

Cahermurphy West Wind Farm, Co. Clare

Cahermurphy West Wind Farm

Non-Technical Summary



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NON-TECHNICAL SUMMARY

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Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of the Applicant, Cahermurphy Renewables Designated Activity Company, who intends to apply to An Coimisiún Pleanála (ACP) for planning permission under sections 37E and 182A of the Planning and Development Act 2000 (as amended) (the "PDA") to construct a wind energy development known as Cahermurphy West Wind Farm at Cahermurphy and adjacent townlands, located in Co. Clare, including 8 No. turbines with a limited tip height range of 180 metres to 185 metres and all associated foundations and hardstanding areas, access roads and entrance(s) including upgrade of existing site roads and provision of new roads, 110kV electrical substation and wind farm control building, underground cabling, 2 no. borrow pits, electrical cabling for 110kV grid connection, biodiversity enhancement areas, 2 no. temporary construction compounds, peat and spoil management and a permanent meteorological mast. A full description of the Proposed Project is available in Ch. 4: Description of the Proposed Project.

For the purposes of this EIAR:

- Where the 'Proposed Project' is referred to, this relates to all the project components described in detail in Ch. 4: Description of the Proposed Project i.e. Proposed Wind Farm and Proposed Grid Connection as detailed below.
- Where 'the Site' is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Ch. 1: Introduction in Figure 1-1. Generally, the study area extends beyond the planning application site boundary depending on the requirements of individual assessments. Individual topics for assessment purposes, i.e., each chapter, will indicate the study area used for that topic. The planning application red line boundary occupies a smaller area within the primary EIAR Site Boundary. The EIAR Site Boundary represents the primary area of study and not necessarily areas where proposed works will occur as part of the Proposed Project. The EIAR Site Boundary encompasses an area of approximately 637 hectares (ha). Where the 'Application Site Boundary' is referred to, this refers to the planning application boundaries as shown in Ch. 1: Introduction in Figure 1-4 below and Appendices 4-1 and 4-2 of this EIAR. Two planning application boundaries are included for within the Proposed Project, which denote the 'Proposed Wind Farm' and 'Proposed Grid Connection' as outlined below. Both Application Site Boundaries are shown in Ch.1: Introduction, Figure 1-4.
- Where the 'Proposed Wind Farm' is referred to, this refers to turbines and associated foundations and hard-standing areas, meteorological mast, site entrance, junction accommodation works, access roads, accommodation works along the turbine delivery route (TDR Works), temporary construction compounds, temporary transition compound, 110kV electrical substation, underground cabling, borrow pits, site drainage, tree felling, biodiversity management and enhancement measures and all ancillary works. The Proposed Wind Farm site (EIAR Site Boundary without corridor that encompasses the Proposed Grid Connection) is shown in Ch. 1: Introduction, Figure 1-2. The Proposed Wind Farm site encompasses an area of approximately 375 hectares (ha). The permanent footprint of the Proposed Wind Farm measures approximately 15.55 ha, which represents approximately 4.1% of the Proposed Wind Farm site.
- Where 'Proposed Grid Connection' is referred to, this refers to the underground 110kV electrical cabling and all associated site development works connecting the Proposed Wind Farm to the existing Moneypoint 110kV electrical substation in the townlands of Carrowdotia South and Carrowdotia North, Co. Clare. The Proposed Grid Connection is shown in Ch. 1: Introduction, Figure 1-3.

- Where ‘the Applicant’ is referred to, this refers to Cahermurphy West Designated Activity Company (DAC), who are discussed further in Section 1.4 of this EIAR.

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

For clarity in this EIAR, all elements of the Proposed Project will be assessed cumulatively and in combination with other projects to aid the competent authority in carrying out an EIA. The methodology for the identification of projects with the potential for in combination effects is set out in detail in Ch. 2: Background to the Proposed Project.

The Proposed Project is described in detail in Ch. 4: Description of the Proposed Project of this EIAR.

Brief Description of the Proposed Project

This section of the EIAR describes the development and its component parts (the ‘Proposed Project’) including the works subject of two proposed applications for planning permission to ACP.

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

An Coimisiún Pleanála – Planning Notice Project Description – Proposed Wind Farm

- i. Construction of 8 no. wind turbines with a blade tip height range from 180m to 185m inclusive, a hub height range from 98.5m to 110.5m inclusive and a rotor diameter range from 149m to 163m inclusive with associated foundations, hard-standing and assembly areas.*
- ii. Construction of 1 no. permanent 110 kV electrical substation including 2 no. control buildings lightning protection, welfare facilities, car parking, and all associated electrical plant and apparatus, security fencing, external lighting, underground cabling, wastewater holding tank and all associated infrastructure, apparatus and landscaping;*
- iii. Underground electrical cabling (33kV) and communications cabling connecting the wind turbines to the proposed on-site 110kV electrical substation and associated ancillary works;*
- iv. Erection of 1 no. Meteorological Mast of 100m metres above existing ground level for the measuring of meteorological conditions, including a lightning rod which will extend above the mast ;*
- v. Construction of new permanent access roads and upgrade of existing roads to provide access within the site and to connect the wind turbines and associated infrastructure;*
- vi. Upgrade of 1 no. new existing agricultural/forestry access to the site, off the L6254 local road, to serve as the sole entrance to the wind farm during its operational phase and to facilitate the delivery of the construction materials and turbine components to site during the construction and operational phases (including the installation of security fencing and gates);*
- vii. Development of 2 no. borrow pits;*
- viii. Construction of 2 no. temporary construction compounds and associated ancillary infrastructure including temporary site offices, staff facilities and car-parking areas, all to be removed at end of construction phase;*
- ix. Temporary works at 6 no. locations along the N68 national road, R484 regional road and L-2074, L-2082 and L-2048 local roads associated with the facilitation of turbine component and abnormal load delivery to site. These works will primarily include the trimming of vegetation and strengthening of road verges;*
- x. Permanent and temporary Site Drainage;*
- xi. Operational Stage Site Signage;*
- xii. Ancillary forestry felling to facilitate construction and operation of the proposed development;;*

- xiii. Biodiversity enhancement measures including the permanent removal of commercial forestry (deforestation) over an area of 56.3ha and restoration of farmland habitat to good quality hen harrier foraging habitat through diversifying the range and extent of habitats over an area of 67.4ha, and;*
- xiv. All related site works and ancillary development including landscaping considered necessary to facilitate the proposed development..*

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

An Coimisiún Pleanála– Planning Notice Project Description – Proposed Grid Connection

- i. The provision of c.25km of underground electrical cabling (110kV) from the proposed Cahermurphy West Wind Farm development to the existing Moneypoint 110kV electrical substation to facilitate the connection to the national grid;*
- ii. Provision of 36 no. joint bays, communication chambers and earth sheath links along the proposed underground electrical cabling route;*
- iii. Permanent and temporary Site Drainage;*
- iv. Reinstatement of land, road and track surface above the proposed cabling trench;*
- v. All related site works and ancillary development considered necessary to facilitate the proposed development.*

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

The turbines proposed as part of the Proposed Project will have an output ranging from 6.3MW to 7.2MW. The overall export capacity of the Proposed Project will, therefore, range from a minimum of 50.4MW and a maximum of 57.6MW.

The layout of the Proposed Project has been led by consideration of constraints and facilitators, thereby avoiding the environmentally sensitive parts of the site. For example, the roads layout for the Proposed Project maximises the use of the existing onsite access roads and tracks where possible, with approximately 4.5km of existing roads and paths to be upgraded and 5.4km to be built.

The Proposed Grid Connection is located predominately within existing agricultural tracks and the public road corridor.

All elements of the Proposed Project, including the Proposed Wind Farm Site, Proposed Grid Connection, as defined below, have been assessed as part of this EIAR

Applicant

The Applicant for the Proposed Project is Cahermurphy Renewables Designated Activity Company (DAC). Cahermurphy Renewables DAC is a joint venture between FuturEnergy Ireland and Mid Clare Renewable Energy (MCRE) Ltd. FuturEnergy Ireland are an Irish-owned, joint venture company with Coillte and ESB, which launched in November 2021.

FuturEnergy Ireland’s ambition is to develop more than 1GW of renewable energy capacity by 2030 and make a significant contribution to Ireland’s commitment to produce 80% of electricity from renewable sources by the end of the decade. Using their knowledge and expertise, FEI aim to develop wind farms in a responsible manner with the support of local host communities thereby enabling Ireland, and its people, to combat climate change and contribute to a better, brighter world.

MCRE Ltd is a 100 percent Irish owned company, owned by shareholders based in county Clare. The local ownership and local involvement are both seen as an important features in community acceptance of such renewable energy projects. These local shareholders are also the developers and operators of the adjacent existing Cahermurphy Wind Farm. The existing Cahermurphy Wind Farm was successfully planned with the assistance of MKO between 2014-2019 and was built and brought into operation in 2020, demonstrating the suitability of this area for onshore wind development.

Need for the Proposed Project

Ireland faces significant challenges to its efforts to meet EU targets for renewable energy by 2030 and its commitment to transition to a low carbon economy by 2050. Further detail can be found in Ch. 2: Background to the Proposed Project.

The Proposed Project provides the opportunity to capture an additional part of County Clare's valuable renewable energy resource. If the Proposed Project were not to proceed, this opportunity to harness the wind energy resource of County Clare's valuable renewable energy resource would be lost, as would the opportunity to further contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Economic Benefits

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

Additional commercial rate payments from the Proposed Project will be provided to Clare County Council each year, which will be redirected to the provision of public services within Co. Clare. These services include provisions such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives.

It is estimated that the Proposed Project will create approximately 90-120 jobs during the construction, operational and maintenance phases overall. During construction, additional employment will be created in the region through the supply of services and materials to the wind energy development. There will also be income generated by local employment from the purchase of local services i.e. travel, goods and lodgings.

There are substantial opportunities available for areas where wind farms and other types of renewable energy developments are located, in the form of Community Gain Funds. The value of this fund will be directly proportional to the level of installed MWs at the site and will support and facilitate projects and initiatives including youth, sport and community facilities, schools, educational and training initiatives, and wider amenity, heritage, and environmental projects. The Proposed Project has the potential to increase the generating capacity of the wind farm and therefore there will be greater community gain.

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 Project 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 Project.

It is important to distinguish the Environmental Impact Assessment (EIA) to be carried out by An Coimisiún 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 project on the following:

1. *Population and human health*
2. *Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC*
3. *Land, soil, water, air and climate*
4. *Material assets, cultural and the landscape*
5. *The interaction between the factors referred to in points 1 to 4 above.*

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 in Article 5 of the revised EIA Directive described in Section 1.2.3 above.

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. Each chapter of this EIAR has been prepared by a competent expert in the subject matter. The chapters of this EIAR are as follows:

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

A Natura Impact Statement has also been prepared in line with the requirements of the Habitats Directive and accompanies this planning application.

Assessment of Turbine Parameter Range within the EIAR

As detailed above, and further detailed in Ch. 4: Description of the Proposed Project of this EIAR, the Proposed Wind Farm will comprise the construction of 8 No. wind turbines with the following parameters:

- > Total tip height range of 180m – 185m,
- > Rotor diameter range of 149m – 163m,
- > Hub height range of 98.5m to 110.5m.

For the purposes of this EIAR, various types and sizes of wind turbines, within the proposed ranges outlined above, have been selected and considered in the relevant sections of the EIAR. This allows for a robust assessment of the proposed range of turbines. Turbine design parameters have a bearing on the assessment of shadow flicker, noise, visual impact, traffic and transport and ecology (specifically birds).



It should also be noted that the assessment of the development footprint of the Proposed Project, within this EIAR, is based on the maximum potential footprint for all of the infrastructural elements. This precautionary approach is taken as the assessment of the maximum development footprint will, in the absence of mitigation measures, give rise to the greatest potential for significant effects. Should the development footprint be less than the maximum, the potential for significant effects will also be reduced.

Background to the Proposed Project

Ch. 2: Background to the Proposed Project of the EIAR presents information on renewable energy and climate change policy and targets, the strategic, regional and local planning context for the Proposed Project, planning history, scoping and consultation, as well as setting out nature of the cumulative impact assessment process undertaken.

The Proposed Project will be known as the ‘Cahermurphy West Wind Farm Co. Clare,’ and is being brought forward in response to local, regional, national and European policy regarding Ireland’s transition to a low-carbon economy, associated climate change policy objectives and to reduce Ireland’s dependence on imported fossil fuels for the production of electricity.

A gradual shift towards increasing Ireland’s use of renewable energy is no longer viable. There is an urgency now to ensure real changes occur without delay. Renewable energy development is recognised as a vital component of Ireland’s strategy to tackle the challenges of combating climate change and ensuring a secure supply of energy. Ireland is heavily dependent on the importation of fossil fuels to meet its energy needs. In 2023, over 81% of Ireland’s energy was imported from abroad, higher than the European Union (EU) average of almost 60% (National Energy Security Framework, 2022). This high dependency on energy imports is highly risky, and Ireland is currently extremely vulnerable both in terms of meeting future energy needs and ensuring price stability. As such, expanding indigenous renewable energy supply is critical for energy security and price stability. The provision of the Proposed Project would aid in achieving the shift to decarbonising the electricity sector and energy security in Ireland.

Ireland’s Climate Action Plan 2024 and Climate Action Plan 2025 sets ambitious yet essential targets for renewable energy, including 9GW of onshore wind capacity—with at least 5GW to be delivered by 2030—and an 80% share of renewable electricity by the same year. However, multiple assessments, including the Climate Change Advisory Council (CCAC) Annual Review and the Environmental Protection Agency (EPA) emissions projections, confirm that Ireland is not on track to meet these targets. Significant gaps remain in renewable energy deployment, particularly in grid capacity expansion, as well as onshore and offshore wind energy development, while continued reliance on fossil fuels threatens national and EU climate commitments.

Failure to meet binding EU targets will expose Ireland to financial penalties, increased carbon credit costs, and continued dependence on fossil fuel imports—posing serious risks to energy security and economic stability. Furthermore, Ireland’s national interest, as outlined in Section 143(1) of the Act requires the rapid expansion of renewable energy, making this a matter of strategic economic and social importance.

Every viable renewable energy project plays a crucial role in meeting Ireland’s climate targets. The approval of well-planned, appropriately located renewable energy projects, such as the Proposed Project is not just beneficial—it is imperative. Without decisive action to facilitate renewable energy deployment, Ireland risks missing national and EU commitments, incurring financial penalties, and undermining energy security.

Local Planning Policy

It is considered that the Proposed Project is consistent with the policies and objectives of the Adopted Clare County Development Plan (CCPD) 2023-2029.

Clare County Development Plan 2023-2029

The Clare County Development Plan (CCDP) 2023–2029, adopted in April 2023, prioritises climate action, aiming to achieve decarbonization and position Clare as a national leader in renewable energy. Its Climate Action Chapter and the Clare Renewable Energy Strategy (RES) set out objectives to

maximize renewable energy potential, support national targets, and guide development to suitable locations while safeguarding the environment and residential amenities. The RES emphasizes Clare’s strong natural resources—wind, coastal location, and grid infrastructure—and includes a target of 550 MW for wind energy, noting this is not a cap. Policy RES 2.1 commits to meeting the county’s energy needs from 100% indigenous renewable sources. Objective RES 3.1 seeks to exceed renewable energy targets by 2030. The Clare Wind Energy Strategy (WES) 2023–2029, incorporated into the CCDP, provides a planning framework for wind development, identifying ‘Strategic Areas’ and ‘Acceptable in Principle’ zones based on wind resource, grid access, and environmental considerations. 7 of the 8 proposed turbines are located within a strategic area for wind farm development whilst the remaining turbine is located within an area designated as acceptable in principle for wind farm development , aligning with the CCDP’s vision to drive a low-carbon economy, energy security, and green business development.

It is considered that the Proposed Project is consistent with the policies and objectives of the Adopted Clare County Development Plan 2023-2029.

Wind Energy Development Guidelines

In June 2006, the then Department of Environment, Heritage and Local Government (DoEHLG) published the Wind Energy Development Guidelines, 2006 (the Guidelines (DoEHLG, 2006)) under Section 28 of the Act. The relevant considerations under the Guidelines (DoEHLG, 2006) have been taken into account during the preparation of this EIAR.

The aim of the Guidelines (DoEHLG, 2006) was to assist the proper planning of wind power projects in appropriate locations around Ireland. The Guidelines (DoEHLG, 2006) also highlight general considerations in the assessment of all planning applications for wind energy. They set out advice to planning authorities on planning for wind energy through the development plan process and in determining applications for planning permission. They contain guidelines to ensure consistency of approach throughout the country in the identification of suitable locations for wind energy development.

Each wind energy development has its own characteristics and defining features, and it is therefore impossible to write specifications for universal use. The Guidelines (DoEHLG, 2006) should be applied practically and do not replace existing national energy, environmental and planning policy. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects and the commitment within the CAP25 to publish new wind energy guidelines for onshore wind in Q1 2025 it is possible that the Draft Guidelines (DoHPLG, 2019) may be adopted during the consideration period for the current planning application.

The Department of Housing, Planning and Local Government (DoHPLG) published the Draft Revised Wind Energy Development Guidelines (the Draft Guidelines (DoHPLG, 2019)) in December 2019. A consultation process in relation to the Draft Guidelines (DoHPLG, 2019) concluded on the 19th of February 2020. A further review of the Draft Guidelines (DoHPLG, 2019) is currently underway by the Department of Housing, Local Government and Heritage (DoHLGH) and the Department of Environment, Climate and Communications (DoECC), particularly in relation to noise limits. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects it is possible that an updated version of the Draft Guidelines (DoHPLG, 2019) may be finalised during the consideration period for the current planning application for the Proposed Project. To this end, on the basis of the details available from the Draft Guidelines (DoHPLG, 2019) it is anticipated that the Proposed Project will be capable of adhering to the relevant noise and shadow flicker standards. While the final guidelines have not yet been published it should be noted that Shadow Flicker and Noise and are entirely controllable and are discussed further in Ch. 5: Population and Human Health and Ch. 12: Noise and Vibration, respectively. Furthermore, comprehensive community consultation has also been undertaken and detail of the Proposed Grid Connection for the Proposed Project has been provided and assessed as part of this EIAR, forming an integral part of this planning application.

Scoping and Consultation

Section 2.5 of this EIAR presents details of the EIA Scoping undertaken with regards to the Proposed Project. A scoping report, providing details of the Proposed Project, was prepared by MKO and circulated to prescribed statutory bodies in March and April 2024. The scoping document provided details of the Proposed Project and set out the scope of work for the EIAR. Consultees were invited to contribute to the EIAR by suggesting baseline data, survey techniques and potential impacts that should be considered as part of the assessment process and in the preparation of the EIAR.

Copies of all scoping responses received are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the scope of the assessments undertaken and the contents of the EIAR. If further responses are received, the comments of the consultees will be

considered in the construction, operation and decommissioning phases of the Proposed Project in the event of both planning permissions being granted.

Section 2.5.2 of this EIAR includes details of the pre-planning meetings undertaken prior to the planning application being lodged. Members of the project team and the Applicant met with representatives from Clare County Council in accordance with Section 247 of the Planning and Development Act 2000 (as amended) (the Act) via MS teams on the 6th of November 2024.

The project team gave an overview of the Proposed Project in the form of a PowerPoint presentation which set out the following information:

- An introduction to the Applicant.
- A high-level overview of the Proposed Project, the Subject Site and the reasons for Refusal of Cahermurphy II Wind Farm.
- Overview of relevant planning policy including compliance with local wind energy policy.
- Provided specific details of the scheme relating to LVIA, Ecology and Aviation.
- Set out the scope of the Environmental Impact Assessment Report to be undertaken.
- Discussed scoping & pre-application/public consultation undertaken to date.
- Set out the projected project timelines.

The Applicant engaged with An Coimisiún Pleanála under the provisions of Section 37B of the Planning and Development Act 2000 (as amended), as to whether the Proposed Project would meet the thresholds of the Seventh Schedule of the Planning and Development Act, 2000, as amended. A SID meeting under the provisions of Section 37B was held with the Commission on the 11th of August 2024. A second meeting was also held in December 2025 with An Coimisiún Pleanála in response to the Transposition of the Renewable Energy Directive (RED III) into Irish law through the European Union (Planning and Development) (Renewable Energy) Regulations 2025. On the 5th of January 2025, MKO, on behalf of the Applicant, sought to close the consultation process with the Commission. On the 9th of February 2026, the Commission wrote to the applicant and confirmed that consultation was closed and that the Wind Farm Site was considered to be strategic infrastructure within the meaning of Section 37A and such any application for approval of the Wind Farm Site should be made directly to the Commission.

The Applicant also engaged with An Coimisiún Pleanála under the provisions of Section 182E of the Planning and Development Act 2000 (as amended) and a meeting was held on the 29th of August 2023. This was in respect of the construction of proposed 110kV Infrastructure and Connection at the Existing 400kV Moneypoint Substation in relation to Cahermurphy West Wind Farm. A second meeting was also held on the 19th of September 2024 with An Coimisiún Pleanála where the design team gave an overview of the Grid Connection element of the Proposed Project.

Further consultation was carried out with statutory consultees, with Members of the Project Team, including Environmental Scientists, Ecologists and Ornithologists meeting the National Parks and Wildlife Service (NPWS), to discuss the Proposed Project on 28th of January 2026. The discussion on the Proposed Project primarily related to the Hen Harrier Offsetting and Enhancement Plan, with the NPWS highlighting some key aspects they would like to see included within the Plan, namely a monitoring plan for parameters and indicators of enhancement success at farmland enhancement areas, address the issue of nest predation within the hen harrier offsetting and enhancement lands and correct characterisation of impacts on hen harrier. The outcomes of all these consultations have been duly considered and integrated into the design of the Proposed Project and the preparation of the EIAR.

Cumulative Impact Assessment

The EIA Directive and associated guidance documents state that as well as considering any direct, indirect, secondary, transboundary, short, medium and long term, permanent and temporary, positive and negative effects of the project, the description of likely significant effects should include an

assessment of likely significant effects that could arise cumulatively with other plans and projects. The factors to be considered in relation to cumulative effects include population and human health, biodiversity, land, soil, water, air, climate, material assets, landscape, and cultural heritage as well as the interactions between these factors.

To gather a comprehensive view of cumulative impacts on these environmental considerations and to inform the EIAR process being undertaken by the consenting authority, each relevant chapter within this EIAR includes a cumulative impact assessment where appropriate.

The potential for cumulative impacts arising from other plans and projects has therefore been fully considered within this EIAR.

The cumulative impact assessment of projects has three principle aims:

- To establish the range and nature of existing, approved and proposed projects within the cumulative impact study area of the Proposed Project.
- To summarise the relevant projects which have a potential to create cumulative impacts.
- To identify the projects that hold the potential for cumulative interaction within the context of the Proposed Project and disregard projects that will neither directly nor indirectly contribute to cumulative impacts. (Note: this is done by individual competent experts with respect to their specialist area of expertise.)

Projects were identified through a search of relevant online planning registers as well as informed by local knowledge of the area, particularly in relation to projects that have been circulated within the public domain but have not yet entered the formal planning system, and effects were considered following a review of associated EIARs.

Overall, the Proposed Project has been designed to avoid and mitigate impacts on the environment and a suite of mitigation measures is set out within the EIAR. The mitigation measures set out in this EIAR will ensure that significant cumulative effects do not arise during the construction, operational or decommissioning phases of the Proposed Project. Additional detail in relation to the potential significant cumulative effects arising and, where appropriate, the specific suite of relevant mitigation measures proposed are set out within each of the relevant chapters of this EIAR.

Consideration of Reasonable Alternatives

Ch. 3: Site Selection & Reasonable Alternatives of the EIAR introduces the reasonable alternatives studied by the Applicant which are relevant to the Proposed Project and its specific characteristics and an indication of the main reasons for the option chosen, taking into account the environmental effects. The consideration of alternatives typically refers to alternative design, technology, location, size and scale. A 'Do-Nothing Alternative' i.e., an outline of what is likely to happen to the environment should the Proposed Project not be implemented, has also been considered.

Alternative Site Locations

The primary criteria for site identification by Cahermurphy Renewables DAC focused on compliance with the Clare County Development Plan 2023-2029 and the identification of suitable sites within a designated Strategic Area and/or those deemed Acceptable in Principle for windfarm development as shown on the mapping within the Clare County Development Plan 2023-2029 Volume 6 Clare Wind Energy strategy capable of accommodating a medium to large number of wind turbines. Three areas were highlighted that were primarily in locations classified as 'strategic areas', which had low surrounding population densities a reduced number of environmental constraints, presented land use access opportunities and were surrounded by suitably sized road infrastructure to enable turbine component delivery

The Proposed Wind Farm site was chosen as the candidate site (henceforth referred to as the 'candidate wind farm site'), due to the lesser number of ecological constraints when compared with those associated with the other two potential wind farm sites (presence of Cragnashingaun Bogs NHA directly bordering these sites, for example) and the considerably smaller size of one of the alternative areas.

Alternative Renewable Energy Technologies

Both onshore and offshore wind energy development will be required to ensure Ireland reaches the target set in the Climate Action Plan to source 80 per cent of our electricity from renewable energy by 2030. It is not a case of 'either' 'or'. When considering other renewable energy technologies in the area, the Applicant considered commercial solar energy production as an alternative on the Proposed Wind Farm site. Cahermurphy West Wind Farm was screened for capacity to accommodate a solar energy farm but due to the undulating nature of the site coupled with the presence of adverse soil conditions for solar, it was not deemed viable from an operations or functionality perspective.

Commercial solar energy production is the harnessing and conversion of sunlight into electricity using photovoltaic (PV) arrays (panels). Solar PVs have a smaller capacity factor than wind farms. The capacity factor of solar PV panels in the southwest of Ireland is approximately 10%¹, compared to the capacity factor of the Proposed Wind Farm site of 35%². As discussed in Section 4.2.1 in Ch. 4: Description of the Proposed Project, the potential installed capacity of the Proposed Wind Farm site will be up to 57.6 MW, which has the potential to produce up to 176,602 MWh of electricity per year, equating to supplying electricity to approximately 42,048 Irish households annually. A solar PV array with the same potential installed capacity would produce a significantly lower electricity supply which could only serve between approximately 10,500 and 13,500 Irish households per year or one quarter of the electricity that a wind farm of similar MW output could produce.

¹ Teagasc, Solar PV. Available at: <https://www.teagasc.ie/rural-economy/rural-development/energy/technologies/solar-pv/>

² EirGrid, 2022 Enduring Connection Policy 2.2 Constraints Report for Solar and Wind [ECP-2.2-Solar-and-Wind-Constraints-Report-Area-D-v1.0.pdf \(eirgridgroup.com\)](#)

The Proposed Project is located within the D wind region for Ireland with an associated 2020 capacity factor of 36%.

In order to supply the same number of households with electricity per year as the Proposed Wind Farm site, a solar PV array would require a potential installed capacity of between 184.7 MW and 233.3 MW, thus requiring a permanent development footprint approximately 10 times the size of the Proposed Wind Farm site (At 0.7ha per MW for Solar PV,) to achieve the same electricity output as the Proposed Wind Farm for which the permanent footprint will be 15.55ha. In addition, a solar development, of this scale, would have a higher potential environmental effect on Hydrology and Hydrogeology, Traffic and Transport (construction phase) and Biodiversity and Birds (habitat loss, glint and glare) at the site.

Alternative Turbine Numbers and Model

It is proposed to install 8 turbines at the site which are estimated to achieve a minimum output of 50.4 MW and a maximum output of 57.6 MW. Such an output could also be achieved on the Proposed Wind Farm site by using smaller turbine technology (for example 2.5 MW machines). However, this would necessitate the installation of between 20 no. and 23 no. turbines to achieve a similar output range. Furthermore, the use of smaller turbines would not make efficient use of the wind resource available having regard to the nature of the Proposed Wind Farm site.

Alternative Turbine Layout and Development Design

The design of the Proposed Wind Farm has been an informed and collaborative process from the outset, involving the designers, developers, engineers, landowners, environmental, hydrological and geotechnical, landscape and archaeological specialists and traffic consultants. The aim being to reduce potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of this EIAR, the layout of the Proposed Wind Farm has been revised and refined to take account of the findings of all site investigations and baseline assessments, which have brought the design from its first initial layout iteration to the Proposed Wind Farm layout. The design process has also taken account of the recommendations and comments of the relevant statutory and non-statutory consultees, the local community and local authorities as detailed in Ch. 2: Background to the Proposed Project, while still seeking to ensure that a viable project can ultimately be constructed and connected to the national grid.

Alternative Grid Connection Options

The Proposed Wind Farm site will connect to the national grid via underground 110kV electrical cabling, located primarily within the public road corridor. Underground medium voltage electrical cables will transmit the power output from each wind turbine to the proposed onsite 110kV electrical substation, and from there to the existing Moneypoint 110 kV electrical GIS substation, via an underground 110kV electrical cabling route, measuring approximately 25 km in length.

A key consideration in determining the grid connection method for a proposed wind energy development is whether the cabling is undergrounded or run as an overhead line. While overhead lines (OHL) are less expensive and allow for easier repairs when required, underground cables (UGC) will have no visual impact. Underground grid connection routes are also considered to be the preferred option of connecting Wind Energy Developments to the national grid. For this reason, it was considered that underground cables would be a preferable alternative to overhead lines. The draft Wind Energy Guidelines 2019 also indicate that underground cables are the preferred option for connection of a wind energy development to the national grid.

The output of the wind farm is such that it needs to connect to a 110kV electrical substation. 3 no. 110kV substations were analysed when considering the grid connection.

- Moneypoint 400kV/110kV Electrical Substation;
- Booltiagh 110kV Electrical Substation, and
- Slievecallan 110kV Electrical Substation.

Due to capacity constraints at Booltiagh and Slieve Callan identified during communications with EirGrid, it was decided that Moneypoint would be the most viable connection point.

A number of underground grid connection cabling routes to Moneypoint were considered and assessed in order to determine which route would be brought forward as the grid connection route to be assessed as part of the overall project within the EIAR. One route was picked as the preferred route after the consideration of a number of constraints. Further studies and refinements were carried out to ensure that the route was as efficient as possible whilst reducing the possibility of environmental impacts.

Alternative Ports of Entry and Site Access

The alternatives considered for the port of entry of wind turbines into Ireland for the Proposed Project included Port of Galway, Shannon Foynes Port and Dublin Port. Shannon Foynes Port is the principal deepwater facility on the Shannon Estuary and caters for dry bulk, break bulk, liquid and project cargoes. Port of Galway and Dublin Ports also offer a roll-on roll-off procedure to facilitate import of wind turbines. All three ports and indeed others in the state, offer potential for the importing of turbine components. The primary chosen port of entry is Shannon Foynes due to its proximity and accessibility from the port to the national and regional roads towards the Proposed Project. Shannon Foynes represents the closest port to the Site and would therefore result in less vehicular emissions due to turbine component delivery, less alterations to the existing road network or private lands to facilitate the delivery of turbine components, as well as less potential for traffic and transport impacts due to the shorter distance to the Site.

Alternative Turbine Delivery Routes

For turbine components and other abnormal loads (e.g., prefabricated buildings for construction compound areas etc.) transport, cognisance was taken of the haul routes used for other wind farm developments in the local area in addition to the general preference to minimise the requirement for significant accommodation or widening works along the public road network and associated environmental effects. Multiple turbine delivery routes, as well as methods of transport were considered when deciding a preferred route.

Turbine Delivery Option A involved the delivery of turbine components from Shannon Foynes Port in Co. Limerick to the Proposed Project site. The route involved utilising the National Road networks (N69, N18, M18, N85 and N68), the Regional Road network (R484, R483) and the local road network (L-2048, L-6254). This route utilised the N68 National Secondary Road from Ennis to its junction with the R484 Regional Road, which provides access to Kilmihil village. From Kilmihil, the turbine delivery route continues on the R484 towards Creegh. At Creegh, the turbine delivery route turns right at the crossroad onto a local road passing Creegh North, Clooneenagh and Cahermurphy Hill after which it takes a left north onto the L-6254 local road approaching Cahermurphy Wind Farm from the south. This option was screened out due to vehicle turning constraints, increased watercourse crossings when compared to alternative routes and a significant number of third party land access requirements.

Turbine Delivery Option B involved the delivery of turbine components from Shannon Foynes Port in Co. Limerick to the Proposed Project site, following the same delivery route as Option A. Option B however involves the turbine delivery vehicle passing through two fields to the west of Kilmihil, and subsequently travelling along the L-2074, L-2080 and L-2082 north towards the Site. This TDR traverses through fields at two locations along the L-2082 in the townlands of Castlepark and Cahermurphy, before connecting with the L-2048. The TDR then travels along the L-2048 for approximately 290m before turning to the north onto the L-6254 where it travels for approximately 1.2km before reaching the site entrance. The length of the route from the N68/R484 junction is also considerably shorter at approximately 11.3 kilometres, while also avoiding the village of Creegh which has a number of watercourse crossings and third party land constraints.

Option B was selected as the preferred turbine delivery route as there were less potential pinch points where widening is required, given the shorter distance, and also fewer involved landowners along the route compared to Option A. Option B will also reduce the level of disturbance during the delivery given the shorter distance and utilisation of a lesser travelled road.

Alternative Delivery Vehicles

The technologies considered for use in the delivery of turbine components consisted of a standard articulated HGV, a blade lifter, as well as a 'clamp and dolly' or blade adapter trailer. After extensive autotrack assessments along the chosen Turbine Delivery Route, it was decided that the 'clamp and dolly' system would lead to the least amount of Turbine Delivery Works and potential environmental effects along the delivery route.

Alternative Enhancement Lands

The enhancement lands have been specifically designed to target the two key threats/pressures of high importance on hen harrier, these being forestry and agricultural intensification to mitigate the potential for impacts associated with the Proposed Wind Farm. The enhancement plan aims to provide an increase in the availability of passerine prey within the enhancement lands to offset for the loss of the foraging habitat due to the construction and operation of the Proposed Wind Farm.

The alternative to the Hen Harrier Enhancement Plan is to either not propose these measures or propose measures/ lands which are not suitable and not in line with best practise. Neither of these options are preferable when compared to the chosen option, which will benefit hen harrier.

Alternative Mitigation Measures

Mitigation by avoidance has been a key aspect of the Proposed Project's evolution through the selection and design process. Avoidance of the most ecologically sensitive areas of the site limits the potential for environmental effects. As noted above, the site layout aims to avoid environmentally sensitive areas. Where loss of habitat occurs within the site, this has been mitigated by proposing enhancement lands as described in Ch. 6: Biodiversity and Ch. 7: Birds. Any forestry felled as part of the Proposed Project will be replaced offsite. The alternative here would be to propose infrastructure within ecologically/ environmentally sensitive areas, which would be considered less environmentally prudent.

The best practice design and mitigation measures set out in this EIAR will contribute to reducing any risks and have been designed to break the pathway between the site and any identified environmental receptors. These mitigation measures are proven effective. The alternative is to either not propose these measures or propose measures which are not best practice and effective and neither of these options are feasible.

Description of the Proposed Project

This section of the EIAR describes the Proposed Project and all its component parts. The planning application for the Proposed Project will be made to An Coimisiún Pleanála. Construction methodologies for the main infrastructural components of the Proposed Project are also included in Ch. 4: Description of the Proposed Project (or its associated appendices). The development description for the current planning application as appears in the public notices is included in Section 1 above.

The overall layout of the Proposed Project is shown on Figure 4-1 of the EIAR. The layout for the Proposed Wind Farm site application under Section 37E of the Planning and Development Act 2000, as amended, is shown in Figure 4-1a. This drawing shows the proposed locations of the wind turbines, electrical substation, borrow pits, temporary construction compounds, internal roads layout, temporary transition compound and the main site entrance. The layout for the Proposed Grid Connection Application under Section 182A of the Planning and Development Act 2000, as amended, is shown in Figure 4-1b. Detailed site layout drawings of the Proposed Project are included in Appendix 4-1 and Appendix 4-2 to this EIAR. The Proposed Grid Connection layout is shown in Figure 4-31b.

The proposed wind turbine layout has been optimised using industry standard wind farm design software to maximize the energy yield from the site, while maintaining sufficient distances between the proposed turbines to ensure turbulence and wake effects do not compromise turbine performance. The Grid Reference coordinates of the proposed turbine locations are listed in Table 1 below.

Table 1 Proposed Wind Turbine Locations and Elevations

Turbine No.	Irish Transverse Mercator Co-ordinates		Top of Foundation Elevation (m OD)
	Easting (m)	Northing (m)	
1	507772	669761	89.5m
2	508411	669739	100.5m
3	507788	669301	115m
4	508308	669151	112m
5	508887	669573	133m
6	509055	669148	122m
7	508309	668624	116.5m
8	508942	668587	113.5m

The proposed wind turbines to be installed on the Proposed Wind Farm site will have a ground-to-blade tip height, hub height and blade length within the following, limited, ranges:

- Tip Height – Maximum height 185 metres, Minimum height 180 metres
- Hub Height – Maximum height 110.5 metres, Minimum height 98.5 metres
- Blade Length: - Maximum length 81.5 metres, Minimum length 74.5 metres.

Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics, with only minor cosmetic differences differentiating one from another. For the purposes of this EIAR, a rated output 57.6 MW has been chosen to calculate the potential generating capacity of the proposed 8-turbine renewable energy development.

The Proposed Wind Farm site makes use of the existing Wind Farm site road network insofar as possible. It is proposed to upgrade 4.5 kilometres of existing roads and tracks, and to construct 5.4 kilometres of new access road on the Proposed Wind Farm site. Areas such as wide junctions and proposed hardstands will also be used as passing bays throughout the construction phase of the proposed Wind Farm.

It is proposed to construct a 110kV substation at the eastern end of the Proposed Wind Farm site and to connect from here to the existing Moneypoint 110kV substation via underground 110kV electrical cabling, measuring approximately 25 km in total, utilising public local road networks and private agricultural lands.

Each turbine will be connected to the on-site electrical substation via an underground 33 kV (kilovolt) electrical cable. Fibre-optic cables will also connect each wind turbine to the wind farm control building in the onsite 110kV electrical substation compound. The electrical and fibre-optic cables running from the turbines to the onsite substation compound will be run in cable ducts approximately 1.3 metres below the ground surface, in the roadways. The route of the cable ducts will follow the access track from each turbine location to the proposed onsite 110kV electrical substation and are visible on the site layout drawings included as Appendix 4-1 to this report.

One permanent meteorological mast is proposed as part of the Proposed Project. The meteorological mast will be equipped with wind monitoring equipment at various heights.

It is proposed to access the Proposed Wind Farm site via an upgrading of the existing site junction (including the installation of security fencing and gates) off the L-6254 local road to the east of the site.

It is proposed to develop 2 No. on-site borrow pits as part of the Proposed Project. It is proposed to obtain a majority of all rock and hardcore material that will be required during the construction of the Proposed Project from the on-site borrow pits. Usable rock may also be won from other infrastructure construction including the substation and the turbine base excavations. Some aggregate material due to a requirement for specific grade, quality or quantity may be sourced from suitable licenced quarries around the Site.

It is proposed to manage any excess overburden generated through construction activities locally within the Proposed Wind Farm site, in identified peat and spoil management areas. The purpose of the Peat and Spoil Management Plan (Appendix 4-3) is to provide a management plan, with particular reference to peat stability for the construction phase of the Proposed Project.

2 no. temporary construction compounds are proposed for the Proposed Wind Farm site to allow for storage and refuelling of plant and machinery within the Site.

It is proposed that the Turbine Delivery Route will run from Foynes Port to the Proposed Wind Farm site entrance off the L-6254. All deliveries of abnormally sized loads will be made using An Garda Síochána escorts and local transient traffic management measures put in place by the haulage company.

The tree felling activities required as part of the Proposed Project will be the subject of a Felling Licence application to the Forest Service, in accordance with the Forestry Act 2014, the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. The policy requires that a copy of the planning permission for the wind farm be submitted with the felling licence applications; therefore, the felling licenses cannot be applied for until such time as planning permission is obtained for the Proposed Project.

Based on the precautionary assumption that hen harrier will avoid all areas within 250 metres of a turbine and having calculated the amount of foraging habitat available on an annual basis (taking into account standard forestry management practices for forested areas), the estimated quantum of habitat from which hen harrier will be displaced is c.62 hectares. It is proposed to mitigate the impact of the Proposed Project on foraging hen harrier through enhancement of the surrounding lands. A detailed

description of the enhancement measures for hen harrier are outlined in the Hen Harrier Enhancement Plan in Appendix 7-8 of the EIAR. A total of 123.7ha of enhancement lands is being proposed for the benefit of hen harrier which will result in a net gain of suitable foraging and breeding habitat of c.60ha being provided by the Proposed Project. It is proposed to enhance habitats such as heath/bog, forestry, scrub and grassland through the permanent removal of non-native commercial forestry plantations planted on underlying peatland habitat, retention and reinstatement of beneficial landscape features (e.g. scrub and hedgerows), through rush management, and through the management of grazing timing and intensity. The presence of breeding and foraging hen harrier adjacent to these lands, as well as the habitats present within the enhancement and adjoining lands were factors which were used to identify these areas as habitats suitable for enhancement.

The protection of the watercourses within and surrounding the site, and downstream catchments that they feed is of utmost importance in considering the most appropriate drainage proposals for the site of the Proposed Project. The Proposed Project's drainage design has therefore been proposed specifically with the intention of having no significant negative effect on the water quality of the site and its associated rivers and lakes, and consequently no significant effect on downstream catchments and ecological ecosystems.

No routes of any natural drainage features will be altered as part of the Proposed Project and turbine locations and associated new roadways were originally selected to avoid natural watercourses, and existing roads are to be used wherever possible. There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows. All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses. The distance will vary between 5-20m depending on local slope, the nature of local soil deposits and also the type of vegetation present. Buffer zones around the existing natural drainage features have been used to inform the layout of the Proposed Project.

At this stage it is not confirmed where the concrete required for the turbine foundations or the finer crushed stone required during the construction phase will be transported from. The closest operational quarry (Darragh Quarry) is located 25.5km southwest of the Site via the public road network, with multiple quarries also located to the east and northeast of the site connected via national, regional and local roads that may be used to provide concrete, rock and stone. While it is proposed that quarries situated closest to the site will be used in order to minimise the traffic effects of the Proposed Project, in order to test a robust traffic scenario, it is assumed that all concrete, rock and stone will be delivered along the Turbine Delivery Route

An important part of a renewable energy development, which Cahermurphy Renewables Designated Activity Company (DAC) (the Applicant) has been at the forefront of developing, is its Community Benefit Package. The concept of directing benefits from wind farms to the local community is promoted by the National Economic and Social Council (NESCC) and Wind Energy Ireland (WEI) among others. While it may be simpler and easier to put a total fund aside for a wider community area, the Applicant is endeavouring to develop new ways to direct increased gain towards the local community with particular focus on those living closest to the Proposed Wind Farm. The Applicant has given careful consideration to the issue of community gain arising from the Proposed Wind Farm, if permitted and constructed. Community gain from significant development proposals, including wind farms, whilst a relatively recent approach, is now a common consideration for developers and, indeed, planning authorities. This approach recognises that, with any significant wind farm proposal, the locality in which the Proposed Wind Farm is situated is making a significant contribution towards helping achieve national renewable energy and climate change targets, and the local community should derive some benefit from accommodating such a development in their locality.

Cahermurphy Renewables Designated Activity Company (DAC) expects that for each megawatt hour (MWh) of electricity produced by the wind farm, the project will contribute €2 into a community fund for the RESS period i.e. first 15 years of operation and €1 per MWh for the remaining lifetime of the wind farm. If this commitment is improved upon in upcoming Government Policy, we will adjust accordingly.

If this project is constructed as currently proposed, we estimate that a total of approximately €8,800,000 will be available in the local area for community funding over the lifetime of the project. The above figure is indicative only and will be dependent on the generation capacity of the wind farm which is influenced by a number of factors including:

1. *Number of wind turbines.*
2. *Capacity and availability of energy production of those turbines.*
3. *Quantity of wind*

It is estimated that the construction phase of the Proposed Project (i.e. Wind Farm as set out in Section 4.2 and Grid Connection as set out in Section 4.3) will take 18 to 24 months from starting on site to the commissioning of the electrical system. In the interest of breeding birds, construction will not commence during the breeding bird season from April to July inclusive. Construction may commence at any stage from August onwards to the end of March, so that construction activities are ongoing by the time the next breeding bird season comes around, and can continue throughout the next breeding season.

As part of the Proposed Project planning application, permission is being sought for a 35-year operation period commencing from the date of full operational commissioning of the proposed turbines. During the operational period, on a day-to-day basis the wind turbines will operate automatically, responding by means of meteorological equipment and control systems to changes in wind speed and direction.

Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the Proposed Project will be decommissioned fully. The onsite 110kV electrical substation and 110kV electrical cabling will remain in place as it will be under the ownership of the ESB and will form a permanent part of the national electricity grid. The decommissioning plan for the Proposed Project is further detailed in Appendix 4-6.

Population and Human Health

One of the principal concerns during the development process is that human beings, as individuals or communities, should experience no significant diminution of their quality of life from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a development. Ultimately, all the effects of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this chapter of the EIAR include population, human health, employment and economic activity, land use, residential amenity (including visual amenity, shadow flicker and noise), community facilities and services, tourism, property values, traffic and health and safety.

The Proposed Wind Farm site is located within a rural setting in southwest county Clare, c. 24.5km southwest of Ennis. The village of Kilmihil is located approximately 4.3km southeast of the Site. Similarly, the village of Creegh is located 4.7km southeast of the nearest proposed turbine.

The site's land use primarily constitutes of a mix of agricultural pasture and commercial forestry. The surrounding landscape similarly consists of predominantly agricultural pasture and private forestry, as well as residential and commercial properties which are present alongside the regional and local roads.

The design, construction, operation and decommissioning of the Proposed Wind Farm will provide employment for technical consultants, contractors and maintenance staff. It is anticipated that 90 employees will be hired throughout the duration of the construction works of the wind farm, which are expected to take 18-24 months. During construction, additional employment will be created in the region through the supply of services and materials to the Proposed Project. The construction phase of the Proposed Project will last between approximately 18 – 24 months. The majority of construction workers and materials will be sourced locally where available, thereby helping to sustain employment in the construction trade. This will have a short-term significant positive effect.

The injection of money in the form of salaries and wages to those employed during the construction phase of the project has the potential to result in an increase in household spending and demand for goods and services in the local area. This will result in local retailers and businesses experiencing a short-term positive effect on their cash flow. This will have a short-term slight positive indirect effect.

There is currently no published credible scientific evidence to positively link wind turbines with adverse health effects. The main publications supporting the view that there is no evidence of any direct link between wind turbines and health are summarised in Ch. 5: Population and Human Health. Similarly, there is insufficient evidence from the scientific literature discussed in Ch. 5: Population and Human Health to credibly determine that there is the potential for a significant effect on property values in Ireland, or abroad, as a result of the Proposed Project.

Shadow flicker is an effect that occurs when rotating wind turbine blades cast shadows over a window in a nearby property. Shadow flicker is an indoor phenomenon, which may be experienced by an occupant sitting in an enclosed room when sunlight reaching the window is momentarily interrupted by a shadow of a wind turbine's blade. Shadow flicker lasts only for a short period of time and occurs only during certain specific combined circumstances. The Guidelines (DoEHLG, 2006) recommend that shadow flicker at neighbouring dwellings within 500 metres of a proposed turbine location should not exceed a total of 30 hours per year or 30 minutes per day. It is further noted that at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low, and therefore the Shadow Flicker Study Area is set at 1.63km (10 x rotor diameter 1.63km). There are 108 no. sensitive receptors located within 1.63km of the proposed turbine locations

WindPRO computer software was used to model the predicted daily and annual shadow flicker levels in significant detail, identifying the predicted daily start and end times, maximum daily duration and the individual turbines predicted to give rise to shadow flicker. The maximum shadow flicker model

assumes that daylight hours consist of 100% sunshine. This is a conservative assumption which represents theoretical precautionary conditions. The predicted shadow flicker results indicate:

- > 43 sensitive receptors are theoretically predicted to experience zero shadow flicker;
- > 65 sensitive receptors are theoretically predicted to experience some shadow flicker;
 - Of the 65 sensitive receptors, 42 sensitive receptors are theoretically predicted to experience shadow flicker that exceeds the Guideline thresholds for daily and/or annual shadow flicker.
- > The annual threshold of over 30 hours for shadow flicker (Guidelines) is predicted to be exceeded at 5 sensitive receptors once the regional sunshine average factor of 30.56% has been considered.

It is also noted that the Proposed Project can be brought in line with the requirements of the Draft Guidelines (DoHPLG, 2019) should they be adopted while this application is in the planning system, through a stricter implementation of mitigation measures outlined in Ch. 5: Population and Human Health.

For the assessment of cumulative effects, any other existing, permitted or proposed developments (wind energy or otherwise) have been considered. The potential cumulative effects of the Proposed Wind Farm, Proposed Grid Connection (together forming the Proposed Project) and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Project will have on the surrounding environment when considered cumulatively.

The Proposed Project will be constructed, operated and decommissioned in accordance with the design, best practice and mitigation that is described within this EIAR, ensuring that significant effects on population and human health employment and economic activity, land-use, residential amenity, community facilities and services, tourism, property values and health and safety are not anticipated at international, national or county scale.

Biodiversity

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the Proposed Project may have on Biodiversity, Flora and Fauna, and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

A comprehensive desk study and suite of field surveys were carried out to inform the assessment. Multidisciplinary walkover surveys were undertaken in 2019 and 2020, with further surveys undertaken in 2024, 2025, and 2026 to ground truth previous findings and identify changes to the environmental baseline. The majority of habitat surveys covered the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith et al., 2011). Dedicated species/habitat surveys including bats and other protected mammals, and detailed habitat/botanical assessment surveys were carried out, during which any incidental records of other species were also recorded. In addition, baseline aquatic habitat, fisheries and macroinvertebrate surveys have been undertaken as part of the detailed baseline assessment. The multi-disciplinary walkover surveys comprehensively covered the lands within the Site. These surveys were carried out in accordance with TII Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (TII, 2008).

The habitats within the Site were the subject of a detailed survey and assessment and habitat mapping. This habitat mapping and assessment was undertaken following the ‘A Guide to Habitats in Ireland’ (Fossitt, 2000). Grassland habitats have also been categorised to plant communities from the National Survey of Upland Habitats (Perrin et al. 2014) and the Irish Vegetation Classification.

During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the ‘First Schedule’ of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. Please see Appendix 6-4 for further details

The Proposed Wind Farm site is dominated by active forestry of varying age classes, classified as Conifer plantation (WD4) and where felling had recently occurred, Recently felled woodland (WS5). Large areas of unmanaged grassland were also recorded in the centre of the Site, classified as Wet grassland (GS4), with existing forestry roads of Spoil and bare ground (ED2). The western section the Site is dominated by degraded peatlands, which have been subject to historical turbarry, drainage and grazing practices. Other habitats recorded included small sections of Scrub (WS1), Mixed broadleaved woodland (WD1), and Recolonising bare ground (ED3).

Within the Proposed Wind Farm site, the following Annex I habitats of the EU Habitats Directive have were recorded:

- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- Blanket bogs [7130]
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]

The Proposed Wind Farm has slight overlap with these habitats, which have been assessed as County Importance. The proposed Hen Harrier Enhancement Plan in Appendix 7-8 provides for the permanent felling of 56.3 ha of forestry and the planned restoration of the underlying peatland, as well as the management of 67 ha of existing farmland into species rich grassland, which will ensure an overall significant increase of these important habitats in the local environment over time.

Small first order watercourses, the Knocknahila_More (28K15) and the Lissyneillan (28L10), are located within the Proposed Wind Farm which were classified as Upland eroding streams (FW1). These drain the Proposed Wind Farm site to the west into the KiltumperStream_SC_010 and Annageeragh_SC_010 sub-catchments, respectively. A network of Drainage ditches (FW4) were also recorded along existing roads and within forestry blocks.

The majority of the Proposed Grid Connection route will predominantly follow roads classified as Buildings and artificial surfaces (BL3), with small sections within roads of Spoil and bare ground (ED2). The Proposed Grid Connection route will cross 24 no. mapped watercourses, which were small Lowland depositing streams (FW2) or Upland eroding rivers (FW1). No Annex I habitats were recorded along the route.

The current land use of the Hen Harrier Enhancement Lands is commercial forestry and agriculture, dominated by Conifer plantation (WD4) and mosaics of Improved agricultural grassland (GA1), and Wet grassland (GS4).

No resting or breeding sites for any protected mammals were identified in close proximity to the Proposed Project, and no significant effects on any protected fauna are anticipated. Impact on protected fauna, with exception of bats, is limited indirect effects on supporting habitat, as a result of deterioration of water quality and disturbance, which have been robustly mitigated.

Bat species composition and abundance recorded during detailed bat surveys undertaken at the Proposed Project were found to be typical of the geographic location and nature of the area and is utilised by a regularly occurring bat population of Local Importance. Following the implementation of mitigation, no potential for residual significant effects with regard to loss of commuting and foraging habitat, loss or damage to roosts, displacement or other construction phase impacts have been identified. In relation to potential collision risk and injury with operational turbines, an adaptive monitoring and mitigation strategy has been devised for the Proposed Project in line with NatureScot Guidance (2021), which will ensure that there is no potential for significant residual effects on local bat populations during the operational phase of the Proposed Project.

In relation to designated sites, the following nationally designated sites have been identified as being within the Zone of Influence (ZoI), on a precautionary basis:

- Cragnashingaun Bogs NHA [002400]
- St. Senan's Lough pNHA [001025]
- Carrowmore Point to Spanish Point and Islands [001021]
- White Strand / Carrowmore Marsh [001007]
- Poulmasherry Bay pNHA [000065]

No potential for residual adverse impacts on these pNHAs has been identified following implementation of mitigation measures in relation to potential effects on rivers/streams and sensitive aquatic faunal species and therefore no significant effects on the pNHA's are anticipated.

An Appropriate Assessment Screening Report and Natura Impact Statement (NIS) accompany this application. This report has been prepared to provide the competent authorities with the information necessary to complete an Appropriate Assessment screening and an Appropriate Assessment for the Proposed Project in compliance with Article 6(3) of the Habitats Directive. The Appropriate Assessment Screening Report identified the potential for significant effect on the following European Sites:

- Lower River Shannon SAC [002165],
- Carrowmore Dunes SAC [002250],
- Carrowmore Point to Spanish Point and Islands SAC [001021],
- River Shannon and River Fergus Estuaries SPA [004077], and
- Mid-Clare Coast SPA [004182].

The NIS concludes that the Proposed Project, individually or in-combination with other plans or projects, will not adversely affect the integrity of any European Site.



It is therefore judged that, provided that the Proposed Project is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant residual impacts on biodiversity, flora and fauna will not occur. The biodiversity enhancement measures outlined for the Proposed Project will result in an improvement of the existing ecological conditions of the Site.

Birds

This chapter assesses the likely significant effects that the Proposed Project may have on bird species. Firstly, a brief description of the Proposed Project is provided. This is followed by a comprehensive description of the methodologies that were followed in order to obtain the information necessary to complete a thorough assessment of the potential effects of the Proposed Project on bird species. The survey data is presented in full in the Environmental Impact Assessment Report (EIAR) appendices with a summary of the information presented within this chapter. An analysis of the results is then provided, which discusses the ecological significance of the birds recorded within the study area. The potential effects of the Proposed Project are then described in terms of the construction, operation and decommissioning phases of the development. An accurate prediction of the effects is derived following a thorough understanding of the nature of the Proposed Project along with a comprehensive knowledge of bird activity within the study area. The identification of Key Ornithological Receptors (KORs) and the assessment of effects follow a precautionary approach.

The potential for effects on designated sites is fully described in the Natura Impact Statement (NIS) that accompanies this application. The NIS concluded that where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction, operation and decommissioning of the proposed development will not adversely affect the integrity of any European sites.

Based on the detailed assessment, it is considered that the potential effects of the Proposed Project upon birds will not be significant. Effects associated with habitat loss, disturbance displacement, collision risk and cumulative effects have been assessed to be no greater than long-term moderate negative effect (EPA, 2022) and low effect significance (Percival, 2003). With the exception of hen harrier, for which long-term significant negative effect (EPA, 2022) and high effect significance (Percival, 2003) were predicted. However, as detailed in Section 7.7, of Ch. 7: Birds of this EIAR, a robust offsetting and enhancement plan is proposed to reduce the magnitude of the impact from long-term significant negative effect (EPA, 2022) and high effect significance (Percival, 2003) to long-term slight negative effect (EPA, 2022) and low effect significance (Percival, 2003).

An assessment of potential cumulative effects was also undertaken taking into consideration other extant planning applications and existing and proposed wind farms within 25km. No residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality for any of the identified KORs. No significant cumulative impacts are predicted.

The implementation of the prescribed mitigation measures will render any potential effects on avian receptors to low significance. In conclusion, no significant effects as a result of the Proposed Project are foreseen on key ornithological receptors of the study area.

Land, Soils and Geology

The bedrock across the Proposed Project site is mapped as the siltstone, shale and sandstone variations. Subsoils are predominantly mapped as peat and glacial tills.

Site investigations and geotechnical assessments at the Proposed Wind Farm site were extensive and consisted of 583 no. peat depth probes, 36 no. trial pits and 2 no. bedrock boreholes. The geological setting of the Proposed Wind Farm has been thoroughly assessed, and the geological setting is fully understood.

Peat depths recorded across the Proposed Wind Farm site (including Hen Harrier Enhancement Lands ranged from 0.1 to 6.1m with an average depth of 0.7m, which is considered thin for blanket bog (there is no proposed development in the area where 6.1m of peat was recorded which was within the Hen Harrier Enhancement Lands).

Obstruction (refusal) on bedrock was recorded in 17 of the 36 no. trial pits (47%). The bedrock was typically described as weathered and presenting as angular gravel and cobbles of shale/siltstone. Obstruction on boulders was recorded at another 7 no. locations which likely indicates the top of bedrock is close underneath.

Bedrock was encountered at 4 no. turbine locations (T2, T3, T5 and T6) with depths ranging from 0.8m to 3m below ground level. Where bedrock was not encountered, refusal was typically on dense cobbles and boulders suggesting top bedrock is close.

Bedrock drilling encountered competent, strong siltstone or sandstone at shallow depths ranging from 2.6 to 3.9 metres below ground level. The investigations indicate that deep excavations will not be required due to the shallow depth of competent bedrock strata.

Excavation of peat, subsoil and bedrock will be required for site levelling and for the installation of wind farm infrastructure. This will result in a permanent removal of peat, subsoil and possibly bedrock at most excavation locations. Excavated peat/spoil will be utilized to re-instate the borrow pit locations, placed within dedicated peat/spoil storage areas and will also be used for reinstatement and landscaping works around the Site.

The investigation drilling demonstrates that the bedrock proposed for extraction at the proposed borrow pits is strong, competent and fit for the purpose of rock extraction and follow-on permanent storage of peat.

The handling and management of peat and spoil will be undertaken in accordance with the Peat & Spoil Management Plan as set out in Ch. 4: Description of the Proposed Project. Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods. Measures to prevent peat and subsoil erosion during excavation, reinstatement, and permanent placement in the borrow pits will be undertaken to prevent water quality impacts.

A Geotechnical and Peat Stability assessment undertaken for the Proposed Project shows that there is a low risk of peat instability/failure at the Site largely due to the shallow thickness and drained nature of the peat.

No significant effects on the land, soil, and geology of the Site will occur during construction, operation, or during decommissioning phases. No potential for affects to designated sites or geological heritage sites have been identified.

The Proposed Project also includes Hen Harrier Enhancement areas which are located outside the Site; however no excavations will occur in these areas and therefore no effects on land, soils and geology will occur. The enhancement measures will result in a net gain in biodiversity.



The assessment also concludes that there will be no cumulative effects on land soil and geology environment as a result of the Proposed Project.

Water

On a local scale the northern section of the Proposed Wind Farm site (2 no. of 8 turbines) is located within the Annageeragh River catchment while the southern section of the Site (6 no. of 8 turbines) is located within the Creegh River catchment. The Annageeragh River originates from Doo Lough which is located approximately 2.6km to the northeast of the Proposed Wind Farm. There is no Proposed Wind Farm infrastructure within the Doo Lough catchment apart from some of the proposed Hen Harrier Enhancement lands.

On leaving the proposed 110kV substation at the Proposed Wind Farm, the Proposed Grid Connection cable passes through the catchments of the Creegh River, Doonbeg River, Wood River and Crompaun River. Temporary work areas associated with the turbine delivery route are also located within the Creegh River catchment and Doonbeg River catchment.

The bedrock underlying the Proposed Project site is classified as poorly productive in terms of well water yields. The bedrock has little or no open cracks which means groundwater movement within the aquifer is localised. Groundwater at the Site can be classed as sensitive in terms of potential impacts from the proposed development. However, the majority of the bedrock is covered in peat which acts as a protective cover to groundwater quality. The low potential for pollutant travel within the bedrock groundwater makes surface water bodies such as streams more vulnerable to pollution than groundwater at this site. There will be no impact on private wells as a result of the Proposed Project.

The designated sites that are hydraulically connected (surface water flow paths only) to the Proposed Project include the Mid-Clare Coast, Carrowmore Point to Spanish Point and Islands SAC, White Strand/Carrowmore Marsh pNHA and Lower River Shannon SAC. These are all coastal/estuarine protected sites and they are not freshwater dependant.

From a hydrological perspective there will be low risk of impact on these marine/estuarine designated sites as they are significantly less sensitive (even without mitigation) compared to a freshwater habitat with regard to construction effects.

One of the Hen Harrier Enhancement areas is located within Cragnashingaun Bogs NHA, but due to the limited nature of the proposed works (i.e. just tree felling), no hydrological effects on the bog will occur.

Due to the nature of wind farm and grid connection developments, being near surface construction activities, effects on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the site would be from hydrocarbon spillage and leakages at the borrow pits. These are common potential impacts to all construction sites (such as road works and industrial sites). These potential contamination sources are to be carefully managed at the site during the construction and operational phases of the development and measures are proposed within the EIAR to deal with these potential minor impacts.

Two methods will be employed to control drainage water within the site during construction, thereby protecting downstream surface water quality and aquatic habitats. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage waters from works areas within the site that might carry silt, to allow settlement and cleaning prior to its release. During the construction phase all runoff will be treated to a high quality prior to being released. A self-imposed 50m stream buffer was used during the layout of the proposed wind farm development site, thereby avoiding sensitive hydrological features.

Other preventative measures also include fuel and concrete management and a waste management plan which will be incorporated into the overall Construction and Environmental Management Plan.

Doo Lough, which exists downstream of the proposed Hen Harrier Enhancement areas is used as public water supply for the west Clare area. None of Proposed Wind Farm or Proposed Grid Connection itself is located in the surface water catchment to Doo Lough. However, due to the largely non-invasive nature of the proposed Hen Harrier Enhancement works there is potential for significant effects on the water environment.

All proposed Hen Harrier habitat management and enhancement works will be in accordance with the best practice Forest Service regulation, policies and strategic guidance documents as well as Coillte, DAFM and NatureScot guidance documents to ensure minimal potential negative effects on soil and water environment.

There will be no risk of increased flooding down-stream as a result of the Proposed Wind Farm due to the proposed drainage measures and also since the Proposed Wind Farm infrastructure does not encroach fluvial flood zones. A site specific Flood Risk Assessment was carried out for the Proposed Project.

During the operational phase drainage control measures will ensure that surface runoff from the developed areas of the site will continue to be of good quality and will therefore not impact on the quality of down-stream rivers and streams. The present drainage regime of the site will not be altered in any way. Impacts on water quality during the operational phase of the wind farm will be negligible to none.

In terms of potential cumulative hydrological impacts with other wind farm developments, the biggest risk is during the construction phase of the development as this is the phase when earthworks and excavations will be undertaken at the sites. However, with regard the catchments relevant to the Proposed Wind Farm (i.e. Annageeragh and Creegh), all wind farm developments are existing and operational. Therefore, there is no risk of a construction overlap with the operational wind farms and the Proposed Project. A similar scenario occurs in the catchments occupied only by the Proposed Grid Connection.

Therefore, it can be concluded with high confidence that the Proposed Project is not likely to contribute to cumulative effects with regard other wind farm developments in the Water Study Area.

A Water Framework Directive (WFD) Compliance Assessment has been completed for all waterbodies (surface water and groundwater bodies) with the potential to be impacted by the Proposed Project. With the implementation of the mitigation measures detailed in this EIAR there will be no change in the WFD status of the underlying groundwater body or downstream surface waterbodies as a result of the Proposed Project. The Proposed Project has been found to be fully compliant with the WFD and will not prevent any waterbody from achieving its WFD objectives.

Air Quality

Ch. 10: Air Quality identifies, describes and assesses the potential likely significant direct and indirect effects on air quality arising from the construction, operational and decommissioning phases of the Proposed Project.

The air quality zone for the Site was selected, followed by a review of EPA collated baseline air quality data namely Sulphur Dioxide (SO₂), Particulate Matter (PM₁₀), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO) and Ozone (O₃) for the selected air quality zone to determine the representative levels of such emissions for the Proposed Project.

The EPA has designated four Air Quality Zones for Ireland:

- > Zone A: Dublin City and Environs
- > Zone B: Cork City and Environs
- > Zone C: 16 urban areas within population greater than 15,000
- > Zone D: Remainder of the country

These zones were defined to meet the criteria for air quality monitoring, assessment and management as described in the CAFE Directive. The Proposed Project lies within Zone D, which represents rural areas located away from large population centres.

The air quality in the vicinity of the Site is typical of that of the rural areas of Ireland (i.e. Zone D). Prevailing South Westerly winds carry clean, unpolluted air from the Atlantic Ocean onto the Irish mainland. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, 'Air Quality in Ireland 2024' was published by the EPA in 2025. The EPA reports provide SO₂, PM₁₀, NO₂ and O₃ concentrations for areas in Zone D. There is no data for Zone D for CO concentrations due to operational issues. As such data from the 2024 EPA Report 'Air Quality in Ireland 2023' has been used to provide a CO baseline. These can be seen in Section 10.3 of Ch. 10: Air Quality.

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) (hereafter referred to as 'IAQM 2024 Guidance') was considered in the dust impact assessment. The guidance document outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. This methodology has been used to predict the likely risk of dust as a result of the construction phase works operational phase activities and decommissioning phase.

The production of energy from wind turbines has no direct air emissions as is expected from fossil fuel-based power stations. Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment. Some temporary or short-term indirect emissions associated with the construction of the Proposed Project will include vehicular and dust emissions.

A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). The CEMP includes dust suppression measures. In addition, turbines and construction vehicles will be transported to the Site on specified haul routes only, which will be regularly inspected for cleanliness and cleaned as necessary.

During the construction phase of the Proposed Project and the construction of other permitted or proposed developments and plans in the area (please see Section 2.9 in Ch. 2: Background to the Proposed Project and Appendix 2-3 of this EIAR), there will be exhaust emissions from construction plant and machinery and potential dust emissions associated with the construction activities. However, once the mitigation proposals, as outlined in the Ch. 10: Air Quality assessment are implemented

during the construction phase of the Proposed Project, there will be no cumulative negative effect on air quality.

Exhaust and dust emissions during the operational phase of the Proposed Project will be minimal, relating to the use of maintenance machinery and vehicles onsite, and therefore there will be no measurable negative cumulative effect with other developments on air quality. The nature of the Proposed Project is such that, once operational, it will have a long-term, moderate, positive impact on the air quality. There will be no measurable negative cumulative effect with other developments on air quality, and it is not significant

There will be no net carbon dioxide (CO₂) emissions from operation of the Proposed Project. By providing an alternative to electricity derived from coal, oil or gas-fired power stations, the Proposed Project will result in emission savings of carbon dioxide (CO₂), oxides of nitrogen (NO_x), and sulphur dioxide (SO₂). The production of renewable energy from the Proposed Project will have a Long-Term Significant Positive effect on air quality due to the offsetting of approximately 40,600 tonnes of Carbon Dioxide (CO₂) per annum, or 1,421,000 tonnes of carbon dioxide over the proposed 35 year lifecycle of the Proposed Project.

Climate

Ch. 11: Climate identifies, describes, and assesses the potential likely significant direct and indirect effects on climate arising from the construction, operation and decommissioning of the Proposed Project. The production of energy from wind turbines has no direct emissions as is expected from fossil fuel-based power stations. Harnessing more energy by means of wind farms will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment.

Climate change is one of the most challenging global issues facing us today and is primarily the result of increased levels of greenhouse gases in the atmosphere. These greenhouse gases come primarily from the combustion of fossil fuels in energy use. Changing climate patterns are linked to increased frequency of extreme weather conditions such as storms, floods and droughts. In addition, warmer weather trends can place pressure on animals and plants that cannot adapt to a rapidly changing environment. Moving away from our reliance on coal, oil and other fossil fuel-driven power plants is essential to reduce emissions of greenhouse gases and combat climate change.

In May 2025, the Environment Protection Agency (EPA) released ‘*Ireland’s Greenhouse Gas Emissions Projections 2024-2055*’. The EPA has produced two scenarios in preparing these greenhouse gas emissions projections: a “With Existing Measures” (WEM) scenario and a “With Additional Measures” (WAM) scenario. These scenarios forecast Ireland’s greenhouse gas emissions in different ways. The WEM scenario assumes no additional policies and measures, beyond those already in place by the end of 2023. This is the cut off point for which the latest national greenhouse gas emission inventory data is available, known as the ‘base year’ for projections. The WAM scenario has a higher level of ambition and includes government policies and measures to reduce emissions such as those in Ireland’s Climate Action Plan (CAP) 2024 that are not yet implemented. As implementation of policies and measures occurs, they will be migrated into the WEM Scenario. Please note, CAP25 is not specifically referenced in this report as it had yet to be published during the preparation phase of the 2024-2055 projections. A review was undertaken and there are no significant additional measures in CAP25 therefore no major omissions in these projections.

The EPA has produced two scenarios in preparing these greenhouse gas emissions projections: a “With Existing Measures” (WEM) scenario and a “With Additional Measures” (WAM) scenario. These scenarios forecast Ireland’s greenhouse gas emissions in different ways. The WEM scenario assumes no additional policies and measures, beyond those already in place by the end of 2023. This is the cut off point for which the latest national greenhouse gas emission inventory data is available, known as the ‘base year’ for projections. The WAM scenario has a higher level of ambition and includes government policies and measures to reduce emissions such as those in Ireland’s Climate Action Plan 2024 that are not yet implemented. As implementation of policies and measures occurs, they will be migrated into the WEM Scenario. Please note, CAP25 is not specifically referenced in this report as it had yet to be published during the preparation phase of the 2024-2055 projections. A review was undertaken and there are no significant additional measures in CAP25 therefore no major omissions in these projections.

A methodology was published in June 2008 by scientists at the University of Aberdeen and the Macauley Institute with support from the Rural and Environment Research and Analysis Directorate of the Scottish Government, Science Policy and Co-ordination Division. The document, ‘*Calculating Carbon Savings from Wind Farms on Scottish Peat Lands*’, was developed to calculate the impact of wind farm developments on the soil carbon stocks held in peat. This methodology was refined and updated in 2011 based on feedback from users of the initial methodology and further research in the area. The web-based version of the carbon calculator, which supersedes the excel based versions of the tool, was released in 2016. Please note, the web-based version of the carbon calculator is currently not available, the Macauley Institute has supplied a worksheet of the calculator (Version 2.14.0) which has been used to complete the following carbon loss assessment. The tool provides a transparent and easy to follow method for estimating the impacts of wind farms on the carbon dynamics of peatlands.

Previously guidance produced by Scottish Natural Heritage in 2003 had been widely employed to determine carbon payback in the absence of any more detailed methods.

The full life cycle and embodied carbon of the Proposed Project turbines have been taken account of in the Macauley Institute model. The emissions associated with the embodied carbon, along with the construction phase transport movements, of the remaining features of the site are considered using the Transport Infrastructure Ireland (TII) Carbon Tool (TII 2022). The TII Carbon Tool is customised for road and light rail projects in Ireland, using emission factors from recognised sources during the construction, maintenance and operation of TII projects in Ireland.

The carbon balance of wind farm developments in peatland habitats has attracted significant attention in recent years. When developments such as wind farms are proposed for peatland areas, there will be direct impacts and loss of peat in the area of the development footprint. There may also be indirect impacts where it is necessary to install drainage in certain areas to facilitate construction, or from the reinstatement of extracted peat. The works can either directly or indirectly allow the peat to dry out, locally, which permits the full decomposition of the stored organic material with the associated release of the stored carbon as CO₂. It is essential therefore that any wind farm development in a peatland area saves more CO₂ than is released. The Proposed Wind Farm site is situated on pastoral agricultural land and peatland with small sections being covered by coniferous forestry. For this reason, the carbon balance between the use of renewable energy and the loss of carbon stored in the peat is assessed in this EIAR.

The Proposed Project will result in the loss of 134,942 tonnes of carbon dioxide equivalent; the details of these carbon losses are provided in Table 11-6 of Ch. 11: Climate. Please note, that in completion of these calculations a number of assumptions have been made under theoretical precautionary conditions; all assumptions are detailed in Appendix 11-2 Carbon Calculations. Therefore, it can be determined that the actual carbon losses associated with the Proposed Project will likely be less than the values provided in Table 11-6 of Ch. 11: Climate.

The Proposed Project will have an export capacity of approximately 57.6MW and therefore will help contribute towards the achievement of national and international emission reduction targets, provide much needed grid infrastructure, and the capacity to offset 37,110tCO_{2e} per annum, or 1,298,850 tCO_{2e} over the proposed 35 year operational life. Carbon losses to the atmosphere associated with the construction phase and from operations will be offset by the Proposed Wind Farm site in approximately **43.6 months** (3.6 years) of operation. Please see Section 11.5.3.2 for details on carbon savings/offset calculations.

Following construction of the Proposed Project, there will be a permanent, imperceptible, negative Effect on Climate as a result of greenhouse gas emissions from construction plant and vehicles, embodied carbon associated with the turbines and construction materials. Operation of the Proposed Project will have a long-term significant positive effect on climate as a result of reduced greenhouse gas emissions.

Noise and Vibration

AWN Consulting Limited has been commissioned to conduct an assessment into the likely environmental noise and vibration impacts of the Cahermurphy West Wind Farm and Grid Connection (the 'Proposed Project').

The background noise environment was established through noise monitoring surveys undertaken at five noise sensitive locations (NSLs) surrounding the Proposed Wind Farm Site. Typical background noise levels for day and night periods at various wind speeds have been measured in accordance with best practice guidance contained in the Institute of Acoustics document 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (IOA GPG). The results of the background noise survey have been used to derive appropriate noise criteria for the development in line with the guidance contained in 'Wind Energy Development Guidelines for Planning Authorities 2006'.

When considering a development of this nature, the potential noise and vibration effects on the surroundings must be considered for three stages: the short-term construction and decommissioning phases and the long-term operational phase.

The assessment of construction and decommissioning noise and vibration has been conducted in accordance with best practice guidance contained in BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* and BS 5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Vibration*. Subject to good working practice and mitigation measures as recommended in the EIAR Chapter, it is not expected that there will be any significant noise and vibration impacts associated with the construction phase and the likely noise from construction activity at the nearest NSLs is expected to be within recommended threshold values. The associated construction noise and vibration impacts are not expected to cause any significant effects.

Based on detailed information on the site layout, the likely turbine noise emissions and turbine hub height for the proposed development, a series of turbine noise prediction models were prepared. The predicted turbine noise levels have been calculated in accordance with the IOA GPG recommendations. The assessment has confirmed that once the mitigation measures described in Section 12.6.2 of the EIAR are implemented, the residual turbine noise levels associated with the Proposed Project will be within the best practice noise criteria curves recommended in Irish guidance document 'Wind Energy Development Guidelines for Planning Authorities 2006'. Therefore, it is not considered that a significant effect is associated with the Proposed Project.

No significant vibration effects are associated with the operation of the Proposed Project.

In summary, the noise and vibration impact of the proposed development is not significant considering best practice guidance for wind turbine developments.

Archaeological, Architectural & Cultural Heritage

The Proposed Wind Farm is located within the townlands of Cahermurphy, Carrowmagry South, Castlepark, Caheraghacullin, Doolough, Drummin, Kilmihil, Knockalough, Knocknahila More South, all in County Clare.

The Proposed Grid Connection passes through Cahermurphy, Cloonwhite South, Sheeaun, Leitrim, Cloonreddan, Kilmacduane East, Clooncullin, Lissanair, Teernagloghane, Brisla East, Brisla West, Gowerhass, Tullagower, Garraunnatooha, Knockerry West, Carrowfree, Derrylough, Dunneill, Doonnagurroge, Pouladarree, Carrowfotia South, Carrowdotia North, all in County Clare.

The proposed Turbine Delivery Route exits the N68 in Knockalough, where it joins the R484 before passing through Lacken, Kilmihil (including Kilmihil village), Cloonakilla, Castlepark, and Cahermurphy. The Turbine Delivery Route will require minimal accommodation works to the existing road network. Interventions (truck body over sail, wheelbase accommodation, blade over sail) are proposed in Knockalough, Kilmihil, Castlepark and Cahermurphy.

The Proposed Wind Farm site is primarily comprised of agricultural land, forestry and bogland, set in a rural landscape. There are no recorded monuments within the Proposed Wind Farm, though 112 groups of monuments are recorded within the 5km study area. These include one which is additionally protected by a Preservation Order (AH70). This comprises a cashel recorded within Cahermurphy townland, c. 840m south of Turbine 8.

There are no National Monuments within 10km of the Proposed Wind farm. Four recorded monuments are situated within 50m of the grid connection route, none of which are National Monuments or subject to Preservation Orders.

There are no protected structures located within the Proposed Wind Farm. Similarly, no structures listed in the NIAH are located within the Proposed Wind Farm. There are a total of four structures recorded within the 5km study area of the Proposed Wind Farm. All four are also listed in the NIAH building survey. There is also one recorded architectural site situated within the 100m corridor study area for the Proposed Grid Connection Route. It is both a protected structure and a NIAH structure.

There are three Designed Landscapes (DL) within 5km of the Proposed Wind Farm. A further three Designed Landscapes are located within the study area of the Proposed Grid Connection.

Cultural heritage (CH) assets can incorporate both archaeological and built heritage remains, which do not have statutory protection, or which have not been previously recorded as heritage assets in any known datasets. Cultural heritage can also incorporate more ephemeral aspects of the heritage environment, including folklore. A number of sources were reviewed in order to identify cultural heritage assets within the 2km study area. A total of 73 cultural heritage sites have been identified within the 2km study area of the Proposed Project; the 50m study area of the Proposed Grid Connection and within 50m of interventions required for the Turbine Delivery Route. The construction of the Proposed Development will not result in any direct, negative effects on the recorded archaeological, architectural or cultural heritage resource as none of these sites are located within the footprint of the development that requires excavations and ground works.

The construction of the Proposed Project will not result in any direct, negative effects on the recorded archaeological, architectural or cultural heritage resource as none of these sites are located within the footprint of the development that requires excavations and ground works.

It is possible that the construction of the Proposed Wind Farm, Grid Connection Route and Turbine Delivery Route, in greenfield and bogland areas, will result in direct, negative (permanent) effects on previously unrecorded archaeological remains that may survive within these areas with no surface

expression. Construction effects comprise topsoil stripping and excavations associated with the installation of turbines, crane pads, access roads, temporary construction compound, borrow pits, sub-station and launch/reception compounds. Effects, dependent on the sensitivity of any remains identified, have the potential to be moderate to very significant. Following the implementation of mitigation measures including in Ch. 13: Cultural Heritage the effect on previously unrecorded archaeological remains would be slight, which is not significant in EIA terms.

The construction of the development may result in direct, negative (permanent) effects on bridges CH59 and CH60, as the proposed Grid Connect Route will be laid through the desk of the structure. Effects prior to the application of mitigation, have the potential to be moderate.

The construction of the development may result in direct, negative (permanent) effect on the site of an early road CH39, as proposed accommodation works associated with the Turbine Delivery Route will cross the path of this feature. Effects prior to the application of mitigation, have the potential to be moderate.

The construction of the development will result in direct, negative (permanent) effects on sections of townland boundaries that will be removed due to the construction of proposed access roads. Within the Proposed Wind Farm, five short sections of townland boundary will be crossed between Carrownaghy South, Knocknahilla More and Cahermurphy. Overall, the significance of effect is considered slight in each case. The proposed Grid Connection Route will cross 19 townland boundaries but given the cable route is located predominantly within the existing road, no impacts are anticipated at these locations.

All elements of the Proposed Project located within existing greenfield will be subject to archaeological monitoring of topsoil stripping. This work will be carried out under licence to the National Monuments Service of the DHLGH. If archaeological remains are identified during the course of these works further mitigation will be implemented as required and will include preservation by record or in-situ. Any further mitigation will require agreement from the DHLGH.

All interventions that are required along townland boundaries, as part of the construction of the Proposed Wind Farm, will be subject to archaeological monitoring, and will include a full record of the sections of townland boundaries that are removed. This work will be carried out under licence to the National Monuments Service of the DHLGH.

The excavation of the Proposed Grid Connection, where it runs through bridges CH59 and CH60 will be subject to archaeological monitoring. This work will be carried out under licence to the National Monuments Service of the DHLGH and include a full record of the fabric of the bridge and any earlier road surfaces contained within same.

All topsoil stripping, where it is required for the construction of the temporary access road at CH39, will be subject to archaeological monitoring. This work will be carried out under licence to the National Monuments Service of the DHLGH and should any remains of the earlier road be identified during the course of works, these will be preserved by record.

Following the completion of all construction mitigation measures, there will be no significant residual effects on the archaeological, architectural and cultural heritage resource. This is due to the fact that any archaeological remains located within the proposed development area will be identified during archaeological monitoring. This will lead to either their preservation in-situ or by record. As all archaeological remains will be identified and preserved, there will be no significant residual effects.

With regards to sites of national significance, no significant negative operational impacts have been identified. One indirect, negative impact has been identified of moderate significance of effect, which relates to the site of a ringfort - cashel (AH70; CL048-005; Preservation Order 4/1957), which is situated c. 840m south of Turbine 8.

With regards to recorded archaeological heritage sites, no significant negative operational impacts have been identified. One indirect, negative impact has been identified of moderate significance of effect, which relates the site of a ringfort and children's burial ground (AH45), which is situated c. 1.12km north of Turbine 1. The remaining effects vary from imperceptible to slight in significance.

No significant negative operational effects have been identified upon the recorded built heritage resource, DL sites or CH sites within the relevant study areas of the Proposed Wind Farm.

It is not possible to mitigate indirect effects on the archaeological, architectural and cultural heritage resource, due to the nature and scale of the proposed turbines within the landscape. It is noted that effects are not permanent and would be removed following the decommissioning and removal of the turbines.

There will be residual effects on the archaeological, architectural and cultural heritage resource, due to indirect effects on the setting of a number of recorded sites and structures. Whilst these are long-term effects, none are defined as significant and they are not permanent.

The decommissioning of the Proposed Project will not have any negative effects on the archaeological, architectural or cultural heritage resource as no new ground disturbances will be introduced that may affect buried archaeological remains. No mitigation is required for the decommissioning phase, as no effects are predicted.

A review of the proposed and permitted, non-wind energy developments within 5km of the Proposed Project has been carried out in order to identify any potential construction cumulative effects. The study area reflects the 5km study area assessed for the Proposed Wind Farm and the 50m study area for the Grid Connection Route and interventions required for the Turbine Delivery Route. Given that any archaeological remains identified within the footprint of the Proposed Project will be preserved in-situ or by record, no negative cumulative construction effects have been identified.

Two proposed or permitted wind farms within 10km of the Proposed Wind Farm have been assessed for potential negative operational cumulative impacts upon the archaeological, architectural and cultural heritage resource. No negative cumulative effects have been identified. Whilst the wind farms will be visible in the wider landscape, their presence would not increase the significance of effect that is predicted to occur on any one site (AH, BH, CH, DL) as part of the Proposed Project.

Landscape and Visual

Ch. 14: Landscape and Visual includes a Landscape and Visual Impact Assessment (LVIA). It addresses the likely significant effects of the Proposed Project on the landscape and visual amenity. A key focus of the LVIA was comprehensive assessment of the proposed turbines as the essential aspect of the Proposed Wind Farm likely to give rise to significant landscape and visual effects within a 25km study area – the ‘LVIA Study Area’. The LVIA is supported by site visits and various best practice tools for LVIA, such as the production of verified photomontages, ZTV mapping, a Route Screening Analysis and an impact assessment methodology which follows best practice guidance for LVIA.

The Proposed Wind Farm is primarily located in the Slieve Callan Uplands LCA of Co. Clare. The proposed turbines are sited in marginal upland characterised by commercial forestry, agricultural and bog lands. The landscape in this LCA has the lowest landscape sensitivity rating to wind energy in the CCDP 2023-29. Two of the eight proposed turbines are located within LCA 20 – Malbay Coastal Farmlands which is designated as ‘High’ sensitivity in local planning policy. The landscape within the Proposed Wind Farm site is strongly influenced by current and historic land use, it has been heavily modified for commercial forestry, agricultural activities and historic peat harvesting. 7 no. of the proposed turbines are located within an area designated as ‘Strategic’ for wind energy by the Clare Wind Energy Strategy, while 1 no. turbine (T8) is sited within an area designated as ‘Acceptable in Principle’. Overall, this LVIA determined the Site to be of ‘Low’ landscape sensitivity, an acceptable receiving environment for the Proposed Project. The siting of the proposed turbines within the ‘Transitional Marginal Landscape’ are found to comply with development WEDGs (2006) in terms of its siting and design and 4-times-tip-height set-back distance from residential receptors, within a sparsely populated marginal upland on the foothills of the Slieve Callan Uplands.

Imagery was captured from a total of 25 No. viewpoints in the LVIA Study Area for the production of photomontages and photowire visualisations. These visualisations were used to assess the landscape and visual effects of the proposed turbines on all of the receptors scoped in for assessment during preliminary analysis using ZTV mapping. The visual receptors include: 2 No. designated Scenic Routes, 7 No. settlements, 8 No. recreational routes (i.e. walking trails), 5 No. Recreational, Cultural Heritage and Tourist Destinations and 5 No. regional- and national-level transport routes. Many receptors are represented within the 15 No. selected photomontage viewpoints (Photomontage Booklet), and many are represented by the 10 No. supplementary photowire viewpoints representing locations and receptors where less, or no visibility occurs.

7 No. designated LCAs were identified within the LCA Study Area (area within 15km from the proposed turbines for assessment of effects on designated LCAs) and were scoped in for assessment following a preliminary analysis. The comprehensive assessment of each LCA is reported in Appendix 14-2. 2 No. LCAs were found to be of ‘High’ sensitivity: LCA 20 – Malbay Coastal Farmlands and LCA 21 – Loop Head Peninsula due to their proximity to the Atlantic Coast and ‘Heritage Landscapes’. LCA 17 – Slieve Callan Uplands, in which the Proposed Wind Farm site is primarily located in, was found to have ‘Low’ sensitivity. The greatest landscape effects will occur within LCA 17 – Slieve Callan Uplands and LCA 20 – Malbay Coastal Farmlands with a residual landscape effect of ‘Slight’ and ‘Moderate’ respectively. For the remainder LCAs, the effects were found to have a significance rating of ‘Not Significant’.

15 No. viewpoints were selected and comprehensively assessed for visual effects, of which 10 No. viewpoints were located within 5km of the proposed turbines. Of the viewpoints assessed, 11 No. had residual visual effects rating either ‘Not Significant’, ‘Slight’ or ‘Moderate’ according to the EPA (2022) approach, see Appendix 14-3, and 4 No. viewpoints had residual effects rating as ‘Significant’. Significant residual visual effects only occur for a small number of local residential receptors in very close proximity to the proposed turbines, where ‘Substantial’ magnitude of change occurs. In all cases the proposed turbines exceed the mandatory 500m set-back distance in the WEDGs (2006) also the 4-times-tip-height set-back distance set out for residential visual amenity prescribed by the Draft WEDGs (2019). Importantly, the LVIA found no significant visual impact on views from protected scenic routes or any impact on the key scenic sensitivities and views of the County Clare high sensitivity Heritage Landscape.

Cumulative effects on landscape character are included in the impact assessment outlined in Appendix 14-2. Overall, the LCA-17 – Slieve Callan Uplands are found to be capable of accommodating the proposed turbines and cumulative turbines where its undulating characteristics provide physical and visual separation. There will be cumulative landscape effects with LCA 20 and the Heritage Landscape where wind energy developments will be visible within the upland landscape inland and are well set-back from sensitivities. Cumulative effects on Cumulative visual effects are also discussed and summarised in Appendix 14-3 and above in this Chapter. As demonstrated by the mapping and photomontage visualisations, the proposed turbines will be viewed in combination with the existing Cahermurphy Wind Farm turbines, where they will primarily be seen as a collective wind farm. This LVIA has shown that the proposed turbines are seen within the Slieve Callan Uplands, assimilating with the background of cumulative existing turbines further east and north. While visible from sensitive receptors in the environment, cumulative effects tend to arise when looking east and north at the proposed turbines, whereas the sensitive receptors are located to the west along the coast, in the opposing direction of the cumulative turbines.

Overall, the LVIA in Ch 14: Landscape and Visual determined that the Proposed Project is an appropriately designed development and suitably aligned with the WEDGs (2006) and Draft WEDGs (2019), sited in a landscape envisioned for wind energy development. The site is located within a zoning designated as a ‘Strategic Area’ and ‘Acceptable in Principle’ for wind energy development in Volume 6: Clare Wind Energy Strategy (CWES) of the CCDP with no potential significant effects on protected landscape and visual sensitivities in the LVIA Study Area.

Material Assets

Traffic and Transport

The purpose of this section is to assess the effects on roads and traffic of the traffic movements that will be generated during the construction, operational and decommissioning phases of the Proposed Project. An assessment of the geometry of the delivery route was also undertaken in order to ensure that the abnormally sized vehicles required to deliver the turbine plant to the site are accommodated.

It is estimated that it will take 18 to 24 months to construct the Proposed Project, during which construction traffic will travel to and from the Site.

Proposed Turbine Delivery Route

The proposed port of entry for the large wind turbine components is Foynes Port in Co. Limerick. From Foynes Port, a summary of the turbine delivery route is as follows;

- From the access road serving Foynes Port the route turns left (south) onto the N69 National Secondary Road at the existing priority junction.
- From this point the route heads east on the N69 for approximately 32kms, passing through various bends on the route.
- The route then turns left off the N69 at the Dock Road West Roundabout to head north onto the N18/M18 for approximately 30km to Junction 12 of the M18.
- At this point the route turns off the M18 onto the N85 National Road and heads west for approximately 3.8km passing through the Skehanagh Roundabout and the R458 Clareabbey Roundabout to the Rocky Road Roundabout where it then turns right to head northwest for approximately 260m on the N68 to the Kilrush Road Roundabout.
- From this point the route continues southeast on the N68 for approximately 23.1km passing through the village of Lissycasey before taking the right turn at the N68/R484 junction.
- From this point the route travels west along the R484 for approximately 4.7km to the village of Kilmihil, where the vehicles will perform a reverse manoeuvre through a temporary access road across two agricultural fields into the townland of Kilmihil, onto the L-2074 local road.
- The route then heads north on the L-2074 through Kilmihil before merging onto the L-2082.
- The route then travels north on the L-2082 for approximately 4km and passing through an agricultural field in the townland of Castlepark.
- The route then passes through an agricultural field north of Scoil Mhichíl in the townland of Cahermurphy, onto the L-2048.
- The route then heads east for approximately 290m on the L2048 before turning left onto the L-6254 heading north for approximately 1.2km before reaching the site entrance on the left.

The total length of the Turbine Delivery Route from Foynes Port to the access junction off the L-6254 is approximately 102 kms. All deliveries of abnormally sized loads will be made using Garda Síochána escorts and local transient traffic management measures put in place by the haulage company.

It is proposed that all traffic generated by the Proposed Wind Farm component of the Proposed Project will access the Site via the junction an existing junction off the L-6254 located approximately 1.2km north of the junction with the L-2048. This junction will provide access for all traffic movements generated during the construction phase, including the abnormally sized loads, and will also provide access to the site for maintenance staff once the Wind Farm is operational. It was established that temporary accommodation works will be required at 6 no. locations between the turnoff from the R484 Regional Road to the Site access off the L-6254.

The on-road sections of the Proposed Grid Connection travels along 0.3km the N67 National Road, with the remaining 24.1km of the on-road route sections travelling along the local primary and secondary road network. An inspection of the route indicated that the majority of the Proposed Grid

Connection will require a road closure at the point of construction on any given day during the construction phase. The exception to this is the short 0.3km section of the N67 where it is proposed that a Stop & Go traffic management system will be implemented in order to maintain 2-way traffic flow

Vehicle types and network geometry

The types of vehicles that will be required to negotiate the local network will be up to 87 metres long and will carry a blade 81.5 metres in length.

An assessment of the geometric requirements of the delivery vehicles was undertaken on the delivery route. The route assessment establishes the locations where the wind turbine transport vehicles will be accommodated, and identifies locations where some form of remedial measure, including temporary accommodation works, or local road widening, may be required. A dry run using a vehicle with the dimensions of the blade delivery vehicle will be undertaken by the haulage company prior to the construction phase.

Traffic impact on local network

During the 8 days when the concrete foundations are poured the effect on the surrounding road network will be negative, resulting in an increase in traffic volumes ranging from +8.6% on the N68, to +14.9% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage increase becomes more pronounced as a result, with a +54.8% increase forecast on the L-2082 north of Kilmihil, and a 68.2% increase forecast on the short section of the L-2048 traveling towards the site. It is forecast that the effect on all these roads will be negative, temporary and will be slight in terms of severity. There will be no significant impacts.

During the remaining 344 days for the site preparation and ground works when deliveries to the site will take place, the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from +3.5% on the N68, to +6.1% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 22.3%, with a 27.8% increase forecast on the short section of the L-2048. On these days it is forecast that direct effects will be negative, temporary and will be slight, resulting in no significant impacts.

During the 22 days when the various large component parts of the wind turbine plant are delivered to the site using extended articulated HGVs, the increase in traffic volumes will range +2.1% on the N68, to +3.6% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 13.4%, with a 16.7% increase forecast on the short section of the L-2048. The provision of traffic management measures, including ensuring that these deliveries are made at night, as is proposed, (as set out in Sections 15.1.8 and 15.1.13.6 and included in the CEMP), will require to be implemented to minimise the impact of development traffic on the study network on these days. It is forecast that the impacts will be negative, temporary and slight in terms of severity, with no significant impacts.

For 8 days on the delivery route 64 additional PCUs (made up of cars and standard articulated HGV movements to the site and back) will travel on the study network. On these days, the percentage increase on the study network will range from +1.3% on the N68, to +2.2% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage increase becomes more pronounced as a result, with a +8.2% increase forecast on the L-2082 north of Kilmihil, and a 10.2% increase forecast on the short section of the L-2048 traveling towards the site. Again, it is forecast that the impacts will be negative, temporary and slight in terms of severity, with no significant impacts forecast.

It is noted that the key junction on the delivery route (N68 / R484 junction) is forecast to operate well within capacity during the construction period, with maximum forecast RFCs of 28.0% and 36.6% forecast during the AM and PM peak hours respectively.

Similarly, for the R484 / L2080 junction in the village of Kilmihil that is also on the delivery route it is also forecast that this junction will operate well within capacity during the construction period, with maximum forecast RFCs of 12.9% and 18.5% forecast during the AM and PM peak hours respectively.

During the construction of the Grid Connection there will be closures along the route for a total of 241 days. As traffic volumes are relatively low, the direct effect will be negative, temporary and slight.

During the operational phase the direct effect on the surrounding local highway network will be neutral and long term given that there will be approximately 2 – 3 maintenance staff travelling to site at any one time, resulting in typically 2 – 3 visits to the site on any one day made by a car or light goods vehicle. While there will be the requirement to replace plant during the life of the Proposed Project, this will be a rare occurrence. There will be no significant traffic related impacts during the construction, operational and decommissioning phases of the Proposed Project.

15.2 Telecommunications and Aviation

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where there are proposed turbines directly in line with the transmitter radio path.

During the development of any large project that holds the potential to effect telecoms or aviation, the developer is responsible for engaging with all relevant telecom operators and the relevant aviation authorities to ensure that the proposal will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the developer for each individual project is responsible for ensuring that the necessary mitigatory measures are in place. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise.

1 no. link passes through the Proposed Wind Farm site. Consultation regarding the potential for electromagnetic interference from the Proposed Wind Farm was carried out with the telecommunications operator, which confirmed that no turbines are proposed within the 115m buffer requested. Therefore, no impacts were identified to telecommunications from the Proposed Wind Farm.

The Proposed Project will have no residual impact on aviation as all lighting requirements will be met by the Applicant, and given the fact that the Proposed Wind Farm is firmly clear of Shannon Airports safeguarding boundary.

Consultation regarding the potential for interference on aviation from the Proposed Wind Farm was carried out, with no responding parties raising any concerns. Furthermore, an Aviation Review Statement included as Appendix 15-6 to the EIAR concluded that the Proposed Wind Farm would have no impacts on the aviation resource. Therefore, no impacts were identified to telecommunications or aviation from the Proposed Wind Farm.

The potential for electromagnetic interference from proposed turbines may only occur during the operational phase of the Proposed Wind Farm and the Proposed Grid Connection. There are no electromagnetic interference impacts for telecommunications and aviation assets or operations associated with the construction phase of the Proposed Wind Farm or Proposed Grid Connection and therefore no mitigation required.

15.3 Other Material Assets

This section of the Material Assets chapter considers other utilities or built services in the area such as electricity supply and transmission, water, gas and underground telecommunications. This section also

considers waste management during the construction, operational and decommissioning phases of the Proposed Project.

There are no existing or proposed overhead lines located within the Proposed Wind Farm site itself, however a 400kV overhead line does pass through a single parcel (Area C) of the hen harrier enhancement lands. A 110kV and 400kV overhead line are located approximately 2.3km and 3.2km southeast of the nearest proposed turbine respectively, travelling from Moneypoint in the direction of Dublin. These overhead lines, as well as multiple other overhead lines, intersect the Proposed Grid Connection underground cabling route at multiple locations. Similarly, works are proposed to facilitate turbine delivery which will occur underneath overhead lines. Mitigation measures to ensure the safety of all construction staff, and to prevent any impacts on grid infrastructure is contained in the CEMP, Appendix 4-4 of this EIAR.

A scoping request was issued to EirGrid in April 2024. A response has not been received to date. There are existing underground electricity cables present adjacent to the Site given the presence of the existing Cahermurphy wind farm. Damage of underground electricity cables during construction operations could potentially result in serious injury or death of site staff. The Proposed Project has been designed to avoid existing underground electricity cables and the appropriate separation distances in accordance with ESB requirements have been maintained.

There are no gas lines located within the Proposed Wind Farm site. While water mains will be encountered at 35 no. locations along the Proposed Grid Connection, Uisce Eireann have confirmed that the Proposed Grid Connection route as detailed in Appendix 4-2 is feasible in conjunction with these assets. There are no existing underground electricity cables, gas pipelines or Uisce Eireann water assets present at the Proposed Wind Farm site, however, overhead lines present along the Proposed Grid Connection and Turbine Delivery Accommodation areas, the damage of which has the potential to result in serious injury or death. Similarly, the Proposed Grid Connection travels beneath 35 no. water services, which has the potential to cause damage to Uisce Eireann assets. This has a direct, short-term, potential significant negative effect.

There are no EPA-licensed or local authority-authorized waste facilities or activities located within the site boundary. The closest authorised waste facility is located approximately 6.1km south of the Site, in Creegh, Co. Clare. A Waste Management Plan (WMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-5 of the EIAR.

The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Project. Disposal of waste will be a last resort.

All waste generated on-site will be contained in waste skip at a waste storage area on Site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

Site personnel will be instructed at induction that under no circumstances can waste be brought on to Site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on Site is forbidden.

Further details on waste management are presented in the CEMP which is included as Appendix 4-5.

It is not anticipated that any significant volume of waste will be generated within the Site during the operational phase of the Proposed Project as only a small number of operational and maintenance personnel will be present on within the Proposed Wind Farm site certain times. Any waste generated due to the operation and maintenance of the Proposed Project will be disposed of in a covered skip, located within the on-site substation compound. The waste material will be transferred to a Materials



Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

Major Accidents and Natural Disasters

Ch. 16: Major Accidents and Natural Disasters of the EIAR describes the likely significant effects on the environment arising from the vulnerability of the Proposed Project as detailed in Ch. 4: Description of the Proposed Project to risks of major accidents and/or natural disasters, as well as the potential of the Proposed Project itself to cause potential major accidents and/or natural disasters.

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and lead to environmental effects directly and indirectly. These include accidents during construction, operation and decommissioning of the Proposed Project caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disaster is considered in relation to the information required to be provided in the EIAR, i.e., population and human health, biodiversity, land, soil, water, air and climate and material assets, cultural heritage and the landscape.

A desk-study has been completed to establish the baseline environment for which the proposed risk assessment has been carried out. This will influence both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

Further detail on the baseline environment is provided in Section 16.2.1 of this EIAR.

The scenarios with the highest risk score in terms of the occurrence of major accident and/or disaster during construction, were identified as identified as ‘Contamination During Construction, Operation and Decommissioning’ and ‘Fire/Explosion During Construction, Operation and Decommissioning’

The Proposed Project has been designed and will be built in accordance with the best practice measures set out in this EIAR and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design.

The risk of a major accident and/or disaster during the construction of the Proposed Project is considered ‘low’ in accordance with the ‘Guide to Risk Assessment in Major Emergency Management’ (DoEHLG, 2010).

All elements of the Proposed Project were assessed to identify any cumulative effects. A wind farm including all its various components including the grid connection works, substation, roads, turbines etc is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other Environmental Protection Agency environmental regulatory consent. Should a major accident or natural disaster occur the potential sources of pollution onsite during the construction, operational and decommissioning phases are limited and of low environmental risk. Sources of pollution with the potential to cause significant environmental pollution and associated negative effects such as bulk storage of hydrocarbons or chemicals, storage of wastes, management of flammable materials etc. are limited and so there is an inherent low level of environmental risk associated with major accident or natural disaster.

When the implementation of best practice measures, and all proposed mitigation and monitoring measures detailed in the EIAR are implemented, the residual effect(s) associated with the construction, operation and decommissioning of the Proposed Project are not significant.

Interaction of the Foregoing

Ch. 17: Interaction of the Foregoing identifies the potential significant environmental effects that may occur in terms of Population & Human Health, Biodiversity, Birds, Land, Soils & Geology, Water, Air Quality, Climate, Noise & Vibration, Landscape & Visual, Archaeology, Architectural & Cultural Heritage, Material Assets and Major Accidents & Natural Disasters, as a result of the Proposed Project. All potential significant effects of the Proposed Project and the measures proposed to mitigate them have been outlined in the main EIAR. However, for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect. A matrix is presented in Ch. 17: Interaction of the Foregoing of the EIAR to identify interactions between the various aspects of the environment already discussed in the EIAR. The matrix highlights the occurrence of potential positive or negative impacts during the construction, operational and decommissioning phases of the Proposed Project. Where any potential interactive impacts have been identified, appropriate mitigation is included in the relevant sections (Chapters 5–16) of the EIAR.