construction sites. Prior to taking up his position with MKO in June 2005, Pat worked in Ireland, USA and UK as a Tree Surgeon and as a nature

conservation warden with the National Trust (UK) and the US National Park Service. 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 director of the Ecology team with MKO. with over 9 years of experience in both private practice and local authorities. John holds a B.SC in Environmental Science and a M.Sc. in Applied Ecology. Prior to taking up his position with MKO in March 2014, John worked as an Ecologist with Ryan Hanley Consulting Ltd. and Galway County Council. John has specialist knowledge in Flora and Fauna field surveys. Geographic Information Systems, data analysis, Appropriate Assessment, Ecological Impact Assessment and Environmental Impact Assessment. John's key strengths and areas of expertise are in project management. GIS and impact assessment. Since joining MKO John has been involved as a Senior Ecologist on a significant range of energy infrastructure, commercial, national roads and private/public development projects. Within MKO John plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIS/EIAR Reports. John has project managed a range of strategy and development projects across the Ireland and holds CIEEM membership.

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

Aoife Joyce is an Ecologist with MKO Planning and Environmental Consultants with experience in research, consultancy and drilling contractors. Aoife is a graduate of Environmental Science (Hons.) at NUIGalway, complemented by a first-class honours MSc in Agribioscience. Prior to taking up her position with MKO in May, 2019, Aoife worked as an Environmental Scientist with Irish Drilling Ltd. and held previous posts with Inland Fisheries Ireland and Treemetrics Ltd. She has a wide range of experience from bat roost identification, acoustic sampling, sound analysis, soil and water sampling, Waste Acceptability Criteria testing, electrofishing, mammal and habitat surveying to GIS, Environmental Impact Assessments (EIAs) and mapping techniques. Since joining MKO, Aoife has been involved in managing bat survey requirements for a variety of wind farm planning applications, as well as commercial, residential and infrastructure projects. This includes scope, 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.

Dervla O'Dowd B.Sc. (Env)

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

business development and survey co-ordination to ensure the efficient operation of the Ornithology team's field survey schedule. Dervla holds full membership of the Chartered Institute of Ecology and Environmental Management and current Safe Pass card.

Padraig Cregg M.Sc., B.Sc.

Padraig Cregg is a Senior Ornithologist with MKO with over 9 years of experience in both private practice and NGOs. Padraig holds a BSc (Hons) in Zoology and Masters in Evolutionary and Behavioural Ecology. Prior to taking up his position with McCarthy Keville O'Sullivan in December 2018, Padraig worked as a Senior Ornithologist and held previous posts with TOBIN Consulting Engineers, Energised Environments Ltd in Scotland, WSP Environment and Energy Ltd in Scotland and BirdWatch Ireland. Padraig has specialist knowledge in designing, executing and project managing ornithological assessments, primarily in the renewable industry. Padraig's key strengths and areas of expertise are in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and the Biodiversity chapter of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. Since joining MKO Padraig has been involved in designing, executing and project managing the ornithological assessment on over 20 proposed wind farm developments. He has played a key role in project managing these planning applications through the statutory planning system, with more projects in the pipeline. Within MKO Padraig plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR and NIS Reports.

Owen Cahill B.Sc., M.Sc.

Owen is an Environmental Engineer with MKO. with over 15 years of experience in the environmental management and construction industries. Owen holds BSc. (Hons) and MSc. in Construction Management and a Masters in Environmental Engineering. Prior to taking up his position with McCarthy Keville O'Sullivan in October 2013, Owen worked as an Environmental Officer with Kepak and prior to which he held a post with Pentland Macdonald Contaminated Land & Water Specialist in Northern Ireland. Prior to working in planning and environmental consultancy, Owen was employed within the construction industry where he gained significant experience on a variety of civil, residential and commercial projects. Owen's wide ranging multi sector experience has provided him with specialist knowledge and understanding of the challenges in the planning and delivery of developments with the minimum environmental impact and with practicality and constructability in mind. Owen's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy & solar energy construction & environmental management planning and waste permit management. Since joining MKO Owen has been involved as a Project Manager on a range of energy infrastructure, commercial, residential, waste facility and quarry projects as well as managing the licensing requirements of a number of EPA licensed facilities. Within MKO Owen plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIS Reports. Owen has project managed the Environmental Impact Assessment of a range of development projects across the Ireland and is a Full Member with the Institute of Environmental Management & Assessment and is a Chartered Environmentalist.

Jack Workman M.Sc.

Jack is the Landscape & Visual Team manager at MKO and is a Technician Member with the British Landscape Institute. He is a Landscape and Visual Impact Assessment Specialist with an academic background in the field of Environmental Science and Geography. Jack's primary role at MKO is conducting Landscape and Visual Impact Assessment (LVIA) for Environmental Impact Assessment reports. Jack holds a BSc. in Psychology, and an MSc. in Coastal and Marine Environments (Physical Processes, Policy & Practice) where he was awarded the Prof. Máirín De Valéra distinction in science research award. Prior to taking up his position with MKO, Jack worked as a Geospatial Analyst and Research Assistant with NUIG and also held previous posts in the coastal engineering sector with Royal Haskoning DHV and Saltwater Technologies. Since joining MKO in February 2020, Jack has

conducted and project managed all aspects of LVIA for a broad range of commercial infrastructure developments including wind and solar energy projects, grid infrastructure, extraction industry and Strategic Housing Developments. Jack holds a membership with the Chartered Institute of Water and Environmental Management and is also a member of the Landscape Research Group.

Saoirse Fitzsimmons B.A., M.Sc.

Saoirse Fitzsimons is an Environmental Scientist and LVIA Specialist with MKO. Her primary role at MKO is producing the Landscape and Visual chapter of EIA reports. Saoirse holds an MSc. In Coastal and Marine Environments from the National University of Ireland, Galway where she was awarded The Prof Micheál O Cinnéide Award for Academic Excellence. Since joining MKO, Saoirse has worked widely on renewable energy infrastructure, commercial, recreational, and residential projects. Saoirse is a qualified Unmanned Aerial Vehicle Operator and holds an A1/A3 and A2 drone licence.

James Newell

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

Joseph O'Brien

Joseph O'Brien holds the position of CAD Technician. Joseph holds a BA Honours Level 8 Modelmaking, Design and Digital Effect, Institute of Art Design and Technology (IADT), Dun Laoghaire & City & Guilds Level 3 2D &3D AutoCAD certificates. Joseph's role entails various wind and solar farm projects which require various skills such as mapping, aerial registration and detailed design drawings for projects. Prior to joining us, Joseph worked as a free-lance Modelmaker and CAD Technician. His previous experience included designing various models and props through CAD and then making them for various conventions such as Dublin Comic Con and Arcade Con.

1.8.2.2 Gavin and Doherty GeoSolutions

Paul Quigley

Paul is a Chartered Engineer with over 25 years of experience in geotechnical engineering and a UK Registered Engineering (RoGEP) Advisor. He has worked on a wide variety of projects for employers, contractors, and third parties, gaining a range of experience including earthworks for major infrastructure schemes in Ireland and overseas, roads, tunnelling projects, flood protection schemes, retaining wall and basement projects, ground investigations and forensic reviews of failures. Paul is adept at designing creative solutions for difficult problems and has published numerous peer-reviewed technical papers. He has also acted as an independent expert for several legal disputes centred on ground-related issues. He is a reviewer for the ICE Geotechnical Engineering Journal, a member of the Eurocode 7 review panel at NSAI, and a former Chairman of the Geotechnical Society of Ireland.

Alastair Lewis

Alastair is a Civil Engineer with over twenty-five years experience in civil and ground engineering. He oversees the delivery of multi-disciplinary development infrastructure projects, including brownfield development, ground engineering, earthworks platforming, mining remediation, SUDS, sewerage, flooding, bridges, wind farms, and roads. As head of infrastructure, he developed engineering strategies in the property and energy sectors with particular reference to planning and environmental

requirements. He has design experience in major earthworks and mine stabilisation schemes and extensive experience in the assessment of abandoned mine workings.

Stephen Curtis

Stephen is a Senior Engineering Geologist on the onshore renewable team. He has over seven years of experience in both site investigation contracting and geotechnical consultancy environments. He is Chartered with the Institute of Geologists of Ireland (IGI) and the European Association of Geographers. Stephen has worked on multiple renewable energy projects primarily solar and wind farm projects in Ireland and the UK, for over four years. He has been involved in the feasibility study, planning, design, and construction stages of wind and solar farm developments with a particular focus on geotechnical risk management and mitigation for construction in upland peat areas and Irish glacial ground conditions.

Chris Engleman

Chris is a Geologist with a Masters in Geological Sciences from the University of Leeds. He has four years of industry experience within the onshore renewables sector and the field of geological mapping with a particular focus on Quaternary geology; predominantly working on projects for peat stability and management, ground investigation, rock and soil logging, GIS mapping and geotechnical design. Chris has worked on several renewable energy projects, particularly wind and solar, for over two years.

Brian McCarthy

Brian is a Civil Engineer within the infrastructure team in GDG with two years of post-graduate experience. Brian holds a Masters degree in Civil, Structural and Environmental Engineering from University College Cork and is a member of the Institution of Engineers of Ireland. Brian has worked on various renewable energy and infrastructural projects in Ireland and the UK and has carried out peat probing on several projects throughout Ireland.

1.8.2.3 Ecology Ireland

Dr Gavin Fennessey

Ecology Ireland Wildlife Consultants Ltd. were commissioned by the developer to conduct an ecological impact assessment in relation to terrestrial biodiversity for Proposed Repowering of the Kilgarvan Wind Farm. The team was led by Dr Gavin Fennessy (BSc PhD MCIEEM) is the Director & Principal Ecologist of Ecology Ireland Wildlife Consultants, a consultant ecologist with almost 25 years of experience in environmental consultancy. Dr Fennessy has contributed to and Project Managed numerous ecological impact assessment projects including EcIA, EIA, AA, SEA etc. Gavin is also an experienced Expert Witness having presented expert testimony at several An Bord Pleanála Oral Hearings. He is also an experienced lecturer and has regularly contributed to B.Sc. Env. Sc. courses at UCC. Gavin is the Dublin Airport Authority retained expert on wildlife hazard and bird strike risk. He sits on the national Wildlife & Bird Hazard Management Committee.

1.8.2.3.2 *Subcontractors*

Dr John Conaghan

Dr. John Conaghan (BSc PhD MCIEEM) is one of Ireland's leading botanists. He has decades of experience as a professional independent consultant and is recognised for his expertise in habitat management and restoration. He has been a lead researcher on EU Life projects on peatland restoration and has project managed surveys of various Annex I habitats. He was an advisor to the

National Vegetation Database Advisory Group. John is Vice County BSBI Recorder for West Galway. He carried out detailed vegetation and habitat surveys at the existing wind farm site.

John Deasy

John is an independent ecological consultant with experience across a range of ecological disciplines including botanical and habitat surveys, bird surveys, mammal surveys and protected invertebrate surveys. He has 10 years of experience as a professional ecologist and has undertaken a range of botanical and habitat surveys including baseline surveys for renewable energy projects, shared-use greenways and domestic and commercial properties. These surveys have included non-native invasive species surveys, rare species surveys and evaluations of habitats listed on Annex I of the EU Habitats Directive. John holds a MSc. in Ecological Assessment and BSc. in Earth and Environmental Science from University College Cork and is a member of the Botanical Society of Britain and Ireland. John carried out field surveys and contributed to the impact assessment in this chapter. He helped co-ordinate the field observers.

Tom O'Donnell (O'Donnell Environmental)

Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] from UCC in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. He has gained significant experience in ecological assessment and environmental management over the last 15 years of professional employment. Tom has particular experience in bat survey, bat conservation and bat call sonogram analysis using Kaleidoscope Pro. Tom organised and carried out bat and non-volant mammal surveys at the site assisted by his colleagues in O'Donnell Environmental.

Athena Michaelides

Athena Michaelides (BSc Zoology & Animal Biology) has over five years of experience as a professional ecological consultant. She is a former secretary of the Irish Wildlife Trust with particular experience in field surveys and reporting as part of Ecological Impact Assessments. Athena formerly was employed by Ryan Hanley Consulting Engineers and now works as an independent ecologist. Athena assisted in the desktop review and report compilation process and produced GIS mapping for this chapter.

Ciaran Cronin and Abi Brewer (Wildeye)

Ciaran is a professional ecologist with over 30 years' experience identifying animals and plants in Ireland and the UK. Since 2008, he has operated as a freelance ecological consultant (Wildeye), conducting Ecological Assessments and Surveys. Ciaran and his partner Abi are trained expert dog handlers and have a wide range of ecological expertise. In recent years they have concentrated on developing a fatality monitoring practice, using highly trained dogs to detect bird and bat fatalities at wind farms. They use scavenger removal and blind detection trials to calibrate the results generated from regular searches around turbine bases. Wildeye carried out 14 months of fatality monitoring at the existing Kilgarvan Wind Farm.

1.8.2.4 Aquatic Ecology Unit, UCC

Lauren Williams

Lauren is a qualified freshwater ecologist with over 20yrs professional consultancy experience working in New Zealand (2yrs) and in Ireland (past 18yrs). She holds a BSc in Zoology (University of Otago, NZ); a Certificate in Environmental Law (Open Polytechnic of NZ), a Post Graduate Diploma in Environmental Monitoring Assessment and Engineering from Trinity College Dublin and is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) since 2015. Lauren specialises in water quality assessment, mitigation, monitoring, aquatic ecological impact assessment and protected aquatic species and habitat surveys; regularly undertaking specialised aquatic field studies and conducting EcIA and EIAR reporting, plus Appropriate Assessment (AA Screening/NIS) in relation to a wide range of infrastructural developments. She also carries out aquatic sampling, monitoring and reporting as part of national river monitoring programmes.

Ger Morgan

Gerard Morgan is a graduate of University College Cork with an honours BSc in Zoology and an MSc.in freshwater ecology. He has managed the Aquatic Services Unit, a UCC-based environmental consultancy specialising in aquatic systems, since 1986. He has over 30 years' experience in ecological consultancy, specialising in water quality impacts of a wide range of infrastructural projects including roads, bridges, pipelines, wind farms, power transmission lines and port & harbour facilities. He also specialises in protected species surveys, including fish and pearl mussels. He is a specialist in algal surveys and identifications in rivers and lakes and is recognised by the EPA as a practitioner of the Q-value biotic index system.

1.8.2.5 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.

Conor McGettigan

Conor McGettigan (BSc, MSc) is an Environmental Scientist with 3 years' experience in the environmental sector in Ireland. Conor holds an M.Sc. in Applied Environmental Science (2020) and a B.Sc. in Geology (2016) from University College Dublin. Conor routinely prepares the land, soils and geology sections of environmental impact assessment reports for wind farm development on peatlands.

1.8.2.6 TNEI Ireland Ltd.

James Mackay

James is Director of Environment and Engineering and has significant experience of all aspects of noise assessment work associated with energy developments having been involved with all stages of development for initial site finding and feasibility assessments, baseline surveys, impact assessments through to appeals and compliance monitoring. Since joining TNEI in 2006 James has worked on over

5 GW of onshore wind projects during which time his work has primarily focused on the technical aspects of energy developments particularly, site assessment, layout design, GIS mapping and analysis, noise and shadow flicker assessments.

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

Jason Baldwin

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

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

1.8.2.7 Tobar Archaeological Services

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

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

Annette Quinn

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

Miriam Carroll

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

1.8.2.8 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.

1.8.2.9 Ai Bridges

Ai Bridges has been supplying telecommunications and aviation assessment solutions to the wind farm industry throughout the Republic of Ireland, Northern Ireland and the rest of the UK since 2007. The Ai Bridges Engineering Department has in excess of 170-man years of experience in the delivery of Aviation, Telecommunications, Broadcast & Electromagnetic Interference projects.

Kevin Hayes

Kevin Hayes is the Engineering Director at Ai Bridges and takes the role of Client Relationship Manager responsible for oversight of project progress and deliverables for the Telecommunications and Aviation Impact Assessment Projects and acts as client liaison. Kevin also takes responsibility for day-to-day running of the project including co-ordination of project team, sub-contractors and achieving agreed milestones. All project works are managed by Kevin who is a qualified engineer with B.Eng Hons. Electronic & Communications Engineer, M. Eng. Hons in Communications & Software Engineering qualifications. Kevin has gained extensive experience in the areas of Telecommunications network design, deployment of telecommunications systems over a 32-year period. He has extensive working knowledge of software modelling and radio planning of telecommunications and aviation systems. Kevin has also taken the lead role in developing the Ai Bridges 3D modelling software techniques used to predict wind farm and solar park interference impacts on telecommunications, broadcast and aviation infrastructure networks

1.9 Difficulties Encountered

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

1.10 Viewing and Purchasing of the EIAR

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

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

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

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

Kerry County Council Office Buildings
Rathass,
Tralee
Co. Kerry

The EIAR will also be available to view online via the Department of Planning, Housing and Local Government's EIA Portal, which will provide a link to the planning authority's website on which the application details are contained. This EIA Portal was recently set up by the Department as an electronic notification to the public of requests for development consent which are accompanied by an EIAR. (https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal)

The EIAR will also be available to view online on its dedicated SID website:
https://kilgarvanplanning.ie/