



White Hill Wind Farm

# Environmental Impact Assessment Report

## Annex 1.7: Sample Consultation Letter

White Hill Wind Limited

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23 April 2021

**Re: Pre-Application Scoping Request: Proposed Wind Farm Development in County Carlow and County Kilkenny**

To whom it may concern,

Carlow Wind Limited is proposing to develop a 7 no. turbine wind energy development including all associated ancillary infrastructure on lands northwest of Oldleighlin in County Carlow. The proposed development, which will have an approximate electrical capacity of 42 megawatts (MW), is to be known as the 'White Hill Wind Farm'. The proposed wind farm will be located in the townlands of Ridge, Knocknabranagh and Knockbaun, and Baunreagh, County Carlow; and Coolcullen, County Kilkenny.

The proposed development will also include off-site secondary developments to accommodate the construction and operation of the proposed wind farm including haul route upgrade works and a connection to the national electricity network.

Galetech Energy Services (GES) is currently carrying out a detailed Environmental Impact Assessment (EIA) scoping exercise on behalf of Carlow Wind Limited, in order to assess and confirm the suitability of the site for this development. A Preliminary Scoping Report is enclosed in **Annex 1** and includes a description of the development currently under consideration and a set of site location and layout drawings.

As part of this scoping assessment, and in accordance with the Environmental Impact Assessment (EIA) Directive, GES endeavours to engage all stakeholders at an early stage of project design in order to allow for a more focused consideration of any likely significant environmental effects. Should you have any comments on the proposed development in respect of your specific area of competence, we would be grateful if you could send them to us by 21 May 2021. Feedback can be sent by post to Bláithín Rafferty at the above address (Cavan Office) or by email to [brafferty@galetechenergy.com](mailto:brafferty@galetechenergy.com).

We wish to highlight that the current project design may be subject to further change resulting from ongoing consultation and assessment throughout the EIA process.

Should you have any queries relating to the proposed development, please do not hesitate to contact this office.

*Galetech Energy Services*

**Galetech Energy Services**

**Annex 1 –  
Preliminary Scoping Report**





White Hill Wind Farm

# Preliminary Scoping Report

Carlow Wind Limited

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## DOCUMENT CONTROL

	Function	Name
Content	Planning Team	Various
Approval	Senior Planner	Simon Carleton

## RECORD OF CHANGES

Revision Number	Issue Date	Summary of change	Approved
00	21/04/2021	Content	Bláithín Rafferty

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2			
3			
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# Contents

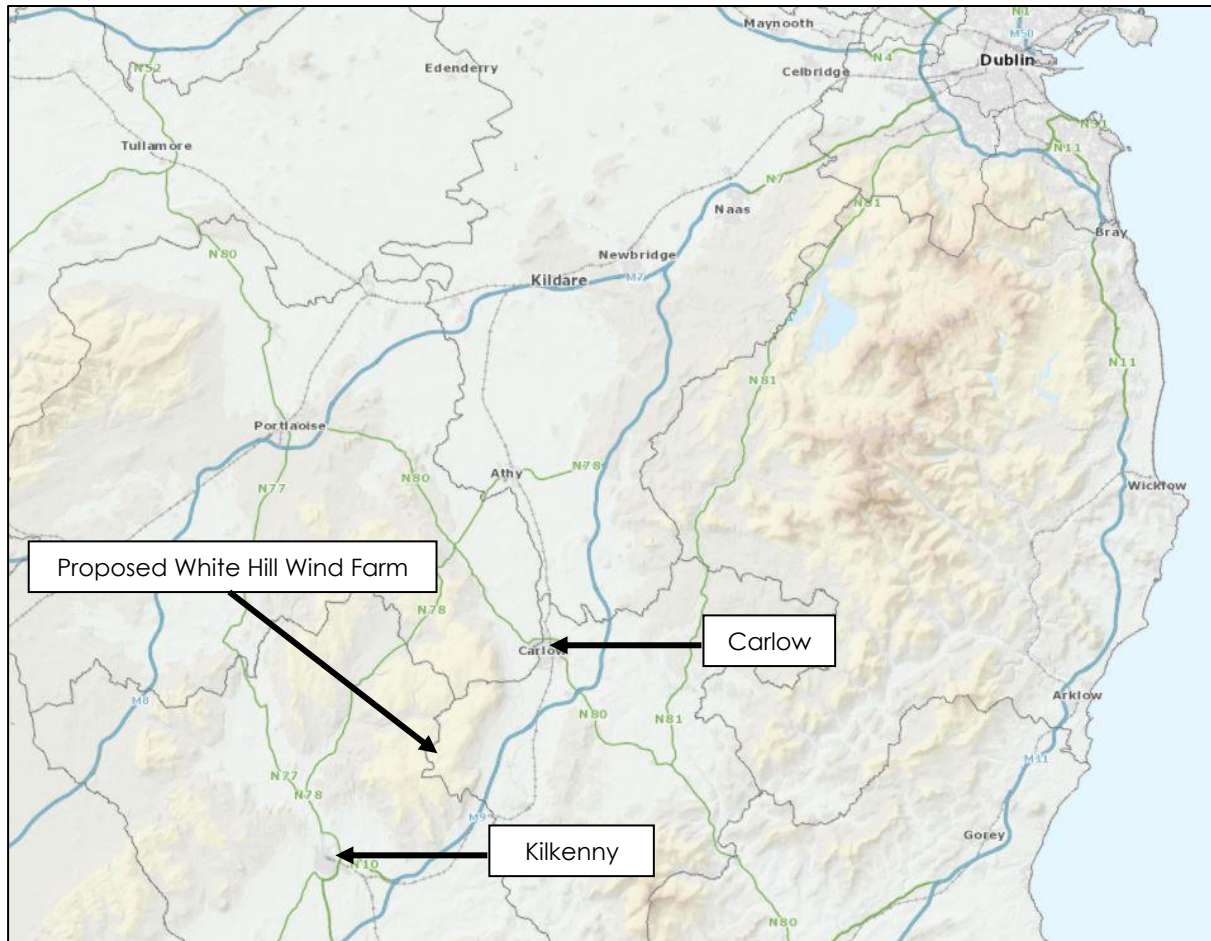
<b>1.0</b>	<b>Introduction</b> .....	<b>1</b>
1.1	The Applicant.....	1
1.2	Purpose of this Report .....	2
<b>2.0</b>	<b>Environmental Impact Assessment (EIA)</b> .....	<b>2</b>
2.1	EIA Screening .....	2
2.1	Environmental Impact Assessment Report (EIAR) .....	2
2.2	Content of the EIAR.....	4
<b>3.0</b>	<b>Proposed Development</b> .....	<b>4</b>
3.1	Wind Turbines.....	5
3.2	Turbine Foundations .....	6
3.3	Hardstandings.....	6
3.4	On-Site Access Tracks .....	7
3.5	Internal Wind Farm Cabling.....	7
3.6	Electrical Substation .....	7
3.7	Meteorological Mast .....	7
3.8	Turbine Component Haul Route .....	7
3.8	Grid Connection.....	8
<b>4.0</b>	<b>Scope of the EIAR</b> .....	<b>8</b>
4.1	Project Alternatives .....	8
4.2	Population & Human Health.....	8
4.3	Biodiversity.....	9
4.4	Land & Soil.....	10
4.5	Water.....	10
4.6	Air & Climate.....	11
4.7	Landscape.....	12
4.8	Cultural Heritage .....	12
4.9	Noise & Vibration.....	13
4.10	Shadow Flicker.....	13
4.11	Material Assets .....	13
<b>5.0</b>	<b>Consultation</b> .....	<b>14</b>
5.1	Statutory Consultation.....	14
5.2	Public Consultation .....	14





## 1.0 Introduction

Carlow Wind Limited (CWL) intends to apply for planning permission to construct and operate a wind energy development, to be known as the White Hill Wind Farm. The proposed White Hill Wind Farm is located in west County Carlow and east County Kilkenny; c. 13km southwest of Carlow, c. 14km northeast of Kilkenny City and c. 4km west of Oldleighlin. The location of the proposed wind farm is provided at **Figure 1** below.



**Figure 1: Site Location**

### 1.1 The Applicant

CWL is a renewable energy development company with substantial experience in the renewable industry; the company principals owning and operating a number of permitted and operational wind farms both within Ireland and internationally.

#### 1.1.1 The Agent

Galetech Energy Services (GES) has been commissioned by CWL to coordinate the preparation of an Environmental Impact Assessment Report (EIAR) including the scoping process. GES is an Irish multi-disciplinary renewable energy consultancy that specialises in the project management of planning, environmental and technical engineering services of wind energy developments from project feasibility through to delivery and operation. GES combines the expertise of leading experts in wind farm design, planning and environmental assessment and has extensive experience in managing and coordinating EIAR projects for wind energy and associated

electricity grid and substation developments.

## 1.2 Purpose of this Report

This Preliminary Scoping Report has been prepared to provide a high level overview of the proposed development, to allow consultees inform themselves of the scope of the project and provide comments on information which should be included in the EIAR. The report also sets out to provide an overview of the EIAR scoping process undertaken by the applicant to date.

A comprehensive Scoping Report, detailing the entire scoping process including environmental scoping by appointed consultants, consultation with local communities and the general public, and consultation with statutory consultees will accompany a planning application for the project as an annex to the EIAR.

## 2.0 Environmental Impact Assessment (EIA)

EIA is a process required by the European Union (EU) Environmental Impact Assessment Directive 2011/92/EU, as amended by 2014/52/EU, and transposed into Irish law by way of Part X of the Planning & Development Act 2000 (as amended).

EIA is carried out by the relevant competent authority to ensure that projects, where the likelihood of significant effects on the environment cannot be excluded, are subject to a comprehensive and independent examination, analysis and evaluation of their likely significant effects on the environment; including the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects; of both their construction and operational phases, prior to being granted planning permission.

### 2.1 EIA Screening

In accordance with the provisions of the Planning & Development Act 2000 (as amended), EIA is mandatory when certain classes of projects exceed specific sizes and thresholds. Planning applications for such projects must be accompanied by an Environmental Impact Assessment Report (EIAR). Schedule 5 of the Planning and Development Regulations 2001 (as amended) provides that the following class of development proposal shall be subject to EIA:-

*“Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts”*

The proposed development consists of 7 no. wind turbines, and ancillary infrastructure, and is therefore of a scale which exceeds the mandatory threshold for EIA and, consequently, an EIAR will be prepared and submitted with the planning application.

### 2.1 Environmental Impact Assessment Report (EIAR)

An EIAR is a written statement of the likely significant effects, if any, which the proposed development, if carried out, will have on the environment. The EIAR consists of a systematic analysis of the proposed development, including its construction, operational and decommissioning phases, in relation to the existing environment. It is an iterative process carried out throughout the full lifecycle of the project design and consenting process so as to allow for preventative and ameliorative action, as necessary, at a point in time when changes can still be made to the project that anticipate, avoid and mitigate any likely significant effects foreseen.



The EIAR is the principal document that informs the EIA process and provides integral information which consenting authorities can use, amongst other considerations, in independently undertaking EIA and informing a decision making process.

The EIAR can also be used by third parties, including members of the public concerned, as part of the public participation process, to evaluate the proposed development and its likely significant environmental effects, and to inform any submissions made to the planning application process.

The EIAR will be prepared in accordance with the provisions contained within Schedule 6 of the Planning and Development Regulations 2001, as amended, which sets out the information to be contained in an EIAR. In addition, the EIAR will take account of the contents of Directive 2014/52/EU (the 2014 EIA Directive), which was adopted in the EU on 16th April 2014, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The 2014 EIA Directive was transposed into Irish planning law from the 1 September 2018 via the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

### 2.1.1 Purpose of the EIAR

The purpose of the EIAR is to protect the environment and inform decision making processes. The EIAR provides for a system of sharing information about the environment, within which a proposed development sits, and enables effects to be foreseen and prevented during the design and consent stages. The purpose of the EIAR is to:-

- Anticipate, avoid and reduce significant effects;
- Assess and mitigate effects;
- Maintain objectivity;
- Ensure clarity and quality;
- Provide relevant information to decision makers; and
- Facilitate better consultation.

It is a statutory requirement that the EIAR pays particular regard to the:-

- Key alternatives;
- Proposed project;
- Receiving environment;
- Likely significant effects;
- Mitigation and monitoring measures; and
- Residual effects.

A non-technical summary must also be provided.

### 2.1.2 EIAR Methodology

The EPA have published a set of revised '*Guidelines on the Information to be contained within an EIAR*' and these guidelines have been updated to reflect the 2014 EIA Directive and the provisions contained therein. The guidelines have been published in draft form (August 2017) and provide an update on the previous guidelines which were initially published in 2002. The guidelines are a statutory document and provide guidance on the role of the EIAR in the EIA process, the key activities involved in the EIAR process, and guidance on the presentation of the information contained in the EIAR.

The EIAR team will have regard to these guidelines in the preparation of the EIAR documents; additionally the team will also have regard to best practice guidance

for each individual environmental topic covered by the EIA.

## 2.2 Content of the EIA

The EPA guidelines include a 7 no. stage approach (sequence) in the production of the EIA. This includes:-

- Screening;
- Scoping;
- Consideration of Alternatives;
- Project Description;
- Baseline Description;
- Assessment of Likely Significant Impacts; and
- Mitigation/Monitoring.

The guidelines outline that adherence to this sequence ensures an objective and systematic approach is achieved. Using this sequence, the environment is described using a number of specific headings and this provides for a separate section for each topic. The description of the existing environment, the likely significant effects (positive, negative, & cumulative), mitigation and monitoring measures, and residual impacts are then grouped together in each section, covering each topic. This format allows for ease of investigation into each topic and for specialist studies/input to be integrated seamlessly. The structure of this EIA is set out below:-

- Introduction;
- Assessment of Project Alternatives;
- Description of the Proposed Development;
- Population and Human Health;
- Biodiversity;
- Land & Soil;
- Water;
- Air Quality & Climate;
- Landscape;
- Cultural Heritage;
- Noise & Vibration;
- Shadow Flicker;
- Material Assets; and
- Interaction of the Foregoing.

Each chapter of the EIA will be structured using the following format:

- Introduction;
- Description of the Existing Environment;
- Description of Likely Significant Effects;
- Mitigation & Monitoring Measures;
- Residual Impacts; and
- Conclusion.

## 3.0 Proposed Development

The proposed development includes the construction and operation of a wind farm, comprising infrastructure including 7 no. wind turbines, hardstandings, access tracks, site entrances, meteorological mast, internal wind farm underground cabling, borrow pits and spoil deposition areas. The project will also include a range of off-site or secondary developments including the wind farm's connection to the national electricity grid, turbine component haul routes, construction material haul routes and the importation of materials. A set of location and layout drawings is provided

at **Annex 1**.

The table below outlines the location of key project infrastructure.

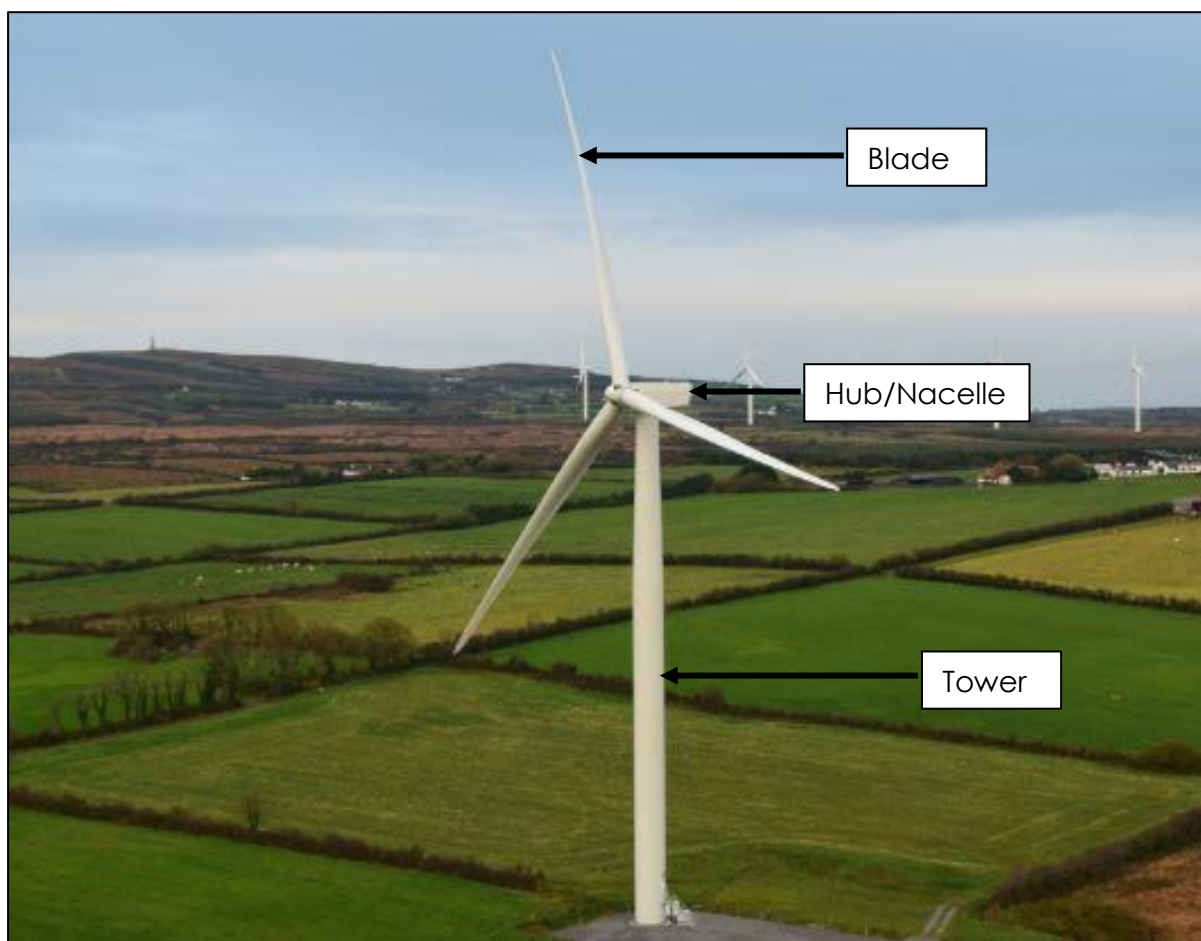
ID	Easting	Northing
Turbine A	661467	667060
Turbine B	661941	666818
Turbine C	661027	666207
Turbine D	661035	665510
Turbine E	660872	666650
Turbine F	660803	667129
Turbine G	661091	667626
Meteorological Mast	661467	667060

*Coordinates provided in Irish Transverse Mercator (ITM)*

### 3.1 Wind Turbines

The proposed turbines will each consist of a three-bladed rotor attached to a nacelle (hub) which contains the mechanical drive train and electrical generation mechanisms. The blades will be constructed of glass reinforced plastic and lightning protection conduits are integral to their construction. The nacelle is supported on a steel tower of tubular construction. The colour of the proposed turbines and blades will be white, off-white or light grey in accordance with the *Wind Energy Development Guidelines for Planning Authorities 2006* and as determined by the Planning Authority.

Given the available wind resource at the proposed development site, a wind turbine with an overall height of up to 180 metres is presently considered to be the most suitable turbine size for the subject site. It is important to stress, however, that the exact model and manufacturer of the turbine has not yet been chosen and options will remain open until the construction tender stage. A number of other turbine models with various hub height/rotor diameter combinations could be suitable for the subject site. Turbine technology changes rapidly and the final turbine model to be installed will be subject to a competitive tendering process prior to the commencement of construction. It may also be the case that the turbine discussed above will not be available at the time of competitive tendering due to the rapid obsolescence of individual models. A turbine with an overall tip height of 180m will therefore be used as a template for the basis of the assessments in the EIAR as it is currently the turbine available in the Irish market that best fits the required profile for the subject site.



**Figure 5: Typical Wind Turbine**

### 3.2 Turbine Foundations

Each turbine tower will be bolted down to a steel ring foundation which can comprise either a reinforced concrete raft foundation or a piled foundation. The type of foundation used for each turbine will depend upon the specific ground conditions at each location; however, given the ground conditions at the proposed development site, piled foundations are unlikely to be required. This shall, however, be established through detailed technical design and post-consent geotechnical investigations, as is normal best-practice in all construction projects.

The typical foundation depth for each turbine will be c. 3 metres, including granular fill area. This depth may immaterially vary depending on the depth to a stable formation at each turbine location. The area of each turbine base will occupy approximately 24m x 24m. Rock (if present), topsoil, subsoil and vegetation removed during construction of turbine foundation bases will be appropriately stockpiled and, in so far as is practicable, reused onsite in the formation of access tracks and site reinstatement, or removed from site to an appropriate licensed facility where excess material arises.

### 3.3 Hardstandings

Hardstanding areas shall be established adjacent to each turbine to facilitate crane operations for erection and occasionally for maintenance and decommissioning. Each hardstanding area shall typically be 50m x 30m for the construction phase and will consist of levelled and compacted (unsealed) hardcore. However, the precise size, arrangement and position of the hardstanding area will be determined by the

chosen turbine supplier and, as such, cannot be confirmed until a turbine model has been chosen.

Temporary set-down areas will be located adjacent to each hardstanding area during the construction phase to accommodate turbine components following delivery to site. Following the erection of turbines, these set-down areas will be reinstated to their pre-construction condition.

### **3.4 On-Site Access Tracks**

A total of c. 7km of on-site access tracks will be required for construction purposes and for site access during the operational phase. The access tracks proposed shall be similar to normal agricultural tracks but with a slightly wider typical running width of approximately 5-metres.

A number of site entrances will also be constructed to facilitate ease of access through the site. These entrances will be appropriately designed to ensure all visibility splays (sightlines) are provided for. In conjunction with the construction of 2 no. site entrances, it is proposed to re-align a short (c. 170m) section of the L7122 local road in County Carlow. The scope of these works will be agreed in full with Carlow County Council as part of ongoing consultation.

### **3.5 Internal Wind Farm Cabling**

Electrical cabling will be required to connect each turbine to the electrical substation. The cables will be located underground, installed in trenches of 1m in depth, and will generally follow the alignment of on-site access tracks.

### **3.6 Electrical Substation**

The electrical substation (switchroom & compound) will contain connection points and associated equipment such as incoming and outgoing circuit breakers, earth fault, protection devices, the grid transformer, metering equipment, computer and server. For safety and security reasons, the substation would be enclosed by a steel palisade fence of up to 3m in height and screened with landscaping.

The proposed substation will extend to an area of c. 1,050m<sup>2</sup>. The switchroom will comprise a single storey building, constructed of blockwork and finished in sand and cement render, slate roof covering and steel doors. The substation will also be accompanied by a dedicated site entrance (from the L7117) and a short access track. Additionally, CWL proposes to construct an energy storage system adjacent to the substation.

### **3.7 Meteorological Mast**

A permanent meteorological mast will remain on-site during the operational phase of the development (permanent as per the life span of the wind farm). The proposed permanent mast will be c.100m in height and will consist of a steel lattice structure to which various measurement instruments will be attached. Some ground works, including the construction of concrete foundations and hardstanding area, will be required to erect the mast.

### **3.8 Turbine Component Haul Route**

It is envisaged that the turbines will be transported from the Port of Waterford using the N29, N25, N9, M9, N78, L1834 (Kilkenny) and L3037 (Carlow). Temporary works; including the removal of street furniture (street lighting, signage, etc) and verge/roundabout island hardcoring; will be required at various locations along the route; however, substantial and permanent works are not currently assessed as



being necessary.

At the junction of the N78 and L1834, it is proposed to construct a temporary access track, to the south-east of the existing junction, to accommodate the delivery of abnormal-sized loads. The current junction is not capable of accommodating such loads and the construction of a temporary access track, which will be fully re-instated immediately following the delivery of turbine components, will facilitate same. CWL will engage with the relevant stakeholders, as part of the project design process, as part of ongoing consultation.

### 3.8 Grid Connection

The point of connection of the project to the national grid will ultimately be decided by ESB Networks and/or EirGrid and is beyond the control of CWL. As such, it is not currently possible to definitively state the nature or routing of the grid connection infrastructure. However, on the basis of detailed analysis by CWL including an assessment of the existing grid network and grid capacity in County Carlow and County Kilkenny, it is predicted that the electricity generated will be exported to the existing Scart 110kV electricity substation in Kilkenny. It is also likely that the grid connection infrastructure will comprise underground electricity lines; located predominately within the carriageway of the public road network. An indicative grid connection route is illustrated at **Annex 1**.

### 4.0 Scope of the EIAR

The EIAR will provide an assessment of effects during the construction, operation and decommissioning of the proposed development for each the environmental topics described in this section.

This section provides a brief overview of the level of scoping which has taken place to date, as well as the potential effects which have been identified and the proposed methodology for further assessment in the EIAR.

#### 4.1 Project Alternatives

Prior to the selection of the development under consideration, CWL undertook an extensive iterative process to assess a range of alternatives at both the macro-level and micro-level. The assessment of alternatives ranged from alternative site locations, site layouts and designs, technologies, grid connection options and haul route options. This process has so far determined that the development as proposed represents the most environmentally sensitive project having regard to all reasonable available alternatives.

However, the proposed development in its current layout and design remains subject to further revision in line with continued project scoping and ongoing statutory and non-statutory consultation,

#### 4.2 Population & Human Health

As part the scoping process, a desk based review of existing conditions in the area has been undertaken. It is anticipated that, during the construction phase, effects on community, recreation and tourism receptors will primarily be associated with traffic, noise, air quality and water impacts arising from the proposed development. Once the proposed development becomes operational, likely effects will primarily be associated with visual impact and noise impact.

In terms of human health, it is noted that impacts here will be closely linked with other environmental aspects associated with the proposed development which are relevant to human health, namely soils, water, air quality, noise, shadow flicker, and

radiation (grid connection). Other effects may include employment effects and impacts on the local economy.

The potential likely effects identified above along with potential cumulative effects with other wind farms and infrastructure projects, will be considered within the 'Population and Human Health' chapter of the EIA. Effects which are not considered 'likely' or 'significant' have been scoped out from further assessment and include;

- Safety issues connected with the operation of wind turbines;
- Health effects of wind turbine syndrome; and
- Effects of wind farms on property values as being a matter that is not relevant to the proper planning and sustainable development of the area.

The EIA chapter will also take into consideration the results of other assessments in the EIA which have relevance to health, as identified above. Recognised health evaluation criteria will be used and accurate baseline data provided. The findings of these assessments will be cross referenced in order to avoid duplication of findings.

Employment effects and direct expenditure will be quantified using data provided by CWL and, where necessary using standard industry data. Direct, indirect and induced effects on the local economy will be assessed using an economic model. Opportunities for local business and the local labour market to be involved in supply chain activities will be identified and where possible quantified.

### 4.3 Biodiversity

Early stage biodiversity scoping has been undertaken on the site in order to inform this Preliminary Scoping Report. This scoping process has included both desk based and field based research. The desk based research has included a review of available data sources and this has been supplemented by on-site walkovers and field surveys. These surveys have been ongoing for the past number of years and include bird surveys which have been undertaken to Scottish Natural Heritage (SNH) standards, mammal surveys, and habitat surveys, including the identification and classification of habitats within the site.

The proposed development is not located within any designated nature conservation areas; however due to the unique characteristics of the River Barrow and River Nore Special Area of Conservation (SAC), the proposed site is effectively surrounded by the SAC. The proposed development also traverses the Knocknabranagh and Knockbaun stream [Coolcullen River] which flows into the SAC c 2.7km downstream. Further to this designation, the River Nore is located c. 15km west of the proposed wind farm and c. 2km west of the identified grid connection route; while a number of Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are located within 15km of the proposed site. The planning application will also be accompanied by a separate Appropriate Assessment Screening Report [or Natura Impact Statement (NIS) if required] which will provide an assessment of the effects on the Natura 2000 network, in accordance with the Habitats Directive.

This early stage scoping work has identified a number of potential biodiversity effects, including:-

- Direct loss of habitat from the construction of the proposed development;
- Direct/Indirect damage to adjacent habitats during construction;
- Effects during construction on the hydrology of water dependant habitats;

- Effects on water quality both at a local level and regional level due to pollution run-off during both the construction and operation phases;
- Effects on aquatic species during construction or due to pollution events;
- Disturbance to local wildlife, including loss of habitat, disturbance and displacement;
- Collision risk to bats and birds;
- Damage to or habitat loss of important wildlife corridors during construction;
- Effects on migrating birds, whereby dispersal or migration routes are affected by the placement of turbines; and
- Effects on the conservation status or constituent parts of designated sites.

The EIAR chapter will address the nationally designated sites, terrestrial and freshwater (aquatic) habits and species, including those of conservation concern on and in close proximity to the proposed development site, including the prospective grid connection routes. The ecological evaluation of the site and its biodiversity will be assessed in accordance with recognised best practice manuals. Once a value has been assigned to identified ecological receptors, the potential impact and effect of the proposed development will be fully assessed using the criteria outlined in various guidelines including CIEEM (2016)<sup>1</sup>. The effects will be assessed under a number of parameters such as magnitude, extent, timing, frequency, duration, and reversibility. The impact significance criteria outlined by the EPA (2002 and 2017) will be used where applicable.

#### 4.4 Land & Soil

As part of the initial scoping process, a desk based review of the existing environment in the area has been undertaken. This has been completed using a series of available desktop resources including mapping and guidance. It is anticipated that, during the construction phase, effects on Land and Soil will primarily be associated with impacts on topsoil, subsoil, and bedrock resulting from excavation activities, potential contamination of soil associated with any leakages or spillages, erosion of exposed subsoil, and potential for ground instability and failure. It is anticipated that any effects associated with decommissioning may be similar but of a reduced magnitude.

In terms of operational phase effects, leaks and spillages from both vehicular traffic and from oils and hydrocarbons have been identified as potential effects. Cumulative effects with nearby wind farm developments and infrastructure projects will also be considered during the EIAR process.

The baseline data gathered during the scoping assessment, identified above, will be supplemented by further site specific studies and assessments within the proposed development site and wider study area.

#### 4.5 Water

An initial desk based review of existing conditions in the area has been undertaken. This has been completed using a series of available desktop resources including mapping and guidance. It is anticipated that, during the construction phase, effects on the water environment could include:-

- Ground water levels during excavation;
- Surface water quality;
- Accidental spillage which could result in the release of hydrocarbons during construction and storage;

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<sup>1</sup> CIEEM, Guidelines for Ecological Impact Assessment in the UK and Ireland, January 2016.

- Groundwater and surface water contamination;
- Release of cement based products and the associated impact of alkaline in the water supply;
- Morphological changes to surface watercourses and drainage patterns; and
- Effects on hydrologically connected sites.

The effects associated with decommissioning of the proposed development are considered likely to be similar to those associated with construction but of reduced magnitude

In terms of operational phase effects, it is likely that progressive replacement of the vegetated surface with impermeable surfaces could result in an increase in the proportion of surface water runoff reaching the surface water drainage network. During rainfall events, additional runoff coupled with increased velocity of flow could increase hydraulic loading, resulting in erosion of watercourses and impact on aquatic ecosystems.

The baseline data gathered during the scoping assessment, identified above, will be supplemented by further site specific studies and assessments within the proposed development site and wider study area. It is also noted that some of the potential effects associated with the Water environment may be assessed in other chapters of the EIAR e.g. 'Land and Soil'. The EIAR will consider such interactions to ensure that effects are cross-referenced between topics but that duplication of assessment does not take place.

#### 4.6 Air & Climate

A desktop review of available baseline air quality data within the study area has been undertaken using the following data sources:-

- Environmental Protection Agency – National Ambient Air Quality Monitoring Data Archive;
- Environmental Protection Agency – Air Quality in Ireland 2016 Report and previous reports (1997 – 2015);
- Dublin Regional Air Quality Management Plan 2009-2012;
- National Parks and Wildlife Service Maps; and
- Environmental Protection Agency – Integrated Pollution Control Licences.

Effects which may arise, and will be fully evaluated, as a result of the construction phase include:-

- Construction dust emissions and nuisance dust;
- Emissions from Heavy Goods Vehicles (HGVs) and on site construction plant and equipment which may give rise to emissions; and
- GHG emissions from construction traffic and embodied energy from construction materials will increase Ireland's GHG emissions potentially causing climate change.

Operational phase effects on air quality and climate are likely to be limited to impacts created by emissions from maintenance related vehicular traffic. It is also noted that the generation of electricity due to the installation of the wind farm will lead to a net saving in terms of emissions and is, therefore, likely to result in a positive effect. The extent of this effect will be fully quantified.

Overall the impact assessment process will involve assigning the receptor a sensitivity rating based on specific characteristics, identifying and characterising the magnitude of effect, and assessing the significance of any residual effects (after

mitigation). A series of mitigation measures to minimise any foreseen impacts for the construction, operational and decommissioning phases of the project will be proposed, as required, in the EIAR.

#### 4.7 Landscape

The assessment of landscape and visual impacts has two separate but closely linked aspects. The first is landscape character impact or landscape impact i.e. the effects of the proposed development on the fabric or structure of the landscape as perceived by people. The second is visual impact i.e. the extent to which the wind turbines can be seen in the context of the surrounding landscape within which they sit.

The proposed development includes wind turbines which have the potential to have significant landscape and visual impacts. Potential effects include:-

- Effects on landscape features, views, routes, and areas described in the County Development Plan and landscape character assessments;
- Changes to landscape and townscape character;
- Effects on designated landscape, views/prospects, conservation sites, and other special areas of interest; and
- Effects during construction and decommissioning.

In order to assess the magnitude of impact associated with the proposed development, a Landscape and Visual Impact Assessment (LVIA) will be prepared, in accordance with Guidelines for LVIA, 2013<sup>2</sup>. The significance of landscape and visual effects will be assessed in accordance with a significance matrix which is based on the sensitivity of the landscape or visual resource versus the magnitude of impact.

Zone of Theoretical Visibility Mapping (ZTVs) will be prepared based on the *Wind Energy Development Guidelines for Planning Authorities 2006* (or as may be superseded). The ZTVs will illustrate the study area, extending to 20km around the site, and highlight the areas where the proposed development will theoretically be seen as well as highlighting the cumulative visual impact arising from any surrounding or nearby wind farms. Photo-realistic images ('photomontages') will also be prepared from a selected range of viewshed locations which are deemed to present a critical view of the proposed development.

#### 4.8 Cultural Heritage

The proposed development has the potential to have both construction and operational significant likely effects on Cultural Heritage. Potential construction effects include impacts on recorded monuments, impacts on previously unrecorded archaeological remains which may exist within the area of land take, and visual or noise effects during construction.

Operational phase effects are likely to include visual impact on the recorded monuments located within the study area. It is also noted that operational phase cumulative effects on archaeological, architectural or cultural heritage remains could occur in combination with other existing, permitted or proposed developments.

In addition, the visual impact assessment (see **Section 4.7**) will incorporate the effects on archaeological or architectural features in the vicinity.

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<sup>2</sup> Landscape Institute Publication



## 4.9 Noise & Vibration

The proposed development includes the erection and operation of wind turbines, the development of associated substation and grid connection infrastructure, as well as access tracks and hardstandings. The construction of each of these individual facets of the development could give rise to noise and vibration effects.

Construction effects may include general construction noise from plant/machinery operating on the site and vibration from construction activities. Operational phase effects include noise impacts at noise sensitive locations (e.g. dwellings) emanating from the operational wind turbines and noise emanating from the operational substation.

The Noise & Vibration chapter will identify representative baseline noise levels, provide predictive modelling of noise exposure, clearly outline the predicted changes to the noise environment, evaluate the exposure level against the most recent noise guidelines, and identify any mitigation measures which are applicable/necessary.

## 4.10 Shadow Flicker

The EIA will assess the effects on human health from shadow flicker, i.e. the moving shadows cast by the turbine blades in times of direct sunlight and the resultant effect that can have on nearby properties. In times of direct sunshine, wind turbine blades could cast moving shadows on residences in close proximity to the turbines. At certain times of the year, the moving shadows of the turbines blades can periodically reduce light to a room causing the light to appear to flicker.

The Shadow Flicker chapter of the EIA will comprise a detailed assessment of the likelihood of shadow flicker affecting local receptors during the operation of the proposed development. The assessment will be based on detailed shadow flicker prediction modelling for each dwelling within a specified distance of a turbine. An assessment will be made to establish if the proposed development will comply with shadow flicker limits prescribed within the *Wind Energy Development Guidelines for Planning Authorities (2006)* or any superseding guidelines. Proven and recognised technological mitigation will be introduced where necessary and appropriate.

## 4.11 Material Assets

### 4.11.1 Transport & Access

The assessment of traffic and roads will include an examination of the existing road network surrounding the site, as well as reviewing the likely haul route for the delivery of the wind turbine components and construction materials to the proposed development site.

The proposal is likely to have both construction and operational effects in terms of transport and access. Construction effects are likely to include increased traffic flows, changes to the traffic composition, traffic disruption, reduction in safety and degradation of road surfaces. Operational stage impacts on traffic are likely to be much less than that associated with the construction stage; however, the level of impact will be examined in line with the operational life span of the proposed development.

The 'Transport & Access' section will undertake a range of assessments including the capacity of the turbine component haul route to accommodate abnormal loads, an identification of 'pinch-points' where temporary off-site works may be required, an appraisal of any damage to road structures or surfaces, and a determination of

the effects of construction and operational phase traffic movements. The capacity of the site access to accommodate and serve the proposed development will also be assessed.

#### 4.11.2 Telecommunications

The Telecommunications section will undertake an assessment to determine if the proposed development will result in any impacts on existing telecommunication links. This assessment will be based on a desktop appraisal of existing telecommunication masts in the wider area and consultation with service providers in the region.

## 5.0 Consultation

### 5.1 Statutory Consultation

A variety of statutory and non-statutory organisations have been and will continue to be consulted during the scoping process to gather their views on the likelihood of significant environmental effects arising from the construction, operation and decommissioning of the proposed development.

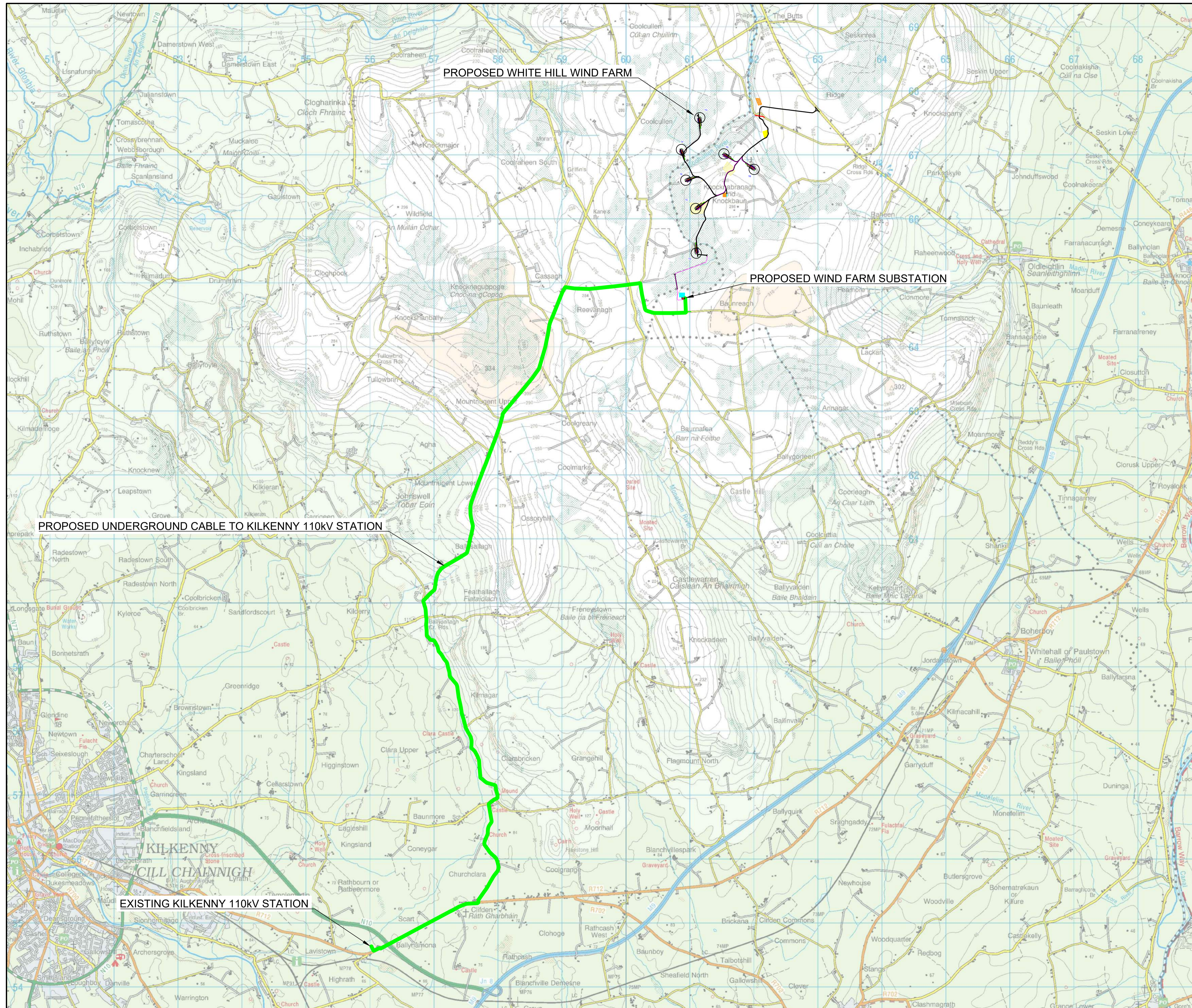
### 5.2 Public Consultation

Public consultation has been carried out from an early stage in the project, at all times adhering to public health guidelines. Public consultation will be continued throughout the pre-planning stage as a means of identifying public opinion and guiding the design of the proposed development.

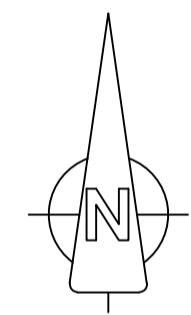
**Annex 1 –  
Maps and Drawings**







- Legend:**
- Proposed Internal Wind Farm Cable Route
  - Proposed Wind Farm Substation
  - Proposed Underground 110kV Connection Between Wind Farm Substation & Existing Kilkenny Station
  - Proposed Turbine & Hardstand Locations
  - Proposed Wind Farm Access Tracks
  - Proposed Realignment of Local Road
  - Proposed Soil Deposition Areas
  - Proposed Burrow Pit & Soil Deposition Areas
  - Proposed Met Mast Location
  - Possible Battery Storage Area



Date:	Rev:	Description:	Drawn By:

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Client: **Carlow Wind Ltd.**

Job Title: **White Hill Wind Farm**

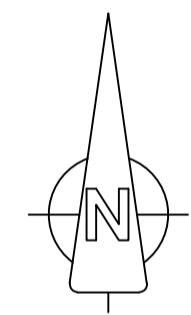
Drawing Title: **Figure 1 - Overall Site Location**

Drawing No. BRK001_SCO_LOC-0.01	Revision No. Rev00
Scale: (A1) 1:30,000	Date: 21/04/2021
Drawn By: J.B.	Checked By: S.C.
	Confirmed By: S.C.





- Legend:**
- Proposed Internal Wind Farm Cable Route —
  - Proposed Wind Farm Substation
  - Proposed Underground 110kV Connection Between Wind Farm Substation & Existing Kilkenny Station —
  - Proposed Turbine & Hardstand Locations
  - Proposed Wind Farm Access Tracks
  - Proposed Realignment of Local Road
  - Proposed Soil Deposition Areas
  - Proposed Burrow Pit & Soil Deposition Areas
  - Proposed Met Mast Location
  - Possible Battery Storage Area
  - Proposed Site Compound




Date:	Rev:	Description:	Drawn By:
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Prepared By:

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info@galetechenery.com  
www.galetechenery.com

Client:	Carlow Wind Ltd.
Job Title:	White Hill Wind Farm
Drawing Title:	Figure 2 - Site Layout

Drawing No. BRK001_SCO_LAY-0.01	Revision No. Rev00
Scale: (A1) 1:7,500	Date: 21/04/2021
Drawn By: J.B.	Checked By: S.C.
	Confirmed By: S.C.



