Planning and Environmental Consultants



# Environmental Impact Assessment Report

## Seskin Renewables Wind Farm

Non-Technical Summary

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# 1. NON-TECHNICAL SUMMARY

## 1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of the applicant, Seskin Renewable Energy Limited (Ltd.), who intends to apply to both Kilkenny County Council (KCC) and Laois County Council (LCC) for planning permission to construct a wind energy development which will comprise 8 no. wind turbines, and associated infrastructure south of the town of Durrow, Co. Laois and northwest of the town of Ballyragget, Co. Kilkenny, and a 38kV on-site substation and associated works, including underground 38kV cabling to connect to the national grid at Ballyragget 110kV substation, in the townland of Moatpark, Co. Kilkenny.

For the purposes of this EIAR:

- Where the 'Proposed Development' is referred to this encompasses the entirety of the project for the purposes of this EIA in accordance with the EIA Directive.
- Where the 'Proposed Wind Farm' is referred to, this refers to the wind turbines and associated foundations and hard-standing areas, meteorological mast, access roads, temporary construction compound, underground cabling, borrow pit, spoil management, site drainage, biodiversity enhancement, turbine delivery accommodation areas and all ancillary works and apparatus.
- Where the 'Proposed Grid Connection' is referred to, this refers to the 38kV onsite substation, associated temporary construction compound and 38kV underground cabling connecting to the existing Ballyragget 110kV substation, and all ancillary works and apparatus.
- Where the 'Site' is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-1 of the EIAR and encompasses an area of approximately 302 hectares.

This EIAR, along with a Natura Impact Statement ('NIS'), will accompany the planning application for the Proposed Development which will be made to both LCC and KCC. Both the EIAR and NIS contain the information necessary for LCC and KCC to complete the Environmental Impact Assessment and Appropriate Assessment as required for this planning application.

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

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

### Applicant

The applicant for the Proposed Development, Seskin Renewable Energy Ltd, is a subsidiary of Atlantic Infrastructure Renewables Ltd. (AIR), which is an Irish-owned, Limerick-based company.

AIR invests in infrastructure projects across Ireland. Their projects help deliver high-quality infrastructure assets that are essential to society and the communities where they are located. AIR helps bridge funding, capacity and delivery gaps and provides critical infrastructure ahead of when others might have been able to so.

## Brief Description of the Proposed Development

The Proposed Development will comprise the construction of 8 no. wind turbines with a ground-to-blade tip height of 175 metres and all associated works, and a 38 kV substation and associated works, including underground 38kV cabling to connect to the national grid at Ballyragget 110kV substation. The full description of the Proposed Development is detailed in Chapter 4 of this EIAR.

The project description for the Proposed Development is as follows:

i. *The construction of 8 no. wind turbines with an overall turbine tip height of 175 metres; a rotor blade diameter of 150 metres; and hub height of 100 metres, and associated foundations and hard standing areas.*

ii. *A permanent 38kV substation compound (control building with welfare facilities, all associated electrical plant and apparatus, security fencing including vegetative screening, underground cabling, wastewater holding tank, site drainage and all ancillary works);*

iii. *Permanent underground electrical (38kV) and communications cabling to the existing Ballyragget 110kV substation in the townland of Moatpark (including joint bays, communication and earth sheath link chambers and all ancillary works along the route);*

iv. *Underground electrical and communications cabling connecting the wind turbines and meteorological mast to the on-site substation;*

v. *A meteorological mast with a height of 100m above ground and associated foundation and hard-standing area;*

vi. *Upgrade of existing tracks and roads and the provision of new site access roads;*

vii. *All works associated with the upgrade of the existing agricultural access off the L58333 local road (including the installation of fencing and steel gates);*

viii. *2 no. temporary construction compounds (including temporary site offices and staff facilities);*

ix. *Accommodation works along the N77 National secondary road in the townlands of Durrow Townparks, Co. Laois and Ballynaslee, Co. Kilkenny to facilitate the delivery of turbine components and other abnormal sized loads;*

x. *A borrow pit;*

xi. *Spoil Management;*

xii. *Hedgerow removal;*

xiii. *Biodiversity Management and Enhancement Plan measures (including establishment of new hedgerow, translocation of existing hedgerow and enhancement of existing hedgerow);*

xiv. *Site Drainage;*

xv. *Operational stage site signage; and,*

*xvi. All associated site development works, ancillary works and apparatus.*



Both applications are seeking a ten-year permission and 35-year operational life from the date of commissioning of the wind farm development. Current and future wind turbine generator technology will ensure that the wind turbine model, chosen for the Proposed Development, will have an operational lifespan greater than the 35-year operational life that is being sought as part of the planning application.

Modern wind turbine generators currently have a potential generating capacity in the 4 to 7 MW range, with the generating capacity continuing to evolve upwards as technology improvements are achieved by the turbine manufacturers. For the purposes of this EIAR it is assumed that the wind turbine model installed as part of the Proposed Development will have a generating capacity of 6MW. Therefore, on this basis, the proposed 7 no. wind turbines would have a combined generating capacity of 48MW. The actual turbine procured as part of a competitive tender process may have a power output that is marginally lower or greater than the 6MW turbine described in the EIAR. Irrespective of the power output of the actual turbine procured, the conclusions of the EIAR will not be materially affected.

## Need for the Proposed Development

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 Chapter 2 of this EIAR.

The Proposed Development is critical to helping Ireland address these challenges as well as addressing the country's over-dependence on imported fossil fuels. If the Proposed Development were not to proceed, this opportunity would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

## Economic Benefits

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

Commercial rate payments from the Proposed Development will be provided to the respective local authority each year during the construction phase, which will be redirected to the provision of public services within Co. Kilkenny and Co. Laois. These services include provisions such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives.

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

Should the Proposed Development receive planning permission, there are substantial opportunities available for the local area in the form of Community Benefit Funds. Based on the current proposal, should the Proposed Development enter the Renewable Energy Support Scheme (RESS), the proposed Community Benefit Fund would attract a community contribution in the region of approximately €4 million to be used by the local community over the lifetime of the Proposed Development. The value of this fund will be directly proportional to the energy produced by the Proposed Wind Farm and will support and facilitate projects and initiatives in the area.

## Purpose and Scope of this EIAR



The purpose of this EIAR is to document the current state of the environment on and in the vicinity of the Site and to quantify the likely significant effects of the Proposed Development on the environment. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative impacts arising from the Proposed Development. This EIAR uses the grouped structure method to describe the existing environment, the potential impacts of the Proposed Development thereon and the proposed mitigation measures. Background information relating to the Proposed Development, scoping and consultation undertaken and a description of the Proposed Development are presented in separate sections.

The chapters of this EIAR are as follows:

a) *Introduction*
b) *Background to the Proposed Development*
c) *Considerations of Reasonable Alternatives*
d) *Description of the Proposed Development*
e) *Population and Human Health*
f) *Biodiversity*
g) *Birds*
h) *Land, Soils and Geology*
i) *Water*
j) *Air Quality*
k) *Climate*
l) *Noise and Vibration*
m) *Landscape and Visual*
n) *Archaeological, Architectural and Cultural Heritage*
o) *Material Assets (including Traffic and Transport, Telecommunications and Aviation and Other Material Assets)*
p) *Major Accidents and Natural Disasters*
q) *Interactions of Effects*
r) *Schedule of Mitigation Measures*

# 1.2 Background to the Proposed Development

This chapter of this EIAR presents the policies and targets which have been put in place at the various levels of Government including international, national, regional and local in relation to planning, renewable energy and climate change which are relevant to the Proposed Development. The details below set out the need for the Proposed Development as it seeks to aid Ireland in meeting its national targets and European commitments in relation to climate change and decarbonisation.

It summarises this EIAR Scoping exercise, the Pre-planning and Community Consultation undertaken and the Cumulative Impact Assessment process.

This chapter also provides a summary of the planning policy context relevant to the Proposed Development and should be read in conjunction with the Planning Report which accompanies the planning application.

The Proposed Development, which will be known as the 'Seskin Renewables Wind Farm', 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.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Development', 'Proposed Wind Farm', 'Proposed Grid Connection', and 'Site'. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Development is provided in Chapter 4 of this EIAR.

## Local Planning Policy

It is considered that the Proposed Development is consistent with the policies and objectives of the Kilkenny City and County Development Plan 2021-2027 (KCCDP) and the Laois County Development Plan 2021-2027 (LCDP).

### Kilkenny City and County Development Plan 2021-2027

The Kilkenny City and County Development Plan 2021-2027 (KCCDP) came into effect on the 15th of October 2021. The KCCDP incorporates the aims, objectives, policies and guidelines to provide for the proper planning and sustainable development of County Kilkenny.

On the 15th of October 2021, the Minister of State at the Department of the Housing, Local Government and Heritage, consequent to a recommendation made to him by the Office of the Planning Regulator under Section 31AM(8) of the Act notified Kilkenny County Council (KCC) of his intent to issue a Direction to the KCCDP. It states that:

> *"In accordance with Section 31(4) of the Planning and Development Act 2000, those parts of the Kilkenny City and County Development Plan 2021 – 2027 Plan referred to in the notice shall be taken not to have come into effect, been made or amended; namely;*
>
> *Chapter 11 Renewable Energy: Section 11.4 Kilkenny Targets, Section 11.5.1 Current status and targets and Figure 11.4 Wind Strategy areas.*
>
> *The Planning Authority is awaiting a further direction from the Minister in this regard. Consequently, the Renewable Energy policies and Wind Strategy areas as previously set out in the Kilkenny City and County Development Plan 2021- 2027, cannot be taken into account at this time."*

The reason for the draft direction is as follows:

- The Development Plan as made is inconsistent with Ministerial Guidelines issued under Section 28 of the Act, specifically item 2 of the Specific Planning Policy Requirement contained in the Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change (July 2017), which sets out the requirement for the Planning Authority to comply with the aforementioned Specific Planning Policy Requirement under section 28(1C). In particular, the Development Plan fails to identify renewable energy targets (in megawatts) which Kilkenny can contribute in delivering its share of overall government targets on renewable energy and climate change mitigation over the plan period.
- The Development Plan contains conflicting objectives on renewable energy sustainable development and climate action such that the adopted Plan, without providing sufficient compensatory measures, significantly reduced the extent of the areas indicated as 'acceptable in principle' that were identified in the draft Development Plan as being necessary to achieve the target of 201MW required to ensure that 100% of electricity demand for Kilkenny is met from renewable sources by 2030 and to ensure consistency with the Climate Action Plan.

As the previous County Development Plan has since expired and the parts named above shall be taken not to have come into effect, the Wind Energy Strategy Areas and its associated policies cannot be taken into account. At the time of writing, the Proposed Development has been assessed in line with the adopted relevant policies of the KCCDP, as there has been no update on the ministerial direction.

**Relevant Policies and Objectives**

The KCCDP provides for the development of indigenous energy resources, with an emphasis on renewable energy supplies. KCC acknowledges the importance of renewable energy in reducing anthropogenic greenhouse gas emissions and the contribution of renewable energy in achieving national and EU target net zero greenhouse gas emissions by 2050.

Climate change mitigation and adaptation objectives have been incorporated into the policies of the KCCDP. This is to ensure that climate change has been consistently integrated into the policy themes addressed by the KCCDP. The strategic aim for climate change as set out in Chapter 2 of the KCCDP is as follows:

> *"Strategic Aim: To provide a policy framework with objectives and actions in this City and County Development Plan to facilitate the transition to a low carbon and climate resilient County with an emphasis on reduction in energy demand and greenhouse gas emissions, through a combination of effective mitigation and adaptation responses to climate change."*

The KCCDP has aligned its policy and objectives with the Strategic Objectives of the NPF and the RSES to maintain and improve the County's attraction in order to maximise investment opportunities. The KCCDP sets out a number of Strategic Objectives relating to climate action including the following:

- **2B:** To support the implementation of the National Climate Action Plan and the National Climate Action Charter for Local Authorities, and to facilitate measures which seek to reduce emissions of greenhouse gases by embedding appropriate policies within the Development Plan.
- **2C:** To promote, support and direct effective climate action policies and objectives that seek to improve climate outcomes across the settlement areas and communities of County Kilkenny helping to successfully contribute and deliver on the obligations of the State to transition to low carbon and climate resilient society.
- **2E**: To ensure that the Development Plan transposes, supports and implements strategic objectives of the National Planning Framework and the Southern Regional

Spatial and Economic Strategy to create an enabling local development framework that: (a) promotes and integrates important climate considerations in local development and the assessment of planning applications and (b) supports the practical implementation of national climate policy and targets to assist in the delivery of the national transition objective.

- **2G:** To reduce energy related CO2 emissions of Kilkenny County Council.
- **2H:** To achieve the commitment under the European Climate Alliance to the reduction of greenhouse gas emissions by 10 percent every 5 years.

The KCCDP acknowledges that Ireland and Kilkenny have excellent renewable energy resources, which will be a critical and growing component of Irish energy supply. The strategic aim for renewable energy, set out in Chapter 11 of the KCCDP, sets a clear, ambitious target:

> *"Strategic Aim: To generate 100% of electricity demand for the County through renewables by 2030 by promoting and facilitating all forms of renewable energies and energy efficiency improvements in a sustainable manner as a response to climate change in suitable locations having due regard to natural and built heritage, biodiversity and residential amenities."*

The Renewable Energy chapter (Chapter 11) sets out the policy context for all renewables and includes an analysis of each type of renewable energy within the county, covering three aspects as follows:

- An analysis of the resource potential,
- An outline of development management guidelines including potential impacts and
- Objectives and policies for their future development.

The following objective highlights the Council's support for the deployment of renewable energy projects in the county:

> *"**11A:** To support and facilitate the provision of energy in accordance with Ireland's transition to a low carbon energy future by means of the maintenance and upgrading of electricity and gas network grid infrastructure and by integrating renewable energy sources and ensuring our national and regional energy system remains safe, secure and ready to meet increased demand as the regional economy grows over the period of the plan."*

It is estimated that, by 2030, County Kilkenny will use 633 Gigawatt hours (Gwh) of electricity, as stated in the KCCDP. If County Kilkenny is to reach its strategic aim of generating 100% of their electricity demand, they will need to install 253MW of energy or "2.09% of the Country's 12.1 GW combined onshore and offshore renewable energy target" as stated in the KCCDP. The Proposed Development will contribute towards achieving this important target by supplying 48MW of energy to the national electricity grid or 19% of the 253MW needed.

**Development Management Guidance**

Regarding wind energy Development Management Guidance, the KCCDP states that "*all planning applications for wind energy developments shall be assessed against the DEHLG's Wind Energy Development Guidelines, 2006, (and any subsequent update of these guidelines) and the County Council's Wind Strategy*".

In the absence of KCC's Wind Energy Strategy due to the draft ministerial direction on the KCCDP, it is noted that the design and layout of the Proposed Wind Farm follows the recommendations and guidelines set out in the '*Wind Energy Development Guidelines for Planning Authorities'* (the Guidelines) published by the then Department of Environment, Heritage and Local Government (DEHLG) in 2006, and the *'Best Practice Guidelines for the Irish Wind Energy Industry'* published by the Irish Wind Energy Association in 2012. The design and layout of the Proposed Wind Farm also has regard to the *'Draft Wind Energy Guidelines*' (the draft Guidelines) published by the DHELG in 2019. Should the draft Guidelines be adopted in advance of a planning decision being made on Seskin

Renewables Wind Farm, the Proposed Development will be capable of achieving the requirements of the draft Guidelines as currently proposed.

**Kilkenny Wind Energy Development Strategy**

The Wind Energy Development Strategy (WEDS) for KCC forms Appendix K of the KCCDP. The WEDS provides a clear framework for the Council's objectives and methodology for identifying suitable locations for wind energy development in the county. The key objectives of the WEDS are set out below:

- Recognise the importance of wind energy as a renewable energy source and ensure the security of energy supply by supporting, in principle and at appropriate scales and locations, the development of wind energy resources in the county.
- Promote the development of wind energy and other renewable energy sources in the county to meet national renewable energy targets (supplying a minimum of 100% of electricity consumption from renewable sources by 2030).
- Enable Kilkenny to generate the equivalent of 100% of its electricity needs from renewable energy.
- Identify strategic areas in the county for wind energy development.
- Provide specific criteria for wind energy development that the planning authority will take into account when considering any wind energy or related proposals.
- Investigate the potential for relatively small-scale wind energy developments within urban and industrial areas, and for small community-based proposals outside the strategic areas."

Chapter 5 of the WEDS characterises the county into three different policy areas aimed at facilitating wind farm growth. This division is the result of evaluating the feasibility in comparison to other factors. These zones are labelled as "Acceptable in Principle," "Open for Consideration," and "Not Normally Permissible." The Proposed Development is located in an area designated as 'Open to Consideration'. These areas are defined as *"characterised by no significant conflict with environmental designations or sensitivities".*

The Wind Energy Strategy also sets out four different categories of wind energy developments depending on their scale with the Proposed Development falling within the 'Large scale wind developments' category. The Wind Energy Strategy states the following in relation to 'large scale wind energy developments', which are classified as wind energy projects above 5MW:

> *"Large-scale wind energy developments will, in usual circumstances, only be considered in 'Acceptable in principle' areas. The rationale behind this policy is to minimise the visual impacts of such large-scale developments, in addition to effects on the environment of County Kilkenny as a whole, as well as to facilitate appropriate grid connections. These will be assessed in accordance with the Wind Energy Development Guidelines."*

This policy effectively limits all wind energy developments (bar small installations below 5MW) to the 'Acceptable in Principle' areas. However, due to the absence of a Wind Energy Strategy with a spatial dimension for Kilkenny, this policy cannot be applied to the Proposed Development, and so in this scenario there cannot be any contravention of this policy.

Furthermore, it was highlighted by the OPR in their submission to the draft Development Plan, that no national policy basis exists for the restrictive policy relating to large scale wind energy developments and that its inclusion in the KCCDP is unjustified, as set out by the OPR below:

> *"It is also noted that in Table 11.3 'Wind Energy Strategy Areas/Policy Approach' large scale wind farm development will only be considered in areas designated as 'acceptable in principle', and that wind energy development in areas 'open for consideration' is subject to restrictions under Section 11.5.2. This means that the amendments to change geographical*

> *areas designated in the draft Plan as 'acceptable in principle' to 'open for consideration'* ***unreasonably and substantially restrict the opportunity for County Kilkenny to contribute to the national targets for renewable energy set out in the Climate Action Plan 2019.***
>
> *Furthermore the restrictions in relation to the scale of wind farms under section 11.5.2* ***have no national policy basis for such wind development****. This may have implications for the implementation of your plan, including the decisions of An Bord Pleanála in the context of Section 37(2)(b) of the Act"* (**emphasis added**).

In the absence of a local Wind Energy Strategy for Kilkenny, it is considered that there is sufficient policy direction at national, regional and local level to enable KCC to assess the Proposed Development on its merits. The provision of the Proposed Development remains supported by local climate change and renewable energy policy within the KCCDP, as it recognises the role that indigenous renewable energy has on increasing County Kilkenny's energy sustainability and security by reducing dependence on imported fossil fuels.

In similar circumstances in the absence of specific local policy, Planning Authorities have found that there is a comprehensive range of guidance and policy objectives at a national and regional level generally in relation to windfarm developments, and while certain aspects of the KCCDP are not in effect, this does not imply that there is a complete vacuum or lacuna in policy which precludes the Planning Authority from determining the application before it in accordance with the proper planning and sustainable development of the area.

Full details of compliance of the Proposed Development with relevant Policies and Objectives and Development Management Guidance of the KCCDP is set out in Section 5.2.1 of the Planning Report which accompanies the planning application to KCC.

### Laois County Development Plan 2021-2027 (LCDP)

The Laois County Development Plan 2021-2027 (LCDP) was adopted on the 25th January 2022 and came into effect on the 8th March 2022. The LCDP sets out a framework for the sustainable spatial and physical development of County Laois while considering the conservation and protection of the built and natural environment.

A ministerial direction was issued by the minister on the LCDP on the 28th September 2022. The ministerial direction directed Laois County Council (LCC) to remove the development control standard which required wind energy developments to adhere to a setback of 1.5km from schools, dwellings, community centres and all public roads. The amended version of the LCDP, published in January 2022, removed the 1.5km setback distance policy from the Wind Energy Strategy.

**Relevant Policies and Objectives**

The LCDP provides for the development of indigenous energy resources, with an emphasis on renewable energy supplies. The Council acknowledges the importance of renewable energy in reducing anthropogenic GHG emissions and the contribution of renewable energy in achieving national and EU targets of net zero GHG emissions by 2050.

Climate change mitigation and adaptation objectives have been incorporated into the policies of the LCDP. The strategic aim for climate change, as set out in Chapter 3, of the LCDP is as follows:

> *"To reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions."*

The LCDP has aligned its policy and objectives with the Strategic Objectives of the National Planning Framework and the RSES to maintain and improve the County's attraction in order to maximise

investment opportunities. The LCDP sets out a number of Strategic Objectives relating to climate action including the following:



The LCDP incorporates numerous policies and objectives aimed at enabling the county to transition effectively to a low-carbon, climate-resilient environment. The most relevant of these are outlined below:

- **CA 1:** Support and facilitate European and national objectives for climate adaptation and mitigation as detailed in the following documents, taking into account other provisions of the Plan (including those relating to land use planning, energy, sustainable mobility, flood risk management and drainage):
  - Climate Action Plan (2019 and any subsequent versions);
  - National Climate Change Adaptation Framework (2018 and any subsequent versions);
  - Any Regional Decarbonisation Plan prepared on foot of commitments included in the emerging Regional Spatial and Economic Strategy for the Eastern and Midland Region;
  - Relevant provisions of any Sectoral Adaptation Plans prepared to comply the requirements of the Climate Action and Low Carbon Development Act 2015, including those seeking to contribute towards the National Transition Objective, to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050; and • Laois Climate Change Adaptation Strategy 2019-2024.
- **CM RE 1:** Prepare a Renewable Energy Strategy (RES) for County Laois including to identify the target which County Laois can contribute in delivering its share of overall Government targets on renewable energy and climate change mitigation over the plan period, and in particular wind energy production and the potential wind energy resource (in megawatts), and commencement of the variation to the County Development Plan within 1 year of adoption of the plan. Once adopted this will be by way of a variation to the Laois County Development Plan.
- **CM RE 2:** *Promote and encourage the development of energy from renewable sources such as hydro, bio-energy, wind, solar, geothermal and landfill gas subject to compliance with normal planning and environmental criteria in co-operation with statutory and other energy providers.*
- **CM RE 3:** Promote County Laois as a low carbon county a mean of attracting inward investment and to facilitate the development of energy sources *which will achieve low carbon outputs.*
- **CM RE 4:** *Protect areas of recognised landscape importance and significant landscape views from construction of large scale visually intrusive energy transmission infrastructure, alternative routing or transmission methods shall be used in this instance. Ensure that the assessment of energy development proposals will have regard to the impacts on public rights of way and walking routes.*
- **CM RE 5:** *Promote and facilitate wind energy development in accordance with the Guidelines for Planning Authorities on Wind Energy Development (Department of Housing, Planning and Local Government) and any update thereof and the Appendix 5 Wind Energy Strategy of this Plan, the Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change, and subject to compliance with normal planning and environmental criteria.*
- **CM RE 6:** *Ensure a setback distance for Wind turbines from schools, dwellings, community centres and all public roads in all areas open for consideration for wind farm development as per the Guidelines for Planning Authorities on Wind Energy Development (Department of Housing, Planning and Local Government)*
- **CM RE 12:** *Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.*

In addition to the objectives outlined, LCC commits itself to working with key stakeholders to help realise *"overall national targets on renewable energy and climate change, and in particular wind energy production and the potential wind energy resource."*

A full breakdown of the compliance of the Proposed Development against relevant Policies and Objectives and Development Management Guidance of the LCDP is set out in Section 5.2.2 of the Planning Report which accompanies the planning application.

**Wind Energy Strategy**

Appendix 5 of the LCDP sets out the Wind Energy Strategy (WES) for County Laois. It recognises that wind is *"one of Ireland's greatest natural* resources*"* and that *"renewable energy will be a vital part of Ireland's strategy to … ensuring a secure supply of energy and combating climate change".* The following objective transcribes this view into policy:

> ***WES 1: Development of Renewable Energy Generation*** *– It is the policy of the Council to support, in principle and in appropriate scales and locations, the development of wind energy resources in County Laois. The future sustainable development of the County is dependent on a secure supply of energy. There is a need to promote the development of renewable energy to reduce dependency on fossil fuels and to comply with national and European policies with regards to renewable energy resources and to address the challenge of climate change. It will be an objective of the Council to ensure the security of energy supply by accommodating the development of wind energy resources in appropriate areas and at appropriate scales in the country.*

The Laois Wind Energy Map, included in Appendix 5, subdivides County Laois into three wind energy zoning areas. The portion of the Proposed Development which falls within the LCC administrative contains 2 no. turbines of the total proposed 8 no. turbines. This area is designated as "Areas Not Open for Consideration" and is defined as follows:

> *"**WES 7: Areas Not Open for Consideration** - These areas are not considered suitable for wind farm development due to their overall sensitivity arising from landscape, ecological, recreational and slash or cultural and built heritage resources as well as their limited wind regime."*

It should be noted that the wind energy zoning designations, in regard to the Proposed Wind Farm site, differ between the LCDP and the KCCDP, despite the respective portions of lands being located adjacent to each other. It is worth highlighting that in their respective landscape character assessments, the Proposed Wind Farm site is designated as *'Uplands Area'* in the case of the KCCDP, and as '*Mountains, Hills and Upland Areas'* in the LCDP, providing a consistency regarding an assessment of the landscape. As previously mentioned, the landscape policies for both the LCDP and KCCDP support the facilitation of wind energy developments in upland areas which favours the location of the Proposed Development.

## Wind Energy Development Guidelines

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

The Guidelines were the subject of a targeted review. The proposed changes to the assessment of impacts associated with onshore wind energy developments were outlined in the document Draft Revised Wind Energy Development Guidelines (Department of Housing, Planning and Local Government (DHPLG), 2019) (the draft Guidelines). A consultation process in relation to the draft Guidelines closed on 19th February 2020. The proposed changes presented in the draft Guidelines give

certain focus on the setback distance from residential properties (four times the proposed maximum tip height), along with shadow flicker and noise requirements relative to sensitive receptors.



At time of writing, the draft Guidelines have not yet been adopted, and the relevant guidelines for the purposes of section 28 of the Act, remain to be the Guidelines. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects it is possible that the draft Guidelines may be adopted during the consideration period for the current planning application. Should the draft Guidelines be adopted in advance of a planning decision being made on this application, the Proposed Wind Farm will be capable adhering to the relevant noise and shadow flicker standards. While the final updated Guidelines have not yet been published it should be noted that Noise and Shadow Flicker are entirely controllable and are discussed further in Chapter 12 and Chapter 5 of this EIAR, respectively. The Proposed Wind Farm achieves the recommended distance of 4 times turbine tip height from proposed turbines to third party sensitive receptors, which has become a recognised standard for the purposes of protecting residential visual amenity, as currently outlined in the draft Guidelines.

#### 1.2.1.2 Planning History

A planning search was carried out through Laois County Council and Kilkenny County Council online planning portal in June 2025 for relevant planning applications within the red line planning application site boundary. 12 no. planning permissions were identified within the red line planning application boundary.

A planning search was carried out to establish proposed, permitted and operational wind farms within 25km of the Proposed Wind Farm. The search was carried out using the relevant local authority planning portals in June2025 for relevant planning applications. In total, 21 no. wind energy developments within 25km were identified.

#### 1.2.1.3 Scoping and Consultation

Chapter 2 Section 2.7 of this EIAR presents detail of the EIA Scoping undertaken with regards to the Proposed Development. As part of the constraints mapping process, which is detailed in Chapter 3 of this EIAR, telecommunications operators, were contacted in April 2023 in order to determine the presence of telecommunications links or aviation assets traversing or located in close proximity to the Wind Farm Site. Following this exercise, an EIAR scoping document, providing details of the Proposed Development, was prepared by MKO and circulated to prescribed statutory and non-statutory bodies in May 2024. The scoping document provided details of the Proposed Development and set out the scope of work for this EIAR. Consultees were invited to contribute to this 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 this EIAR.

Chapter 2 Section 2.7 of this EIAR includes details of the pre-planning meetings undertaken prior to the planning application being lodged with the following stakeholders:

- The relevant planning authority KCC and LCC under the provisions of Section 247 of the Act.

Community engagement has been undertaken by the applicant, details of which can be found in Appendix 2-1 of this EIAR. A Community Liaison Officer (CLO) was appointed and initial community consultation commenced in September 2024. This involved correspondence with local elected representatives and door-to-door correspondence with residents within 1.5km of the Proposed Development. This extended to include local businesses, community groups and sporting organisations. A public consultation event was held on the 9th April 2025 in the Castle Arms Hotel, Durrow, Co. Laois, this event provided the public with updates on the Proposed Development and allowed the public to ask queries in relation to the development, to the developer and environmental consultants

working on the project. A project website was created in September 2024 and has the most up to date information regarding the project and it hosts a 'Virtual Room' which is viewable to the public, this website also went live on the 9th April 2025. Follow up letters were also sent to residents within 1.5km of the Proposed Development to address the main concerns raised during the community consultation.



A Community Engagement Report has been prepared to accompany the planning application and is included at Appendix 2-1 of this EIAR. In summary, the Community Report was prepared to record the consultation carried out with the local community in respect of the Proposed Development. The objective of the consultations was to ensure that the views and concerns of all were considered as part of the Proposed Development design and Environmental Impact Assessment process.

The Report outlines the consultation and community engagement initiatives undertaken by the Applicant prior to the submission of the planning application. It also outlines the main issues identified during this process, how the final proposal reflects community consultation and the steps taken to ensure that the Proposed Development will be of enduring economic benefit to the communities concerned.

#### 1.2.1.4 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 (all of which are considered in the various chapters of this EIAR), the description of likely significant effects should include an assessment of cumulative impacts that may arise. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project. 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 this 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 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 and approved projects within the cumulative impact study area of the Proposed Development.
- The National Energy Security Framework outlines several steps to accelerate Ireland's shift to renewable energy initiatives. It's evident that the Proposed Development aligns with this framework by increasing the proportion of renewable energy on the national grid, thus expediting Ireland's transition to a low-carbon energy future.

Assessment material for this cumulative impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development. The material was gathered through a search of relevant online Planning Registers, reviews of relevant EIAR (or historical EIS) documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts.

The geographical boundaries of the various zones of sensitivity of and to the Proposed Development from which there may be potential for cumulative impacts to arise relative to each individual EIAR topic, i.e. each chapter, is presented in Section 2.9.2 of this EIAR. Following consultation with this EIAR team on each individual topic, the maximum geographical extent and justification for this extent was established and is presented below.

To gather a comprehensive view of cumulative impacts within the cumulative study area and to inform the EIA process being undertaken by the consenting authority, each relevant chapter within this EIAR

addresses the potential for cumulative effects where appropriate and within the context of their identified cumulative study area. A long list of projects considered (i.e. the largest cumulative study boundary of 25km list) across all disciplines in their cumulative impact assessment is included in Appendix 2-3. Smaller cumulative assessment studies have considered all projects within their specific boundary which fall within the long list in Appendix 2-3 of this EIAR.



The review of the relevant County Council planning registers documented relevant general development planning applications in the vicinity of the Proposed Development site, the majority of which relate to the provision and/or alteration of one-off rural housing and the provision of agricultural buildings. These applications and land uses have also been taken account in describing the baseline environment and in the relevant assessments.

Furthermore, the cumulative impact assessments carried out in each of the subsequent chapters of this EIAR consider all potential significant cumulative effects arising from all land uses in the vicinity of the Proposed Development. These include permitted and existing wind farms in the area, ongoing agricultural practices/forestry practices, quarries and extractive industries, intensive production/ processing industries, large infrastructure projects and other EIAR projects. The OPW (www.floodinfo.ie) does not record the presence of any Arterial Drainage Schemes or Benefited Lands within the proposed Wind Farm site or along the Grid Connection route.

The cumulative impact assessments carried out in each of the subsequent chapters of this EIAR consider all potential significant cumulative effects arising from relevant projects, plans and land uses within the cumulative study area and within the vicinity of the Proposed Development. These include ongoing agricultural practices.

Overall, the Proposed Development will not have any additional impacts over and above what has been assessed and permitted previously, as there are no additional works proposed. 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.

# 1.3 Consideration of Reasonable Alternatives

This chapter of the EIAR introduces the reasonable alternatives studied by the applicant which are relevant to the Proposed Development 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 Development not be implemented, has also be considered.

## Alternative Site Locations

The process of identifying a suitable wind farm site is influenced by a number of factors, while wind speeds, the area of suitable or available land, proximity to a grid connection point and planning policy are all very important, a wind farm project must be commercially viable/competitive, as otherwise it will never attract the necessary project finance required to build it.

The Site has been identified as having potential for a wind energy development as a result of a nationwide search of suitable lands. The site selection process has been constraints and facilitators led. Facilitators are factors that give an advantage to a Proposed Development, while constraints are restrictions that inform the location and design of a project by highlighting sensitivities.

Site selection for the development of a wind farm must be suitable for consideration under a number of criteria, such as:

- **Environmental Sensitivities**: Located outside of EU Natura 2000 sites; locations outside of National designations; located outside of Article 17 Annex I Habitats;
- **Grid Connection**: Access to the national electricity grid possible within a viable distance;
- **Sensitive Receptors**: Capable of complying with required setbacks from sensitive receptors;
- **Site Scale:** Sufficient area of unconstrained land that could potentially accommodate a wind farm development and turbine spacing requirements.

From the review of the criteria set out above, the Site is considered a suitable location for the provision of a renewable energy development of the scale proposed. The Proposed Wind Farm is located on agricultural land which allows the site to take advantage of the existing access roads (some of which will be upgraded) and highlights the suitability of the Proposed Wind Farm as it can make sustainable use of established items of infrastructure.

The Proposed Wind Farm site is not located within or adjacent to EU or National protected areas, nor does it contain any EU designated Annex I Habitat. The Proposed Wind Farm site is located primarily on agri-pastoral lands, of low ecological value, within a rural setting. Required setbacks from sensitive receptors, as set out above are achievable. The Proposed Grid Connection underground cabling route crosses the River Nore SPA, and the River Barrow and River Nore SAC in Ballyragget. At this location, the proposed underground cabling route will cross the river via horizontal direction drilling, with the drilling commencing within a field of improved agricultural grassland located within the SAC, and finishing in agricultural land, outside of the SAC.

## Alternative Renewable Energy technologies

To achieve the same maximum estimated electricity output from solar energy as is expected from the Proposed Wind Farm (c. 48MW), a larger development footprint would be required. The permanent footprint of the Proposed Development measures approximately 7.6ha, which represents approximately

2.5% of the Site. A solar PV array of the scale necessary to provide the same electricity output would require a footprint of approx. 76.8 hectares or 25% of the overall Site.



In addition, a solar development of this scale, would have a higher potential environmental effect on Traffic and Transport (construction phase), Air Quality (construction phase) and Biodiversity and Ornithology (habitat loss), a greater potential for direct impacts on unknown subsurface archaeology (construction phase) and glint and glare at the Site (operational phase). Taking into account the factors outlined above, and considering the farming practices in the area, it has been determined that wind energy is the most suitable renewable energy technology for the Site with the lesser potential for significant, adverse environmental effects.

A comparison of the potential environmental effects of the development of a solar PV array when compared against the chosen option of developing the Proposed Development at this Site are presented in Table 3-2, of Chapter 3 of this EIAR.

## Alternative Turbine Numbers and Model

It is proposed to install 8 no. 6MW turbines at the Proposed Wind Farm site which will have an estimated installed capacity of 48 MW. Such a wind farm could also be achieved on the Proposed Wind Farm site by using smaller turbines (for example 2.5 MW machines). However, this would necessitate the installation of over 19 turbines to achieve a similar output. A larger number of smaller turbines would result in the wind farm occupying a greater footprint within the Proposed Wind Farm site, with a larger amount of supporting infrastructure being required (i.e., roads etc) and increasing the potential for environmental impacts to occur.

## 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, archaeological specialists and traffic consultants. The aim being to reduce potential for environmental effects while designing a project capable of being constructed and viable.

Following the mapping of all known constraints, detailed site investigations were carried out by the project team.

The ecological assessment of the Proposed Wind Farm site encompassed habitat mapping and extensive surveying of birds and other fauna. This assessment, as described in Chapters 6 and 7 of this EIAR on Biodiversity and Ornithology, optimised the decision on the siting of turbines and the carrying out of any development works, such as the construction of roads.

The hydrological and geotechnical investigations of the Proposed Wind Farm site examined the proposed locations for turbines, roads and other components of the Proposed Development, such as the construction compounds. Where specific areas were deemed as being unsuitable for the siting of turbines or roads, etc., alternative locations were proposed and assessed, taking into account the areas that were already ruled out by constraints.

The turbine layout for the Proposed Wind Farm has also been informed by the results of noise assessments, landscape and visual and the separation distance to be maintained between turbines. Thus, the baseline environmental assessment of the Proposed Wind Farm site and wind farm design was an iterative process, where findings at each stage of the assessment were used to further refine the design, always with the intention of minimising the potential for environmental impacts.

## Alternative Grid Connection Underground Electrical Cabling Route Options

The Proposed Wind Farm will connect to the national grid via underground electrical cabling, located primarily within the public road corridor, with some small sections passing through private agricultural land. Underground electrical cables will transmit the power output from each wind turbine to the proposed onsite 38kV substation, and from there to the existing Ballyragget 110kV substation, via an underground electrical cabling route, measuring approximately 3.4km in length. A key consideration in determining the grid connection method for a proposed wind energy development is whether the cabling is underground or run as an overhead line. An alternative to the c.3.4km underground cabling route would be to construct an overhead line from the proposed onsite substation to the existing 110kV Ballyragget substation. While overhead lines are less expensive and allow for easier repairs when required, underground cabling will have no visual impact. For this reason, it was considered that underground cabling would be a preferable alternative to overhead lines. The Guidelines also indicate that underground cables are the preferred option for connection of a wind energy development to the national grid. The underground electrical cabling will follow the route of existing public road insofar as possible in order to minimise the amount of ground disturbance required.

An entirely, off-road grid connection route was considered at an early stage of the design process, however, this was discounted due to requirement to construct significant lengths of access and maintenance tracks to access joint bays along the route, increasing the potential for environmental effects compared to a route that predominantly follows existing roads. In addition, the requirement for a significant number of landowner agreements along the length of the route would have significantly increased the time required to confirm the final proposed, design of the Proposed Development and driven up the overall costs associated with the project.

Existing substations located within 5km of the Proposed Wind Farm site include the 110kV Ballyragget substation and a 38kV substation located within the Tirlán facility in the townland of Ballyconra, Co. Kilkenny.

## Alternative Ports of Entry and Site Access

The ports considered for the port of entry of wind turbine components into Ireland for the Proposed Wind Farm include Belview Port, County Waterford, Dublin Port, Shannon-Foynes Port, County Limerick, Cork and the Port of Galway. All of the aforementioned ports have been used for the importing of turbine components. As stated, all ports mentioned above have a proven track record in the handling and subsequent transport of large turbine components. The final selection will be driven by commercial, availability and scheduling considerations. There are clear access routes for all five ports utilising the motorway network to the proposed haul route to the site. Regardless of which port is chosen, the components will approach the Site via the M7 to the north. The delivery of turbine from the M7 to the Site has been assessed in detail in Chapter 15 of this EIAR.

The Site is located approx. 21.1km south of the M7/N77 junction (Junction 17) and, as such, delivery of turbine components from this direction were considered as part of the iterative design process for the Proposed Development.

The alternative delivery route considered, exited Junction 8 on the M9, following the N10 northwest for 6.3km, before turning right onto the N77 on the eastern outskirts of Kilkenny city. The route continued north along the N77 for 22.1km, passing through the town of Tullaroan. In the townland of Ballynaslee, Co. Kilkenny the turbine component delivery vehicles would turn on to the L58333 local road from the existing junction on the N77 and continue north on this local road for approximately 700m to the Proposed Wind Farm site entrance. After review by the Traffic Consultant and subsequent autotrack assessment, it was concluded that this route would require substantial accommodating works along the route, to facilitate the delivery of abnormal loads to the Site. In particular, it was determined that it would be difficult facilitate the delivery of turbine components through the town of Ballyragget without considerable accommodation works in the town centre.

Therefore, the optimal delivery route is considered as the one that utilises the M7, N77 and L58333 which has been subject to autotracks assessment and shows that limited accommodation works are required along the delivery route itself.



## Alternative Mitigation Measures

Mitigation by avoidance has been a key aspect of the Proposed Development's evolution through the selection and design process. Avoidance of environmental constraints within the site limits the potential for environmental effects. As noted above, the layout aims to avoid any environmentally sensitive areas. Where loss of habitat occurs in the Site, this has been mitigated with the proposal of habitat enhancement and improved habitat connectivity with hedgerow replanting on the Proposed Wind Farm.

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. The alternative is to either not propose these measures or propose measures which are not best practice and effective and neither of these options is sustainable.

## 1.4 Description of the Proposed Development

This section of the EIAR describes the Proposed Development and all its component parts. Two separate planning applications, relating to the Proposed Development, will be made to KCC and to LCC. Construction methodologies for the main infrastructural components of the Proposed Development are also included in this chapter (or its associated appendices) of the EIAR. The development description for the current planning application as appears in the public notices is included in Section 1.1 above.

The overall layout of the Proposed Development is shown on Figure 4-1 of the EIAR, this includes the Proposed Wind Farm site and the Proposed Grid Connection. The Proposed Development has been designed to minimise potential environmental effects, while at the same time maximising the energy yield from the Proposed Wind Farm. Detailed site layout drawings of the Proposed Development are included in Appendix 4-1 to this EIAR.

The Proposed Wind Farm turbine layout has been verified using industry standard wind farm design software ensuring that it maximises the energy yield from the Proposed Development, while maintaining sufficient distances between the proposed turbines so as 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 top of foundation level*

| Turbine | ITM Coordinates | | Existing Elevation (m OD) |
|---|---|---|---|
| | Easting | Northing | |
| T1 | 641792 | 675091 | 152 |
| T2 | 641224 | 674883 | 172 |
| T3 | 641939 | 674425 | 140 |
| T4 | 641393 | 674394 | 174 |
| T5 | 641969 | 673942 | 161 |
| T6 | 641797 | 673301 | 144 |
| T7 | 642441 | 673026 | 101 |
| T8 | 641873 | 672889 | 123 |

The turbine model to be installed on the Site will have an overall turbine tip height of 175 metres, a blade rotor diameter of 150 metres and hub height of 100 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 6 MW has been chosen to calculate the power output of the proposed 8-turbine renewable energy development, which would result in an estimated installed capacity of 48 MW.

The Proposed Wind Farm site makes use of the existing road network insofar as possible. It is proposed to upgrade approximately 1.5 kilometres of existing roads and tracks, and to construct approximately 4.9 kilometres of new access road on the Proposed Wind Farm site. It is proposed to construct passing bays along the proposed access road network in order to allow construction traffic to safely pass each other while travelling in opposite directions. Areas such as wide junctions and proposed hardstands will also be used as passing bays throughout the construction phase of the Proposed Wind Farm site. One metrological (met) mast is proposed as part of the Proposed Wind Farm. The met mast will be equipped with wind monitoring equipment at various heights.

Each turbine will be connected to the on-site electricity substation via underground electricity cabling. Fibre-optic cables will also connect each wind turbine and the met mast to the onsite substation. The electricity and fibre-optic cabling connecting to the onsite substation compound will be run in cable ducts approximately 1.2 metres beneath ground level, along the sides of roadways and/or under the roadways.

It is proposed to manage overburden generated through construction activities for the Proposed Development locally within the Site, through backfilling of the proposed borrow pit void in the first instance, and following that within identified spoil management areas, and in linear berms along access roads and turbine hardstand areas, where appropriate. Some of the material excavated during the construction of the Proposed Grid Connection underground cabling will be transported to licensed facilities.

It is proposed to plant some native tree species within the hedgerow habitat to further increase the biodiversity value within the Site. New native hedgerow habitat will be created and some existing hedgerow will be translocated within the Proposed Wind Farm site, approximately 2.1km. To increase the ecological condition of these habitats, approximately 2.4km of heavily managed hedgerow will be enhanced through additional planting with native species. Please see Appendix 6-4 Biodiversity Management and Enhancement Plan for details.

A general construction entrance will be constructed on the L58333 at the east of the Site. This entrance will be used as the main entrance for construction traffic throughout the construction phase.

Appropriate sightlines will be established at the proposed Site entrance for the safe egress of traffic during the construction phase. On completion of the construction phase, this Site entrance will be reduced in size and gated for security and will be used as an operational Site entrance.

Temporary accommodation works will be required at two locations (Durrow Townparks, Co. Laois and Ballynaslee, Co. Kilkenny) to facilitate the delivery of turbine components and other abnormal loads to the Proposed Wind Farm during the construction phase. The temporary accommodation works were subject to autotrack assessments to identify the turning area required, as described in Chapter 15, Section 15.2 of the Traffic and Transport Assessment. Upon completion of the turbine component delivery phase, the crushed stone and ground protection mats will be removed and the area will be reinstated.

In order to facilitate the construction of the Proposed Development, the majority of rock and hardcore material that will be required during the construction of the Proposed Wind Farm will be sourced from an on-site borrow pit with the remaining rock and hardcore material sourced from local, appropriately authorised quarries.

It is proposed to construct a 38kV electricity substation within the Proposed Wind Farm site, as shown in Figure 4-1, Figure 4-15 and Figure 4-16 of the EIAR. The proposed onsite 38kV substation is located within agricultural land and will be accessed via the Proposed Wind Farm access roads.

It is proposed to connect the onsite 38 kV substation to the existing 110 kV Ballyragget substation in Moatpark, Co Kilkenny via underground electrical cabling. The underground electrical cabling route is illustrated in Figure 4-1, is approximately 3.4km in length and located primarily within the public road

corridor, with a short section (approximately 335m) located within agricultural pastoral land east of the proposed on-site substation and another section (approximately 560m) crossing the river Nore via horizontal direction drilling and passing through a number of agricultural fields, before reaching the Ballyragget substation.

An important part of a renewable energy development, which Seskin Renewable Energy Ltd has been at the forefront of developing, is its Community Benefit Package. Seskin Renewable Energy Ltd. 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 company 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.

It is estimated that the construction phase of the Proposed Development will take approximately 12-18 months from commencement of civil works to the commissioning of the wind turbines. The construction phase can be broken down into three main phases, which overlap partially 1) civil engineering works - 10 months, 2) electrical works including grid connection works - 9-12 months, and 3) turbine erection and commissioning - 8 months.

The Proposed Wind Farm is expected to have a lifespan of approximately 35 years. As part of this planning application, permission is being sought for a 35-year operation period commencing from the date of full operational commissioning of the Proposed Development. 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 equipment may be replaced with a new technology, subject to planning permission being obtained, or the Wind Farm will be decommissioned fully. The Proposed Grid Connection infrastructure will remain in place as it will be under the ownership and control of the ESBN.

## 1.5 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 Site is located within a rural setting on the border with Counties Laois and Kilkenny, approximately 17km northwest of Kilkenny City. The town of Durrow is located approximately 2.5km north of the nearest proposed turbine, and the town of Ballyragget is located approximately 3.2km southeast of the nearest proposed turbine.

Current land-use within the Proposed Wind Farm site comprises agricultural pastural land. Current land-use along the Proposed Grid Connection route comprises of transport and agricultural pastural land. The primary surrounding land use within the Population Study Area is a mix of agriculture, low density residential, renewable energy and industrial and commercial.

It is proposed to construct the wind farm and grid connection concurrently which would require approximately 100 employees in total, with an estimated 80 jobs focussing on the construction phase of the Proposed Wind Farm, and 20 jobs focusing on the construction phase of the Proposed Grid Connection. Up-skilling and training of local staff in the particular requirements of the wind energy industry is likely to lead to additional opportunities for those staff as additional wind farms are constructed in Ireland. This will have a long-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 Chapter 5. Similarly, there is insufficient evidence from the scientific literature discussed in Chapter 5 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 Wind Farm and Proposed Grid Connection.

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 2006 WEDGs 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 1.5km (10 x rotor diameter 150m). There are 104 no. properties located within 1.5 km of the proposed turbine locations

The 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 a worst-case scenario. Following the detail provided above on sunshine hours, a sunshine factor of 29.79% was applied. Of the 104 no. properties modelled; it is predicted that 52 Sensitive Properties may experience shadow flicker that exceeds the 2006 WEDGs thresholds of 30 minutes per

day or 30 hours per year. However, this prediction does not consider wind direction or screening provided by intervening vegetation and topography.



Where shadow flicker exceedances are experienced, suitable mitigation measures as outlined in Chapter 5 will be employed at the potentially affected properties to ensure that the limits set out in the Guidelines are not exceeded at any dwelling within the Shadow Flicker Study Area. It is also noted that the Proposed Development can be brought in line with the requirements of the draft Guidelines should they be adopted while this application is in the planning system, through a stricter implementation of mitigation measures outlined in Chapter 5.

Impacts on human beings during the construction, operational and decommissioning phases of the Proposed Development are described in Chapter 5 in terms of health and safety, employment and investment, population, land-use, noise, dust, traffic, tourism, residential amenity, renewable energy production and reduction in greenhouse gas emissions, shadow flicker and interference with communication systems.

Where a negative impact is identified, appropriate mitigation measures will be put in place to ensure that there will be no significant health effects on sensitive receptors in the surrounding area. Overall, the construction, operation and decommissioning of the Proposed Development will not have any significant adverse effects on population and human health, following the implementation of the appropriate mitigation measures.

## 1.6 Biodiversity

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the Proposed Development 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 across 2024 and 2025. Excluding two survey events in December 2024 and January 2025, the habitat surveys covered the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith et al., 2011). Dedicated species/habitat specific surveys including for, bats, and protected mammals and detailed habitat 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 detailed results of which are provided in technical appendices to this EIAR. The multi-disciplinary walkover surveys comprehensively covered the lands within the Proposed Development boundary and based on the survey findings, further detailed targeted surveys were carried out for features and locations of ecological significance. These surveys were carried out in accordance with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009).

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) was conducted. The habitats within the Proposed Development boundary 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 Irish semi-natural grasslands survey 2007-2012 (Perrin et al. 2013) and the Irish Vegetation Classification.

Grasslands make up a significant proportion of the habitats within the Proposed Wind Farm site, which comprises large areas of improved agricultural grassland (Fossitt code GA1). The areas of improved agricultural grassland have primarily been intensively managed for livestock grazing, and almost all fields surveyed have been reseeded with perennial ryegrass. A network of Hedgerows (WL1), Treelines (WL2) and Drainage Ditches (FW4) occur throughout the Proposed Wind farm site and delineate the field boundaries. Other habitats also recorded within the Proposed Wind Farm site include Arable Crops (BC1), Tilled Land (BC3), Wet Grassland (GS4), (Mixed) Broadleaved Woodland (WD1), (Mixed) Broadleaved/ Conifer Woodland (WD2), Wet Willow-Alder-Ash Woodland (WN6), Scrub (WS1), Earth Banks (BL2) associated with Hedgerows (WL1) and Treelines (WL2), and Buildings and Artificial Surfaces (BL3). A section of the Durrow Townparks (Nore_110) was recorded within the north of the Proposed Development site and was classified as an Eroding / Upland River (FW1). This watercourse flowed in a north-easterly direction and flowed into the River Nore.

The majority of the Proposed Grid Connection Route will be laid beneath the surface of the internal site road network and public road. the N77, which is classified as Buildings and Artificial Surfaces (BL3). The cable will run along the road verge to the point of the launch pit where the cable will travel under the River Nore by Horizontal Directional Drilling (HDD) and arrive at the reception pit within Improved Agricultural Grassland (GA1). From here, the cable will cut through a Hedgerow (WL1) and Improved Agricultural Grassland (GA1) to reach the Ballyragget 110kV substation.

Hedgerows within the Proposed Development site were assessed using a method adapted from the Hedgerow Appraisal System (HAS) (Foulkes et al., 2013). This methodology was used to record the extent (i.e. quantitative survey) floristic composition, context, physical structure, condition, and management of hedgerows (i.e. qualitative survey) on the site. Several of the hedgerows across the site were considered to be of high to moderate significance, based on the diversity of woody species and ground flora species they supported. Where hedgerows within the site were found to follow old

townland/county boundaries, these are given a high significance rating in line with the HAS. Townland boundary hedgerows tend to be older than other hedgerows and may therefore be more species rich (e.g. Foulkes and Murray, 2005).



Approximately 1.8km of linear habitats, including hedgerow and treelines will be permanently removed to accommodate the Proposed Development, including turbines and associated bat buffers for the protection of bats, from the turbines to the canopy of the nearest habitat feature, as recommended by Natural England (2014) and NatureScot (2021) guidance. Approximately 4.77ha of Improved Agricultural Grassland (GA1) and approximately 0.23ha of Arable Crops (BC1) will be lost as part of the Proposed Wind Farm. To mitigate against the loss of hedgerow and treeline habitats, 2.9km of hedgerow reinstatement and 2.4km of hedgerow enhancement will be undertaken within the Proposed Development. Hedgerow reinstatement will comprise both translocation of existing hedgerows and new hedgerow planting across the site, associated with any new or realigned access tracks, as well as planting within existing agricultural fields. In addition to the enhancement, creation and translocation of hedgerows, it is also proposed to install breeding boxes for bats and to create ashy mining bee habitat within the Proposed Development.

Bat species composition and abundance recorded, during detailed bat surveys undertaken at the Proposed Wind Farm site, was found to be typical of the geographic location and nature of the area and the site is utilised by a regularly occurring bat population of Local Importance. Following the implementation of mitigation no potential for residual significant effects regarding loss of commuting and foraging habitat, loss or damage to roosts, displacement or other construction phase impacts have been identified. However, there will be a **temporary residual effect at the local geographic scale in the short to medium term**[1] (5-15 years) on foraging and commuting bats while newly planted hedgerows across the site establish into mature hedgerows. The proposed net gain in linear landscape features within the Proposed Development will result in a long-term positive impact on bats at the local level. In relation to potential collision risk and injury with operational turbines, an adaptive monitoring and mitigation strategy has been devised for the Proposed Development 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 Development.

The habitats recorded within the Proposed Development boundary provide suitable habitat for protected mammal species, such as badger, otter and pine marten. Whilst evidence of these species was recorded during the ecological surveys undertaken, the Proposed Development has been designed to avoid significant effects on any mammal species. From a precautionary perspective, a pre-commencement mammal survey will be undertaken, in accordance with standard best practice guidance, prior to the commencement of construction works.

In relation to designated sites, one nationally designated site, the River Nore/Abbeyleix Woods Complex pNHA, has been identified as being within the Zone of Influence, on a precautionary basis. No potential for residual adverse impacts on this pNHA 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 are anticipated.

An Appropriate Assessment Screening Report and Natura Impact Statement (NIS) accompanies 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 Development, in compliance with Article 6(3) of the Habitats Directive. The Appropriate Assessment Screening Report identified the potential for significant effects on two European Sites (River Barrow and River Nore SAC and River Nore SPA). The NIS concludes that the Proposed Development, individually or in-combination with other plans or projects, will not adversely affect the integrity of any European Site.

[1] *Duration of effects defined in line with EPA guidance (Section 3 page 51)* https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf *(accessed May, 20205).*

It is therefore concluded that, provided that the Proposed Development 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 Development will result in an improvement of the existing ecological conditions of the Proposed Wind Farm site.

## 1.7 Birds

This chapter assesses the likely significant effects that the Proposed Development may have on bird species. Firstly, a brief description of the Proposed Development 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 Development 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 Development 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 Development 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 Development 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 slight negative effect (EPA, 2017) and low effect significance (Percival, 2003).

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 Development are foreseen on Key Ornithological Receptors of the study area.

## 1.8 Land, Soils and Geology

The Proposed Development is located between the towns of Durrow in Co. Laois and Ballyragget, Co. Kilkenny, with the N77 road which connects these towns running along the eastern boundary of the Site. The approximate centre of the Site is located at E241903, N174035. The northwestern and central sections of the Site are situated within an elevated area of ground (~150-200mOD) within a broader area that slopes to the east and south to elevations of ~80-90mOD. The Grid Connection underground cabling route is situated along the N77 road, along the eastern margin of the site at elevations of approximately 80mOD.The southern section of the site extends towards Ballyragget along the N77 road and consists of mainly flat agricultural lands. The land is mainly agricultural improved grassland, primarily used for grazing.

A comprehensive impact assessment of the Proposed Wind Farm site and associated Grid Connection underground cabling route on the land, soils and geological environment has been undertaken. The assessment is based on a desk study, walkover surveys and a comprehensive data set which was obtained during site investigations. The wind farm design is based on extensive site-specific data, with the layout intended to minimise impacts on the local land, soils and geological environment.

The geology of the Proposed Development site typically consists of sandy gravelly clay overburden, ranging between 0.25-12.5m in depth. The overburden is a glacial deposit which overlies mudstone and shale (with minor interbedded sandstone) towards the west and northwest of the site, on the elevated grounds, which transitions to typically strong to medium strong, medium grey limestone towards the east and southeast, which is occasionally weathered but generally competent. The transition between this mudstone/shale and limestone is mapped as a faulted contact, which agrees with site walkover data observed and recorded.

Excavation of soil, subsoil and bedrock will be required for site levelling and for the installation of the Proposed Wind Farm infrastructure. This will result in a permanent removal and on-site management of excess soil and subsoil across the site. Excavated soil/subsoils and bedrock will be reused where possible, used for landscaping around turbine bases, or used as fill material for the proposed borrow pit. Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods. Measures to prevent soil and subsoil erosion during excavation, reinstatement and permanent management in spoil management areas will be undertaken to prevent water quality effects.

No significant effects on the land, soil and geology of the Project Site will occur during construction, operation, or during decommissioning phases of the Proposed Development.

The assessment confirms there will be no cumulative effects on land soil and geology environment as a result of the Proposed Development.

Ground bearing foundations will be utilised at the 8 no. turbine locations due to the good ground conditions encountered during the comprehensive site investigation works.

Excavation of mineral subsoils and bedrock will be required for site levelling, infrastructure and foundations for the access roads and turbines. Estimated volumes of subsoils/bedrock to be removed at the 8 no. turbine foundations, hardstandings and along access roads, the on-site substation and grid connection is 100,350$m^3$. The handling and storage of soils and subsoils will be completed in accordance with the CEMP.

Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods. Measures to prevent soil and subsoil erosion during excavation, reinstatement and long-term storage of soil/subsoil will be undertaken to prevent erosion and potential water quality impacts.

An assessment of the construction stage, operational stage and decommissioning stage has been completed. Based on the above, and with implementation of the outlined mitigation measures, no likely significant effects on the soils and geology environment are predicted to occur.

Our assessment confirms there will be no cumulative effects on land soil and geology environment as a result of the Proposed Development.

# 1.9 Water

This chapter assesses the likely significant effects that the Proposed Development may have on hydrology and hydrogeology and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

The Site is located between the villages of Durrow in Co. Laois and Ballyragget in Co. Kilkenny. The approximate centre of the Site is located at E241903, N174035. The northwest and centre of the Site are situated within an elevated area of ground (~150-200mOD (metres above Ordnance Datum)) within a broader area that slopes to the east and south to elevations of ~80-90mOD. The Grid Connection underground cabling route is situated along the N77 road, along the eastern margin of the Site at elevations of ~80mOD.The southern section of the Site extends towards Ballyragget along the N77 road and consists of mainly flat agricultural lands. The land is mainly agricultural improved grassland, primarily used for grazing.

Proposed Wind Farm

The Proposed Wind Farm is located approximately 2.5 kilometres south of the village Durrow, Co. Laois, 3.2 kilometres northwest of the town of Ballyragget, Co Kilkenny and 5.8 kilometres east of the village of Cullahill, Co. Laois. The N77 National Secondary Road runs in a north-south orientation, east of the Site. It is proposed to access the Proposed Development via a new access junction off the L58333 Local Road, part of the old N77, on the eastern side of the Site.

With respect to regional hydrology, the Proposed Wind Farm site is located within the Nore catchment, within Hydrometric Area 15 (Nore) of the Irish River Basin district. On a more local scale, the Proposed Wind Farm site is contained within the Nore_SC_070 sub-catchment, with a small section to the north of the site located in the Nore_SC_050 sub-catchment. The River Nore is located ~450 meters east of the Proposed Wind Farm site (parallel to N77 road) and flows south through Ballyragget. The majority of the Proposed Wind Farm site drains into the River Nore via the Lisdowney Stream, including its tributaries: Archerstown stream, Aharney stream, and the Ballyconra stream. The Durrow Townparks watercourse drains the northeast of the site to the River Nore just south of Durrow. The closest major watercourse to the Proposed Wind Farm site is the River Nore situated 450 meters to the east.

The Proposed Wind Farm is situated within 2 no. Groundwater Bodies (GWB), the Lisdowney GWB and the Durrow GWB. The western half of the site is located on the Lisdowney GWB, which extends over an area of ~54 km2, stretching from Durrow Townparks in Co. Laois to Clomantagh in Co. Kilkenny. The Lisdowney Groundwater Body is underlain by the Bregaun Sandstone and Kileshin Siltstone Formations and is classified as a poor aquifer and generally unproductive.

To the east of the Proposed Wind Farm, there is a gravel aquifer mapped, the River Nore Upper Sand & Gravel. This gravel aquifer exits along the margins of the River Nore.

The nearest SAC is the River Barrow and River Nore SAC which runs ~0.33km east along the eastern boundary of the Site. This designated site can be considered to be very sensitive in terms of potential effects. The Cullahill Mountain SAC and Spahill and Clomantagh Hill SAC are located further west from the Site. The Lisbigney Bog, which is listed as a pNHA and an SAC, is mapped ~4.2km northeast of the Site.

Following implementation of the appropriate mitigation measures as outlined in the EIAR no significant effects on these designated sites will occur as a result of the Proposed Development.

There are a number of Group Water Schemes and Public Water Supply schemes in the area, which source their water from both the bedrock aquifers and the gravel aquifer. The closest mapped GWS is

the Seskin GWS, situated along the banks of the River Nore. Other nearby GWS include the Ballyconra PWS (now used by Tirlán), the Durrow PWS, Fermoyle PWS, Cullahill GWS and the Ballyragget infiltration gallery. A hydrogeological assessment has been completed in relation to each of these sources, based on groundwater levels, aquifer types, hydraulic gradients and distances involved. Given the locations of these drinking water protected areas from the Proposed Wind Farm site and following implementation of the appropriate mitigation measures as outlined in the EIAR no significant effects on this drinking water protected areas will occur as a result of the Proposed Development.

During each phase of the Proposed Wind Farm development (construction, operation, and decommissioning) a number of activities will take place at the Proposed Wind Farm site, some of which will have the potential to significantly affect the hydrological/hydrogeological regime or water quality at or downstream of the Proposed Wind Farm site. These significant potential effects generally arise from sediment input from runoff and other pollutants such as hydrocarbons and cement-based compounds.

Surface water drainage measures, pollution control and other preventative measures have been incorporated into the project design to minimise significant effects on water quality (surface and groundwater), downstream designated sites and water resources. A self-imposed 50m watercourse buffer was used during the design of the Proposed Development, thereby avoiding sensitive hydrological features. The surface water drainage plan will be the principal means of significantly reducing sediment runoff arising from construction activities and to control runoff rates. The key surface water control measure is that there will be no direct discharge of wind farm runoff into local watercourses or into the existing site drainage network. This will be achieved by avoidance methods (i.e. stream buffers) and design methods (i.e. surface water drainage plan). Preventative measures also include fuel and concrete management and a waste management plan which will be incorporated into the Construction and Environmental Management Plan.

No significant effects to surface water (quality and flows) and groundwater (quality and quantity, and any local groundwater wells) will occur as a result of the Proposed Wind Farm provided the proposed mitigation measures are implemented. This EIAR presents proven and effective mitigation measures to mitigate the release of sediment which will reduce the concentration of suspended solids to acceptable levels. The storage and handling of hydrocarbons/chemicals will be carried out using best practice methods which will ensure the protection of surface and groundwater quality. The base of the substation transformer will be bunded and capable of holding 110% of the stored oil volume. Turbine transformers are fully bunded located within the enclosed turbines, so any leaks would be contained within the turbines. The proposed wind farm drainage system will be designed to slow surface water runoff from the site by providing greater attenuation. This will ensure that the Proposed Development does not alter downstream surface water flows and will not contribute to downstream flooding.

An assessment of the impacts associated with any potential piling works concluded that, with the implementation of the prescribed mitigation measures, and due to the small footprint of the piles, there will be no significant effects on the water environment.

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 Development. 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 Development. The Proposed Development has been found to be fully compliant with the WFD and will not prevent any waterbody from achieving its WFD objectives.

An assessment of potential cumulative effects associated with the Proposed Development and other developments on the hydrological and hydrogeological environment has been completed. With the implementation of the mitigation measures detailed in this EIAR, the cumulative assessment found that there will be no significant effects on the hydrological and hydrogeological environments.

No significant effects on the water environment will occur during the construction, operation or decommissioning of the Proposed Development.

Proposed Grid Connection

The Proposed Wind Farm will connect into the proposed onsite 38kV substation, which is located in the east of the Proposed Wind Farm site. This substation will be connected to the existing 110kV Ballyragget Substation via a c. 3.4km long underground cabling route. The existing Ballyragget 110kV Substation is located approximately 1.8km southeast of the Proposed Wind Farm site. The proposed onsite 38kV Substation, adjacent temporary construction compound and the first c. 0.3km of the underground cabling route to Ballyragget Substation are elements of the Proposed Grid Connection which overlap with the Proposed Wind Farm site.

Designated sites located near and downstream of the Proposed Grid Connection underground cabling route include the River Barrow and River Nore SAC and the River Barrow and River Nore SPA. Due to the minor and transient nature of the proposed works, coupled with the prescribed mitigation measures, there will be no significant effects on downstream designated sites.

The Proposed Grid Connection underground cabling route is underlain primarily by a Gravel Aquifer. However, due to the minor, shallow and transient nature of the works and the prescribed mitigation measures, there will be no significant effect on the underlying aquifer.

Several public water supplies (Seskin GWS and Ballyragget infiltration gallery) are also mapped in the vicinity of the Proposed Grid Connection underground cabling route. However, due to the minor, shallow and transient nature of the works and the prescribed mitigation measures, there will be no significant effect on these water supplies.

An assessment of the construction, operational and decommissioning phases has been completed, along with a cumulative assessment for each phase. Based on the above, and with implementation of the outlined mitigation measures, no significant effects on the surface water and groundwater environments will occur.

# 1.10 Air Quality

This chapter identifies, describes and assesses the potential significant direct and indirect effects on air quality arising from the construction, operation and decommissioning of the Proposed Development.

The air quality zone for the Site was selected, followed by a review of EPA collated baseline air quality data namely Sulphur Dioxide ($SO_2$), Particulate Matter ($PM_{10}$), Nitrogen Dioxide ($NO_2$), Carbon Monoxide (CO) and Ozone ($O_3$) for the selected air quality zone to determine the representative levels of such emissions for the Proposed Development

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 Site lies within Zone D, which represents rural areas located away from large population centres.

The air quality in the vicinity of the Proposed Development is typical of that of 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 2022' was published by the EPA in 2023. The EPA reports provide $SO_2$, $PM_{10}$, $NO_2$ and $O_3$ concentrations for areas in Zone D. These can be seen in Section 10.2 of Chapter 10.

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 Development will include vehicular and dust emissions.

A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-2). 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.

There will be no net carbon dioxide (CO2) emissions from operation of the Proposed Development. By providing an alternative to electricity derived from coal, oil or gas-fired power stations, the Proposed Development will result in emission savings of carbon dioxide (CO2), oxides of nitrogen (NOx), and sulphur dioxide (SO2). The production of renewable energy from the Proposed Development will have a Long-Term Moderate Positive effect on air quality due to the offsetting of approximately 30,934 tonnes of Carbon Dioxide (CO2) per annum, or 1,082,690 tonnes of carbon dioxide over the proposed 35 year lifecycle of the Proposed Wind Farm.

# 1.11 Climate

This chapter identifies, describes and assesses the potential significant direct and indirect effects on climate arising from the construction, operation and decommissioning of the Proposed Development.

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 2024, the Environment Protection Agency (EPA) released '*Ireland's Greenhouse Gas Emissions Projections 2023-2050*'. 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 Irelands greenhouse gas emissions in different ways. The WEM scenario forecasts Ireland emissions including all national policies and measures implemented by the end of 2021, the latest inventory year. 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 2025 (CAP 2025), that are not yet implemented. As implementation of policies and measures occurs, they will be migrated into the WEM Scenario.

The latest EPA projections show that currently implemented policies and measures (WEM) will result in Ireland achieving a total GHG reduction of 9% on 2005 levels by 2030, significantly short of Irelands 2030 target under the EU Effort Sharing Regulation (ESR), i.e., 42% reduction of emissions compared to 2005 levels by 2030, and also lower than the 10% reduction projected in the 2023 report.[2] If policies and measures in the higher ambition (WAM) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 25% by 2030, still short of the 42% reduction target and also lower than the 30% reduction projected in last year's estimates. The EPA projections show that agriculture and transport emissions form the majority of ESR emissions; combined they represent 78% and 80% of emissions in 2022 (latest inventory data) and 2030, respectively. Decarbonisation of power generation is a key measure, not only in the energy sector, but for other energy intensive sectors, such as transport and agriculture, whose activities result in high levels of greenhouse gas emissions.

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.

[2] *Irelands Greenhouse Gas Emission Projections 2022-2024 (June 2023)* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-GHG-Projections-2022-2040_Finalv2.pdf>

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.

Given the absence of peat, the Proposed Development will not give rise to any impact on peat habitat. The Macauley Institute methodology states that the total volume of peat impacted by the construction of a wind farm is strongly correlated to the extent of the peatland affected by drainage at a site. Therefore, in calculating the carbon loss/saving of the Proposed Development, all potential carbon losses associated with constructing a wind farm on peatland environments were discounted. The carbon losses as a result of the manufacture, transportation and erection of the proposed turbines were included in the calculation.

The full life cycle and embodied carbon of the proposed 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 site infrastructure associated with the Proposed Development are considered using the Transport Infrastructure Ireland (TII) Carbon Tool (TII 2022)[3]. 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 Proposed Development will result in the loss of 76,647t$CO_2$e during the construction phase, the details of these carbon losses are provided in Table 11-5 of Chapter 11 of the EIAR. 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 Development will likely be less than the values provided in Table 11-5 of Chapter 11.

The Proposed Wind Farm will have a maximum output of 48MW, the **76,647** tonnes of $CO_2$ that will be lost to the atmosphere due to changes in soil and ground conditions and due to the construction and operation of the Proposed Development will be offset by the Proposed Development in approximately **29.7 months** (2.5 years) of operation.

Following construction of the Proposed Development, 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 Development will have a Direct Long-Term Moderate Positive Effect on climate as a result of reduced greenhouse gas emissions.

[3] *Transport Infrastructure Ireland Carbon Tool for Road and Light Rail Projects: User Guidance Document* https://www.tiipublications.ie/library/GE-ENV-01106-01.pdf

## 1.12 Noise and Vibration

AWN Consulting Limited has been commissioned to conduct an assessment into the likely environmental noise and vibration impacts of the Proposed Project, which comprises the Proposed Wind Farm Site at Seskin, along with the Proposed Grid Connection.

The background noise environment has been established through noise monitoring surveys undertaken at seven 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 derived 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 and 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 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.

## 1.13 Landscape and Visual

Chapter 14 of this EIAR includes the Landscape and Visual Impact Assessment (LVIA) of the Proposed Development located in Co. Kilkenny and Co. Laois. The LVIA comprises a comprehensive assessment of sensitive landscape and visual receptors located within a 20km LVIA Study Area. The LVIA was conducted in accordance with best practice LVIA guidance for wind energy development, with methods including desktop analysis, on-site appraisals, topographic and ZTV modelling and use of photomontage visualisations.

Chapter 14 presents the landscape and visual baseline conditions of the Proposed Development site, outlines the local policy context with respect to landscape and visual designations, models the ZTV to identify the landscape and visual receptors which have theoretical visibility. All receptors included for further assessment following ZTV mapping and on-site visibility appraisals were assessed following a structured methodology grounded in best practice guidance for LVIA and impact assessment of wind energy developments. The impact assessments are informed by photomontage visualisations and information gathered during site visits and desk study. This LVIA assesses the contribution of the Proposed Development to cumulative landscape and visual effects in combination with other existing, permitted and proposed wind farm developments in the LVIA Study Area.

The LVIA Chapter 14 is accompanied by one volume booklet and five appendices as follows:

- **EIAR Volume 2: Photomontage Booklet**, presenting photomontage visualisations of the Proposed turbines from 15 no. representative viewpoints VP01-VP15, including modelling of other existing, permitted and proposed wind energy developments;
- **Appendix 14-1: LVIA Methodology**, outlining the guidance and detailed methodology used for the assessments conducted in the LVIA;
- **Appendix 14-2: LCA Assessment Tables**, assessing landscape and cumulative effects of 9 no. Landscape Character Areas (LCAs) scoped in for assessment;
- **Appendix 14-3: Photomontage Viewpoint Assessment Tables**, assessing visual and cumulative visual effects at viewpoints VP01-VP15 presented in the Photomontage Booklet;
- **Appendix 14-4: LVIA Baseline Map**, an A0 map showing all baseline landscape features, viewpoints, and visual receptors;
- **Appendix 14-5: Photowire Visualisation Booklet**, presenting photowires (early-stage draft photomontages) from 8 no. additional viewpoint locations throughout the LVIA Study Area that were not included in the Volume 2 Photomontage Booklet; photowires do not include modelling of cumulative developments.

Chapter 14 assesses and reports the likely significant landscape and visual impacts arising as a result of the Proposed Development. Although all elements of the Proposed Development are assessed, the LVIA focusses upon the Proposed turbines, as they are deemed to be the essential aspects of the proposal under assessment from a landscape and visual perspective. The LVIA describes the baseline landscape and assesses direct effects on the landscape of the Proposed Wind Farm site, as well as effects on landscape character and the impact on designated LCAs. Visibility of the Proposed turbines were analysed from receptors within a study area extending 20km from the Proposed turbines; and visual effects from specific visual receptors were determined from information gathered during multiple site visits as well as other tools such as ZTV mapping and photomontages.

9 No. designated LCAs were identified and included for further assessment; six from Co. Kilkenny and six from Co. Laois. The effects of the Proposed Development on the character and physical fabric of these LCAs were comprehensively assessed in *Appendix 14-2*, including potential for cumulative effects. The highest landscape effect of 'Moderate' rating will occur for Kilkenny LCA-H Nore Valley (South), as this is a higher sensitivity landscape area designated for its scenic amenity and is within close proximity of the Proposed Development at its northern-most point, thus there will be impact one of the LCA's key characteristics defined as '*extensive open mountain views*'. Landscape effects on Kilkenny

LCA-A Slieveardagh Hills (North) and Laois LCA-1 Mountains, Hills and Uplands are deemed to be 'Slight' where 7 of 8 no. Proposed turbines will materially alter the LCA. Landscape effects on Kilkenny LCA-F1 Northern Basin with the remaining 1 no. Proposed turbine and part of the underground Proposed Grid Connection Route are deemed to be 'Not Significant'. Residual landscape effects on the remaining LCAs are deemed to be 'Not Significant'. Effects on landscape character from the other LCAs only relate to impacts on perceptual and aesthetic qualities.

Baseline investigations identified a total of 82 No. visual receptors in the LVIA Study Area including 15 No. Co. Kilkenny designated Scenic Views and Co. Laois designated Views and Prospects, 1 No. OSi Viewing Area, 36 No. settlements, 13 No. recreational, tourism and cultural destinations and recreational routes (i.e. walking trails), and 31 No. regional- and national-level transport routes. A preliminary analysis using ZTV mapping and on-site visibility appraisals excluded most receptors from assessment due to the receptors having no visibility or very limited potential for visibility of the Proposed turbines. 34 No. visual receptors were scoped in for assessment in the LVIA and are visually represented by the selected photomontage viewpoints and supplementary photowire viewpoint imagery.

On-site visibility appraisals, ZTV mapping, Route Screening Analysis and assessment of over 23 no. viewpoint locations (15 No. in the *EIAR Volume 2: Photomontage Booklet* and 8 No. in *Appendix 14-5*) determined that visibility of the Proposed turbines will be very limited from locations beyond 5 km to the east and west from the Proposed turbines, and distant open visibility occurs from the lowlands to the north and south therefore, the focus of assessment of visual effects on visual receptors was concentrated to sensitive receptors within 5km of the Proposed Wind Farm and receptors along the N77 National Road.

The photomontages were used to illustrate the assessment of the visual effects arising as a result of the Proposed Development. The likely significant visual effects from each viewpoint are comprehensively addressed in *Appendix 14-3*, including assessment of cumulative effects. The assessment concluded that no 'Profound' or 'Very Significant' residual visual effects occurred at any viewpoint. A residual visual effect of 'Significant' was deemed to arise at 3 viewpoints, a residual visual effect of 'Moderate' was deemed to arise at 3 viewpoints, a residual effect of 'Slight' at 6 viewpoints and a residual effect of 'Not Significant' at 3 viewpoints.

A residual visual effect of 'Significant' occurred at 3 of the 15 viewpoints – VP05 Ballynaslee, VP14 Archerstown North-East and VP15 Archerstown South-West, primarily owing to the high sensitivity of residential receptors in close proximity to the Proposed Wind Farm site expected to experience a substantial magnitude of change in view as a result of the Proposed Development. The number of residential receptors to experience this effect is low. Factors which mitigate the impact of residual visual effects include the project's compliance with the 500m set-back distance from residences and the 4-times-tip-height set-back distance for visual amenity set out by the 2006 and 2019 Wind Energy Development Guidelines.

The contribution of the Proposed Development to cumulative residual effects on landscape character and cumulative residual visual effects is discussed in the impact assessments of *Appendix 14-2* and *Appendix 14-3* as well as in the main chapter. The cumulative photomontages in the *EIAR Volume 2 Photomontage Booklet* illustrate the nature and extent of potential cumulative visual effects which are likely to occur on specific visual receptors and the differing geographic perspectives surrounding the Proposed Wind Farm. Some cumulative effects on landscape character are anticipated for two LCAs: Kilkenny LCA-A Slieveardagh Hills (North) which contains 5 out of 8 no. Proposed turbines along with the Existing Lisdowney Wind Farm (4 turbines) at 4.3.km from the Site, and Kilkenny LCA-B Castlecomer Plateau which contains the Proposed Ballynalacken Wind Farm (12 turbines) situated on the adjacent elevated hill across the Nore Valley from the Proposed Development.

The greatest cumulative visual effects occur at the northern end of the Nore Valley where in combination effects occur between the Proposed Wind Farm and both the Existing Lisdowney Wind Farm and also potentially the proposed Ballynalacken Wind Farm. The undulating and well-defined

landform features and highly dense levels of vegetation of the area have the potential to reduce the extent of cumulative visual effects experienced by visual receptors in the surrounding landscape. It is highlighted that the status of the Ballynalacken Wind Farm is 'proposed' and therefore any potential cumulative effects are reliant on the outcome of the consenting system, therefore this is an uncertain scenario.

Overall, the Proposed Development adheres to good siting and design according to best practice wind energy development guidelines, sited in a landscape of low sensitivity, with no potential for significant residual effects on key landscape and visual sensitivities identified in the LVIA Study Area from local planning policy. Significant residual effects on residential visual amenity are localised to a very small number of residential receptors. It is to be anticipated that wind farms inevitably cause some 'Significant' residual visual effects on proximate sensitive visual receptors due to the prominence of turbines within landscape views. The presence of wind turbines in the rural landscape of Ireland is consistent with evolving national climate policy and the changing character of Ireland's working landscapes. The Proposed Development is therefore considered acceptable in this context and is in alignment with emerging baseline trends

# 1.14 Archaeological, Architectural and Cultural Heritage

The Proposed Wind Farm is located within the townlands of Ballyconra, Seskin, Seskin North and Ballynaslee, County Kilkenny, and Archerstown and Tinwear, County Laois. The Proposed Grid Connection passes through Ballyconra and Moatpark in County Kilkenny. The TDR comprises existing roadways from the M7, through the towns of Abbeyleix and Durrow and reaching the wind farm site via the N77. The TDR will require minimal accommodation works to the existing road network. The Proposed Wind Farm site is primarily comprised of agricultural land set within a rural landscape

There are two recorded monuments within the Proposed Wind Farm. A further 282 monuments are recorded within the 5km study area, including two which are additionally protected by a Preservation Order. There are no National Monuments within 5km of the Proposed Wind farm. The closest is a church (KK013-018001) in Ballylarkin Upper, c. 9.76km southwest of Turbine 8 (Nat. Mon. No. 282).

There are no protected structures located within the Proposed Wind Farm. Similarly, no structures listed in the NIAH are located within the development area. A large number of structures within the environs are listed in both the Record of Protected Structures (RPS) and National Inventory of Architectural Heritage (NIAH), with built heritage concentrated within the settlements of Durrow to the north and Ballyragget to the south, both of which are also contain Architectural Conservation Areas.

There are 14 Designed Landscapes (DL) within 5km of the Proposed Wind Farm. None of these are located within the Proposed Wind Farm site.

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 24 CH sites have been identified within the Proposed Wind Farm and the 2km study area.

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.

It is possible that the construction of the wind farm and the cable route, in greenfield area, 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, cable routes, access roads, temporary construction compound and borrow pit. Effects, dependent on the sensitivity of any remains identified and prior to the application of mitigation, have the potential to be moderate to very significant.

The construction of the development will not result in any effects on the CH sites identified during the course of this assessment. There will be a number of direct, negative effects on sections of townland boundaries that will be crossed by the access road or where sections will be removed due to ecological constraints. One small section will be removed between Seskin and Ballycrona; three short sections will be removed between Seskin and Ballynaslee; two small sections will be removed between Seskin and Tinwear and three small sections between Archerstown and Tinwear. The townland boundaries are of medium sensitivity and the magnitude of impact is low. Overall, the significance of effect is considered slight in each case.

Prior to the commencement of construction, a programme of archaeological test trenching will be carried out at the location of the proposed turbine hardstands, compound, borrow pit and along the

access roads. This work will be carried out under licence to the National Monuments Service of the DHLGH. Dependent on the results of the testing assessment, further mitigation may be required, such as preservation by record or in-situ and/or archaeological monitoring. Any further mitigation will require agreement from the DHLGH.

All inventions that are required along townland boundaries, as part of the construction of the proposed development, will be subject to archaeological monitoring, to 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.

All topsoil stripping associated with the proposed development, including site investigation, will be subject to archaeological monitoring. 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 may be required, such as preservation by record or in-situ. Any further mitigation will require agreement from the DHLGH.

A full assessment of the potential, indirect operational phase effects on the archaeological, architectural and cultural heritage resource has been carried out. This has been carried out utilizing the Zone of Theoretical Visibility (ZTV) mapping and photomontages for the development, produced as part of the Landscape and Visual assessment (Chapter 14). It should be noted that the ZTV is a bare-earth model and does not take account of any potential screening from vegetation or buildings. Where no impact is defined regarding a site, this is due to the fact that the site is either no longer extant, or the ZTV mapping indicates no turbine visibility from this location. The assessment assumes long term effects based on the proposed operational life of 35 years.

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 castle c. 1.99km east-southeast of Turbine 7.

Two significant negative operational impacts have been identified in relation to recorded archaeological heritage sites due to the proximity of the proposed turbines. These sites consist of two upstanding ringforts located within 250m of the closest Proposed Wind Farm turbine. Moderate negative effects are predicted on a further seven archaeological heritage sites due to the proximity of the proposed turbine layout within the landscape.

The remaining operational effects vary between not significant and slight negative, with a number of sites not subject to any effects due to the fact that the ZTV mapping indicates that the turbines will not be visible from certain portions of the study area.

No significant negative operational effects are predicted upon the Built Heritage sites, Cultural Heritage sites or Designed Landscapes.

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.

The decommissioning of the proposed development 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.

# 1.15 Material Assets

## 1.15.1 Traffic and Transport

An assessment of the traffic effects on the local highway network was undertaken for the Proposed Development. The assessment considers the likely impacts on the transport delivery route to the site resulting from the additional traffic movements that will be generated by the Proposed Development during the construction, operational and decommissioning phases.

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.

The Proposed Development will take 12 to 18 months to construct, the proposed 8 turbine wind farm, the proposed grid connection route linking to the existing 110kV Ballyragget Substation, and associated development, during which all turbine components and all other associated materials will be transported to the site.

**Traffic Route & Study Area**

The delivery route to the Proposed Wind Farm site for the abnormally sized loads transporting the large turbine components commences at Cork (Ringaskiddy) (other ports such as Galway Port, Shannon Foynes od Dublin Port could also be used). From the Port of Cork (Ringaskiddy), the turbine component delivery vehicles will travel north via the N28 and N40 National Primary Roads before merging onto the M8 Motorway and subsequently the M7 Motorway. At Junction 17 (Portlaoise), the vehicles will exit the M7, travelling south on the N77 National Secondary Road for approximately 25km. The vehicles will travel through the town of Abbeyleix and the village of Durrow in Co. Laois. In the townland of Ballynaslee, Co. Kilkenny the turbine component delivery vehicles will reverse on to the L58333 local road from the existing junction on the N77 and continue north on this local road for approximately 700m to the Proposed Wind Farm entrance.

The abnormal loads will be delivered in convoys of 3 vehicles per night over 22 separate days/nights. It is proposed that this existing agricultural entrance off the L-58333 will also be used on 8 separate days for concrete deliveries during the construction of the turbine foundations.

All other construction related traffic will gain access to the site via the same existing agricultural entrance off the L-58333 located on the eastern boundary of the Proposed Wind Farm site. Construction activity at this junction will continue for an estimated 217 working days, after which it is proposed that this access will be retained to provide for maintenance staff once the Proposed Wind Farm is in operation.

The Proposed Grid Connection underground cabling route connects to the existing Ballyragget 110kV Substation, located in the townland of Moatpark, County Kilkenny, and measures approximately 3.4km. It is estimated the route will take approximately 23 days to construct, of which approximately 14.5 days will be required to construct the section following the alignment of the N77 road corridor. During the construction of this section, which could be undertaken during one night, a “Stop & Go” traffic management system will be in operation in order to retain a 2-way flow on the N77. It is therefore concluded that no road closures will be required during the construction of the Proposed Grid Connection underground cabling route.

**Vehicle types and network geometry**

The types of vehicles that will be required to deliver the turbine plant will be up to 81.2 metres long and will carry a blade 75 metres in length.

An assessment of the geometric requirements of the delivery vehicles was undertaken on the TDR. In some cases, minor accommodation works are required along the turbine delivery route such as hedge or tree cutting, temporary relocation of powerlines/poles, lampposts, signage and local road widening. In addition to the assessment presented, it is recommended that a dry run is undertaken by the transport company to check vertical and horizontal clearance on the transport route prior to construction.

**Traffic impact on local network**

During the 8 days when the concrete foundations are poured, the effect on the surrounding road network will be that an additional 584 PCUs will travel to/from the Proposed Development site. On the delivery route, it is forecast that the increase in traffic volumes on these days will range from +8.0% to 8.1% on the N77 (Links 1 to 3) to +494.4% on the L58333 leading to the Proposed Development site (Link 4). On these busiest 8 days it is estimated that this will have a temporary, negative and slight effect on the N77 and more noticeable temporary, negative and moderate effect on the L58333. No Significant effects are forecast.

During the remaining 217 days when the Proposed Development site preparation and groundworks and construction of the grid connection continues, an additional 162 PCUS will travel to and from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will range from +2.2% on the N77 (Links 1 to 3) to +137.1% on the L58333 leading to the Proposed Development site (Link 4). It is estimated that this will have a temporary, negative and slight effect on the N77 and L58333. No Significant effects are forecast.

With respect to the traffic volumes that will be generated during the construction of the underground electrical cabling route, it is estimated that there will be approximately 30 daily return trips made by trucks removing spoil and transporting materials to the site, and 4 return trips made by a car to transport construction staff, to and from the Site. By its nature the effect impacts of these additional trips on the network will be transient and will therefore be temporary and slight.

During the 22 days / nights that the abnormal loads carrying the large turbine components travel to the Proposed Development site, an additional 105 PCUs will travel to/from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will range from between +1.4% and 1.5% on the N77 (Links 1 to 3), to +88.9% on the L58333 leading to the Proposed Development site (Link4). It is forecast that there will be a temporary, slight negative effect on traffic flows as the delivery of the abnormally sized loads is undertaken at night. No Significant effects are forecast.

For 8 days an additional 64 PCUs will travel to/from the Proposed Development site delivering smaller component parts using standard HGVs, it is forecast that the increase in traffic volumes on these days will range from +0.9% on the N77 (Links 1 to 3) to +54.2% on the L58333 leading to the Proposed Development site (Link 4). On these days it is considered that the additional traffic will have a temporary imperceptible negative effect on the N77, and a temporary slight negative effect on the L58333 leading to the site.

Once the Proposed Development is operational the traffic impact created by maintenance staff will be imperceptible.

## 1.15.2 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 the wind farm is directly in line with the transmitter radio path.

During the development of any large project that holds the potential to affect telecoms or aviation, the Developer is responsible for engaging with all relevant Telecoms 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.



Three operators have links within the Proposed Wind Farm site, Vodafone, Enet and Three. Ai Bridges was commissioned by MKO to evaluate the possible impacts that the Proposed Wind Development could have on the operators telecommunications networks. Mitigation measures were proposed and a full Telecommunications Impact Assessment report can be found in Appendix 15-3 of this EIAR.

There are no airports or aerodromes located within or adjacent to the Site. The nearest licensed aerodrome to the Proposed Development site is Kilkenny Airport which is located approximately 16.5km to the south of the Proposed Development site. The closest airport to the Proposed Development is Waterford Airport which is located approximately 69.5km to the south of the Proposed Development site. Waterford Airport has no passenger services operating to or from it. The closest operational airport is Dublin Airport which is located approximately 98km to the northeast of the Proposed Development site. Notification will be given to the Irish Aviation Authority 30 days prior to erection of the turbines and a data share of turbine coordinates and dimensions will be provided, as requested.

## 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 Development.

A request for information response was received from Uisce Éireann on the 25th of March 2024 which provided details in relation to specific water services within the EIAR Site Boundary. A request for information response was received from ESB Networks on the 28th of March 2024 which provided details in relation to electricity infrastructure within the EIAR Site Boundary.

No gas supply lines are located within the EIAR Site Boundary, the closest gas line is located approximately 245m west of the EIAR Site Boundary at its nearest point.

A desktop assessment, using Eir infrastructure eMaps[4], determined the presence of existing underground broadband cabling within the Site along the N77 national secondary road.

Details in relation to the Seskin Group Water Scheme (GWS) infrastructure were obtained through consultation between the Applicant and the GWS committee. There are underground water supply pipelines from the Seskin Group Water Scheme (GWS) situated within the Site. These pipelines provide agricultural water supplies to the surrounding area. The infrastructure of the Proposed Wind Farm and Proposed Grid Connection cross the underground pipelines at a number of locations within the Site.

The underground cabling route was planned to avoid existing services, but some may still need relocation. Pre-construction surveys will identify any such services, and the relevant service provider will be consulted as needed. If cables are present, new ducting will be installed and cables reconnected. Water mains, if encountered, will be diverted in line with utility standards.

[4] *eMaps open eir Civil Engineering Infrastructure Service*

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the Site. The closest, authorised municipal waste facility is located approximately 12.5km southeast of the Site in Dunmore, Co. Kilkenny. A Waste Management Plan (WMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-2 of the EIAR. With the implementation of best practice measures and all mitigation and monitoring measures set out in Chapter 15, the effects on utilities and waste management will be imperceptible for the short-term construction, operational and decommissioning phases.

# 1.16 Major Accidents and Natural Disasters

This section of the EIAR describes the likely significant effects on the environment arising from the vulnerability of the Proposed Development as detailed in Chapter 4 to risks of major accidents and/or natural disasters.

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Development and consequently have potential impacts on the environment. These include accidents during construction and operation caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disaster considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e., population and human health, biodiversity, ornithology, land, soil, water, air quality, 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 is being 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 16.3 of this EIAR,

The scenario with the highest risk score in terms of the occurrence of major accident and/or disaster was identified as 'Contamination' of the Site and risk of Fire/Gas Explosion' during the construction phases, 'Fire/Gas Explosion' during operational phase and 'Contamination' during the decommissioning phase.

The Proposed Development 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 Development is considered 'low' in accordance with the 'Guide to Risk Assessment in Major Emergency Management' (DoEHLG, 2010).

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

## 1.17 Interaction of Effects

Chapter 17 of this EIAR identifying the potential significant environmental effects that may occur in terms of Population and Human Health, Biodiversity, Birds, Land, Soils and Geology, Water, Air Quality, Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage, Material Assets and Major Accidents and Natural Disasters, as a result of the Proposed Development. All potential significant effects of the Proposed Development 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 Chapter 17 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 Development. Where any potential interactive impacts have been identified, appropriate mitigation is included in the relevant sections (Chapters 5–16) of the EIAR.