Appendix 5.1

Scoping Report

DERNACART WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT - SCOPING REPORT

JULY 2019

Statkraft

FEHILY TIMONEY & COMPANY

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1 INTRODUCTION

1.1 General

1.1.1 Introduction

Statkraft Ireland Ltd. intends to apply for planning permission to construct a wind energy development in Co. Laois in the townlands of Forest Upper and Forest Lower.

A site location map is presented in Figure 1.1.

1.1.2 The Proposed Development

The proposed development will comprise of up to 9 no. wind turbines with a tip height of up to 185m, access tracks, hardstanding areas at each turbine location, borrow pits, temporary compounds, drainage works, meteorological mast, underground electrical and communications cables between the turbines, an on-site electricity substation and an underground cable to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the wind farm site or to the proposed 110kV Bracklone substation which is located ca. 17.7 km from the site. A preliminary site layout is illustrated in Figure 1.1.

1.1.3 The Applicant

The applicant for the proposed development is Statkraft Ireland Ltd.

Statkraft Ireland Ltd. is wholly owned by Statkraft, a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, gas-fired power, supplies district heating and flexible grid services including battery storage projects. Statkraft is a global company in energy market operations.

The team at Statkraft Ireland has constructed a portfolio of approx. 210 Megawatts (MW) of wind projects in Ireland, operates approx. 290MW and has an established track record in wind energy in Ireland, with its Irish team based in Tullamore, Co. Offaly and Cork. This team has previously developed over 16 wind farms in Counties Clare, Cork, Kerry, Donegal, Limerick, Galway, Waterford, Tipperary, Offaly and Tyrone.

1.1.4 Purpose of the Report

The purpose of the EIA scoping process is to identify the key points and issues which are likely to be important during the environmental impact assessment (EIA) and to eliminate those that are not. The scoping process identifies sources or causes of potential environmental effects, the pathways by which the effects can happen, and the sensitive receptors, which are likely to be affected. It defines the appropriate level of detail for the information to be provided in the EIAR. In essence, the primary focus of scoping is to define the most appropriate assessment of significant effects related to the proposed development.

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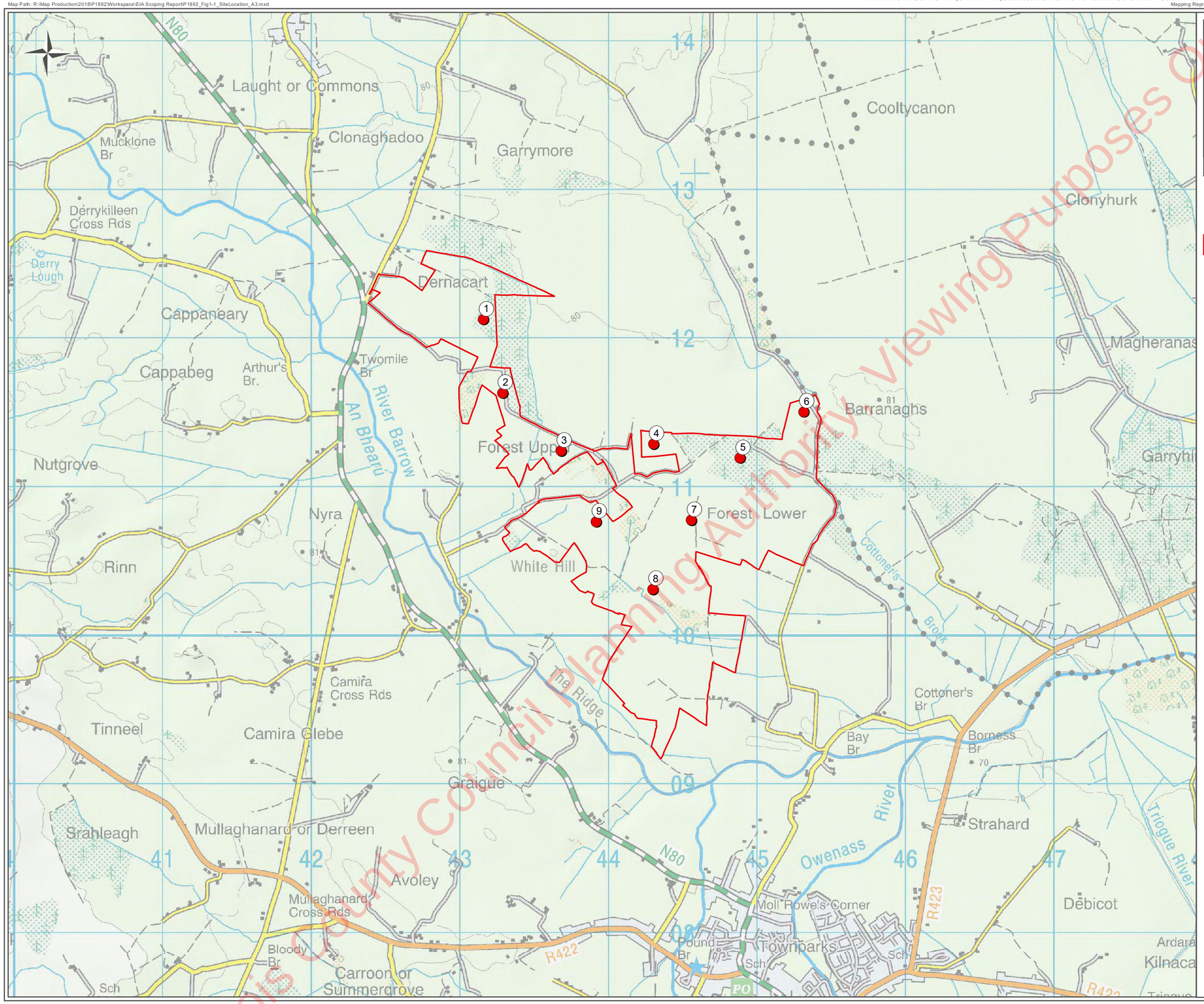

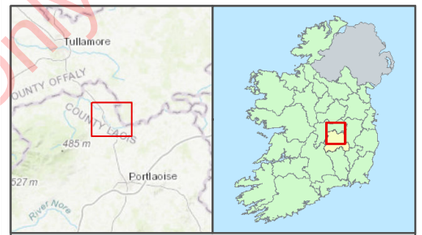

Co. Laois

Legend

- Proposed Turbines
- Proposed Site Boundary

Figure Title	Site Location
Figure No.	1.1
Project	Dernacart Wind Farm
Client	Statkraft
Scale	1:25,000
Page Size	A3
Revision	A
Date	01/07/2019

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1.2 Planning Process for the Proposed Development

The proposed development will be submitted for planning consent pursuant to the Planning and Development Act 2000 (as amended) to the relevant local authority, Laois County Council. If it is decided that the grid route is to connect to the Bracklone substation, a separate application will also be made to Offaly County Council for the works within Offaly Co. Co. jurisdiction.

1.3 Environmental Impact Assessment and the Function of the EIAR

Under Section 172 of the Planning and Development Act 2000 (as amended), as amended, a planning application for a development which comes within a class of development specified under Schedule 2 of Part 5 of the Planning and Development Regulations 2001 (as amended) must be accompanied by an Environmental Impact Assessment Report (EIAR) in accordance with the 2014 Directive. Accordingly, as the proposed development will have more than 5 no. turbines and a generating capacity of greater than 5MW the EIAR will be prepared in accordance with the Planning & Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended).

The purpose of an EIAR is to provide a detailed description of the proposed development and outline potential impacts associated with the construction and operation of the wind farm. Where adverse impacts have been identified, mitigation measures are proposed.

1.4 Purpose of Scoping

The purpose of the EIAR scoping process is to identify the issues which are likely to be important during the environmental impact assessment and to eliminate those that are not. The scoping process will identify the sources or causes of potential environmental effects, the pathways by which the effects can happen, and the sensitive receptors, which are likely to be affected.

The issues identified in the scoping process will be examined in the EIAR, any potential impacts will be assessed, mitigation measures proposed as required, and residual impacts described. The scoping process will also identify the appropriate level of detail for the information to be provided in the EIAR. Scoping will be carried out through the issue of this report to statutory and non-statutory consultees listed in Appendix 1. Consultees are invited to contribute to the EIAR by suggesting baseline data, survey methodologies and potential impacts that should be considered as part of the impact assessment process and in preparation of the EIAR.

1.5 Contributors to the EIAR

This Scoping Report has been prepared by Fehily Timoney & Company (FT) on behalf of Statkraft Ireland Ltd. FT is a planning, environmental and engineering consultancy based in Cork, Dublin and Carlow specialising in civil and environmental engineering, environmental science and planning, and is well established as a leading consultancy in wind farm development in Ireland.

FT will prepare a planning application and accompanying Environmental Impact Assessment Report for submission to the planning authority, Laois County Council.

Specialist contributors to the EIAR include:

- Macro Works who will prepare the landscape and visual impact assessment;
- John Cronin & Associates who will prepare the Cultural Heritage assessment;
- Triturus Environmental Services who will conduct the aquatic ecology assessment.

1.6 Consultation

1.1.5 Public Consultation

The stakeholder consultation process is being carried out in accordance with the Code of Practice for Wind Energy Development in Ireland-Guidelines for Community Engagement (available at: www.dccae.gov.ie).

A Community Liaison Officer (CLO) has been nominated for the proposed development and will act as a key point of contact within the local community. The CLO has been resourced to deal with all queries and will conduct informal local community consultation in the area. Feedback from the CLO will be passed on to the project design team on an ongoing basis in order to allow the consultation process to inform the design process.

1.1.6 Statutory and Non-statutory Scoping Consultation

Following the initial design iteration for the proposed Dernacart wind farm, it is proposed to commence consultation with the bodies listed below:

Consultee
Airspeed / Enet
An Garda Siochana
An Taisce
Arra Communications
Bat Conversation Ireland
Birdwatch Ireland
Broadcasting Authority of Ireland
BT Ireland
Commission for Communications Regulation
Commission for Regulation of Utilities, Water and Energy
Department of Agriculture, Food and the Marine
Department of Communications, Climate Action and Environment
Department of Culture, Heritage and the Gaeltacht
Department of Defence
Department of Housing, Planning and Local Government
Department of Transport, Tourism and Sport
Digiweb
Dublin Airport Authority
Eastern and Midland Regional Assembly
Echo IT Limited
Eir / Meteor
Emergency Planning, Health Service Executive
Environmental Protection Agency
ESB Telecoms
Fáilte Ireland
Gas Networks Ireland

Consultee
Geological Survey of Ireland
HSE
Iarnród Éireann
IMAGINE (Irish broadband)
Inland Fisheries Ireland
Irish Aviation Authority
Irish Farmers Association
Irish Parachute Club
Irish Peatland Conservation Council
Irish Raptor Study Group
Irish Red Grouse Association
Irish Telecom
Irish Water
Irish Wildlife Trust
Laois County Council - County Archaeologist
Laois County Council - Environment Department
Laois County Council - Heritage Officer
Laois County Council - Planning Department
Laois County Council - Roads Department
Laois Local Community Development Committee
Magnet Networks Ltd. Registered Office
Munster Broadband
National Monuments Service
National Parks and Wildlife Service
National Trails Office
National Transport Authority
Netshare Ireland
Offaly County Council - Planning
Office of Public Works
OpenEir
Premier Broadband
Ripplecom
RTE NL
Sport Ireland
Sustainable Energy Authority of Ireland
Teagasc
TETRA Ireland Ltd.
The Arts Council
The Heritage Council
Three Ireland
TowerCom Ltd.

Consultee
Transport Infrastructure Ireland
TV3
Udarás na Gaeltachta
Virgin Media Ireland
Vodafone
Waterways Ireland
Wireless Connect Ltd.
2RN

It is envisaged that the responses from this consultation will inform the ongoing design process in addition to informing the scope of the environmental assessments.

2 PROJECT DESCRIPTION

2.1 Proposed Wind Farm

The proposed development will comprise of up to 9 no. wind turbines with a tip height of up to 185m, access tracks, hardstanding areas at each turbine location, borrow pits, temporary compounds, drainage works, meteorological mast, underground electrical and communications cables between the turbines, an on-site electricity substation and an underground cable to connect the proposed development to the either the existing Mountmellick 38kV substation located 7.1km from the site or the proposed 110kV Bracklone substation which is located ca. 17.7km from the site.

The electricity generated by the proposed wind farm will be transmitted by a collector system comprising of underground cables to the proposed onsite substation. The proposed development will also comprise underground cables from the development to the National Grid connection point as well as improvements to the public road network for the delivery of turbine components.

2.2 Proposed Substation

It is proposed to construct an onsite electricity substation within the proposed development site. This will provide a connection point between the wind farm and the proposed grid connection point at the existing Bracklone or Mountmellick substations.

2.3 Grid Connection

It is proposed to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the site or the proposed 110kV Bracklone substation which is located ca. 17.7km from the site. Connection is expected to be sought under the Enduring Connection Process (ECP) grid access regime. Grid connection will form part of the proposed development with the selected route being permitted under a separate planning application. There will be no overhead lines required for the grid connection.

2.4 Turbine Delivery

A number of components will enter the country through the ports including the blades, tower sections and the nacelles. The turbines will be assembled on site, which will be delivered to site by special transport vehicles. A number of routes to site are currently being surveyed to determine the most appropriate turbine delivery route.

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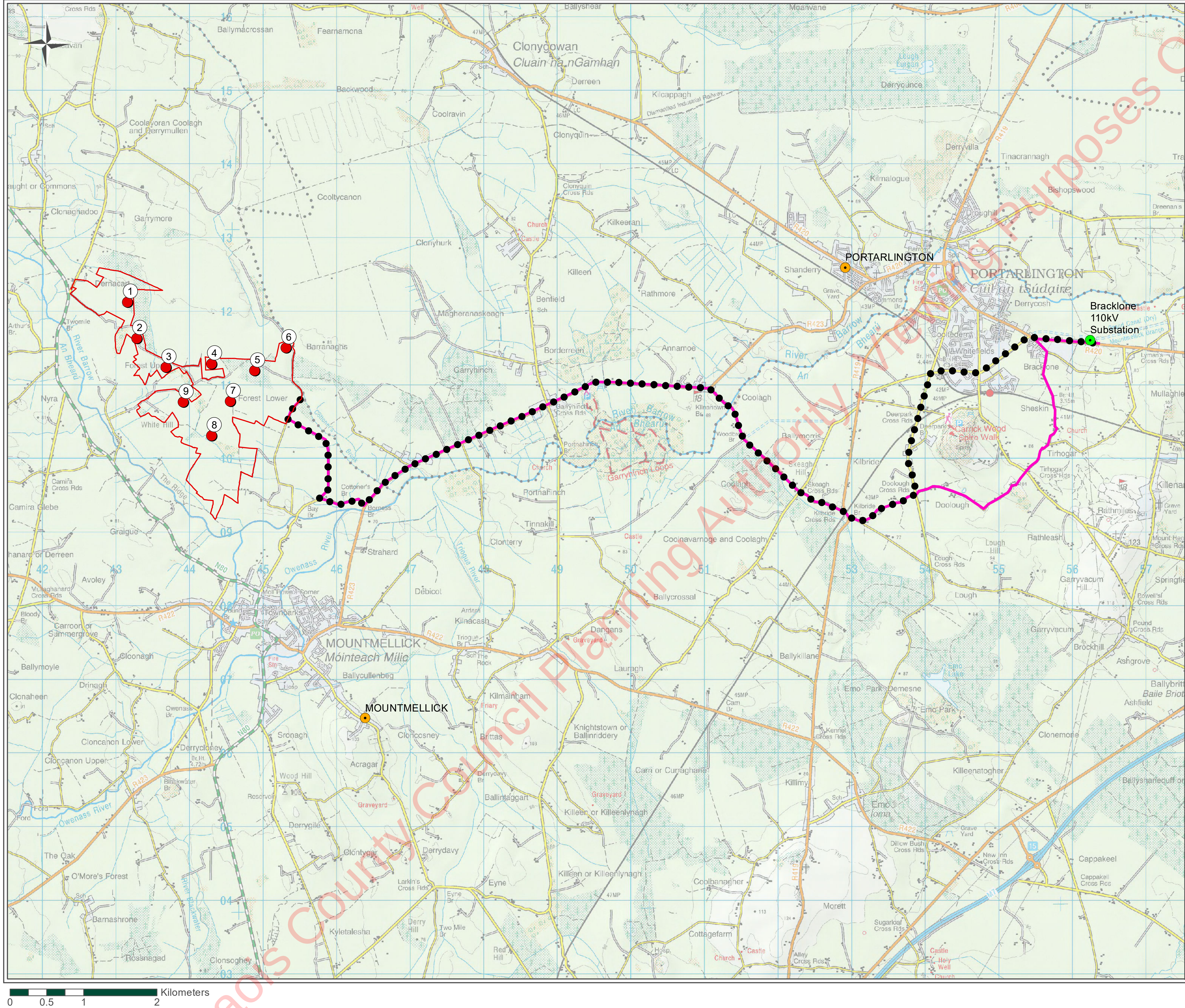

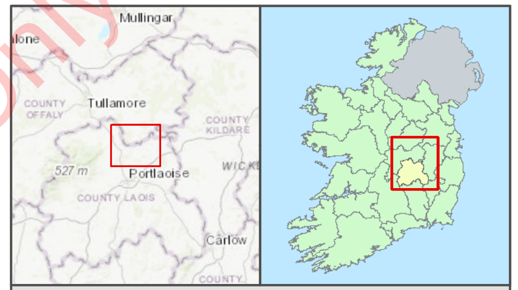

Co. Laois

Legend

- Proposed Turbines
- Proposed Site Boundary
- Bracklone 110kV Substation
- Substations (38kV)

Cable Route Options

- Bracklone 110kV Plan A
- Bracklone 110kV Plan B

Figure Title	Grid Connection Route Options
Figure No.	2.1
Project	Dernacart Wind Farm
Client	Statkraft

Scale	1:50,000	**Page Size**	A3
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3 STRUCTURE AND SCOPE OF THE EIAR

3.1 Contents of the EIAR - Statutory Requirements

The EIAR will be prepared in accordance with Schedule 6 of the Planning and Development Regulations 2001, as amended, which sets out the contents of an EIAR. In addition, the contents of Directive 2014/52/EU, which was adopted in the EU on 16 April 2014 will also be included in the preparation of this EIAR (the 2014 EIA Directive).

The purpose of the EIAR is to provide in particular:

a) a description of the project comprising information on the site, design, size and other relevant features of the project;

b) a description of the likely potential significant effects of the project on the environment;

c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;

d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;

e) a non-technical summary of the information referred to in points (a) to (d); and

f) any additional information relevant to the specific characteristics of the wind farm project proposed.

The EIAR will identify, describe and assess the direct and indirect significant effects of the project on the following factors:

(a) population and human health

(b) biodiversity, with particular attention to protected species and habitats

(c) land, soil, water, air and climate

(d) material assets, cultural heritage and the landscape

(e) the interaction between the factors referred to in points (a) to (d).

3.2 EIAR Methodology

3.2.1 General

The EPA and the European Commission (EC) have published guidelines on the preparation of environmental impact assessment reports, namely:

- Draft Advice Notes on Preparing Environmental Impact Statements (EPA, 2015);
- Draft Guidance on the information to be contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA), 2017);
- Environmental Impact Assessment of Projects - Guidance on Scoping (European Commission (EC), 2018);
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).

The EIAR team will have regard to these guidelines in the preparation of the EIAR.

The team will also have regard to best practice guidance for individual environmental topics. Regard will also be paid to the '*Best Practice Guidelines for the Irish Wind Energy Industry*' published by the Irish Wind Energy Association and the '*Wind Energy Development Guidelines*' published by the Department of Environment, Heritage and Local Government (2006) or the latest adopted revision at the time of application.

There are two different EIAR structures which are commonly used and which the EPA Guidelines accept as equally valid. The structure, which the EIAR team proposes to use for the EIAR for the proposed Dernacart Wind Farm, is the grouped format structure.

Using this structure there is a separate chapter for each topic, e.g. air quality, biodiversity, hydrology. The description of the existing environment, the proposed development and the potential impacts, mitigation measures and residual impacts are grouped in the chapter. The grouped format makes it easy to investigate topics of interest and facilitates cross-reference to specialist studies.

Given the need to ensure that the EIAR is readily accessible to the general public, as well as to the statutory authorities, the EIAR team has proposed to structure the EIAR as described below:

- Non-Technical Summary
- Introduction
- Need and Alternatives
- Planning Policy
- Description of the Proposed Development
- EIA Scoping and Consultation
- Population, Human Health and Material Assets
- Shadow Flicker
- Noise and Vibration
- Telecommunications and Aviation
- Traffic and Transportation
- Landscape Visual Impact Assessment
- Biodiversity, Flora and Fauna
- Lands, Soils and Geology
- Hydrology, Hydrogeology and Water Quality
- Cultural Heritage
- Air and Climate
- Interaction of the Foregoing

3.2.2 EIAR Chapter Structure

The broad methodology framework used in each chapter will include the following:

- Introduction
- Methodology
- Existing Environment
- Potential Impacts
- Mitigation Measures
- Residual Impacts

Introduction
This section introduces the environmental topic to be assessed and the areas to be examined within the assessment.

Methodology
Specific topic related methodologies are outlined in this section. This will include the methodology used in describing the existing environment and undertaking the impact assessment. It is important that the methodology is documented so that the reader understands how the assessment was undertaken. This can also be used as a reference if future studies are required.

Existing Environment
An accurate description of the existing environment is necessary to predict the likely significant impacts of a new development. Existing baseline environmental monitoring data can also be used as a valuable reference for the assessment of actual impacts from a development once it is in operation.

To describe the existing environment, desktop reviews of existing data sources will be undertaken for each specialist area relying on published reference reports and datasets to ensure the objectivity of the assessment. Desktop studies are also supplemented by specialised field walkovers or studies in order to confirm the accuracy of the desktop study or to gather more baseline environmental information for incorporation into the EIAR.

The existing environment will be evaluated to highlight the character of the existing environment that is distinctive and what the evaluation of this is. The evaluation of a specific environmental aspect can be derived from legislation, national policies, local plans and policies, guidelines or professional judgements. The sensitivity of the environment will also be described.

Potential Impacts
In this section, individual specialists predict how the receiving environment will interact with the proposed development. The full extent of the proposed development's effects and emissions before the proposed mitigation measures are introduced is outlined. Impacts from both the construction and operation phases of the proposed development are outlined. Interactions and cumulative impacts with other environmental topics are also included in this evaluation.

The evaluation of the significance of the impact is also undertaken. Where possible, pre-existing standardised criteria for the significance of impacts will be used in accordance with the guidelines set out in the EPA (2017) Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports. Such criteria can include Irish legislation, international standards, European Commission and EPA guidelines or good practice guidelines. Where appropriate criteria do not exist the assessment methodology section states the criteria used to evaluate the significance.

Mitigation Measures
If significant impacts are anticipated mitigation measures will be devised to minimise impacts on the environment. Mitigation measures by avoidance, by reduction and by remedy can be outlined.

Residual Impacts
The assessment identifies the likely impact that will occur after the proposed mitigation measures have been put in place. These impacts are described in detail and assessment of their significance undertaken.

3.2.3 EIAR Report Structure

The structure proposed for the EIAR is as follows:

Volume 1 - Non Technical summary
Volume 2 - Main EIAR
Volume 3 - Appendices for the EIAR
Volume 4 – Photomontages and Visual Maps.

4 ENVIRONMENTAL ISSUES TO BE ADDRESSED IN THE EIAR

4.1 Introduction

The EPA Advice Notes provide guidance on the topics which would usually be addressed when preparing an EIAR for different classes of development. The Advice Notes highlight typical issues, which would arise for each development class. Project Type 33 is 'installations for harnessing wind power for energy production (wind farms)'. The scope of the EIAR will have regard to the guidance provided on the issues to be addressed for a Project Type 33.

The EIAR will summarise International, European, National and Local Energy and Planning Policy, the challenges associated with Climate Change and the related need for the proposed development.

4.2 Alternatives Considered

The alternatives, which were considered, when developing the overall configuration of the proposed Dernacart Wind Farm, will be described, and the technology options for the project will be outlined in Chapter 1 Introduction, Chapter 2: Needs and Alternatives and Chapter 4: Description of the Proposed Development.

The principle alternatives studied with respect to the wind farm will be outlined under the following headings:

- *Locations* – This will include a discussion of the overall site selection process for the wind farm on a national, regional and local scale. It will include a site selection report which will be included in the EIAR outlining details of the criteria used to determine site suitability for wind energy development including:
    - Wind resource;
    - Proximity to residential dwellings;
    - Land Zoning in County Development Plans;
    - Established and Future Land-Use;
    - Ecological Conservation Designations;
    - Landscape Designations; and
    - Ease of Access etc.
- *Access* – Details of the criteria used to select the network of access tracks that will provide access from the public road network to the site (and to each turbine within the site) in addition to those that will provide internal connections (as an alternative to using public roads) between turbines will be outlined. This will include information on the availability of existing track, suitable ground conditions, terrain, local road infrastructure etc.
- *Connection to the National Grid* – Details of the criteria used to select the proposed grid connection route will be provided. This will include an assessment of alternative grid connection route options.

The reasons, including environmental and plan-led considerations will be explained.

4.3 Scheme Description

The EIAR will describe each element of the project including the following:

- Existing Environment
- Landownership
- Community Benefit Scheme
- On Site Wind Resource
- Turbine Layout

- Power Output
- Turbine typical components
- Access Tracks and Hardstanding Areas
- Watercourse crossings
- Grid Connection
- Onsite substation
- Electrical cabling
- Traffic Management
- Tree felling
- Replant lands
- Wind farms in proximity
- Construction overview
- Operation and lifespan
- Decommissioning

In a judgement in 2014, O'Grianna v. An Bord Pleanála, Cork County Council and Framore Limited, it was ruled that all planning permission should not be granted for a wind farm project requiring a grid connection unless the grid connection details are provided in the Environmental Impact Assessment (EIA) process.

Arising from this it is essential that the details of this project and its proposed grid connection should be provided in the EIA process, this will be set out in the Description of Development in detail in Chapter 4, while Chapter 1 will provide a detailed assessment of alternatives considered in relation to the preferred grid connection route.

The operating procedures and hours, staffing, monitoring, maintenance requirements, and the provision for decommissioning of the proposed Dernacart Wind Farm will also be outlined.

If planning permission is secured for the proposed development, site preparation works, tree felling, and the provision of access tracks will precede all other activities. Drainage infrastructure will be constructed in parallel with the track construction. This will be followed by the construction of the turbine foundations and the provision of the hardstanding areas. In parallel with these works the on-site electrical works; sub-station and internal cable network; will be completed. The cable from the wind farm site to the proposed grid connection point will then be laid underground, primarily along public roads. Any works required to the public road network to facilitate turbine delivery will also be carried out.

4.4 Construction Activities

The wind farm site will have a defined planning boundary to include not only the turbines themselves but all ancillary infrastructure such as transformers and crane hardstanding areas at each turbine, borrow pits, site tracks, on-site underground cabling and an on-site substation with toilet facilities. Details on all of these elements will be provided within the EIAR.

Information will be provided on the following aspects of the construction of the wind farm:

- Construction programme
- Construction sequence and methodology
- Drainage control measures
- Temporary site facilities
- Site preparation works
- Access road construction
- Borrow pits and reinstatement works
- Cable installation on site
- Turbine foundation and associated hardstanding area construction

- Turbine delivery and installation
- Commissioning

The control measures that will be implemented to manage the risk of soil and water pollution, emissions of dust and noise, construction waste management and traffic impacts will be explained.

The construction of solar arrays will take place before or after the turbine installations and will share much of the onsite civils and electrical infrastructure with the wind farm. It is expected that the construction programme for the solar arrays will fit around the wind farm construction programme.

4.5 Consultation Programme

Over the course of the final design and preparation of the EIAR, consultation will continue with the community, stakeholders and consultees. As part of the EIAR, full details of all consultation will be documented and assessed.

4.6 Environmental Aspect: Population, Human Health and Material Assets

4.6.1 Aspects to be Addressed

The Population and Human Health Chapter of the EIAR will assess the likely significant effects of the proposed development on Population, Human Health and Material Assets with a particular reference to the topics of population, human health, socio-economic activity, land-use, recreation, amenity and tourism, and material assets.

Population
The potential impacts of the proposed Dernacart Wind Farm on population trends and statistics on population (density, age) will be addressed in this chapter.

Human health
The potential impacts on human health from wind farms will be assessed.

Health and Safety
Details relating to health and safety arising from the proposed construction, operation and decommissioning of the wind farm will be assessed.

Socio-economic activity
The potential impacts of the proposed Dernacart Wind Farm on employment and the main economic activities of the region as well as property values will be addressed in this chapter.

Land-use
The assessment will address the potential impacts of the proposed Dernacart Wind Farm on land use.

Recreation, amenity and tourism
The assessment will address the potential impacts of the proposed Dernacart Wind Farm recreational facilities and tourism of the region and in the context of the receiving environment.

Material assets
The potential impact of the proposed development on physical infrastructure including renewable and non-renewable resources as well as utility infrastructure will be assessed.

4.6.2 Assessment Methodology

Population
With the purpose of analysing population trends and statistics on the proposed area, population data from the Central Statistics Office will be obtained for the study area defined by electoral division. The statistics of this data is compared against county and state trends, density and age.

Human health
The assessment will contain a desk study review of the impacts of the operation of wind turbines on human health using published and verified sources of information.

Health and Safety
The assessment will contain a desk study review of the impacts of the operation of wind turbines on health and safety using published and verified sources of information.

Socio-economic activity
Data from the Central Statistics Office will be used to define the socio-economic baseline. The potential positive and negative impacts of the proposed Wind Farm on population, employment and economic activity both directly and indirectly, will be assessed.

Land Use
The main land uses in the area, which could potentially be affected by the proposed wind farm development, will be described using Corine 2006 land cover data and this data will be verified by subsequent walkovers and drive-by surveys. All areas of scenic beauty in addition to heritage, culture and leisure facilities in the areas will be identified.

Recreation, amenity and tourism
A review of the main recreational activities in the area likely to be affected will be conducted. Residential amenities and recreational facilities, such as forestry in public ownership, walking paths, sports facilities, will be recorded and potential impacts assessed.

An assessment will then be conducted for each element of the proposed wind farm development to ascertain any potential impacts that may arise which could directly or indirectly affect land use, a recreational activity or an amenity. This assessment will be prepared giving cognisance to other disciplines such as cultural heritage and archaeology, hydrology and ecology.

A review will be conducted of a number of published studies and surveys which have been conducted both in Ireland by Fáilte Ireland and in the UK on the attitude of tourists to wind farms. A study of the potential impacts of the wind farm may have on the tourism of the region will be carried out by reviewing Fáilte Ireland surveys, appraising the existing patterns of the tourism within the county and appraising the impacts that wind farms have on tourism in other counties and countries

Material assets
Information on the existing material assets within the receiving environment will be obtained and assessed in the context of the proposed development. The wind farm will also be considered under the material assets section in its own right as it will be classed as a renewable resource.

4.6.3 Receiving Environment

The proposed development is located in an agricultural and forestry area within the townlands of Forest Upper and Forest Lower in North County Laois. The site is located east of the River Barrow and the N80 national road (Port Laois-Tullamore), west of the County Border with Offaly and the Cottoners Brook River, approximately 2km north of the settlement of Mountmellick and approximately 9km west of the settlement of Portarlington.

There are 106 residential receptors located within 1.8km distance from the indicative turbine layout (of which 24 comprise of residential and commercial uses). Figure 4.1 illustrates the location of these receptors.

The site is located in a flatland area of elevations between 70 and 80m ASL.

The western border of the study area lies within the River Barrow and River Nore SAC (002162), however no infrastructure is proposed in this area. The north and north east portions of the site are dominated by cutaway peatland. The Slieve Bloom Mountains SPA (004160) is located c. 5km to the west of the site and Raheen Lough pNHA (000917) is located c. 6km to the north.

Settlement in the area is dispersed with one-off housing located in ribbon patterns along road routes to the west and south east of the site. The settlement of Mountmellick is located approximately 2km south of the site and has an urban population of 4,777 (CSO, 2016). A large area of uninhabited peatland is located to the north east of the site.

There is no relevant site planning history related to the Dernacart wind farm development site.

4.6.4 Potential Impacts

Population
The potential impacts arising from the proposed development on population during construction are likely to be slight positive, given the opportunities for enhanced employment opportunities associated with the proposed development. During operational phase these impacts would likely be reduced to imperceptible. The assessment will consider the potential impacts during all phases of the proposed development.

Human health
The potential affects arising from the proposed development can impact human health during construction, operational and decommissioning. Once operational, turbines contribute to the production of renewable energy and for this reason, it is thought that the operational phase will deliver positive impacts to human health.

Health and Safety
If not properly designed and constructed, there is the potential for construction and operational activities associated with the proposed development to impact on the health and safety of employees associated with the development as well as the public. Best practice construction and environmental management measures will be employed to prevent the potential for accidents. The EIAR will be accompanied by a comprehensive Outline Construction and Environmental Management Plan (oCEMP) which will include detailed health and safety requirements during the construction, operation and decommissioning of the wind farm. With the implementation of measures outlined in the EIAR and oCEMP, it is anticipated that the proposed development is not likely to have a potential significant impact on human health and safety.

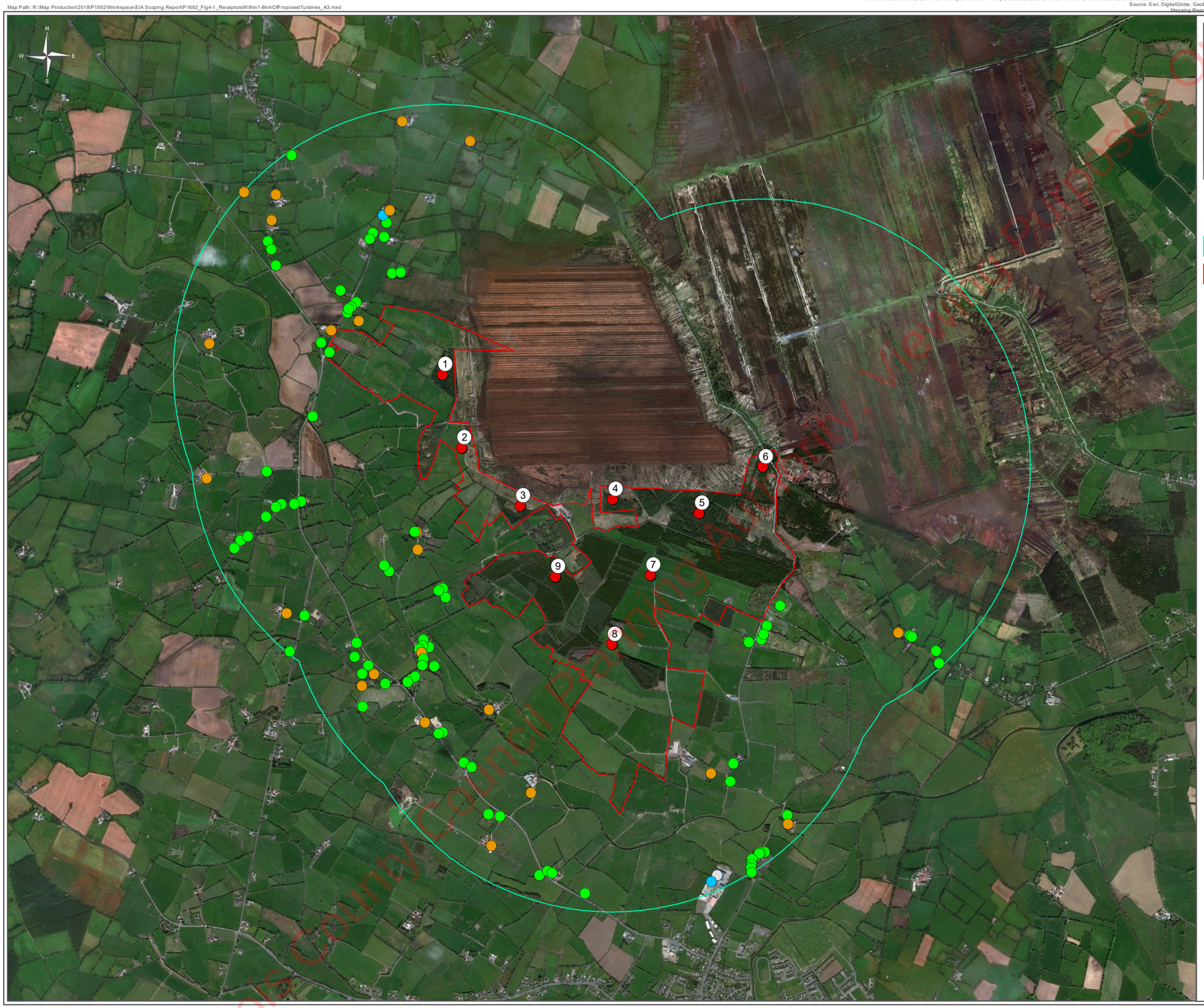
Socio-Economics
The proposed development will have significant long term and short term benefits for the local economy including job creation, landowner payments, local authority commercial rate payments and a Community Benefit Scheme. These will be developed in full and considered in the EIAR.

Land Use
The wind farm will require land take for the access tracks, wind turbines bases and adjacent hard-standings and sub-station footprints. The current land uses will continue other than within this land take. Full details will be contained in this chapter of the EIAR.

Recreation, Amenity and Tourism
Potential construction impacts from the grid connection cables include full or partial closure of roads used within the area, while the cables are being installed. There may be disruption to access routes and walking paths, however any disruption will be mitigated where possible by maintaining access for people throughout, and where this is not possible, in minimising the impact, clearly communicating the timing and scope of works to the local community.

Material Assets
Utilities such as overhead power lines or telephone lines or underground services may require diversion or be temporarily disrupted during the construction of the wind farm or cable trench. This has the potential to impact on nearby dwellings and commercial / industrial activities. All potential impacts will be considered in full in this chapter.

Map Path: R:\Map Production\2018\P1892\Workspace\EIA Scoping Report\P1892_Fig4-1_ReceptorsWithin1-8kmOfProposedTurbines_A3.mxd



Co. Laois

Legend

- Proposed Turbines
- 1.8km Distance from Proposed Turbines
- Proposed Site Boundary

Eircode Data

- Residential
- Commercial
- Residential & Commercial
- Unknown

0 0.25 0.5 1 Kilometers

Figure Title
Receptors within 1.8km of Proposed Turbines

Figure No. 4.1

Project
Dernacart Wind Farm

Client
Statkraft

Scale 1:25,000 **Page Size** A3

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4.7 Environmental Aspect: Shadow Flicker

4.7.1 Aspects to be addressed

This chapter will address the potential effects on human beings of shadow flicker, i.e. the moving shadows cast by the turbine blades in times of direct sunlight.

4.7.2 Assessment Methodology

A shadow flicker assessment will be carried out using ReSoFT Windfarm soFTware (version 4.2.2.1) to predict the time and duration of shadow flicker on windows of habitable or permitted houses within 10 rotor diameter from a proposed turbine, as informed by the house and planning surveys.

The methodology used for the shadow flicker assessment will be performed in consideration of the "Wind Energy Development Planning Guidelines" DoEHLG (2006) and the Irish Wind Energy Association (2012) "Best Practice Guidelines for the Irish Wind Energy Industry". This methodology includes:

- Calculation of sunshine factor based on the historical measurements from the closest Met Éireann meteorology station.
- Calculation of shadow flicker levels for the final turbine layout.
- Where exceedances are predicted, detailed mitigation measures, including an outline potential turbine shut-down will be proposed.

Cumulative impacts of the proposed development and other third party schemes will be assessed. IWEA Best Practice Guidelines (2012, Section 6.3.4) states that *"any such wind farm developments within 2 km of the proposed development should be considered in a separate cumulative shadow flicker assessment.* There are no other known proposed, consented or existing wind farms within this distance of the proposed Dernacart wind farm.

4.7.3 Receiving Environment

The proposed development is located in a rural part of North Co. Laois. Buildings within the vicinity of the proposed development are primarily residential or agricultural. A house survey was carried out of existing receptors up to a distance of 1.8km from the development site boundary. There are 106 residential receptors located within 1.8km distance from the indicative turbine layout (of which 24 comprise of residential and commercial uses). There are a further 2 receptors categorised as commercial in nature, and one of which is unknown. Figure 4.1 illustrates the location of these receptors.

4.7.4 Potential Impacts

In times of direct sunshine, wind turbine blades could occasionally cast moving shadows on residences in close proximity to the turbines. At certain times of the year, the moving shadows of the turbine blades can periodically reduce light to a room causing the light to appear to flicker. Shadow flicker would not generally have any effect on health or safety but could on limited occasions present a brief nuisance effect.

The proposed development will incorporate a shadow flicker monitoring system that will mitigate against the effects of shadow flicker from occurring.

4.8 Environmental Aspect: Noise and Vibration

4.8.1 Aspects to be addressed

The chapter will address noise and vibration impacts from the construction and operation of the proposed wind farm.

4.8.2 Assessment Methodology

The noise and vibration impact assessment will address impacts from the construction and operation of the wind farm as well as carrying out noise monitoring to quantify the baseline noise levels in the vicinity of the proposed development.

Noise Monitoring

The survey methodology will be based on the Institute of Acoustics Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (May 2013) and the associated supplementary notes relevant to the baseline measurements and analysis.

The guidance states that at least two weeks monitoring is typically required to collect all necessary data. If insufficient wind data is collected after two weeks, the monitoring periods will be extended until such time as sufficient wind speed and direction data has been measured.

The noise monitoring will be carried out in accordance with ISO 1996 Parts 1 and 2, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, The Institute of Acoustics, May 2013 and the Supplementary Guidance Note 1: Data Collection, September 2014.

The data analysis and reporting will be carried out applying relevant sections from the IOA Good Practice Guide and the following supplementary notes:

- Supplementary Guidance Note 2: Data Processing and Derivation of ETSU-R-97 Background Curves, September 2014
- Supplementary Guidance Note 4: Wind Shear, July 2014

Approximately 5 noise monitors will be installed to characterise the noise environment in the vicinity of the proposed development. The final number of monitoring locations will be dependent on the site layout and subsequent site visit. Where the wind speeds at noise monitoring locations are not representative of the range of wind speeds considered to be experienced at the wind farm site, these locations will be supplemented with a 10m high met mast.

Once an indicative site layout is available, appropriate monitoring locations representative of noise environment from the proposed wind farm will be identified for agreement with the client. If these locations cannot be accessed for monitoring, other recommended locations can be suggested, preferably residential rather than proxy locations.

The wind speed and direction data will be collected after the two week monitoring period. Where insufficient data is collected, noise monitoring will be extended until such time as sufficient data has been deemed to be collected.

Data Analysis and Limit Derivation

Once sufficient data has been captured at each monitoring location, data will be analysed. The baseline noise measurements will be correlated with the standardised 10m height wind speed and rainfall data and then plotted to provide wind speed versus averaged background noise levels at each monitoring location.

The averaged prevailing background noise level as a function of wind speed will be used to derive the daytime and night-time noise limits for increasing wind speeds and allow derivation of daytime and night-time noise limits based on the DoEHLG Wind Energy Development Guidelines (2006) and/or noise limits in accordance with the Review of the Wind Energy Development Guidelines 2006, draft issued in June 2017.

Operational Impact Analysis and Mitigation Design

Operational noise predictions will be carried out to determine the noise levels at the nearest noise sensitive locations. Noise predictions will be carried out using International Standard ISO 9613, Acoustics – Attenuation of Sound during Propagation Outdoors. The noise modelling parameters and assumptions used will be in accordance with the recommended parameters in 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise', The Institute of Acoustics, May 2013.

It is proposed that the methodology in the Wyle Report is used to calculate the directivity. Calculating the directivity is not a trivial exercise and requires extensive work. The method requires octave band information from each turbine at each receptor.

The predicted operational noise levels from the proposed development as well as the cumulative predicted operational levels from all nearby operational and consented developments will be compared against noise limits derived using the Wind Energy Development Guidelines 2006 and the Review of the Wind Energy Development Guidelines 2006, draft issued in June 2017.

The noise predictions will also be assessed against the World Health Organisations Night noise guidelines for Europe (2009) which identifies a target of 40 dB Lnight, outside night noise guideline. The Lnight, outside is the night-time noise indicator (Lnight) of Directive 2002/49/EC. It is the long-term average sound level determined over all the night periods (23:00 – 07:00) of a year. This requires long term wind speed data to be analysed during night-time periods. The data will be binned into various wind speeds and directions. This data in combination with the predicted noise levels for wind directions and wind speeds will be used to calculate a predicted Lnight, outside at each of the monitoring locations.

Cumulative Impact

The predicted noise from the proposed development and the other operational and consented dwellings will also be considered. It is proposed to depart from the above and apply the methodology outlined in the IOA guidelines. The potential cumulative impacts and the need to determine whether it is necessary to model the potential cumulative impacts will be appraised in accordance with the IOA guidelines. The IOA guidelines state… "*If the proposed wind farm produces noise levels within 10 dB of any existing wind farm/s at the same receptor location, then a cumulative noise impact assessment is necessary*." The IOA guidelines also state... "*Equally, in such cases where noise from the proposed wind farm is predicted to be 10 dB greater than that from the existing wind farm (but compliant with ETSU-R-97 in its own right), then a cumulative noise impact assessment would not be necessary*."

Construction Impact Analysis and Mitigation Design

Construction Noise predictions will be carried out to determine the noise levels at the nearest noise sensitive locations. Noise prediction will be carried out using British Standard BS 5228-1:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

Predicted construction noise levels will be compared against noise levels in BS 5228:2009+A1:2014 Part 1. Where the impact significance identifies a requirement for mitigation, mitigation measures will be outlined.

4.8.3 Receiving Environment

A house survey of existing dwellings within the vicinity of the proposed development has been carried out. This information will inform the receptor locations for noise and vibrations assessments.

4.8.4 Potential Impacts

Potential impacts of potential noise nuisance will be addressed at the design stage by locating turbines at sufficient separation distances or by employing reduced turbine noise modes to comply with the noise limits in force at the time of application.

4.9 Environmental Aspect: Traffic and Transportation

4.9.1 Aspects to be addressed

The traffic impact assessment will address the traffic impacts on the road network from the construction and operation of the proposed Dernacart Wind Farm. The assessment will include the supply of materials, plant and equipment, the turbine elements and the components of the sub-station. Traffic arising from the construction and operations workforce will also be addressed.

4.9.2 Assessment Methodology

A traffic impact assessment will be conducted in accordance with the Transport Infrastructure Ireland (TII) Traffic and Transport Assessment (TTA) Guidelines, May 2014. Data collected from road traffic surveys along the delivery route will be used in the assessment.

A route survey will be carried out by a specialist transport consultant between the port of entry options and proposed site entrance locations. This survey will identify potential pinch points and locations that may require off site temporary upgrades to facilitate the safe transport of the turbines to the development site.

Auto Track vehicle swept path analysis (SPA) will be conducted for all internal tracks to ensure that they are adequate to allow delivery of turbine components while also minimising the required land take where feasible. SPA will also be carried out on pinch points identified in the transport route survey report.

The methodology for the traffic impact assessment will include a review of the traffic volumes and impacts which will be generated by the construction and operation of the wind farm. The traffic generated by the construction workforce, by the transport of materials and equipment as well as future maintenance-related activities will be predicted.

The traffic distribution pattern on the local road network during construction will be examined and impacts determined. The potential disruption to the road network during the installation of the cables and the availability of alternative routes will be assessed, where required. Recommendations will be made to mitigate any potential traffic impacts on the road network.

4.9.3 Receiving Environment

The proposed development is located east pf the N80 national road (Portlaoise – Tullamore). Access to the site will be from this road along a short distance of local road.

4.9.4 Potential Impacts

The greatest potential for traffic impact from the proposed development is during the construction phase which will give rise to additional HGV traffic on the road network.

The turbines will be delivered to the site in components, typically comprising of loads for each of the towers: the rotor blades; the nacelle; the rotor hub; the turbine base; and the electrical components. The delivery route from the port into which the components are shipped, to the proposed wind farm site will use the national primary route network as much as possible. Modifications may be required to the existing local road network to cater for the delivery of the oversized loads.

Stone aggregate will be required for the access tracks and construction of new site access as well as the construction of turbine bases and hardstands. All of these activities have the potential to generate additional local traffic numbers. Borrow pits are currently proposed as part of the proposed development.

The nature of the local road network in the vicinity of the proposed wind farm site is such that widening/improvement works may be required to accommodate construction traffic. There will be an increase in local traffic during the construction of the wind farm; staff, including plant operators, electricians, engineers and trades people, will be commuting to and from the site each morning and evening. In addition, there is likely to be an increase in local traffic due to onlookers as the turbines are erected.

There will also be temporary traffic impacts from cable laying works on the public roads. These impacts will be managed through the implementation of suitable mitigation measures to reduce the nuisance being caused to local road users.

The cumulative impact of construction traffic will also be considered in terms of other developments in the area.

4.10 Environmental Aspect: Air Quality and Climate

4.10.1 Aspects to be addressed

The EIAR will address the potential impacts on air quality due to construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The climate in the immediate local area of a proposed development is known as the micro-climate whereas the climate of a large geographical area (global) is the macro-climate. The potential impacts of Dernacart Wind Farm on micro-climate and macro-climate will be addressed.

4.10.2 Assessment Methodology

Air quality monitoring conducted by the EPA at a number of locations in the vicinity of the site will be reviewed and levels compared with the air quality standards. To assess the impacts of construction dust emissions, the approach and assessment criteria outline in the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (NRA, 2008) will be used.

For the purposes of assessing the impact on air quality of emissions generated by construction traffic, the methodology described in the Design Manual for Roads and Bridges 2007a (UK Highways Agency, May 2007) will be used. Parameters to be assessed will include oxides of nitrogen, particulates PM10 and PM2.5, carbon monoxide and benzene.

The potential micro-climatic impacts of Dernacart Wind Farm will be assessed in relation to the micro-climatic baseline, the scale of the elements of the project and the nature of use of the surrounding environment. For the assessment of macro-climatic effects, the emissions of carbon dioxide (CO_2) and other greenhouse gases from fossil fuel power generation, which will not be required should the Dernacart Wind Farm become operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

In terms of carbon losses and savings, the Scottish Windfarm Carbon Assessment Tool. will be used to estimate carbon savings as a result of the proposed construction and operation of the wind farm.

4.10.3 Receiving Environment

In terms of micro-climate, the wind farm is located in a predominantly rural area, corresponding to air quality zone D, Rural Ireland, in the Air Quality Regulations SI 180 of 2011, as amended. The air quality is expected to be good.

The macro-climatic baseline is the future emission of CO_2 and other greenhouse gases, which would be produced by fossil fuel power generation in the country, in the absence of the proposed Dernacart Wind Farm.

4.10.4 Potential Impacts

The assessment will address the potential impacts on air quality due to construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The construction phase of the proposed Dernacart Wind Farm has the potential to generate dust emissions, which could give rise to nuisance for local residents.

To assess the impacts of construction dust emissions, the approach and assessment criteria outlined in the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2008) will be used.

Construction plant and equipment, and the traffic generated by the construction process, have the potential to give rise to emissions of oxides of nitrogen, benzene and particulates, which could impact on local air quality. The operation of the proposed Dernacart Wind Farm is not expected to have a negative impact on air quality.

The proposed Dernacart Wind Farm is expected to have a positive impact in terms of the nett reduction in emissions of CO_2 and other greenhouse gases as a result of the proposed wind farm. For the assessment of macro-climatic effects, the reduction in emissions of CO_2 and other greenhouse gases from fossil fuel power generation when Dernacart Wind Farm is operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

4.11 Environmental Aspect: (Biodiversity)

4.11.1 Aspects to be addressed

This chapter of the EIAR will address the habitats and species, including those of conservation concern within and in close proximity to the wind farm; including along and in close proximity to the on-site cable routes; on and in close proximity to the sub-station, and any required replanting. It will also address the potential impacts on ecology from the proposed underground cable between the wind farm and the grid connection as well as any proposed alterations to the public road network required for the delivery of turbine components.

In particular, the assessment will focus on:

- Natura 2000 sites i.e. Special Areas of Conservation designated under the EU Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas designated under the EU Birds Directive (Directive 2009/147 EC), within the zone of influence of the proposed development
- Other designated sites such as Natural Heritage Areas, proposed Natural Heritage Areas, Nature Reserves and Refuges for Fauna or Flora
- Habitats listed in Annex I of the Habitats Directive
- Species listed in Annex II and Annex IV of the Habitats Directive
- Birds listed in Annex I of the Birds Directive
- The impact on any flight paths of bird and bat species
- Species protected under the Wildlife Acts
- Protected flora under the Flora Protection Order (2015)
- Habitats that can be considered as corridors for the purposes of article 10 of the Habitats Directive
- Red data book species
- And biodiversity in general.

4.11.2 Assessment Methodology

Desk studies will be undertaken in which ecological databases, such as those of the National Parks and Wildlife Service (NPWS), EPA and NBDC will be consulted. The NPWS, Inland Fisheries Ireland and the main environmental non-governmental organisations have been or will be consulted.

Bird survey methods have been selected following a review of best practice guidelines, including guidance available from Scottish Natural Heritage (SNH), and following consultation with NPWS and other bodies such as BirdWatch Ireland.

The works being conducted include the following elements:

- Ecological monitoring of terrestrial and aquatic ecosystems according to current best practice, e.g. Irish Environmental Protection Agency (IRE), the Irish National Parks and Wildlife Service of Ireland (NPWS), the Irish National Roads Authority of Ireland (NRA), Chartered Institute of Ecological and Environmental Management (CIEEM), The Heritage Council of Ireland, Bat Conservation Ireland (BCI) and Scottish Natural Heritage (SNH)
- Appropriate Assessment Screening Reports and Natura Impact Statements (Article 6, E.U. Habitats Directive)
- Desktop studies including ecological data review and analysis
- Ecological Constraints Studies
- Ecology Surveys, including:
    - Birds e.g. I-WeBS, Vantage Point surveys for target species and breeding bird transect surveys
    - Mammals e.g. Badger, Otter
    - Bat surveys
    - Habitat and Botanical surveys
    - Aquatic Invertebrates (SSRS assessment)
    - Other taxa. e.g. Kerry Slug, Butterflies, Moths and Terrestrial Invertebrates
- Ecological Impact Assessment (EcIA)
- Statutory Compliance and Consultation, advice on conservation and legislation
- Opportunities for biodiversity enhancement

Having established the baseline, impacts will be assessed and then mitigation measures proposed. For each mitigation measure the following will be provided:

- Details of how the mitigation will be secured and implemented
- Evidence of the degree of confidence in their likely success
- A timescale of when they will be implemented
- Details of how the mitigation measures will be monitored and how any mitigation failure will be addressed.

4.11.3 Receiving Environment

The proposed wind farm site located within 15km of the following European sites.

- River Barrow and River Nore SAC (002162)
- Slieve Bloom Mountains SPA (004160)
- Slieve Bloom Mountains SAC (000412)
- Mountmellick SAC (002141)
- Charleville Wood SAC (000571)

The River Noir and Barrow SAC (002162) is directly adjacent to the site.

4.11.4 Potential Impacts

This chapter of the EIAR will address the nationally designated sites, terrestrial and freshwater (aquatic) habitats and species, including those of conservation concern on and in close proximity to the wind farm and including along and in close proximity to the proposed cable route and proposed haul route.

The ecological evaluation of the site and its' flora and fauna will be assessed according to NRA (2009). Once the value of the identified ecological receptors (features and resources) is determined, the next step will be to assess the potential impact and resulting effect of the proposed development on the identified key ecological receptors.

This will be carried out with regard to the criteria outlined in various impact assessment guidelines (NRA, 2009; CIEEM, 2016). The impacts will be assessed under a number of parameters such as magnitude, extent, timing, frequency, duration and reversibility. The impact significance criteria detailed in the EPA guidelines (EPA, Draft 2017) will be used where applicable.

Potential impacts of the wind farm on flora and fauna include:

- Direct loss of habitat due to the footprint of the area;
- Damage to adjacent habitats during construction which could potentially be affected by construction activity;
- Impacts during construction on the hydrology of water dependant habitats
- Impacts on water quality both at a local level and regional level due to pollution run-off whether during or post construction;
- Impacts on aquatic species during construction or due to pollution events etc.;
- Disturbance to local wildlife, including loss of habitat, disturbance and displacement;
- The potential collision risk to birds and bats;
- Damage to or habitat loss of important wildlife corridors or stepping stones during construction. Fragmentation of same at a larger more regional level as a result of habitat loss;
- The introduction of alien invasive species during construction;
- Displacement of bird species from limited breeding areas;
- Displacement or disturbance to breeding waders from areas within the proposed wind turbine envelope;
- Barrier effect on migrating birds, whereby individual species' dispersal or migration routes are affected by the placement of turbines which effectively cause a barrier;
- Impacts on the conservation status or constituent parts of designated sites.
- Potential impacts associated with tree felling and any required replanting on designated sites, habitats, flora and fauna.

Potential impacts on European (Natura 2000) sites as a result of the proposed development will be assessed though the appropriate assessment process.

4.11.5 Appropriate Assessment

An Appropriate Assessment Screening Report and if required a Natura Impact Statement will be prepared in respect of the proposed development, so as to enable the competent authorities to carry out an Appropriate Assessment as required by Article 6(3) of Council Directive 92/43/EEC ("the Habitats Directive") and section 177U and 177V of the Planning and Development Act 2000, as amended ("the 2000 Act"). The potential impact to European sites due to tree felling and any proposed replanting shall also be considered.

In compliance with the aforementioned provisions of Article 6(3) of the Habitats Directive and section 177U of the 2000 Act, a Screening Appropriate Assessment of an application for consent for proposed development shall be carried out by the competent authority or authorities to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with another plan or project is likely to have a significant effect on a European site, in view of the site's conservation objectives.

Where negative impacts on a Natura 2000 site cannot be discounted during Stage 1 Screening for Appropriate Assessment, the Assessment must proceed to Stage 2 and a Natura Impact Statement prepared at which point a detailed, targeted assessment of the nature and potential significance of direct and indirect impacts arising from the proposed project must be completed and an assessment as to whether the integrity of the Natura 2000 site would be adversely affected.

European sites, comprise both Special Protection Areas (SPAs) for birds and candidate Special Areas of Conservation (cSACs) for habitats and other species, and are designated by Member States pursuant to the requirements of Council Directive 79/409/EEC, now Directive 2009/147/EU, on the conservation of wild birds ("the Birds Directive") and the Habitats Directive, respectively.

The first step in the screening process is to develop a list of European sites which may have the potential to be affected by the proposed development. Each relevant European site is reviewed to establish whether or not the proposed development is likely to have a significant effect on the European site. There are five European Sites (SACs and SPAs) located within 15km of the proposed development:

- River Barrow and River Nore SAC (002162), located c. 654m from the nearest turbine
- Slieve Bloom Mountains SPA (004160), located c. 4.6 km to the nearest turbine
- Slieve Bloom Mountains SAC (000412), located c. 8.2 km to the nearest turbine
- Mountmellick SAC (002141), located c. 4.8km km to the nearest turbine
- Charleville Wood SAC (000571), located c. 14.4 km to the nearest turbine

For each European Site, the qualifying interests or special conservation interests of each European site will be identified and the potential effects summarised under the following headings for the purposes of the screening process:

- Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development. Direct impacts can arise as a result of a change in land use or management, such as the elimination of agricultural practices that prevent scrub encroachment.
- Indirect and secondary may arise, for example, when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site, and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality could occur as both an indirect and direct consequence of a particular development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact, which results in increased movement of vectors (humans, fauna, surface water), and consequently the transfer of alien species from one area to another.
- Disturbance to fauna can arise directly through the loss of habitat (e.g. otter holts) or indirectly through noise, vibration and increased activity associated with construction and operation.

In the event that significant effects cannot be ruled out during the Stage 1 Screening for Appropriate Assessment, the process proceeds to Stage 2 Appropriate Assessment and a Natura Impact Statement is prepared. During Stage 2 AA, the effect of the project on the integrity of the European site(s), as defined by its structure and function, and its conservation objectives is appraised. Potential impacts on species or habitats will be evaluated with respect to the scale, extent and nature of the impact, for example the area of habitat affected, changes in hydrodynamics, the percentage reduction in species density, potential changes in species distribution. The duration of the impact will be determined in terms of the duration of the works and also the amount of time required for the species and / or habitat to be replaced or to recover from the impacts. During Stage 2 of the AA process, mitigation measures can be developed to minimise effects on European Sites.

Mitigation measures will follow the mitigation hierarchy:

- Avoidance
- Reduction
- Remedy

For each mitigation measure the following will be provided:

- Details of how the mitigation will be secured and implemented
- Evidence of the degree of confidence in their likely success
- A timescale of when they will be implemented
- Details of how the mitigation measures will be monitored and how any mitigation failure will be addressed.

4.12 Environmental Aspect: Soils, Geology, Hydrogeology

4.12.1 Aspects to be addressed

The assessment will address soils, bedrock and groundwater underlying the wind farm.

4.12.2 Assessment Methodology

The methodology for the soils and geology assessment will be in accordance with the guidelines published by the Institute of Geologists of Ireland in 2013, 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements'.

At this stage, it is envisaged that the Preliminary Site Investigation (Phase 1) will consist peat probing at turbine locations and along access road routes to identify whether roads are likely to be floated or founded and trial pits at borrow pit locations to confirm the depth of overburden at borrow pit locations and potentially log the upper weathered rock deposits.

The data gathered will be used to inform the final location of all turbines and associated infrastructure.

An earthworks balance calculation will be prepared for the overall development to assess where excavated material can be beneficially re-used. In addition, an assessment of the volumes of raw material will be made which will in turn be used to determine the number and size of borrow pits required.

4.12.3 Receiving Environment

The site is underlain generally by cut over raised peat across the east and north side. An area of Limestone Glacial Till is present in the west of the site which then becomes a mixture of alluvium associated with the River Barrow and Limestone derived Glacial Till and gravels. The peat at the site is of unknown depth.

4.12.4 Potential Impacts & Mitigations

The potential impacts of the development of the wind farm on the geology, hydrogeology and slope stability are:

- The excavation and removal of soil and rock and interference with any existing site drainage is a potential direct permanent effect that, without mitigation, could alter the existing hydrogeological balance of the site;
- The construction of the turbines, hardstanding areas, access tracks, borrow pits and cable trenches has the potential to cause hydrogeological impacts by modifying the natural groundwater levels adjacent to the excavation. This in turn may deprive ditches and streams of their natural supply of water which may lead to reduced base flow and recharge to the bedrock aquifer;
- Areas which are underlain by peat deposits are susceptible to slope stability issues, including peat slides and bursts, when changes are made to topography, hydrogeology and hydrology of the site;
- The use of granular fill and other materials for the construction of the access tracks has the potential to have a permanent impact on the source quarries or borrow pits;

- Excavations have the potential to increase erosion and sediment release that could also have additional impacts on water quality due to sedimentation of water courses;
- Soil compaction may occur due to movement of construction and maintenance traffic;
- Removal of sub soils may result in the exposure of the underlying rock to sources of contamination and may increase the vulnerability of the aquifer, whether or not the rock is exposed;
- Chemical pollution may occur as a result of an accidental spillage or leakage of chemicals, runoff from vehicle washing facilities, unset concrete, storage of fuels or refuelling activities, etc. Chemical pollutants may enter the groundwater and have implications for ecology and any wells in the area, particularly those located down-gradient of the site.
- Sanitary waste arising from temporary construction compounds could lead to contamination of groundwater

At the substation, the potential impacts are the pollution of groundwater from an oil or fuel spillage during construction. The sub-station and the construction compound will have staff welfare facilities.

4.13 Environmental Aspect: Water Quality and Hydrology

4.13.1 Aspects to be Addressed

The assessment will address impacts on hydrology and water quality. The aspects of the hydrological environment that could be affected by the activities associated with the proposed Dernacart Wind Farm will also be addressed.

4.13.2 Assessment Methodology

The emerging design layout will consider the sensitivities of the environmentally designated areas in the proximity of the site. A preliminary site visit will be undertaken to establish the constraints relating to hydrology and noting any hydrological features. The desk study will involve setting out the principles for surface water management, attenuation and treatment for the site specific land use at the site. Once the design layout is fixed, a further site visit will be scheduled in to undertake a walkover of the site, to identify all the streams crossed by the proposed layout and examine how overland flow will be accommodated and to identify suitable locations for the treatment of discharges.

Cumulative impacts will be addressed to assess the hydrological impact of neighbouring sites. Taking account of the sensitivity of the receiving environment, the treatment of the surface water run-off will concentrate on Silt Protection Controls (SPCs). Measures will also be considered to avoid any increase in flooding downstream.

The methodology will include the following:

- Study of existing surface water/drainage features in the vicinity;
- Delineation of catchment boundaries;
- Catchment mapping;
- Establish constraints;
- Study of the proposed layout of the development;
- Examine grid connection route options;
- Assessment of the turbine delivery route (TDR);
- Liaison with in-house Geotechnical department for details on soil conditions on the site;
- Study of planning documents for adjacent developments;
- History of flooding and status of drainage in the neighbourhood;
- Existing Water Quality assessment;
- Study of the sections of forestry, examining details of planting and existing forestry drainage systems;

- Forestry felling assessment relevant to hydrology and water quality;
- Preparation of the overall hydrological, water quality and drainage impact assessment:
    a. Potential impacts of the proposed development on hydrology (hydrodynamics and flooding)
    b. Potential cumulative hydrological impacts of the proposed development with any neighbouring wind farms
    c. Potential drainage into sensitive catchments
    d. Potential impacts of the proposed development on water quality
- Consult with interested bodies, Inland Fisheries Ireland and relevant Local Authorities;
- Study of development plans;
- Site drainage investigation will involve identification of drainage sub-catchments, studying the requirement(s) of cross-drainage works, if any, exploring the infiltration potential of the soils in the area, etc.;
- Outline of mitigation measures for flooding and pollution of receiving waters;
- Design of site appropriate erosion and sediment control measures, development of erosion and sediment control procedures for implementation on site;
- Preparation of Flood Risk Assessment in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities, DoEHLG and OPW, November 2009, including a cumulative assessment with adjacent developments and Surface Water Management Plan in accordance with Greater Dublin Strategic Drainage Study (GDSDS) and the CIRIA SuDS Manual (C753) including the design of stream crossings;
- Design of site specific surface water drainage system and drainage infrastructure – to control flow of surface water on site during construction, Sustainable Drainage Systems (SuDs);
- Preparation of Designer's Risk Assessment – Drainage Element;
- Contribution to the Appropriate Assessment;
- Outline of residual impacts.

The Hydrology element of the EIAR and the FRA will inform the civil design of the site. A Surface Water Management Plan (SWMP) will be prepared as part of the Outline Construction and Environmental Management Plan (oCEMP). A hydrological impact assessment and flood study will be incorporated into the SWMP, culminating in a Drainage/ Surface Water Management Plan for Erosion Control, Protection of Water Quality and mitigation of flood risk.

4.13.3 Receiving Environment

The River Barrow flows along the western boundary of the site and the rest of the site is interspersed with riverine stream networks. The western section of the site lies within the River Barrow and River Nore SAC (002162). The Dernacart Wind Farm is located in Barrow _040 river sub-basin within hydrometric area 14 which is the hydrometric area of the River Barrow.

4.13.4 Potential Impacts

The main potential impact from the construction of the wind farm development is the potential sedimentation of watercourses. Rainfall run-off containing silt could potentially lead to siltation and consequent physical effects on flora and fauna in aquatic habitats.

Sediment has the potential to arise from:

- Temporary spoil heaps from the excavations for the turbine bases; if left exposed, the spoil heaps could lead to an increase in silt-laden run-off draining off site.
- Haulage roads passing close to watercourses could allow the migration of silt-laden run-off into watercourses (crushable stone in site access roads could lead to heavy vehicles creating fines in the stone with a subsequent loss of sediment in the surface water run-off).

- Silt carried on the wheels of vehicles leaving the site could be carried onto the public road.
- Tree felling could lead to an increase in sediment in the surface water run-off.
- While the cable trench is open adjacent to a watercourse and at stream crossings, this could lead to an increase in the concentration of suspended solids in the watercourse.

In addition, possible impacts on water quality during construction activity include:

- Concrete operations could contaminate receiving waters.
- Runoff from vehicle washing facilities could lead to contamination of receiving waters.
- Refuelling activities could result in fuel spillages.

The potential impacts on hydrology and drainage that may arise from the proposed development of the wind farm site include impacts on localised flooding patterns and downstream structures as well as cumulative hydrological impacts with neighbouring developments.

At the temporary compound, the potential impacts are the pollution of surface water from an oil or fuel spillage during construction.

During the operational phase of the wind farm, potential impacts on water quality will primarily arise from the use of lubricants, coolants and hydrocarbons in the operations of the turbine transformers as well as routine maintenance of all plant and equipment.

4.14 Environmental Aspect: Archaeological, Architectural and Cultural Heritage

4.14.1 Aspects to be Addressed

The assessment will address features and sites of archaeological, architectural and cultural heritage significance. The purpose of the study will be to assess the significance of the receiving cultural heritage environment and to identify and evaluate the magnitude of the impact of the proposed wind farm on the sensitivity of each cultural heritage feature within this environment and on the broader historic character of the landscape. Measures will be proposed to mitigate effects (where possible) so as to allow a fully informed decision to be made by the adjudicating authority.

4.14.2 Assessment Methodology

The content of the cultural heritage assessment will be based on current EPA guidelines and relevant national and international best practice guidelines. The assessment will identify the recorded and potential elements of the cultural heritage resource (including archaeology, built heritage, history and folklore) within a study area encompassing the proposed development areas, grid connection, borrow pits and site access routes.

The EIAR assessment will also include an assessment of any surviving vernacular structures within both subject areas, such as farm buildings and other agricultural features. While not designated as Protected Structures or included in the NIAH, these may form elements of the local cultural heritage resource worthy of preservation by record or preservation in situ.

It is envisioned that the site survey will be undertaken once a preliminary outline for the proposed development layout has been made available. The design team will be promptly informed of the location, nature and extent of any cultural heritage features of significance identified during the site survey and will be consulted in relation to assessment of potential impacts and detailed design responses.

4.14.3 Receiving Environment

There are no recorded archaeological sites or national monuments within the boundary area or within proximity to the site.

4.14.4 Potential Impacts

The predicted impacts of the proposed scheme on either the recorded and potential elements of the cultural heritage resource within and around proposed development areas will be identified and clearly defined based on EPA criteria. The assessment will also address cumulative impacts and potential inter-visibility and sensitivity analyses of cultural heritage sites within the surrounding landscape.

Appropriate mitigation measures to minimise impacts on the cultural heritage resource will be formulated where required following consultation with both the client and the relevant local and national authorities. These may involve (1) the preservation *in situ* of identified sites within protected buffer zones and (2) undertaking pre-development site investigations and/or the supervision of ground works during the construction phase. While details on any required mitigation measures will await assessment, it is envisioned that potential impacts will be subject to constant assessment as the design and consultation process progresses.

As statutory consultees the National Monuments Service (NMS) (via the Development Applications Unit) and Laois County Council (LCC) will be consulted in relation to required mitigation measures as part of the formal EIAR consultation process.

4.15 Environmental Aspect: Aviation and Telecommunications

4.15.1 Aspects to be Addressed

The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically-propagated signals. Such interference could, in theory, affect all forms of electromagnetic communications including:

- Satellite communications
- RADAR
- Cellular radio communications
- Aircraft instrument landing systems
- Air traffic control
- Terrestrial microwave links
- Television broadcasts

In addition, it is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception.

The EIAR will include an assessment of any such potential impacts.

4.15.2 Assessment Methodology

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible, and thereby limiting any potential negative impacts on service providers in the area.

The proposed assessment methodology will include:

- Consultation with Irish Aviation Authority, Commission for the Regulation of Utilities, emergency services

- Consultation with telecommunications operators to gather the necessary data
- Preparation of constraint mapping
- Analyses of the impact of the turbines on telecommunications operators' point-to-point microwave radio links and apply appropriate buffer distances around links and masts where required
- Discussions with telecommunications operators identifying potential clashes. Operators to provide feedback on initial assessment and to provide information on the importance of the links identified.
- Further specialist investigations will be carried out if the telecommunications operators identify potential impacts.
- Where necessary, mitigation measures to be agreed with operators including:
    - Turbine relocation
    - Telecommunications link relocation
    - Underground fibre optic cables to replace microwave link
    - Submission of final detailed layout to telecoms operators.
    - Agree any layout alterations following final detailed assessment by telecoms operators, or agree suitable mitigation measures if necessary.

Impacts on aviation will be addressed following detailed discussions with the Irish Aviation Authority.

4.15.3 Receiving Environment

In terms of the receiving environment, links will be identified within a suitable buffer distance of the turbines, following consultation with network providers.

4.15.4 Potential Impacts

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network, and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible, and thereby limiting any potential negative impacts on service providers in the area.

The Irish Wind Energy Association 2012 guidelines, "*Best Practice Guidelines for the Irish Wind Energy Industry*", indicate that wind turbines within 20 km of a radio navigation aid have the potential to cause electro-magnetic interference with these signals. It is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception. In practice, such measures are not difficult to implement, are relatively inexpensive and if necessary will be undertaken by the developer in conjunction with RTÉ.

4.16 Environmental Aspect: Landscape and Visual Impact

4.16.1 Aspects to be addressed

The landscape and visual assessment report will appraise the existing landscape character of the site and its wider setting in order to assess the likely landscape, visual and residential amenity impacts arising from the proposed development.

Aspects to be addressed in the report are:

- Receiving environment, covering details on:
  - Wider landscape context
  - localised site context.
  - Landform, landcover, land use patterns and trends
  - Key/unique landscape elements and features
  - Defining attributes of the wider landscape

- Landscape character, covering details on:
  - Character as outlined in CDP
  - Associated landscape values
  - Sensitivity levels within the landscape
  - Statutory designations
  - Landscape designations
  - Scenic/amenity routes
  - Views and prospects
  - Features of natural and built heritage

- Landscape Policy Context
  - Relevant policy objectives within Laois CDP and LAPs
  - Relevant policy objectives within neighbouring counties within a prescribed study area

- Visual context
  - Zone of Theoretical Visibility
  - Viewshed Reference Points
  - Route Screening Assessment

Assessment of these aspects will ultimately inform potential landscape, visual and amenity aspects, residual impacts, and in turn appropriate mitigation measures to ensure impacts are not significant.

4.16.2 Assessment Methodology

Baseline Studies

Baseline studies will involve a comprehensive review of the Laois County Development Plan, policy documents and map data. In terms of the landscape baseline, this will principally focus on the Laois County Landscape Character Assessment, which will be used as the basis for a project specific LCA. Visual baseline studies will focus on designated scenic views, settlements, transport routes and amenity areas \ walking routes. An on-line and literature review of the area will also be undertaken in order to identify important tourist and amenity features within the area. This will include the provision of the likes of way-marked walking trails and tourist facilities.

Constraints Studies

Early stage constraints and feasibility studies for wind energy project are one of Macro Works' Specialties. For both constraints studies it is proposed to prepare comparative ZTV maps to investigate differences in the quantum of visual exposure for each option and whether this brings key sensitive receptor locations into play compared to other options. Though slightly less relevant to the turbine type options than the scheme layout options, wireframe images will be prepared from approximately five important receptor locations where base photography will have already been captured. Non-rendered (coloured) versions of the turbines will be used to examine the potential visual impacts of each of the options taking into consideration both 'visual presence' (prominence) and 'aesthetic impacts' (visual irritation, clutter, scale confusion, harmony / disharmony etc.). Concise and graphics–led constraints report/s will summarise findings of the studies and make recommendations regarding optimal turbine types and layouts from and LVIA perspective.

Photomontages

Photomontages are the cornerstone of the LVIA process and not all photomontages are created equal. Macro Works produce industry-leading photomontages that are fully compliant with the most recent SNH guidelines (2014). Macro Works staff also attended the practitioners' workshop for these guidelines in Edinburgh, Oct 2014. Furthermore, our terrain and turbine modelling techniques ensure that we surpass the graphic quality required by the guidelines. Our turbine models have been found to be extremely accurate in terms of positioning and dimensions when verified in the field against their constructed counterparts.

We consider that the number of photomontages required to complete a robust LVIA in this instance will be at least 25. It is imperative that baseline photography is captured in the clearest of viewing conditions, especially where existing turbines may be contained within the view.

Assessment and Reporting

In accordance with the Guidelines for Landscape and Visual Impact Assessment (GLVIA-2013), which is the industry standard, Macro Works will provide a separate appraisal of landscape impacts and visual impacts. We also recognise that, more than any other chapter, the Landscape and Visual Chapter needs to be supported by a wealth of in-text maps, graphics and images to aid the understanding of the reviewer. Where a project such as this requires the assessment of a considerable number of viewpoints, Macro Works provide the individual assessments as a separate appendix in order that the EIAR Chapter does not become unwieldy and remains focussed on the key findings of the appraisal.

Cumulative impacts will be assessed in accordance with the SNH guidance note for 'Assessing the cumulative impact of onshore wind energy developments' (2012) taking account of 'Combined Views' 'Succession Views' and 'Sequential Views'. Macro Works use our own on-line viewer (see detailed description below) to compare 360° photography against corresponding 360° cumulative Wireframe images to aid the cumulative impact assessment.

4.16.3 Receiving Environment

The Laois County Landscape Character Assessment (LCA) defines the site as a Lowland Agricultural Area, adjacent to a Peatland Area and between 2 no. river corridors. The Lowland Landscape Character Type (LCT) is a generally flat and open landscape with long range views towards upland areas. Much of the area is characterised by enclosed, well-treed road corridors, dense hedgerows, parkland and woodland areas. The river Barrow is considered of national and regional importance within the LCA.

4.16.4 Potential Impacts

In the European Landscape Convention, landscape is defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. The term "landscape" is thus defined as a zone or area as perceived by local people or visitors, whose visual features and character are the result of the action of natural and/or cultural factors. Recognition is given to the fact that landscapes evolve through time and are the result natural and human activities.

Landscape and visual impact assessment has two separate but closely related aspects. The first is visual impact, i.e. the extent to which the wind turbines in the landscape can be seen. The second is landscape character impact, i.e. effects of the wind turbines on the fabric or structure of the landscape as perceived by people. Landscape character is derived from the appearance of the land, and takes account of natural and man-made features such as topography, landform, vegetation, land use and built environment and their interaction to create specific patterns that are distinctive to particular localities.

The proposed wind turbines will be large structures with the potential to have significant landscape and visual impacts. The development of wind farms, including associated infrastructure such as tracks and ancillary buildings, may have a major impact on the surrounding landscape.

Key to the development of the project will be the need for clear communication of the scale and extent of the proposed project.

Clear and concise mapping of the existing areas of landscape and visual sensitivity together with photomontages of the proposed wind turbines will be essential in demonstrating the nature and extent of the development.

Zone of Theoretical Visibility Mapping (ZTVs) will be prepared based on the Department of the Environment, Heritage and Local Government's *'Wind Farm Planning Guidelines'*. The ZTVs will illustrate the study area extending to defined area around the site and highlight the areas where the proposed turbines will theoretically be visible from, as well as the cumulative visual impact arising from other wind farms in the area. These ZTVs do not take into consideration vegetation cover, changing weather conditions or the mitigating effect of distance and therefore illustrate the worst case scenario of visibility.

Estimation of the visual impact of the proposed scheme on the landscape will be based on the visual presence of the turbines, their aesthetic impact the landscape context and the significance of the impact. The assessment will examine potential landscape and visual impact of the turbines on designated landscape, properties, roads, recreation and tourism areas, including:

- Direct effects on landscape features, views, routes and areas described in the County Development Plans and Landscape Character Assessments. The review of the landscape setting will account for a study area from the site boundary. Assessments of and objectives for landscape character are looked at in each of the development plans for these counties to ensure a consistent and integrated appraisal of the area within the study area.
- Potential changes to landscape and townscape character referring to County landscape character assessments noting subtle effects that contribute to the experience of more intangible landscape characteristics. Landscape types, significance/value, sensitivity and capacity for change will be examined.
- Effects on designated landscapes, views, conservation sites and other special areas of interest.
- Effects during construction and decommissioning.

Viewshed reference points (VRP) from the surrounding landscape will be identified from the desktop studies outlined above and will be verified on site. Photomontages from these viewshed reference points will be prepared for the proposed wind turbines, together with a wireframe and photomontage views of the other planned/permitted wind turbines in the landscape, to assist in demonstrating the levels of visual impact.

5 CUMULATIVE IMPACTS, INDIRECT IMPACTS AND INTERACTION OF EFFECTS

5.1 Aspects to be Addressed

The cumulative impact of the proposed wind farm development with other projects which are either existing, permitted or pending planning permission, or for which there is information in the public domain, at a sufficient level of detail to allow assessment, will be addressed. Indirect effects and effects in different environmental media will be addressed.

The cumulative effects from the construction of the wind turbines, cabling and haul route alterations will also be assessed.

5.2 Cumulative Assessment Methodology

The assessment methodology will be based on the EPA guidance and the EU guidelines, 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions', published by the Office for Official Publications of the European Communities in May 1999.

As part of scoping the studies required to assess the impacts of the proposed Dernacart Wind Farm in the different environmental media, the potential for significant cumulative and indirect impacts and interactions will be examined and any such potential impacts will be identified. Where the potential for significant cumulative and indirect impacts and interactions is identified, such impacts and interaction of impacts will be included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental media and aspects of the project. The cumulative and indirect impacts and interaction of impacts will be presented in the chapters of the EIAR which address the most relevant environmental media.

The matrix and expert opinion approaches, as outlined in the EU Guidelines, will be used in the identification of the potential for significant cumulative and indirect impacts and interactions. A matrix of potential interactions will be prepared.

5.2.1 Receiving Environment

Cumulative impacts will be assessed for other projects which are either existing, permitted or pending planning permission, or for which there is information in the public domain, at a sufficient level of detail to allow assessment.

5.2.2 Potential Impacts

If other projects of a similar scale and type are under construction at the same time as proposed Dernacart Wind Farm, there would be a cumulative increased demand for construction materials and skills, and there would be potential for increased construction traffic, dust and noise. The proposed Dernacart Wind Farm has the potential to reduce Ireland's reliance on fossil fuel power generation and assist in it meeting its EU targets for renewable energy generation. Once operational, the cumulative effects with other wind farms and solar farms in area will be a positive one due to the replacement of fossil fuel energy production with clean, green energy.

Appendix 5.2

Consultation Responses

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Ms Marie Geary
for Dr. Elaine Bennett
Fehily Timoney & Company
Core House, Pouladuff Road,
Cork, T12 D773, Ireland
Email: dernacartwindfarm@ftco.ie

12th July 2019

Re: scoping report prepared for Statkraft Ireland Limited in relation to the Dernacart Wind Farm, Forest Upper and Forest Lower, Co. Laois

Dear Ms Geary,

Thank you for your request for a scoping opinion from BirdWatch Ireland in relation to the proposed Statkraft Ireland Limited, Dernacart Wind Farm, Forest Upper and Forest Lower, Co. Laois. We request that the following concerns are addressed in the preparation of the relevant environmental assessments.

Please ensure that an Environmental Impact Assessment (EIA) and a Natura Impact Statement (NIS) are completed which outline the potential impacts of the proposed development on the:

- River Barrow and River Nore SAC (002162)
- Slieve Bloom Mountains SPA (004160)

The River Barrow and River Nore SAC (002162) is located just 654m from the nearest turbine. In relation to the River Barrow and River Nore SAC please ensure that the potential negative impacts of the proposed development on water quality and the freshwater ecology of the River Barrow and its tributaries are assessed. In particular please ensure that any potential negative impacts on the following qualifying interests of the SAC are assessed: [3260] Floating River Vegetation, [4030] Dry Heath, [6430] Hydrophilous Tall Herb Communities, [7220] Petrifying Springs*, [1016] Desmoulin's Whorl Snail (Vertigo moulinsiana), [1029] Freshwater Pearl Mussel (Margaritifera margaritifera), [1092] White-clawed Crayfish (Austropotamobius pallipes), [1095] Sea Lamprey (Petromyzon marinus), [1096] Brook Lamprey (Lampetra planeri), [1099] River Lamprey (Lampetra fluviatilis), [1103] Twaite Shad (Alosa fallax), [1106] Atlantic Salmon (Salmo salar), [1355] Otter (Lutra lutra), [1990] Nore Freshwater Pearl Mussel (Margaritifera durrovensis).

In relation to the Slieve Bloom Mountains SPA (004160) please ensure that the potential negative impacts of the proposed development on Hen Harrier, Merlin and Peregrine, which are listed on Annex I of the E.U. Birds Directive. The Slieve Bloom Mountains SPA is located just 4.6 km to the nearest turbine. Please be

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aware that Irwin et al. (2012)[1] recorded Hen Harrier foraging at a maximum distance of 11.4 km for their nests during the breeding season, with 49% of foraging taking place within 2km of the nest site and 89% of foraging within 5km.

Please ensure that an assessment is carried out of the potential direct, indirect and cumulative impacts of the proposed development on both breeding and wintering birds.

Please ensure that the potential impact of the proposed development on Annex IV species under the Habitats Directive are assessed.

Please ensure that the potential impact of the proposed development on species protected under the Wildlife Acts are assessed.

Please ensure that the potential impact of the proposed development on protected flora under the Flora Protection Order (2015) are assessed.

Please ensure that the potential impact of the proposed development on habitats that can be considered as corridors for the purposes of article 10 of the Habitats Directive are assessed.

Please ensure that the potential impact of the proposed development on red data book species are assessed.

Please ensure that a cumulative impact assessment is carried out takes into account the impacts of other wind farm developments, forestry, agricultural intensification and turf-cutting on relevant habitats and species at a local and regional level.

Please ensure that an Environmental Impact Assessment (EIA) is carried out which assesses the potential direct and indirect impacts of the proposed development on all water bodies both within the footprint of the development as well as downstream. Please assess the ramifications of any negative impacts in relation to the obligations of the Water Framework Directive.

The surrounding region supports a number of Red and Amber listed bird species of conservation concern in Ireland. Please ensure that an assessment of the impact of the development both within the footprint of the development and within the wider countryside which may be negatively impacted during the construction, operational and decommissioning stage. The assessment should include Collison risk modelling (CRM). Several of the bird species found within the region have an established negative relationship with wind farm developments. We expressed serious concerns about the potential negative impacts of the proposed development on the following species: Hen Harrier, Merlin, Red Grouse and Curlew.

Please ensure that the Environmental Impact Assessment (EIA) and a Natura Impact Statement (NIS) are accompanied by an ornithological assessment which are in line with the Scottish Natural Heritage (2017)

[1] Irwin, S., Wilson, M. W., O'Donoghue, B., O'Mahony, B., Kelly, T. C. & O'Halloran, J. 2012. Optimum scenarios for Hen Harrier conservation in Ireland. Report to the Dept. of Agriculture, Food & the Marine. 47pp.

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Patron
Michael D. Higgins
President of Ireland

Éarlamh
Micheál D.Ó hUigínn
Uachtarán na hÉireann

Recommended bird survey methods to inform impact assessment of onshore wind farms or other relevant species specific best practice survey guidelines.

Please acknowledge our submission and advise us on any decision made.

Beir bua agus beannacht

Fintan Kelly

Policy Officer,
BirdWatch Ireland

Marie Geary

From: Environmental Co-ordination (Inbox) <Environmental_Co-ordination@agriculture.gov.ie>
Sent: Tuesday 23 July 2019 11:14
To: Dernacart Wind Farm
Subject: Dernacart Co Laois Wind Farm EIA Scoping Report

Dear Marie,
I refer to your recent correspondence concerning the above.

If the proposed development will involve the felling or removal of any trees, the developer must obtain a Felling License from this Department before trees are felled or removed. A Felling Licence application form can be obtained from **Felling Section, Department of Agriculture, Food and the Marine, Johnstown Castle Estate, Co. Wexford**. Tel: 076-1064459, Web https://www.agriculture.gov.ie/forestservice/treefelling/treefelling/

A Felling Licence granted by the Minister for Agriculture, Food and the Marine provides authority under the Forestry Act 2014 to fell or otherwise remove a tree or trees and/or to thin a forest for silvicultural reasons. The Act prescribes the functions of the Minister and details the requirements, rights and obligations in relation to felling licences. The principal set of regulations giving further effect to the Forestry Act 2014 are the Forestry Regulations 2017 (S.I. No. 191 of 2017).

The developer should take note of the contents of **Felling and Reforestation Policy** document which provide a consolidated source of information on the legal and regulatory framework relating to tree felling; https://www.agriculture.gov.ie/media/migration/forestry/treefelling/FellingReforestationPolicy240517.pdf. As this development is within a forest lands particular attention should be paid to deforestation, turbulence felling and the requirement to afforest alternative lands.

In order to ensure regulated forestry operations in Ireland accord with the principles of sustainable forest management (SFM) , as well fulfilling the requirements of other relevant environmental protection laws, the Department (acting through its Forest Service division) must undertake particular consultations and give certain matters full consideration during the assessment of individual Felling Licence applications. This includes consultation with relevant bodies, the application of various protocols and procedures (e.g. Forest Service Appropriate Assessment Procedure), and the requirement for applicants on occasion to provide further information (e.g. a Natura Impact Statement).

Consequently, when the Forest Service is considering an application to fell trees, the following applies:

1. The interaction of these proposed works with the environment locally and more widely, in addition to potential direct and indirect impacts on designated sites and water, is assessed. Consultation with relevant environmental and planning authorities may be required where specific sensitivities arise (e.g. local authorities, National Parks & Wildlife Service, Inland Fisheries Ireland, and the National Monuments Service);

2. Where a tree Felling Licence application is received, the Department will publish a notice of the application before making a decision on the matter. The notice shall state that any person may make a submission to the Department within 30 days from the date of the notice. The notices for 2019 are published online at: https://www.agriculture.gov.ie/forestservice/publicconsultation/environmentalimpactassessmenteiapublicconsultationforafforestationforestroadconstructionandfellinglicenses2019/

3. Third parties that make a submission or observation will be informed of the decision to grant or refuse the licence and on request details of the conditions attached to the licence, the main reasons and considerations on which the decision to grant or refuse the licence was based, and where conditions are attached to any licence, the reasons for the conditions. Both third parties and applicants will be also informed of their right to appeal any decision within 28 days to the Forestry Appeals Committee. Felling Licence decisions for 2019 are published online at: https://www.agriculture.gov.ie/forestservice/publicconsultation/environmentalimpactassessment-2019registerofdecisions/

It is important to note that when applying to a Local Authority or An Bord Pleanàla for planning permission where developments are:

a) subject to an EIA procedure (including screening in the case of a sub-threshold development) and any resulting requirement to produce an EIAR; and/or

b) subject to an Appropriate Assessment procedure (including screening) and any resulting requirement to a Natura Impact Statement (NIS); and

c) the proposed development in its construction or operational phases, or any works ancillary thereto, would directly or indirectly involve the felling and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species,

1. that there is a requirement inter alia under the EIA Directive for an overall assessment of the effects of the project or the alteration thereof on the environment to be undertaken, including the direct and indirect environmental impact of the project;

   and

2. pursuant to Article 2(3) of the EIA Directive the Department of Agriculture, Food and the Marine strongly recommends that notwithstanding the fact that a parallel consent in the form of felling licence may also have to be applied for, any EIAR and/or NIS produced in connection with the application for planning permission to the Local Planning Authority or An Bord Pleanàla should include an assessment of the impact of and measures, as appropriate, to prevent, mitigate or compensate for any significant adverse effects direct or indirect identified on the environment arising from such felling

and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species.

Kind Regards

Liz

Liz McDonnell | *Executive Officer,**An tAonad um Chomhordú Timpeallachta, An Rannóg um Athrú Aeráide agus Beartas Bithfhuinnimh,***
Environmental Co-ordination Unit |*Climate Change & Bioenergy Policy Division* | environmentalco-ordination@agriculture.gov.ie
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
Lárionad Gnó Grattan, Bóthar Bhaile Átha Cliath, Port Laoise, Co Laoise, R32 K857
Grattan Business Centre, Dublin Road, Portlaoise, Co. Laoise, R32 K857
T +353 (0)57 868 9915
www.agriculture.gov.ie

Marie Geary

From: Ben O'Dwyer <ben.odwyer@ftco.ie>
Sent: Monday 9 September 2019 15:14
To: Elaine Bennett
Subject: FW: DAU Ref: G Pre00193/2019 Re: Dernacart wind farm
Attachments: G Pre001932019 DCHG.pdf

From: Dernacart Wind Farm <dernacartwindfarm@ftco.ie>
Sent: 09 September 2019 14:46
To: Ben O'Dwyer <ben.odwyer@ftco.ie>
Subject: FW: DAU Ref: G Pre00193/2019 Re: Dernacart wind farm

Ben,
FYI
Marie.

From: Manager DAU <Manager.DAU@chg.gov.ie>
Sent: 29 August 2019 16:10
To: Marie Geary <marie.geary@ftco.ie>
Subject: DAU Ref: G Pre00193/2019 Re: Dernacart wind farm

Our Ref: **G Pre00193/2019** (Please quote in all related correspondence)

A Chara,

Attached please find the archaeological and underwater archaeological recommendations of the Department of Culture, Heritage and the Gaeltacht in connection with the above.

Can you please confirm receipt of same?

Le meas
Sinéad O' Brien

—
Sinéad O' Brien
Executive Officer
—
An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman Y35 AP90
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—

An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Our Ref: **G Pre00193/2019**
(Please quote in all related correspondence)

29 August 2019

Marie Geary for Dr. Elaine Bennett
Fehily Timoney & Company
Core House
Pouladuff Road
Cork
T12 D773

Via email: marie.geary@ftco.ie

Re: Environmental Impact Statement (EIS) and Environmental Impact Assessment Report (EIAR) scoping for proposed application by Statkraft Ireland Ltd, and Offaly County Council for a proposed wind farm development which will comprise of up to 9 no. wind turbines with a tip height of up to 185m, access tracks, hardstanding areas at each turbine location, borrow pits, temporary compounds, drainage works, meteorological mast, underground electrical and communications cables between the turbines, an on-site electricity substation and an underground cable to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the wind farm site or to the proposed 110kV Bracklone substation which is located ca. 17.7 km from the site. The proposed wind farm is to be located within the townlands of Forest Upper and Forest Lower, Dernacart, Co. Laois

A chara

On behalf of the Department of Culture, Heritage and the Gaeltacht, I refer to correspondence received in connection with the above.

Outlined below are heritage-related observations/recommendations of the Department under the stated headings.

Archaeology

Further to your recent submission of EIAR scoping documents in advance of the preparation of an EIAR and planning application in relation to the above-proposed wind farm development, the Department of Culture, Heritage and the Gaeltacht notes that that your client intends to retain the services of a Consultant Archaeologist to carry out the Cultural Heritage and Archaeological Impact Assessment (CHAIA) of the proposed development site (PDS) as part of the EIAR (as outlined in Section 4.14 pages 30-31). In

this regard this Department awaits the results of this detailed Cultural Heritage Assessment before providing detailed recommendations in relation to the same.

However, the Department would like to advise that, whilst the proposed development site (PDS) may contain within it a number of known Recorded Monuments and/or Archaeological sites that will be assessed as part of the overall CHAIA, the PDS itself is located within a wider area of known archaeological settlement and activity (Department's initial review of the Record of Monuments and Places, www.archaeology.ie and cartographic sources). All of the Recorded Monuments, both within and outside the PDS, are subject to statutory protection in the Record of Monuments and Places, established under section 12 of the National Monuments (Amendment) Act 1930-2004. In light of this, this Department recommends that the CHAIA also includes an assessment of the proposed development on the wider archaeological landscape. In this respect it should be noted that prehistoric monuments such as Standing Stone Alignments, Standing Stone Rows, Single Standing Stones, as well as some megalithic tombs, are often aligned with physical features in the landscape and/or solar or lunar events. As a result, the erection of wind turbines may have a negative visual impact on such monuments and may diminish or interrupt alignment views and alter key aspects of their original function and layout. It is in this regard that the Department strongly recommends that such impacts also be assessed as part of the CHAIA.

In addition to the above, the Department considers the proposed development to be large-in-scale (in terms of linear development and groundworks required), and as such it is possible that hitherto previously unrecorded subsurface archaeological features may be encountered during the course of the groundworks required for turbine construction, cable trenches and associated works. Therefore the Department recommends that Archaeological Testing be carried out as part of the overall CHAIA – in advance of a planning decision – as this will facilitate the formulation of an appropriate archaeological mitigation strategy should the need arise.

Requirements of the CHAIA

The applicant is required to engage the services of a suitably qualified, licensed Archaeologist to assess (as part of the CHAIA) the archaeological impacts of the proposed development and carry out a programme of Archaeological Test Excavations across the proposed development site (PDS). No sub-surface work shall be undertaken in the absence of the archaeologist without his/her express consent. Please allow 5-6 weeks to facilitate the processing of an archaeological and geophysical licence. This assessment shall include:

1. The archaeologist shall inspect the PDS, detail the historical and archaeological background of the area to be developed, and review all cartographic sources and aerial photographs/digital imagery with a view to assessing possible archaeological impacts.

2. It is strongly recommended that no direct impacts occur on known Recorded Monuments and the proposed development should be modified to allow for adequate buffer zones around any Recorded Monuments.
3. The archaeologist shall then excavate test trenches at locations chosen by the archaeologist, having consulted the site plans, in liaison with the Licensing Section of the National Monuments Service section of this Department. Excavation is to take place to the uppermost archaeological horizons only, where they survive. Where archaeological material is shown to be present, the archaeologist shall stop works pending further advice from this Department. Please note that all features/archaeological surfaces within the test trenches are to be hand-cleaned and clearly visible for photographic purposes.
4. Having completed the work, the archaeologist shall submit a written report to the Local Authority and to the National Monuments Service section of this Department outlining the results of the CHAIA and Test Excavations. The report shall comment on the degree to which the extent, location and levels of all proposed foundation trenches, cable trenches, excavations for substations, and other sub-surface works required for the development will affect the archaeological remains. This should be illustrated with appropriate plans, sections, etc.
5. Where archaeological material is shown to be present, further mitigatory measures will be required; these may include redesign/relocation (in whole or in part) to allow for preservation *in situ*, and/or additional excavations and/or monitoring. The Department will advise the Local Authority and the applicant's consultant archaeologist with regard to these matters.

Reason: To ensure the continued preservation (either *in situ* or by record*)* of places, caves, sites, features or other objects of archaeological interest.

Underwater Archaeology

The Department notes in the submitted documentation that an Archaeological Impact Assessment (AIA) will be carried out and will be expanded for the full EIAR document. This is to be welcomed, and it should also include the archaeological assessment of any watercourses within the footprint of all proposed works, including plant and machinery provisions, e.g. haul roads, trackways, access routes, works compounds, etc. and any associated drainage and/or cable-laying works. The Underwater Archaeological Impact Assessment (UAIA) should be carried out as per the following:

- The applicants shall engage the services of a suitably qualified and suitably experienced archaeologist to carry out the updated AIA and an archaeologist with underwater/riverine experience to assess any watercourses within the footprint of the proposed works.
- The AIA/UAIA shall be carried out *in advance* of any physical investigations, such as grab sampling/bore hole or site investigation operations.

- The AIA/UAIA shall include a detailed desktop study that assesses all available sources to inform on the cultural heritage of the landscape and environment of the area.
- The AIA/UAIA shall be licensed by the Department of Culture, Heritage and the Gaeltacht and a detailed method statement shall accompany the application.
- The AIA/UAIA shall comprise walkover survey accompanied by metal detection survey of any riverine or stream locations.
- Recommendations in the resultant AIA/UAIA report shall include an informed Impact Statement, including putting forward archaeological recommendations to mitigate any identified impact to known/recorded or potential cultural heritage.
- The UAIA Report should be forwarded to the Underwater Archaeology Unit of this Department for consideration and further comment.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in her role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at **manager.dau@chg.gov.ie** (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Culture, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Sinéad O' Brien
Development Applications Unit

An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Our Ref: **G Pre00193/2019**
(Please quote in all related correspondence)

27 September 2019

Dr. Elaine Bennett
Fehily Timoney & Company
Core House
Pouladuff Road
Cork
T12 D773

Via email: elaine.bennett@ftco.ie

Re: Environmental Impact Statement (EIS) and Environmental Impact Assessment Report (EIAR) scoping for proposed application by Statkraft Ireland Ltd, and Offaly County Council for a proposed wind farm development which will comprise of up to 9 no. wind turbines with a tip height of up to 185m, access tracks, hardstanding areas at each turbine location, borrow pits, temporary compounds, drainage works, meteorological mast, underground electrical and communications cables between the turbines, an on-site electricity substation and an underground cable to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the wind farm site or to the proposed 110kV Bracklone substation which is located ca. 17.7 km from the site. The proposed wind farm is to be located within the townlands of Forest Upper and Forest Lower, Dernacart, Co. Laois

A chara

On behalf of the Department of Culture, Heritage and the Gaeltacht, I refer to correspondence received in connection with the above.

Outlined below are heritage-related observations/recommendations of the Department under the stated heading.

Underwater Archaeology

The Department notes the Further Information as submitted and conclusion by Fehily Timoney and Co. that there is no need for an Underwater Archaeological Impact Assessment (UAIA) as pipe/cable works are intending to use directional drilling beneath the watercourses.

This may be the case but this does not negate the need to include a UAIA as part of the Cultural Heritage section of the Environmental Impact Assessment Report (EIAR) that considers the watercourse heritage within the overall context of the cultural landscape. The

UAIA results should inform whether there is to be any potential impact on underwater cultural heritage, rather than just one element of works suggesting that it will not. All potential impacts should be considered as part of the UAIA, including works for site compounds, temporary roadways, diversion of watercourses, etc. If it is assessed, as part of the required UAIA in the Cultural Heritage Section of the EIAR, that there is to be no impact to any watercourse, then that can be a result within the EIAR and can, at that stage, inform the cultural heritage recommendations made in the EIAR.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in her role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at **manager.dau@chg.gov.ie** (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Culture, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Sinéad O' Brien
Development Applications Unit

An Roinn Cosanta
Department of Defence

Dr. Elaine Bennett
Feehily Timoney & Company
Core House
Pouladuff Road
Cork
T12 D773

12th August 2019

Re: Statkraft Ireland Ltd –Wind Energy Development at Dernacart, Co. Laois

Dear Dr. Bennett,

On initial assessment as part of the scoping document received for this location, the Department would like to make the following observations:

4.15.4 Potential Impacts
An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links

1. When made available please send this report as mentioned above to airspaceandobstacles@defenceforces.ie

2. In all locations where windfarms are permitted it should be a condition that they meet the following lighting requirements

a) Single turbines or turbines delineating corners of a wind farm should be illuminated by high intensity obstacle strobe lights (Red).

b) Obstruction lighting elsewhere in a windfarm will be of a pattern that will allow the hazard be identified and avoided by aircraft in flight.

c) Obstruction lights used should be incandescent or of a type visible to Night Vision Equipment. Obstruction lighting fitted to obstacles must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum specifically at or near 850nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light Obstruction lights used should be incandescent or of a type visible to Night Vision Equipment.

Please keep this office advised of any changes to the development and future planning applications.

If you have any further queries in this regard, please do not hesitate to contact me.

Yours sincerely,

Geraldine Cunningham
Property Management Planning
Tel: 045 492036
Email: geraldine.cunningham@defence.ie

Marie Geary

From: Amrine DuboisGafar <Amrine.DuboisGafar@DCCAE.gov.ie>
Sent: Friday 26 July 2019 13:03
To: Dernacart Wind Farm
Cc: Siobhan Power; John Butler
Subject: Pre-Planning Scoping Report for Wind Energy Development near Dernacart, Co. Laois
Attachments: 19_152_Pre-Planning Scoping Report for Wind Energy Development near Dernacart.pdf

Re: Pre-Planning Scoping Report for Wind Energy Development near Dernacart, Co. Laois

Your ref:
Our ref: 19/152

A chara,

With reference to your email received on 04 July 2019 in relation to the above reference, please see attached Geological Survey Ireland's response.

I hope these comments will be of assistance, and if you need any further information please do not hesitate to contact me, or my colleague Siobhán Power (Siobhan.Power@gsi.ie).

Le meas,

Amrine

Amrine Dubois Gafar Graduate Geologist, Geoheritage Programme
Geological Survey Ireland, Beggars Bush, Haddington Road, Dublin D04 K7X4, Ireland.
T +353 (0) 672871 **E** Amrine.DuboisGafar@DCCAE.gov.ie **www.gsi.ie**
A division of the Department of Communications, Climate Action & Environment.

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Laois-Offaly Environmental Health Service,
St. Fintans Campus,
Dublin Road,
Portlaoise,
Co. Laois.
Tel: 057 86 92675 Fax: 057 86 92682

Date: 19 July 2019

Name: Dr. Elaine Bennett

Address: Fehily Timoney & Company
Core House,
Pouladuff Road
Cork
T12 D773

Re: Scoping Report

Proposed Development: Dernacart Wind farm, Co. Laois

Dear Dr. Bennett

Please find enclosed the HSE Consultation Report in relation to the above proposal. If you have any queries regarding the report the initial contact is Mr Declan Mulhare, Principal Environmental Health Officer who will refer your query to the appropriate person.

The following HSE departments were made aware of the of the consultation request for the proposed development on July 10th 2019.

- Emergency Planning – Brendan Lawlor
- Estates – Helen Maher
- Assistant National Director for Health Protection – Kevin Kelleher/Laura Murphy
- CHO- Pat Bennett

Yours sincerely

Declan Mulhare
PEHO

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Laois-Offaly Environmental Health Service,
St. Fintans Campus,
Dublin Road,
Portlaoise,
Co. Laois.
Tel: 057 86 92675 Fax: 057 86 92682

18 July 2019

Dr. Elaine Bennett
Fehily Timoney & Company,
Core House,
Pouladuff Road,
Cork
T12D773

HSE EIA Scoping Submission Report

Environmental Health Service Consultation Report

(as a Statutory Consultee (Planning and Development Acts 2000) and Regulations made thereunder)

Type of Consultation: Scoping

Planning Authority: Laois County Council

EHIS Reference Number: 0976

Applicant: Statkraft Ireland Ltd.

Proposed Development: Statkraft Ireland Ltd. intends to apply for planning permission to construct a wind energy development near Dernacart, Co. Laois. The proposed development will comprise up to 9 No. wind turbines with a tip height of up to 185m, access tracks, hard standing areas at each turbine location, borrow pits, temporary compounds, drainage works, meteorological masts, underground electrical and communications cables between the turbines, an on-site electricity substation and an underground cable to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the wind farm site or to the proposed 110kV Bracklone substation which is located ca. 17.7km from the site.

General Comments on Scoping the EIA
The Environmental Health Service (EHS) is primarily concerned with the protection of Environmental and Public Health.

The following documents should be considered when preparing the Environmental Impact Statement:

- Guidelines on the information to be contained in EIS (2002), 187kb
- Advice Notes on Current Practice in the preparation of EIS (2003), 435kb
- Guidelines for Planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment

https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authorities_and_an_bord_pleanala_on_carrying_out_eia_-_august_2018.pdf
EU publication: Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017
http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf
Adoption of the Directive (2014/52/EU) in April 2014 initiated a review of the above guidelines. The draft new guidelines can be seen at:
http://www.epa.ie/pubs/consultation/reviewofdrafteisguidelinesadvicenotes/
(Please note that the original Guidelines and Advice Notes are still applicable until such date as the final revision of the Guidelines is published.)

Generally the Environmental Impact Assessment should examine all potentially significant impacts and provide the following information for each:

a) Description of the receiving environment;
b) The nature and scale of the impact;
c) An assessment of the significance of the impact;
d) Proposed mitigation measures;
e) Residual impacts.

Directive 2014/52/EU has an increased requirement to assess potential significant impacts on Population and Human Health. In the experience of the Environmental Health Service (EHS) impacts on human health are generally inadequately assessed in EIA in Ireland. It is recommended that the wider determinants of health and wellbeing are considered. Guidance on determinants of health can be found at www.publichealth.ie

In addition to the above, the following information should be included in the EIAR:

Description of the Project:

The EIAR should fully describe all processes in the extraction and transportation of the peat. All potentially polluting compounds and sources of emissions shall be identified and their potential impact of the surrounding environment shall be assessed. Containment, treatment and disposal options for all potential emissions shall be outlined. Any residual impacts, after mitigation, shall be identified and discussed.

Information on possible future monitoring requirements for the operation of the facility should be included in the EIAR.

Consideration of Alternatives:
The EIAR should fully describe and consider any alternative site locations or manufacturing processes.

This report only comments on Environmental Health (EH) impacts of the proposed development with particular reference to the following:

1. Public Consultation

It is the experience of the Environmental Health Service that early and meaningful public consultation minimises the risk of future complaints around the operation of a wind farm

Chapter 4.5 indicates that consultation with the community, stakeholders and consultees will continue during the final design and preparation of the EIAR.

Chapter 1.1.6 of the 'Dernacart Wind Farm Environmental Impact Assessment-Scoping Report' includes an extensive list of 75 bodies which will be consulted regarding the proposed development. The EIAR must include details of meaningful prior engagement with local residents and community groups. Although Chapter 1.1.5 states that *'a Community Liaison Officer (CLO) has been nominated for the proposed development and will act as a key point of contact within the local community. The CLO has been resourced to deal with all queries and will conduct informal local community consultation in the area. Feedback from the CLO will be passed on to the project design team on an ongoing basis in order to allow the consultation process to inform the design process'* it is the opinion of the Environmental Health Service that the views of the local community, in particular the 106 residential receptors should be given equal weighting to the views of statutory and non-statutory consultees. A formal consultation process with the local community is recommended, which can be enhanced by follow up feedback to the CLO.

2. Soils, Geology and Hydrogeology

Chapter 4.12 of the Scoping Report states that soils, bedrock and groundwater will be dealt with in the EIAR.

3. Water Quality and Hydrology

Chapter 4.13 states that the EIAR will address impacts on hydrology and water quality. Private wells providing a potable water supply to local residents should be identified and an assessment undertaken of the potential impact of the proposed development on any wells identified should be included in the EIAR.

4. Noise and Shadow Flicker

The Environmental Health Service notes that the potential effects of Shadow Flicker will be dealt with in the EIAR. (Chapter 4.7) As stated on page 18, the potential for shadow flicker will be addressed using specialist computer software programmes.

The noise and vibration impacts at construction and operation phases will be addressed and noise monitoring will be undertaken to assess baseline noise levels.

5. Air Quality

Chapter 4.10 of the Scoping Report states that the EIAR will address the potential impacts on air quality from construction plant and machinery. Potential impacts on air quality during the operational phase will also be addressed in the EIAR. A 'Dust Minimisation Plan' should be included in a 'Construction and Environmental Management Plan' for the development.

6. Cumulative Impacts

The potential cumulative impact of the proposed wind farm and other existing, pending or proposed projects will be assessed in the EIAR.

7. Ancillary Facilities

Details for the provision of a potable water supply and sanitary accommodation for staff (both construction and operation staff) should be included in the EIAR.

8. Decommissioning

It is noted that proposals for decommissioning will be included in the EIAR.

9. Opportunity for Health Gain

The EPA has issued guidance with regard to meeting the requirements of Directive 2014/52/EU. The proposed development should be assessed with a view to where possible health gains, such as creating public amenities (greenways/cycle-paths/walking routes etc.) may be incorporated into the plan.

Mary Kate Houlihan
Environmental Health Officer
Portlaoise
Co. Laois

Caroline Hueston
Environmental Health Officer
Environment OU

Marie Geary

From: Jane Gilleran <Jane.Gilleran@fisheriesireland.ie>
Sent: Thursday 18 July 2019 10:32
To: Dernacart Wind Farm
Subject: Consultation from Inland Fisheries Ireland
Attachments: Fehily Timony_Dernacart Windfarm_EIAR Consultation.docx

Dear Marie,

Please find attached the requested consultation from IFI in relation to the proposed Dernacart Wind Farm.

Regards

Jane

Jane Gilleran
Fisheries Environmental Officer
Inland Fisheries Ireland - Clonmel

Iascach Intíre Éireann
Inland Fisheries Ireland

Tel 052 618 0055
Email jane.gilleran@fisheriesireland.ie
Web www.fisheriesireland.ie

Anglesea St, Raheen, Clonmel, Co. Tipperary E91 RD25

Help Protect Irelands Inland Fisheries - Call 1890 34 74 24 to report illegal fishing, water pollution or invasive species.

Dr. Elaine Bennett
Fehily Timoney & Company
Core House
Pouladuff Road
Cork T12 D773

18.07.2019

Re. Proposed Windfarm at Dernacart, Co. Laois

Dear Sir/Madam,

Thank you for your email dated July 5th requesting consultation from IFI on the proposed Windfarm at Dernacart, Co. Laois.

Please find below our initial concerns and recommendations in relation to this development:

1. All watercourses that will receive drainage from the construction sites of the turbines or the access roads must be assessed in terms of aquatic biodiversity with particular emphasis on fish, the food of fish, spawning grounds and fish habitat in general. In this regard changes to river morphology should be avoided.

2. The aquatic habitat and physical nature of any watercourse affected by the development must be fully described in detail. This includes areas of open water, pool riffle glide sequences, density and types of aquatic vegetation, description of riparian zones to distance of at least 10 metres on either bank etc. The extent of the surveys should be sufficiently long so as to be representative of the habitat contained in that watercourse. There should be a particular focus on sections upstream and downstream of any point where an impact on the watercourse is likely to arise. It may be appropriate to survey a tributary stream and the larger, more important streams it joins, and assess the effect the discharge might further have on biodiversity and fisheries in the larger streams. Surveys of un-impacted (control) streams should also be included in the EIAR.

3. Electrofishing surveys will be required for all waters. Quantitative data in relation to all fish species should be compiled. The presence of salmonid species, crayfish and lamprey species will be of particular concern. In undertaking the electrofishing survey only experienced personnel should be employed. Appropriate permits for electrofishing must be obtained from the Department of Communications, Energy and Natural Resources. Authorised personnel must ensure that they comply with all the conditions contained in the permit.

4. We are concerned about soils, their structure and types around all turbines, turbine pads, associated access roads and site development. In particular we have concerns about the stability of the soils and the impact that works on both the turbines and access roads will have either directly or by vibration on the stability of the soils.

5. IFI strongly recommends that specialist personnel are employed to assess soil strength and suitability of the ground at each site and along any proposed access road. This is particularly important in relation to the peat soils in the area. IFI may have difficulties with development on peat soils where the peat depth exceeds one metre. The potential for soil movement and landslides should be assessed fully within the EIAR.

6. Particular attention should be paid to the hydrology of any site where excavations including excavations for road construction are being undertaken. It is important that natural flow paths are not interrupted or diverted in such a manner as to give rise to erosion or instability of soils caused by an alteration in water movement either above or below ground.

7. Attention should be paid to drainage during both the construction phase and the operational phase. This includes waters being pumped from foundations or other excavations. It is particularly important during the construction phase that sufficient retention time in the settlement pond is available to ensure no deleterious matter is discharged to any waters. We strongly recommend that settlement ponds are maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging into any natural waters. In constructing and designing silt traps, particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt especially during intense precipitation events where the trap maybe hydraulically overloaded. It is essential that they are located with good access to facilitate monitoring sampling and maintenance. A license to discharge to waters may be required from the local authority.

8. IFI are also concerned about the construction of roads as these will tend to provide preferential flow paths for surface waters. Considerable detail must be provided in relation to the interception of surface water flows. Normal flows paths should be maintained both during and after construction. Situations can arise where water transportation is significantly increased in certain watercourses thereby putting additional pressures on watercourses and interfering with the sustained flow of water particularly during dry weather. This should be avoided. The use of sedimentary rocks, such as shale, in road construction should be avoided. This type of material has poor tensile strength and is liable to be crushed by heavy vehicles thereby releasing fine sediment materials into the drainage system which are difficult to precipitate and may give rise to water pollution. We recommend that specialist expertise should advise on the type of material required for road construction bearing in mind the pressures that will arise during the construction phase and the necessity to avoid pollution due to fines washing out into the roadside drainage.

9. Attention should be paid to material stockpiles and their location. Drainage from disturbed and stockpiled soils will have to be considered in advance. It may be necessary to stockpile in confined areas only. Consideration must be given to runoff from any stockpiles. It should be noted that cement leachate, hydrocarbon oils and other toxic poisonous materials will require full containment and should not be permitted to discharge to any waters

10. IFI should be consulted advance in relation to crossings of watercourses or the use of any temporary diversions, with final design to be approved by IFI. When designing crossings, the length, the slope and width of any instream structure will be important. Clear span bridges are the preferred option for crossings especially in upland areas.
11. Please also note that any instream works or other works which may impact directly on a watercourse should only be carried out during the open season which is from 1st July to 30th of September in each year (so as to avoid impacting on the aquatic habitat during the spawning season.) It would be important that appropriate scheduling of works is allowed for.
12. Following a site inspection, a number of drains were noted that while currently dry have a hydrological connection to the River Barrow. These should be included in any drainage assessment.
13. The proposed methodology for and locations of the cable route watercourse crossings should also be examined in detail. This is particularly important for the proposed Barrow crossing SW of Portarlington and for the crossing of Cottoner's Brook.

Given the proposal is preliminary in nature, the above comments and observations are generic and the specific requirements may change with the final development design.

Should you require any further information or clarification from IFI, please do not hesitate to contact me.

Yours sincerely,

Jane Gilleran

.....

Jane Gilleran
Fisheries Environmental Officer
Inland Fisheries Ireland - Clonmel

Marie Geary

From: RAFFERTY Audrey <audrey.rafferty@iaa.ie>
Sent: Wednesday 7 August 2019 14:35
To: Dernacart Wind Farm
Subject: Dernacart Wind Farm EIAR
Attachments: IAA Letter to Offaly County Council.pdf

Good afternoon Elaine

Please see attached a copy of the response letter in regards to Dernacart Wind Farm sent to offaly county council by the IAA.

Kind Regards

Audrey Rafferty
Corporate Affairs
Quality Management Unit
Irish Aviation Authority
11 -12 Dolier Street
Dublin 2
Ph: (01) 6031103
Email: audrey.rafferty@iaa.ie

From: Dernacart Wind Farm <dernacartwindfarm@ftco.ie>
Sent: Thursday 1 August 2019 09:44
To: O'BRIEN Christophe <Christophe.O'BRIEN@IAA.ie>
Cc: Info <info@ftco.ie>; Planning <planning@iaa.ie>
Subject: RE: Dernacart Wind Farm EIAR

Hi Christophe,
Further to your query, I've attached a map of the turbines with contours. The base elevations and coordinates are:

Turbine ID	X (ITM)	Y (ITM)	Elevation	Lon	Lat
4	644247.8	711316.2	78	-7.33851	53.15051
6	645257.9	711533.2	78	-7.32338	53.15238
3	643625.5	711270.5	77	-7.34782	53.15015
5	644828.6	711222.1	79	-7.32984	53.14962
1	643101.4	712155.1	80	-7.35553	53.15815
2	643230.1	711660.2	79	-7.35368	53.15369
7	644500.9	710805.1	77	-7.3348	53.1459
8	644242.9	710340	75	-7.33872	53.14174

Thanks,
Elaine

Dr. Elaine Bennett
Senior Scientist

Fehily Timoney and Company
Core House, Pouladuff Road, Cork, T12 D773
t: +353 21 496 9567; mobile: 0876822239
www.fehilytimoney.ie

From: O'BRIEN Christophe <Christophe.O'BRIEN@IAA.ie>
Sent: Friday 26 July 2019 16:01
To: Silvia Garcia <silvia.garcia@ftco.ie>
Cc: Info <info@ftco.ie>; Planning <planning@iaa.ie>
Subject: Dernacart Wind Farm EIAR

Hi Silvia,

I hope you are well. You may not be dealing with this one directly but can you please forward to the appropriate contact within FTCO?

The IAA recently received an EIAR Scoping Report from Offaly Co. Co. in relation to the proposed Dernacart Wind Farm which has been prepared by Statkraft / Fehily, Timoney & Company.

In order to provide observations to the Co. Co., can you please provide a contour map in pdf indicating the positions of the proposed turbines and any met masts along with base elevations and blade tip heights?

Can you please also provide proposed WGS-84 coordinates for each turbine?

Best Regards,

Christophe

Christophe O'Brien
Aerodromes Inspector
Safety Regulation Division
Irish Aviation Authority
T: + 353 (1) 603 1492
M: + 353 86 33 22022
E: christophe.o'brien@iaa.ie

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Irish Aviation Authority
The Times Building
11–12 D'Olier Street
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www.iaa.ie

Date 07th August 2019

Offaly County Council
Planning Department
Charleville Road,
Tullamore,
Co. Offaly

Development: ***Dernacart Wind Farm EIAR***

Dear Sir / Madam,

Thank you for your letter and the forwarding of the Dernacart Wind Farm Environmental Impact Assessment – Scoping Report.

The Authority has reviewed the report and based on the information provided, the Authority has no specific observations or requests for inclusion within the EIS at this time.

Should a formal planning application be progressed, the following general observations will likely be provided during the process:

In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to: (1) agree an aeronautical obstacle warning light scheme for the wind farm development, (2) provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location and (3) notify the Authority of intention to commence crane operations with a minimum of 30 days prior notification of their erection.

Additionally and for the information of the applicant, the Authority has recently been advised by the Department of Defence – Property Management Branch that obstruction lighting should be incandescent or of a type visible to Night Vision equipment. Obstruction lighting fitted to obstacles must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.

All other requirements can be clarified when the applicant approaches the Authority to agree an aeronautical obstacle warning light scheme should planning be granted.

Yours sincerely

pp.

Deirdre Forrest
Corporate Affairs

Marie Geary

From: Sharon Daly <SDaly@offalycoco.ie>
Sent: Thursday 8 August 2019 10:24
To: Marie Geary; Dernacart Wind Farm
Subject: Dernacart EIA Scoping Report
Attachments: scan102104.pdf

Importance: High

Dear Marie,

Further to our email and telephone call this morning, please find attached another observation received this morning from Irish Aviation Authority.

Regards,

Sharon Daly,
Planning Section,
Offaly County Council.

From: Sharon Daly
Sent: 08 August 2019 10:21
To: Sharon Daly <SDaly@offalycoco.ie>
Subject: scanned document

Irish Aviation Authority
The Times Building
11–12 D'Olier Street
Dublin 2, D02 T449,
Ireland

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Date 07th August 2019

Offaly County Council
Planning Department
Charleville Road,
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Development: ***Dernacart Wind Farm EIAR***

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All other requirements can be clarified when the applicant approaches the Authority to agree an aeronautical obstacle warning light scheme should planning be granted.

Yours sincerely

pp.

Deirdre Forrest
Corporate Affairs

Please forward copy to Dernacart client

Eddie Kiddle ASEP 8/8/2019

Marie Geary

From: MACCRIOSTAIL Cathal <Cathal.MacCriostail@IAA.ie>
Sent: Wednesday 31 July 2019 12:04
To: Marie Geary
Cc: O'SULLIVAN Jamesie; WALSH Enda
Subject: FW: Scoping Report
Attachments: Dernacart EIA Scoping Report.pdf; No. 013 Guidance Material on Electronic Terrain and Obstacle Data (eTOD).pdf

Dear Marie,

Please forgive my slow response to your email. I was on leave when this was received and I'm still catching up.

Having read through the attached report I note that this is primarily an environmental impact assessment report.

As you may know, the Irish Aviation Authority is 2 entities:

- The Air Traffic Control (ATC) Provider from whom I work, and
- Safety Regulatory Division(SRD)

From an ATC perspective, I wouldn't anticipate an issue, provided that we receive updated information when and if planning is granted.

More importantly however, I've copied my colleague in SRD, James O'Sullivan, PANS-Ops Inspector, who will have an interest in these new obstacles, should planning be granted. I've taken the liberty of attaching a regulatory notice on obstacle data for reference.

As this project develops, I'd appreciate of you could provide more detail on the wind turbines being proposed with the following:

1. Co-ordinates for each turbine in WGS-84 format
2. Elevation of the maximum blade tip height for each turbine
3. Confirmation of obstacle navigation warning lights for each turbine with a description of the type of lighting
4. Co-ordinates outline of the proposed farm footprint

James may have additional requirements from a regulatory perspective and for inclusion of data on aeronautical charts.

Kind regards,

Cathal
Cathal Mac Criostail
Údarás Eitlíochta na hÉireann / Irish Aviation Authority
The Times Building, 11-12 D'Olier Street, Dublin 2, D02 T449, Ireland
✉ cathal.maccriostail@iaa.ie
☎ +353 (0)1 6031173
+353 (0)86 0527130
www.iaa.ie

From: Marie Geary <marie.geary@ftco.ie>
Sent: 04 July 2019 17:06
To: MACCRIOSTAIL Cathal <Cathal.MacCriostail@IAA.ie>
Subject: Scoping Report

Dear Mr. MacCriostail,

Statkraft Ireland Ltd. intends to apply for planning permission to construct a wind energy development near Dernacart, Co. Laois. Attached is a Scoping Report which is being issued to you as part of the consultation process for the Environmental Impact Assessment Report. As part of the consultation process, we would be interested in receiving any comments you may have on the proposed development, relevant to your area of expertise, before 5th August 2019 in writing or be email to: dernacartwindfarm@ftco.ie.

If you have no comment to make, I would be grateful if you could acknowledge receipt of this email. If you have any queries regarding the project, please contact me at the above email address.

Kind regards,

Marie Geary
for Dr. Elaine Bennett
Fehily Timoney & Company
Core House | Pouladuff Road | Cork | T12 D773 | Ireland
Tel: +353 21 496 4133 | Direct Dial: +353 21 4969 560
Fax: +353 21 496 4464
Mail tol: marie.geary@ftco.ie

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Title: Guidance Material on Electronic Terrain and Obstacle Data (eTOD)

1 INTRODUCTION

Knowledge of terrain and obstacles is a requirement to ensure safety when evaluating structures to be built or altered in a State's airspace. Increased economic development and prosperity often include infrastructure (buildings, towers etc.) which may encroach upon airspace.

Due to the implications for air traffic and safety operations, it is essential that the impact of these obstacles is continuously assessed, reviewed, and updated. (Annex 15, Amendment 33, Chapter 10, ICAO requires States to make terrain and obstacle data available to airspace users in electronic format.)

This guidance material presents the text of Annex 15 relating to eTOD and consolidates the original proposal in State letter SP 2/2.2-09/13, the final review of States comments and reflecting proposed action in AN-WP/8416 and DP No. 2, Appendix B as well as proposed amendments by the ANC ad hoc working group on eTOD.

Amendment 33 to Annex 15 (adopted in 2004) introduced requirements for States to provide eTOD data over four areas. These requirements became applicable in 2008 as far as the "entire territory of a State" and "Category II and III operations area" are concerned (i.e. Area 1 and Area 4, respectively) and would become applicable in 2010 as far as the "terminal control area" and "aerodrome/heliport area" are concerned (i.e. Area 2 and Area 3, respectively). In reply to State letter AN 2/2.1-09/13 and the associated questionnaire States have indicated that the requirements related especially to Area 2 will be difficult and costly to implement and were not considered justified. This would have led to widespread non-compliance. This issue has been addressed through a revision of associated provisions which are expected to substantially reduce implementation difficulties and costs.

2 REFERENCES

- ICAO Annex 15 – Aeronautical Information Services
- ICAO Annex 4 – Aeronautical Charts
- ICAO Doc 9674 – World Geodetic System – 1984 Manual
- ICAO Doc 9881 – Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information
- Eurocae ED-99A – User Requirements for Aerodrome Mapping Information
- **Aerodrome** - A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

- **Heliport** - An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters

3 DETAIL

ELECTRONIC TERRAIN AND OBSTACLE DATA

Note - Electronic terrain and obstacle data is intended to be used in the following air navigation applications

- ground proximity warning system with forward looking terrain avoidance function and minimum safe altitude warning (MSAW) system;
- determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;
- aircraft operating limitations analysis;
- instrument procedure design (including circling procedure);
- determination of en-route “drift-down” procedure and en-route emergency landing location;
- advanced surface movement guidance and control system (A-SMGCS); and
- Aeronautical chart production and on-board databases.

The data may also be used in other applications such as flight simulator and synthetic vision systems, and may assist in the height restriction or removal of obstacles that pose a hazard to aviation.

Coverage areas and data numerical specifications

Sets of electronic terrain and obstacle data shall be provided in coverage areas specified as:

Area 1: the entire territory of a State;

Area 2: within the vicinity of an aerodrome, sub-divided as follows;

Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

Area 2b: from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side;

Area 2c: extending outside Area 2a and Area 2b at a distance of not more than 10 km to the boundary of Area 2a; and

Area 2d: outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or an existing TMA boundary, whichever is nearest;

Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area.

Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

Recommendation - Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 should be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

Note - See Appendix 8 for graphical illustrations of the coverage areas.

Electronic terrain data shall be provided for Area 1. The obstacle data to be provided for Area 1 shall be those that penetrate the relevant obstacle data collection surface specified in Appendix 8.

From 15 November 2012, at aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a potential hazard to air navigation.

From 15 November 2012, at aerodromes regularly used by international civil aviation electronic terrain and obstacle data shall be provided for:

Area 2a; for those obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8;

penetrations of the take-off flight path area obstacle identification surfaces; and

Penetrations of the aerodrome obstacle limitation surfaces.

Note - Take-off flight path area obstacle identification surfaces are specified in Annex 4, 3.8.2.1. Aerodrome obstacle limitation surfaces are specified in Annex 14, Volume 1, Chapter 4.

Recommendation - At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data should be provided for Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant obstacle data collection surface specified in Appendix 8 and where there is an operational need.

Recommendation - At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data should be provided for Area 3 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8.

At aerodromes regularly used by international civil aviation, electronic terrain and obstacle data shall be provided for Area 4 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8, for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess, the effect of terrain on decision height determination by use of radio altimeters.

Note - Area 4 terrain data and Area 2 obstacle data are normally sufficient to support the production of the Precision Approach Terrain Chart — ICAO. When more detailed obstacle data is required for Area 4, this may be provided in accordance with the Area 4 obstacle data requirements specified in Appendix 8, Table A8-2. Guidance on appropriate obstacles for this chart is given in the Aeronautical Chart Manual (Doc 8697).

Recommendation - Where additional electronic obstacle or terrain data is collected to meet other aeronautical requirements, the obstacle and terrain datasets should be expanded to include these additional data.

Recommendation - Arrangements should be made for the coordination of providing Area 2 electronic terrain and obstacle data for adjacent aerodromes where their respective coverage Areas overlap to assure that the data for the same obstacle or terrain is correct.

Recommendation - At those aerodromes located near territorial boundaries, arrangements should be made among States concerned to share Area 2 electronic terrain and obstacle data.

Terrain data set — content and structure

A terrain data set shall contain digital sets of data representing terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. A terrain grid shall be angular or linear and shall be of regular or irregular shape.

Note - In regions of higher latitudes, latitude grid spacing may be adjusted to maintain a constant linear density of measurement points.

Sets of electronic terrain data shall include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles. In practical terms, depending on the acquisition method used, this shall represent the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.

In terrain data sets, only one feature type, i.e. terrain, shall be provided. Feature attributes describing terrain shall be those listed in Table A8-3. The terrain feature attributes listed in Table A8-3 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data set.

Electronic terrain data for each area shall conform to the applicable numerical requirements in Appendix 8

Obstacle data set — content and structure

Obstacle data shall comprise the digital representation of the vertical and horizontal extent of the obstacle. Obstacles shall not be included in terrain data sets. Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.

In an obstacle data set, all defined obstacle feature types shall be provided and each of them shall be described according to the list of mandatory attributes provided in Table A8-4 of Appendix 8.

Note - By definition, obstacles can be fixed (permanent or temporary) or mobile. Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Appendix 8, Table A8-4, as optional attributes. If these types of obstacles are to be provided in the data set, appropriate attributes describing such obstacles are also required.

Electronic obstacle data for each area shall conform to the applicable numerical requirements in Appendix 8.

Terrain and obstacle data product specifications

To allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users, the ISO 19100 series of standards for geographic information shall be used as a general data modelling framework.

A comprehensive statement of available electronic terrain and obstacle data sets shall be provided in the form of terrain data product specifications as well as obstacle data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the requirements for their intended use (application).

Note - ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information.

Each terrain data product specification shall include an overview, a specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information, and metadata.

The overview of terrain data product specification or obstacle data product specification shall provide an informal description of the product and shall contain general information about the data product. Specification of terrain data may not be homogenous across the whole data product but may vary for different parts of the data sets. For each such subset of data, a specification scope shall be identified. Identification information concerning both terrain and obstacle data products shall include the title of the product; a brief narrative summary of the content, purpose, and spatial resolution if appropriate (a general statement about the density of spatial data); the geographic area covered by the data product; and supplemental information.

Content information of feature-based terrain data sets or of feature-based obstacle data sets shall each be described in terms of an application schema and a feature catalogue. Application schema shall provide a formal description of the data structure and content of data sets while the feature catalogue shall provide the semantics of all feature types together with their attributes and attribute value domains, association types between feature types and feature operations, inheritance relations and constraints. Coverage is considered a subtype of a feature and can be derived from a collection of features that have common attributes. Both terrain and obstacle data product specifications shall identify clearly the coverage and/or imagery they include and shall provide a narrative description of each of them.

Note 1 - ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes feature cataloguing methodology for geographic information.

Note 2 - ISO Standard 19123 contains schema for coverage geometry and functions.

Both terrain data product specifications and obstacle data product specifications shall include information that identifies the reference system used in the data product. This shall include the spatial reference system and temporal reference system. Additionally, both data product specifications shall identify the data quality requirements for each data product. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.

Note - ISO Standard 19113 contains quality principles for geographic information while ISO Standard 19114 covers quality evaluation procedures.

Terrain data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of terrain data. The principles and criteria applied in the maintenance of terrain data sets and obstacle data sets shall also be provided with the data specifications, including the frequency with which data products are updated. Of particular importance shall be the maintenance information of obstacle data sets and an indication of the principles, methods and criteria applied for obstacle data maintenance.

Terrain data product specifications shall contain information on how data held with data sets is presented, i.e. as a graphic output, as a plot or as an image. The product specifications for both terrain and obstacles shall also contain data product delivery information which shall include delivery formats and delivery medium information.

Note - ISO Standard 19117 contains a definition of the schema describing the portrayal of geographic information including the methodology for describing symbols and mapping of the schema to an application schema.

The core terrain and obstacle metadata elements shall be included in the data product specifications. Any additional metadata items required to be supplied shall be stated in each product specification together with the format and encoding of the metadata.

Note - ISO Standard 19115 specifies requirements for geographic information metadata.

The obstacle data product specification, supported by geographical coordinates for each aerodrome included within the dataset, shall describe the following areas:

- Areas 2a, 2b, 2c, 2d;
- the take-off flight path area; and
- The obstacle limitation surfaces

Appendix 1 CONTENTS OF AERONAUTICAL INFORMATION PUBLICATION (AIP)

AD 2.10 - Aerodrome obstacles

Detailed description of obstacles, including:

- obstacles in Area 2:
  - obstacle identification or designation;
  - type of obstacle;
  - obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
  - obstacle elevation and height to the nearest metre or foot;
  - obstacle marking, and type and colour of obstacle lighting (if any);
  - if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
  - NIL indication, if appropriate.

Note 1.— Chapter 10, 10.1.1, provides a description of Area 2 while Appendix 8, Figure A8-2, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Note 2.— Specifications governing the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 2 are given in Annex 11, Appendix 5, Tables 1 and 2, and in Annex 14, Volume I, Appendix 5, Tables A5-1 and A5-2, respectively.

- Where an Area 2 data set for the aerodrome is not available, as a minimum, include the obstacles that exist at the aerodrome, penetrate the obstacle limitation surfaces, the take-off flight path area obstacle identification surface, or are otherwise assessed as being a hazard to air navigation, with a clear statement that the full Area 2 obstacle data set is not provided.
- indication that information on obstacles in Area 3 is not provided, or if provided:
  - obstacle identification or designation;
  - type of obstacle;
  - obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
  - obstacle elevation and height to the nearest metre or foot;
  - obstacle marking, and type and colour of obstacle lighting (if any);

- if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
- NIL indication, if appropriate.

Note 1.— Chapter 10, 10.1.1, provides a description of Area 3 while Appendix 8, Figure A8-3, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.

Note 2.— Specifications governing the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 3 are given in Annex 14, Volume I, Appendix 5, Tables A5-1 and A5- 2, respectively.

AD 3.10 Heliport obstacles

Detailed description of obstacles, including:

- obstacles in Area 2:
  - obstacle identification or designation;
  - type obstacle position,
  - represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
  - obstacle elevation and height to the nearest metre or foot;
  - obstacle marking, and type and colour of obstacle lighting (if any);
  - if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
  - NIL indication, if appropriate of obstacle;

Note 1 - Chapter 10, 10.1.1, provides a description of Area 2 while Appendix 8, Figure A8-2, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Note 2 - Specifications governing the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 2 are given in Annex 11, Appendix 5, Tables 1 and 2, and in Annex 14, Volume II, Appendix 1, Tables 1 and 2, respectively.

- Where an Area 2 data set for the heliport is not available, as a minimum, include the obstacles that exist at the heliport, within the approach and takeoff areas, penetrate the obstacle limitation surfaces, or are otherwise assessed as being a hazard to air

navigation, with a clear statement that the full Area 2 obstacle data set is not provided; and

- Indication that information on obstacles in Area 3 is not provided, or if provided:
  - obstacle identification or designation;
  - type of obstacle;
  - obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;
  - obstacle elevation and height to the nearest metre or foot;
  - obstacle marking, and type and colour of obstacle lighting (if any);
  - if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and
  - NIL indication, if appropriate.

Note 1 - Chapter 10, 10.1.1, provides a description of Area 3 while Appendix 8, Figure A8-3, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.

Note 2 - Specifications governing the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 3 are given in Annex 14, Volume II, Appendix 1, Tables 1 and 2, respectively.

Appendix 8 TERRAIN AND OBSTACLE DATA REQUIREMENTS

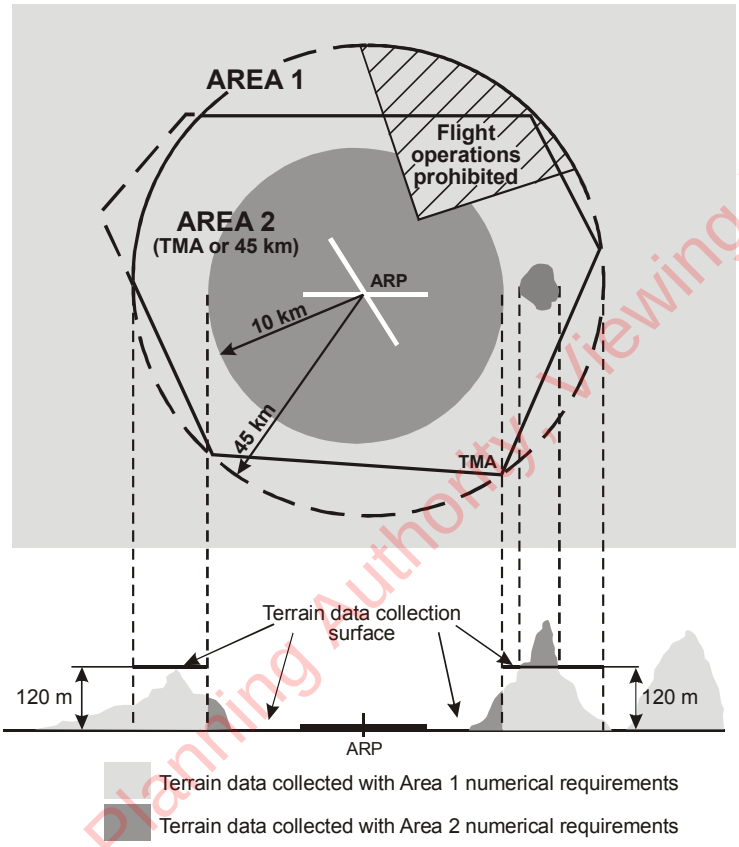

Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

Within the area covered by a 10-km radius from the ARP, terrain data shall be collected and recorded in accordance with the Area 2 numerical requirements.

In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall be collected and recorded in accordance with the Area 2 numerical requirements.

In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation shall be collected and recorded in accordance with the Area 1 numerical requirements.

In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data shall only be collected and recorded in accordance with the Area 1 numerical requirements.

Note - Terrain data numerical requirements for Areas 1 and 2 are specified in Table A81

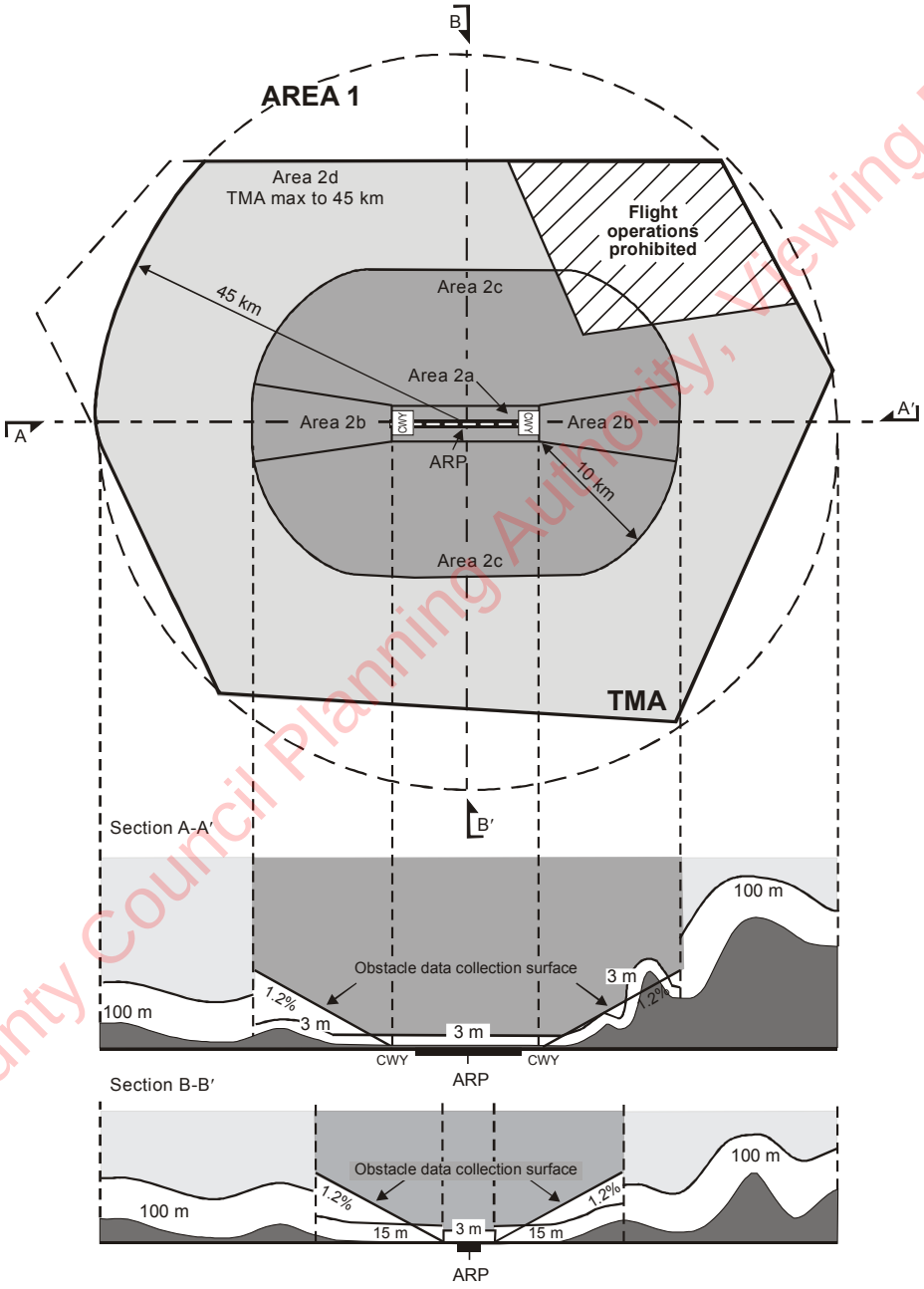

Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

Obstacle data shall be collected and recorded in accordance with the Area 2 numerical requirements specified in Table A8-2

Area 2a: a rectangular area around a runway that includes the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have an elevation of the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;

Area 2b: extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side. The Area 2b collection surface has a 1.2% slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15% to each side;

Area 2c: extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c collection surface has a 1.2% slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall match the elevation of the point of Area 2a at which it commences; and

Area 2d: outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground.

In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, obstacle data shall be collected and recorded in accordance with the Area 1 requirements.

Data on every obstacle within Area 1 whose height above the ground is 100 m or higher shall be collected and recorded in the database in accordance with the Area 1 numerical requirements specified in Table A8-2.

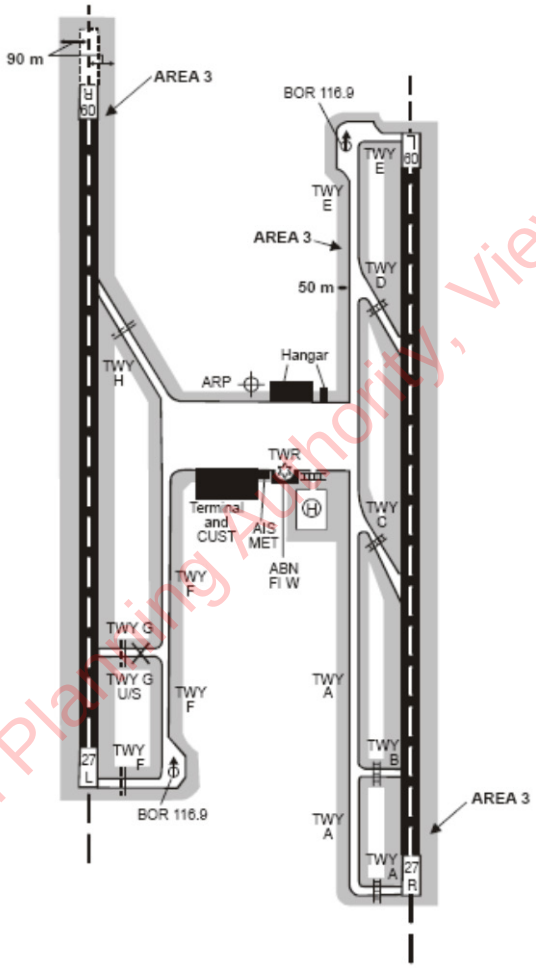

Figure A8-3. Terrain and obstacle data collection surface — Area 3

The data collection surface for terrain and obstacles extends a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome/heliport movement area.

Terrain and obstacle data in Area 3 shall be collected and recorded in accordance with numerical requirements specified in Table A8-1 and Table A8-2, respectively

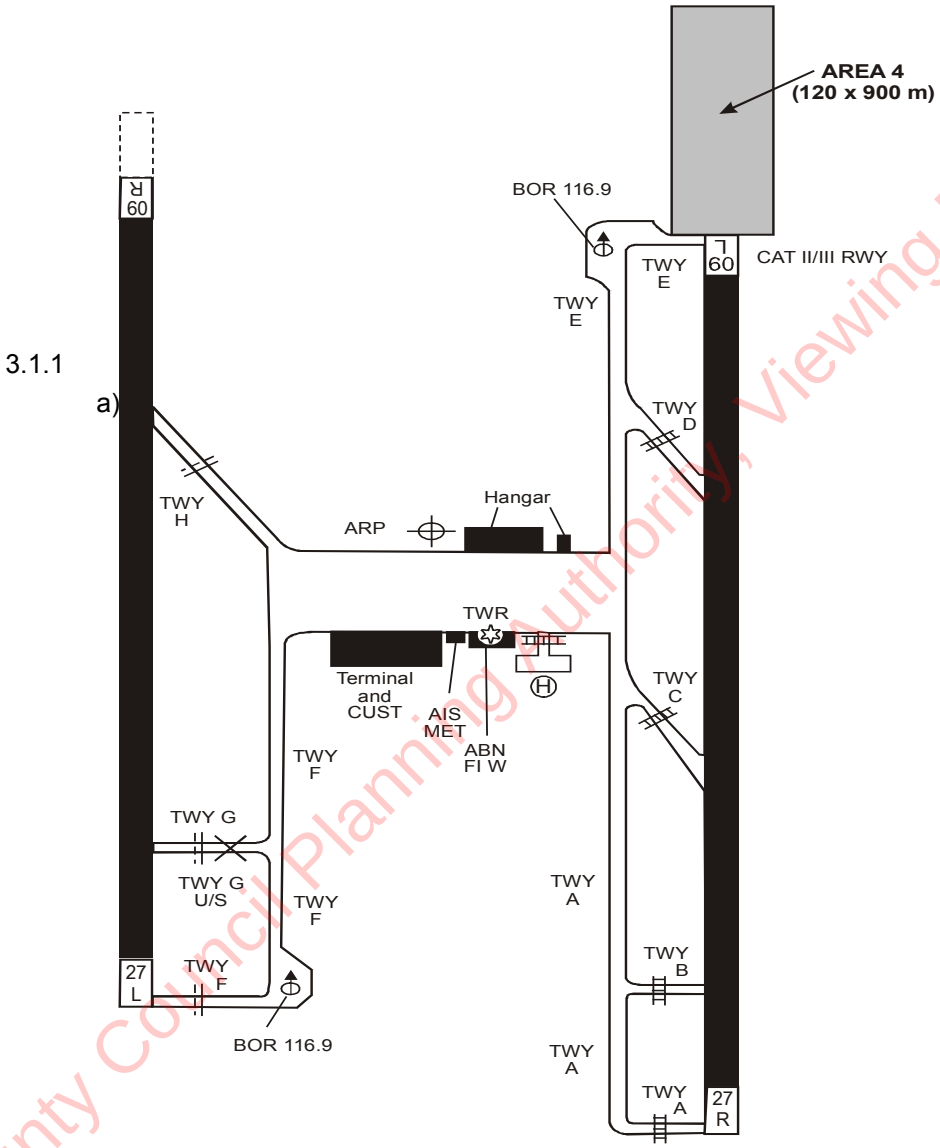

Figure A8-4. Terrain and obstacle data collection surface — Area 4

Terrain data shall be collected and recorded in Area 4 in accordance with the numerical requirements specified in Table A81.

Note 1 - The horizontal extent of Area 2 covers Area 4. More detailed obstacle data may be collected in Area 4 in accordance with Area 4 numerical requirements for obstacle data specified in Table A8-2. (See 10.1.8.)

Note 2 - Area 4 may be extended in accordance with 10.1.2.

Table A8-1. Terrain data numerical requirements

	Area 1	Area 2	Area 3	Area 4
Post spacing	3 arc seconds (approx. 90 m)	1 arc second (approx. 30 m)	0.6 arc seconds (approx. 20 m)	0.3 arc seconds (approx. 9 m)
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level ~~(1σ)~~	90%	90%	90%	90%
Data classification Integrity level	routine 1×10^{-3}	essential 1×10^{-5}	essential 1×10^{-5}	essential 1×10^{-5}
Maintenance period	as required	as required	as required	as required

Table A8-2. Obstacle data numerical requirements

	Area 1	Area 2	Area 3	Area 4
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level ~~(1σ)~~	90%	90%	90%	90%
Data classification Integrity level	routine 1×10^{-3}	essential 1×10^{-5}	essential 1×10^{-5}	Essential 1×10^{-5}
Maintenance period	as required	as required	as required	as required

Table A8-3. Terrain attributes

Terrain attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Acquisition method	Mandatory
Post spacing	Mandatory
Horizontal reference system	Mandatory
Horizontal resolution	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Elevation	Mandatory
Elevation reference	Mandatory
Vertical reference system	Mandatory
Vertical resolution	Mandatory
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Surface type	Optional
Recorded surface	Mandatory
Penetration level	Optional
Known variations	Optional
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory

Table A8-4. Obstacle attributes

Obstacle attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Obstacle identifier	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Horizontal resolution	Mandatory
Horizontal extent	Mandatory
Horizontal reference system	Mandatory
Elevation/Height	Mandatory/Optional
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Elevation reference	Mandatory
Vertical resolution	Mandatory
Vertical reference system	Mandatory
Obstacle type	Mandatory
Geometry type	Mandatory
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory
Operations	Optional
Effectivity	Optional
Lighting	Mandatory
Marking	Mandatory

Marie Geary

From: Sharon Daly <SDaly@offalycoco.ie>
Sent: Wednesday 7 August 2019 16:57
To: Dernacart Wind Farm
Cc: Marie Geary
Subject: Correct Version - Dernacart EIA Scoping Report
Attachments: scan164940.pdf

Importance: High

Dear Marie,

Apologies, this is the correct version as I previously omitted comments from Failte Ireland.

Please find attached our correspondence including comments from Inland Fisheries Ireland, Geological Survey, Offaly County Council Road Section, Failte Ireland.

Regards,

Sharon Daly,
Planning Section,
Offaly County Council.

From: Sharon Daly
Sent: 07 August 2019 16:50
To: Sharon Daly <SDaly@offalycoco.ie>
Subject: scanned document

Offaly County Council
Áras an Chontae, Charleville Road,
Tullamore, Co. Offaly, R35 F893.

Comhairle Chontae Uíbh Fhailí
Áras an Chontae, Bóthar Charleville,
An Tulach Mhór, Contae Uíbh Fhailí, R35 F893.

T: 057 9346800 F: 057 9346868 / www.offaly.ie / customerservices@offalycoco.ie

Dr. Elaine Bennett,
Fehily Timoney & Company,
Core House,
Pouladuff Road,
Cork,
T12 D773

6/8/19

Re: EIAR Scoping Report in relation to the Proposed Dernacart Wind Farm

Dear Sir,

I refer to the above and to your email dated 04th July 2019.

Offaly County Council would suggest in regard to the scope and level of detail of the information to be included in an environmental impact assessment report that the level of detail required by the planning regulations and the planning acts as amended, the Wind Energy Development Guidelines 2006, Planning Circular Letter Circular PL 5/2017, the Information Note: Review of the Wind Energy Development Guidelines 2006 - "Preferred Draft Approach", the guidelines for Planning authorities and an Bord Pleanala on carrying out Environmental Impact Assessment August 2018, Guidelines on the information to be contained in Environmental Impact Statements EPA March 2002, EPA advise notes on current practice in the preparation of environmental impact statements for planning authorities September 2002, the Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), The EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports Draft August 2017 and the Offaly County Development Plan particularly in relation to protected views and the Laois County Development Plan give adequate guidance on the level of detail required.

Offaly County Council would suggest that the EIAR indicate how each chapter covers the EIAR August 2018 guidelines chapter four topics and clearly indicate which impacts are significant, prior to mitigation measures.

Details of sources of aggregate for the proposed windfarm is required. Please note alternatives sources can be proposed as part of the EIAR. The EIAR should also submit a pavement survey of all roads to be used during construction and proposals to improve existing roads to cater for proposed construction traffic where necessary. Details to survey roads and fix any damage caused by construction traffic are also necessary.

Please note that an appropriate assessment can only be carried out by the planning authority, please note that the applicant can submit an opinion as to whether an appropriate assessment is required.

Please note that your scoping report was referred to prescribed bodies and please find response enclosed and comments from Offaly County Council Roads design on the proposal.

Yours faithfully,

pp *Administrative Officer*
Planning Department

Appendix

Relevant planning legislation

173. (2) (*a*)(i) *Subparagraph (ii)* applies where an applicant or a person intending to apply for permission requests the planning authority concerned to give him or her a written opinion on the scope and level of detail of the information required to be included in an environmental impact assessment report.

(ii) Subject to *subparagraph (iii)* , the planning authority shall, taking into account the information provided by the applicant or person referred to in *subparagraph (i)* , as the case may be, in particular on the specific characteristics of the proposed development, including its location and technical capacity, and its likely impact on the environment, give a written opinion on the scope and level of detail of the information to be included in an environmental impact assessment report, subject to —

(I) consultation with the Board to be carried out by the planning authority in relation to such opinion, and

(II) any prescribed consultations to be carried out by the planning authority in relation to such opinion.

(iii) The planning authority shall, in the case of the person referred to in *subparagraph (i)* , give the written opinion before the submission by that person of an application for the grant of planning permission. **]**

F584 **[** (*aa*) Where an opinion referred to in *paragraph (a)* has been provided, the environmental impact assessment report shall be based on that opinion, and include the information that may reasonably be required for reaching a reasoned conclusion on the significant effects on the environment of the proposed development, taking into account current knowledge and methods of assessment. **]**

(*b*) The giving of a written opinion in accordance with *paragraph (a)* shall not prejudice the exercise by the planning authority concerned or the Board of its powers under this Act, or any regulations made thereunder, to require the person who made the request to submit further information regarding the application concerned or, as the case may be, any appeal.

(1)

Dr. Elaine Bennett
Fehily Timoney & Company
Core House
Pouladuff Road
Cork T12 D773

18.07.2019

Re. Proposed Windfarm at Dernacart, Co. Laois

Dear Sir/Madam,

Thank you for your email dated July 5th requesting consultation from IFI on the proposed Windfarm at Dernacart, Co. Laois.

Please find below our initial concerns and recommendations in relation to this development:

1. All watercourses that will receive drainage from the construction sites of the turbines or the access roads must be assessed in terms of aquatic biodiversity with particular emphasis on fish, the food of fish, spawning grounds and fish habitat in general. In this regard changes to river morphology should be avoided.

2. The aquatic habitat and physical nature of any watercourse affected by the development must be fully described in detail. This includes areas of open water, pool riffle glide sequences, density and types of aquatic vegetation, description of riparian zones to distance of at least 10 metres on either bank etc. The extent of the surveys should be sufficiently long so as to be representative of the habitat contained in that watercourse. There should be a particular focus on sections upstream and downstream of any point where an impact on the watercourse is likely to arise. It may be appropriate to survey a tributary stream and the larger, more important streams it joins, and assess the effect the discharge might further have on biodiversity and fisheries in the larger streams. Surveys of un-impacted (control) streams should also be included in the EIAR.

3. Electrofishing surveys will be required for all waters. Quantitative data in relation to all fish species should be compiled. The presence of salmonid species, crayfish and lamprey species will be of particular concern. In undertaking the electrofishing survey only experienced personnel should be employed. Appropriate permits for electrofishing must be obtained from the Department of Communications, Energy and Natural Resources. Authorised personnel must ensure that they comply with all the conditions contained in the permit.

4. We are concerned about soils, their structure and types around all turbines, turbine pads, associated access roads and site development. In particular we have concerns about the stability of the soils and the impact that works on both the turbines and access roads will have either directly or by vibration on the stability of the soils.

5. IFI strongly recommends that specialist personnel are employed to assess soil strength and suitability of the ground at each site and along any proposed access road. This is particularly important in relation to the peat soils in the area. IFI may have difficulties with development on peat soils where the peat depth exceeds one metre. The potential for soil movement and landslides should be assessed fully within the EIAR.

6. Particular attention should be paid to the hydrology of any site where excavations including excavations for road construction are being undertaken. It is important that natural flow paths are not interrupted or diverted in such a manner as to give rise to erosion or instability of soils caused by an alteration in water movement either above or below ground.

7. Attention should be paid to drainage during both the construction phase and the operational phase. This includes waters being pumped from foundations or other excavations. It is particularly important during the construction phase that sufficient retention time in the settlement pond is available to ensure no deleterious matter is discharged to any waters. We strongly recommend that settlement ponds are maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging into any natural waters. In constructing and designing silt traps, particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt especially during intense precipitation events where the trap maybe hydraulically overloaded. It is essential that they are located with good access to facilitate monitoring sampling and maintenance. A license to discharge to waters may be required from the local authority.

8. IFI are also concerned about the construction of roads as these will tend to provide preferential flow paths for surface waters. Considerable detail must be provided in relation to the interception of surface water flows. Normal flows paths should be maintained both during and after construction. Situations can arise where water transportation is significantly increased in certain watercourses thereby putting additional pressures on watercourses and interfering with the sustained flow of water particularly during dry weather. This should be avoided. The use of sedimentary rocks, such as shale, in road construction should be avoided. This type of material has poor tensile strength and is liable to be crushed by heavy vehicles thereby releasing fine sediment materials into the drainage system which are difficult to precipitate and may give rise to water pollution. We recommend that specialist expertise should advise on the type of material required for road construction bearing in mind the pressures that will arise during the construction phase and the necessity to avoid pollution due to fines washing out into the roadside drainage.

9. Attention should be paid to material stockpiles and their location. Drainage from disturbed and stockpiled soils will have to be considered in advance. It may be necessary to stockpile in confined areas only. Consideration must be given to runoff from any stockpiles. It should be noted that cement leachate, hydrocarbon oils and other toxic poisonous materials will require full containment and should not be permitted to discharge to any waters

10. IFI should be consulted advance in relation to crossings of watercourses or the use of any temporary diversions, with final design to be approved by IFI. When designing crossings, the length, the slope and width of any instream structure will be important. Clear span bridges are the preferred option for crossings especially in upland areas.
11. Please also note that any instream works or other works which may impact directly on a watercourse should only be carried out during the open season which is from 1st July to 30th of September in each year (so as to avoid impacting on the aquatic habitat during the spawning season.) It would be important that appropriate scheduling of works is allowed for.
12. Following a site inspection, a number of drains were noted that while currently dry have a hydrological connection to the River Barrow. These should be included in any drainage assessment.
13. The proposed methodology for and locations of the cable route watercourse crossings should also be examined in detail. This is particularly important for the proposed Barrow crossing SW of Portarlington and for the crossing of Cottoner's Brook.

Given the proposal is preliminary in nature, the above comments and observations are generic and the specific requirements may change with the final development design.

Should you require any further information or clarification from IFI, please do not hesitate to contact me.

Yours sincerely,

Jane Gilleran

.....

Jane Gilleran
Fisheries Environmental Officer
Inland Fisheries Ireland - Clonmel

(2)

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Offaly County Council
Charleville Road
Tullamore
County Offaly

26 July 2019

COMHAIRLE CHONTAE LÚIGH FHAILÍ
29 JUL 2019
PLANNING

Re: Pre-Planning Scoping Report for Wind Energy Development near Dernacart, Co. Laois

Your Ref:
Our Ref: 19/152

A chara,

With reference to your letter received on 22 July 2019, concerning the Scoping Report by Fehily Timoney for the Wind Energy Development near Dernacart, Co. Laois, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments.

Geological Survey Ireland provides information on all aspects of the geology of Ireland on our Map Viewer available on the GSI website www.gsi.ie. There are multiple layers of data available including Geology, Groundwater, Quaternary, Landslides, Physiographic Units and Geological Heritage. We would encourage the use of our Map Viewer when undergoing the planning process.

Geoheritage

Geological Survey Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Irish Geoheritage Programme (IGH) of GSI, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan, include additional sites that may also be of national importance but which were not selected as the very best examples for NHA designation. All geological heritage sites identified by GSI are categorised as CGS pending any further NHA designation by NPWS. CGS are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system.

County Geological Sites can now be viewed online under the Geological Heritage tab on the Geological Survey Public Data Online Viewer at: Geological Survey's Online Viewer or via a direct link at: Geoheritage Online Viewer. The audit for Co. Laois was carried out in 2016. Details on the full report can be found here. We recommend that CGSs be taken into consideration when undergoing the planning process.

Our records show that there are no CGSs located within the vicinity of the proposed development. Therefore, with the current plan, there is no envisaged impact on the integrity of CGSs by the proposed developments. However, if the proposed development plan is altered, please contact Siobhán Power at Siobhan.Power@gsi.ie for further information and possible mitigation measures if applicable.

Landslides

In Ireland, landslides are the most prevalent geohazard. Our website has a layer in its Map Viewer which identifies past landslide events, extent of affected areas and assesses landslide susceptibility. The proposed site is located within peat land, which is more susceptible to landslides. We suggest using this layer when developing in upland or peat land areas.

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Groundwater

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Through our Groundwater Programme, Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality, quantity and distribution. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. We recommend using the GSI's National Aquifer and Recharge maps on our Map viewer to this end.

Recommendations

Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. Should any significant bedrock cuttings be created, we would ask that they will be designed to remain visible as rock exposure rather than covered with soil and vegetated, in accordance with safety guidelines and engineering constraints. In areas where natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface and could be included as additional sites of the geoheritage dataset, if appropriate. Alternatively, we ask that a digital photographic record of significant new excavations could be provided. Potential visits from Geological Survey Ireland to personally document exposures could also be arranged.

The data would be added to GSI's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Beatriz Mozo, Land Mapping Unit, at Beatriz.Mozo@gsi.ie, T: 01 678 2795.

Other Comments

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our website for data availability.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me, or my colleague Siobhán Power (Siobhan.Power@gsi.ie).

Le meas,

Amrine Dubois Gafar

Amrine Dubois Gafar
Graduate Geologist
Geoheritage Programme
Geological Survey Ireland

Roads

(3)

Dernacart Wind Farm

Offaly County Council-Roads Requirements in relation to Wind Turbines

General Requirements

- A Construction Management Plan shall be submitted to OCC. Contents to include implementation of planning conditions and EIS requirements.
- OCC to be advised of details of PSDP, PSCS and contractors.
- A road opening licence will be required from OCC
- Insurances
- Performance bond
- A dedicated liaison engineer to be appointed by OCC and all associated costs covered by the Developer.
- Long term damage fee or works in lieu.
- Developer to consult with An Garda Siochana, emergency services and bus operators in relation to each stage of the works.
- Developer to liaise with planning authority in Laois County Council.
- Liaison with the public, residents, businesses and schools.
- Allow for briefing of Elected Members in affected Municipal Districts.

Turbine Delivery Routes

- Detailed programme of deliveries to be submitted to OCC in advance of commencement of deliveries. Details to include dates and times, number of loads, weights, road closure and diversion routes, support vehicles, etc.
- Identification of landowners at all nodes and entry/exit points requiring temporary or permanent works. If OCC consider that the land used for any temporary or permanent works would be beneficial for the improvement of the existing road, then the developer shall carry out a design for the improvement and implement same.
- Pre-condition survey of delivery routes, consisting of a video survey and photographs, and a detailed survey of all node locations to be carried out and a copy submitted to OCC. Survey at nodes to include drainage, landscaping, surfacing, boundary fences/hedges/gates, signage.
- Where OCC consider a proposed delivery route is not in a suitable condition, the developer shall upgrade the road or junction in advance of delivery operations.
- Any damage caused to the road shall be repaired to its previous condition, to the satisfaction of OCC.
- Developer to consult with all service providers (including Irish Water) in relation to turbine delivery routes. OCC to be advised of any alterations required.
- Developer to consult with An Garda Siochana and emergency services in relation to the turbine deliveries.
- Design and construction details for temporary modifications at node points to be submitted, for approval by OCC. Details to include arrangements for both delivery phases and road open phases. Road safety audits in accordance with

DMRB HD 19/12 to be carried out, if appropriate. OCC may request All EIS requirements to be achieved.

- Abnormal load permits will be required.
- Any alterations affecting the width of the existing road shall be reinstated to the original width, unless otherwise agreed with OCC. Where roads are widened, the specification shall be that of the existing road at a minimum.
- An emergency plan shall be submitted.
- Liaison with local groups such as Tidy Towns, etc.
- Liaison with the TII for transportation on the motorway.
- All areas affected by the works shall be fully reinstated to their original condition. Where landscaping has been removed, similar plants of similar maturity shall be used for reinstatement. Where it is not possible to replace mature trees, younger trees plus additional landscaping shall be provided in lieu to enhance the area. Where hedging is removed and new hedging planted as reinstatement, suitable fencing shall be provided for the protection of the hedge, and maintenance shall be provided until the hedge is established. Where grass is replaced with new seeding, the grass shall be maintained until it is established. Full reinstatement shall be completed within one month of the final delivery.

Materials Delivery Routes:

- Detailed programme of deliveries to be submitted to OCC for prior approval in advance of commencement of deliveries. Details to include number of movements per day, weights.
- Traffic management plan to be submitted for haulage of materials, including at entry/exit points.
- Pre-condition survey of delivery routes, consisting of a video survey and photographs, a Road Condition Survey, and an FWD Survey where required, to be carried out and a copy submitted to OCC.
- Where OCC consider a proposed haul route is not in a suitable condition, the developer shall upgrade the road or junction in advance of haulage operations.
- Any defects that appear during the haulage period shall be rectified by the developer.
- Any damage caused to the road shall be repaired to its previous condition, to the satisfaction of OCC.
- Public roads shall be kept free of mud, dust, spillages and debris. Any necessary measures shall be put in place at site entry/exit points.

Cable Routes:

- Details of cable installation to be submitted to OCC in advance of commencement of works. Details to include works programme, construction

details, cross-sections for each road showing location of trench in road and existing road width, existing services.

- Where road closures are required, an application must be submitted to OCC at least 8 weeks in advance.
- Where road works speed limits are required, an application shall be submitted to OCC at least 8 weeks in advance. Signs to be erected by the developer.
- Diversion routes to be maintained whilst the diversion is in place.
- Traffic management plans to be submitted for each stage of the works.
- Pre-condition survey of cable routes, consisting of a video survey of the full route and photographs at every entrance and boundary structure to be carried out and a copy submitted to OCC. Any damage caused to the road or adjacent properties shall be repaired to its previous condition, to the satisfaction of OCC and/or landowner.
- Pre-condition structural surveys on adjacent properties shall be carried out where necessary.
- All works shall be in accordance with the TII Specification for Road Works unless otherwise specified.
- Reinstatement of the trench in local and regional roads shall be in accordance with the latest version of "Guidelines for the Opening, Backfilling and Reinstatement of Trenches in Public Roads" (The Purple Book), except where noted otherwise.
- Reinstatement of the trench in national roads shall be in accordance with the latest version of "Specification for the Reinstatement of Openings in National Roads", except where noted otherwise.
- After temporary reinstatement of the trench:
    - A full width overlay shall be provided on all local roads.
    - A half road permanent reinstatement shall be provided on regional roads > 6.0 metres wide.
    - National road – to be agreed with TII and OCC
- All permanent restoration shall be agreed with OCC.
- Ironworks shall be raised & reset as necessary and road markings and road studs reinstated.
- All existing watercourse crossings/bridges shall be identified and detailed designs submitted to indicate how these will be crossed.
- The developer shall allow in his programme for accommodation of local events, such as charity walks and cycles.
- A defects liability period of 2 years shall apply. This shall commence when written notification has been given that the permanent reinstatement/overlay has been completed.

No 4

Olivia Hughes

From: Yvonne Jackson <Yvonne.Jackson@failteireland.ie>
Sent: 01 August 2019 14:25
To: Olivia Hughes
Subject: EIAR Scoping Report- Proposed Dernacart Wind Farm
Attachments: EIS &Tourism Guidelines.pdf

Hello Olivia ,

Thank you for your recent letter and EIAR Scoping Report in relation to the proposed Dernacart Wind farm, County Laois
Please see attached a copy of Fáilte Ireland's Guidelines for the Treatment of Tourism in an EIS, which we recommend should be taken into account in preparing the EIAR.

Regards,

Yvonne

Yvonne Jackson
Product Development-Environmental & Planning Support | Fáilte Ireland
Áras Fáilte, 88/95 Amiens Street, Dublin 1. D01WR86
T +353 (0)1 884 7224 | **www.failteireland.ie**

Fáilte Ireland
National Tourism Development Authority

Fáilte Ireland
National Tourism Development Authority

Guidelines on the treatment of tourism in an Environmental Impact Statement

1. Introduction

Tourism is a significant component of the Irish Economy – estimated to employ approximately 205,000 people – and contributing €6.6 billion in spending to the economy in 2014. The environment is one of the main resources upon which this activity depends – so it is important that the EIS evaluates whether and how the interacting impacts of a project are likely to affect tourism resources.

The purpose of this short note is to provide guidance on how these impacts can be assessed through the existing EIA process. Undertaking an EIA is governed by the EIA Advice Notes published by the EPA. These Advice Notes contain detailed guidance on how to describe and evaluate the effects arising from a range of projects, including tourism projects.

These guidelines were written with the assistance of Conor Skehan, Head of Department of Environment and Planning, Dublin Institute of Technology.

2. Tourism and the Environment

There are two interactions between tourism and the environment.

1. Impacts caused by Tourism Projects
2. Impacts affecting Tourism (e.g. the quality of a destination or a tourism activity)

Impacts caused by Tourism Projects
Tourism projects can give rise to effects on the environment. These are specifically dealt with under a number of Project Types in the Advice Notes, specifically:

12 TOURISM AND LEISURE
a. Ski-runs, ski-lifts and cable-cars where the length would exceed 500 metres and associated developments. Project Type 20
b. Sea water marinas where the number of berths would exceed 300 and fresh water marinas where the number of berths would exceed 100. Project Type 10

c. Holiday villages which would consist of more than 100 holiday homes outside built-up areas; hotel complexes outside built-up areas which would have an area of 20 hectares or more or an accommodation capacity exceeding 300 bedrooms. Project Type 28

d. Permanent camp sites and caravan sites where the number of pitches would be greater than 100. Project Type 28

e. Theme parks occupying an area greater than 5 hectares. Project Type 29

Figure 1 The Advice Notes contain detailed descriptions on how to describe and evaluate the effects arising from a range of tourism projects.

Impacts affecting Tourism

Environmental effects of other projects on tourism are not specifically addressed in the Advice Notes. Taking account of the significance of tourism to the Irish economy a specialist topic of 'Tourism' has been prepared to facilitate a systematic evaluation of effects on this sector within the format laid down for other parts of the Environmental Impact Statement.

It is not intended that the assessment of effects on tourism should become a separate section of the Impact Statement, instead it is intended to become a specialist sub-section of the topic 'Human Beings' which is currently described in Section 2 of the Advice Notes

3. Tourism in the Existing Environment

Introduction

Visitor attitude surveys reveal that the following factors – in order of priority – are the reasons that tourists visit and enjoy Ireland:

- Beautiful scenery
- Friendly & hospitable people
- Safe & Secure
- Easy, relaxed pace of life
- Unspoilt environment
- Nature, wildlife, flora
- Interesting history & culture
- Plenty of things to see and do
- Good range of natural attractions

It is noteworthy that over half of the factors listed are environmental and that all others are related to the way of life of the people. The following describes how these factors are considered within an EIS, set out under EIA topic headings, and how they interact with tourism.

Beautiful scenery
This is covered in the '*Landscape*' Section. Particular attention needs to be paid to effects on views from existing purpose-built tourism facilities, especially hotels, as well as views from touring routes and walking trails. It is important to note that there appears to be evidence that the visitor's expectations of 'beautiful' scenery does not exclude an admiration of new modern developments – such as windfarms – which appear to be seen as indicative of an modern, informed and responsible attitude to the environment.

Friendly & hospitable people
This is not an environmental factor though it is indirectly covered under the '*Human Beings*' section of the EIS. The principal factor is the ratio of visitors to residents. This is of less significance in areas with long-established patterns of tourism.

Safe & Secure
This is not an environmental issue – though some of the factors that are sometimes covered under the heading of '*Human Beings*' – such as social inclusion or poverty – can point to likely effects and interactions.

Easy, relaxed pace of life
This is not an environmental issue though it is partially covered under '*Human Beings*' – see comments above.

Unspoilt environment
This is covered under the sections dealing with '*Landscape*', '*Flora*' and '*Fauna*' and to a lesser extent under emissions to '*Water*' and '*Air*'. In some instances traffic congestion, especially in rural areas, can be an issue, this is usually covered within '*Material Assets*'.

Nature, wildlife, flora
This is principally covered under the headings of '*Flora*' and '*Fauna*' and to a lesser extent by '*Landscape*', '*Water*' and '*Air*'. The principal issues being to avoid any effects that might reduce the health or extent of the habitats. This can occur either directly, by impinging on the site, or indirectly, through emission, that can affect the natural resources, like clean water, which the habitat depends on. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the disturbance or wear and tear of visitor numbers to such sites.

Interesting history & culture
This is principally covered under '*Cultural Heritage*' and, to a lesser extent, under '*Human Beings*'. The principal issues being to avoid damage to sites and structures of cultural, historical, archaeological or architectural significance – and to their contexts or settings. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the wear and tear of visitor numbers to such sites.

Plenty of things to see and do.
This is not an environmental issue though it is partially covered by the '*Human Beings*' section, where the tourism resources of an area are described and assessed.

Good range of natural attractions
This is covered by the '*Landscape*', '*Flora*', '*Fauna*', and '*Cultural Heritage*' sections of the EIS.

4. Project factors affecting Tourism

Introduction
Tourism can be affected both by the structures or emissions of new developments as well as by interactions between new activities and tourism activities – for example the effects of high volumes of heavy goods vehicles passing through hitherto quiet, scenic, rural areas. Tourism can be affected by a number of the characteristics of the new project such as:

- New Developments
- Social Considerations
- Land-uses and Activities

- *New Developments* - will the development stimulate or suppress demand for additional tourism development in the area? If so, what type, how much and where? Marinas, golf courses, other major sporting facilities as well as theme parks and larger conference facilities can all stimulate the emergence of new accommodation, catering and leisure facilities often within an extensive area around a new primary visitor facility. Extensive urbanisation and large scale infrastructure as well as certain processing and extractive industries all have the potential to suppress demand for additional tourism – but usually only in the immediate locality of the new development. It should be noted however, that some types of new or improved large scale infrastructure – such as roads – can improve the visitor experience – by increasing safety and comfort or can convey a sense of environmental responsibility – such as wind turbines.

- *Social Consideration* - will the development change patterns and types of activity and land use? Will it affect the demographics, economy or social dynamics of the locality?

- *Land-use* - will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the tourism resources in the surrounding area?

Existing Tourism
In the area likely to be affected by the proposed development, the following attributes of tourism, or the resources that sustain tourism, should be described under the following headings.

Note that the detailed description and analysis will usually be covered in the section dealing with the relevant environmental topic – such as '*Landscape*'. Only the relevant finding as to the likely significance to, or effect on, tourism needs to be summarised in this section.

Context

Indicate the location of sensitive neighbouring tourism resources that are likely to be directly affected, and other premises which although located elsewhere, may be the subject of secondary impacts such as alteration of traffic flows or increased urban development. The following should be noted in particular:

- Hotels, conference centres, holiday accommodation – including holiday villages, holiday homes, and caravan parks.
- Visitor centres, Interpretive centres and theme parks
- Golf courses, adventure sport centres and other visitor sporting facilities
- Marinas and boating facilities
- Angling facilities
- Equestrian facilities
- Tourism-related specialist retailers and visitor facilities
- Historic and Cultural Sites
- Pedestrian, cycling, equestrian, vehicular and coach touring routes

Indicate the numbers of premises and visitors likely to be directly affected directly and indirectly.

Identify and quantify, where possible, their potential receptors of impacts, noting in particular transient populations, such as drivers, walkers, seasonal and other non-resident groups.

Describe any significant trends evident in the overall growth or decline of these numbers, or of any changes in the proportion of one type of activity relative to any other.

Indicate any commercial tourism activity which likely to be directly affected, with resultant environmental impacts.

Character

Indicate the occupations, activities or interests of principal types of tourism in the area. – Where relevant, describe the specific environmental resources or attributes in the existing environment which each group uses or values; where relevant, indicate the time, duration or seasonality of any of those activities. For example describe the number of guides, boats and anglers who use a salmon fishery and the duration of the salmon season as well as the quantity and type of local accommodation that is believed to be used by the anglers.

Significance

Indicate the significance of the principal tourism assets or activities likely to be affected. Refer to any existing formal or published designation or recognition of such significance. Where possible provide an estimate of the contribution of such

tourism activities to the local economy. For instance refer to the number of annual visitors to a tourism attraction or to the grading of a hotel.

Sensitivity
Describe any significant concerns, fears or opposition to the development known to exist among tourism interests. Identify, where possible, the particular aspect of the development which is of concern, together with the part of the existing tourism resource which may be threatened. For instance describe the extent of a potential visual intrusion onto a site of historic significance which is the main local tourist attraction.

5. Impacts on Tourism

"Do Nothing" Impact;
Describe how trends evident in the existing environment will continue and how these trends will affect tourism.

Predicted impact;

- Describe the location, type, significance, magnitude/extent of the tourism activities or assets that are likely to be affected.

- Describe how the new development will affect the balance between long-established and new dwellers in an area and it's affect on the cultural or linguistic distinctiveness of an area. For example describe the effect of a new multi-national population required for an international call-centre located in a Gaeltacht area.

- Describe how changes in patterns of employment, land use and economic activity arising from the proposed development will affect tourism, for example, illustrating how a new industrial development will diversify local employment opportunities thereby reducing the area's unsustainable over-reliance on seasonal tourism.

- Describe the consequences of change, referring to indirect, secondary and cumulative impacts on tourism; Examples can include describing how the new development may lead to a reduced assimilative capacity for traffic or water during the peak of the tourism season or how new urbanism combined with existing patterns of tourism may lead to unsustainable levels of pedestrian traffic through a sensitive habitat.

- Describe the potential for interaction between changes induced in tourism and other uses that may affect the environment – for instance increasing new tourism-related housing affecting water resources or structures

- Describe the worst case for tourism if all mitigation measures fail.

6. Mitigating adverse impact on Tourism

Describe the mitigation measures proposed to:

- *avoid* sensitive tourism resources – such as views, access, and amenity areas including habitats as well as historical or cultural sites and structures.

- *reduce* the exposure of sensitive resources to excessive environmental burdens arising from the development's emissions or volumes of traffic [pedestrian and vehicular], and/or losses of amenity arising from visually conspicuous elements of the development – for example by prioritizing visual screening of views from a hotel towards a quarry.

- *reduce* the adverse effects to tourism land uses and patterns of activities – especially through interactions arising from significant changes in the intensity of use or contrasts of character or appearance – for example by separating traffic routes for industrial and tourism traffic.

- *remedy* any unavoidable significant residual adverse effects on tourism resources or activities, for example by providing alternative access to tourism amenities – such as waterways or monuments.

Marie Geary

From: Reynolds, Donnacha <dreynolds@laoiscoco.ie>
Sent: Monday 26 August 2019 08:57
To: Elaine Bennett
Cc: Nasiem Farhan
Subject: RE: Dernacart Wind Farm (formerly Baybridge) - Grid Connection routes
Attachments: Cable Route Marked up Drawing.pdf

Elaine,

I have had a look at the proposed cable route from Dernacart Windfarm to Portarlington, doing a quick desktop exercise.

Some of the items that would need to be looked at from a Roads perspective are as follows.

- Pre Construction Survey Report for the proposed route to capture condition of the roads prior to ducting installation
- Pre Condition Survey of the Route for Traffic to/From the site
- Finalised Route to be confirmed
- Railway Bridges- Survey (detailed proposal for bridge crossings will need to liaise with Irish Rail regarding permissions)
- Condition Survey of Bridges (River) and detail for crossing- Liaising with Inland Fisheries if crossing through river
- Construction Site Setups- compounds, where will they be located, interface with the road network
- Traffic Management plan for construction traffic to the Windfarm site
- Traffic Impact Assessment for the proposed route for construction traffic
- Survey of street infrastructure and details of any alteration required for long/wide loads
- Abnormal Loads permits for wide/long/heavy roads
- Details of any laybys/road widening/strengthening to be undertaken
- Details of Reinstatement of Trenchs proposed- Reference- Guidelines for Managing Openings in Public Roads (Purple Book)
- Post Construction Surveys of the routes to review any damage.
- Remedial works to be identified post survey

Regards
Donnacha Reynolds
Executive Engineer

|Road Design Office |
|Roads Department | Áras an Chontae | Portlaoise | Co Laois |
☎ (086 1054321) ☎ (057 8674317)

✉ dreynolds@laoiscoco.ie

From: Elaine Bennett [mailto:elaine.bennett@ftco.ie]
Sent: 23 August 2019 08:56
To: Nasiem Farhan
Cc: Reynolds, Donnacha
Subject: RE: Dernacart Wind Farm (formerly Baybridge) - Grid Connection routes

Hi Farhan and Donnacha,
Do you have any comments on the grid connection routes?

Thanks,
Elaine

Dr. Elaine Bennett
Senior Scientist

Fehily Timoney and Company
Core House, Pouladuff Road, Cork, T12 D773
t: +353 21 496 9567; mobile: 0876822239
www.fehilytimoney.ie

From: Nasiem Farhan <fnasiem@laoiscoco.ie>
Sent: Wednesday 31 July 2019 16:27
To: Elaine Bennett <elaine.bennett@ftco.ie>
Cc: Reynolds, Donnacha <dreynolds@laoiscoco.ie>
Subject: RE: Dernacart Wind Farm (formerly Baybridge) - Grid Connection routes

Elaine,
I have gone through this with Donnacha in my office he will be reviewing this and will reply to you.

Regards,

Farhan Nasiem
A/Senior Executive Engineer
Chartered Engineer
Roads & Transportation Section, Laois County Council
Portlaoise Co. Laois R32 EHP9
Tel: + 353 (0) 57 867 4340 Mob:-+ 353 (0) 860455138

From: Elaine Bennett [mailto:elaine.bennett@ftco.ie]
Sent: 31 July 2019 10:34
To: Nasiem Farhan
Subject: RE: Dernacart Wind Farm (formerly Baybridge) - Grid Connection routes

Hi Frahan,
I was just wondering if you had a chance to review the potential cable routes for Dernacart wind farm, and if you have any comments/suggestions?

Thanks,
Elaine

Dr. Elaine Bennett
Senior Scientist

Fehily Timoney and Company
Core House, Pouladuff Road, Cork, T12 D773
t: +353 21 496 9567; mobile: 0876822239
www.fehilytimoney.ie

From: Elaine Bennett
Sent: Monday 15 July 2019 10:19
To: 'fnasiem@laoiscoco.ie' <fnasiem@laoiscoco.ie>
Subject: Dernacart Wind Farm (formerly Baybridge) - Grid Connection routes

Dear Mr. Nasiem,
Following your meeting with Tim Coffey and Jim Hughes in relation to Baybridge Wind Farm (now renamed as Dernacart Wind Farm), please find attached a figure illustrating the proposed grid connection routes to Bracklone substation for your information. If you have any queries or comments, please feel free to contact me.
Thanks,
Elaine

Elaine Bennett
Senior Scientist
Bsc PhD

Fehily Timoney and Company | Core House | Pouladuff Road | Cork | Ireland
Tel: +353 21 4969567 | Mobile: +353 87 6822 239| Mail: elaine.bennett@ftco.ie | Web: www.fehilytimoney.ie

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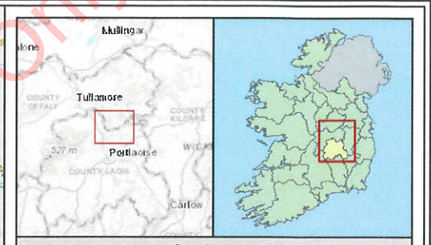
Map Path: R:\Map Production\2018\P1892\Workspace\Drafts\P1892_GridRouteOptions_A3.mxd



Legend

- Proposed Turbines
- Bracklone Substation
- Proposed Site Boundary
- Proposed Access Tracks

Proposed Cable Route

- Bracklone 110kV Plan A
- Bracklone 110kV Plan B

Bracklone 110kV Substation

L-20978-0

L-20972-0

L-3157-0

L-3157-2

L-3159-2-0

L-3170-3-0

L-3157-2-0

L-7161-0

Cross Radio Line Conduit

Road not shown on map roads.

RAILWAY BRIDGE

RAILWAY BRIDGE

BRIDGE

Figure Title	Grid Route Options		
Figure No.	-		
Project	Baybridge Wind Farm		
Client	Statkraft		
Scale	1:50,000	**Page Size**	A3
Revision	A	**Date**	11/06/2019

Consultants in Engineering and Environmental Sciences

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Transport Infrastructure Ireland

Fehily Timoney & Company
The Grain Store
Singleton's Lane
Bagenalstown
Co. Carlow
R21 XA66

Dáta | Date	Ár dTag | Our Ref.	Bhur dTag | Your Ref.
30 July 2019	**TII19-106363**	**P1892**

Re: EIAR Scoping Request: Proposed wind energy development 'Dernacart Windfarm' in the townlands of Forest Upper and Forest Lower, Co. Laois on behalf Statkraft Ireland.

A chara,

Transport Infrastructure Ireland (TII) acknowledges receipt of your EIAR Scoping request in respect of the above proposed project, received 09 July 2019.

National Strategic Outcome 2 of the National Planning Framework includes the objective to maintain the strategic capacity and safety of the national roads network. It is also an investment priority of the National Development Plan, 2018 – 2027, to ensure that the extensive transport networks which have been greatly enhanced over the last two decades, are maintained to a high level to ensure quality levels of service, accessibility and connectivity to transport users.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid application referred.

The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidance as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012). Regard should also be had to other relevant guidance available at www.TII.ie.

In this instance, the proposal is for a 9 no. turbine windfarm with ancillary works and an on-site electricity substation and an underground cable to connect the proposed development to either the existing Mountmellick 38kV substation located 7.1km from the wind farm site or to the proposed 110kV Bracklone substation which is located ca. 17.7 km from the site. A preliminary site layout is provided at figure 1.1 of the Scoping Report, the site area is not stated. The indicated site lies approximately just under 1 km east of the N80 and 2 km north-west of Mountmellick. Section 4.9.3 of the Scoping Report states that; *"Access to the site will be from this road* [N80] a*long a short distance of local road."*

Official policy in relation to development involving access to national roads and development along national roads is set out in the DoECLG Spatial Planning and National Roads Guidelines for Planning Authorities (January, 2012). Section 2.5 of the Guidelines states that the policy of the planning authority will be to avoid the creation of any additional access point from new development or the generation of increased traffic from existing accesses to national roads to which speed limits greater than 60kph apply.

With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIAR, which may affect the national road network. The developer should have regard, *inter alia*, to the following;

1. As set down in the Spatial Planning and National Roads Guidelines, it is in the public interest that, in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should should identify the methods/techniques proposed for any works traversing/in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.

2. Consultations should be had with the relevant local authority/National Roads Design Office with regard to locations of existing and future national road schemes.

3. In relation to cabling and potential connection routing, the scheme promoter should note locations of existing and future national road schemes and develop proposals to safeguard proposed road schemes. In the context of existing national roads, alternatives to the provision of cabling along the national road network, such as alternative routing or the laying of cabling in private lands adjoining the national road, should be considered in the interests of safeguarding the investment in and the potential for future upgrade works to the national road network. The cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII, any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network.

4. Clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.

5. Where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's TTA Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA.

6. TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety

Impact Assessment (RSIA).

7. Assessments and design and construction and maintenance standards and guidance are available at TII Publications that replaced the NRA Design Manual for Roads and Bridges (DMRB) and the NRA Manual of Contract Documents for Road Works (MCDRW).

8. The developer, in conducting Environmental Impact Assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for varied environmental factors and occurrences. In particular;
   a. TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
   b. The EIAR should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice.

I hope that the above comments are of use in your EIAR preparation.

Yours sincerely,

Natasha Crudden
Regulatory & Administration Unit

Appendix 5.3

Project Booklet
Newsletter

Statkraft

Dercart Wind Farm NEWSLETTER

December 2019 Update

Over the past number of months, we have been engaging with people in the local area and relevant bodies to develop a proposal that can be brought forward for consideration which we hope will be viewed as suitable and appropriate in all aspects.

Feedback from the local community is central to our development process and we would like to thank all those with whom we have spoken, for taking the time to consider this proposal and for telling us how they felt that it could be improved.

The need for delivering effective climate action has never been greater as has been highlighted in the recent UN climate action summit with the World Meteorological Organisation warning that climate change is accelerating faster than ever. Ireland has set an ambitious path to tackle climate change and this proposed wind farm can play an important role in delivering on this commitment.

What stage is the project at now?

The design stage of this 8 turbine proposal is now concluding and the planning application is being drafted. Consultation with people in the local community and some environmental surveys will continue as part of our ongoing effort to establish how this project can work best in the local area. It is hoped to lodge a planning application in December 2019 or January 2020 to Laois County Council. This will be advertised in newspapers and on the project website.

Indicative Time lines

Whilst it is not possible to accurately predict how long different stages of the development process will take, the table below outlines the approximate time lines that can be expected. We will provide updated information on the project website at these various stages. The wind farm would be expected to operate for 30 years providing clean, green renewable energy for this period without the requirement for the use of fossil fuels.

Local views on climate action

Local understanding of the need for climate action

The vast majority of people that we have spoken with in the area have acknowledged the need for us as a society to deliver effective climate action. Many people were considering what they could do in their daily lives to make a difference and some had already taken steps to reduce their carbon footprints. This said, many people spoke to us of an apprehension in terms of what a new, low carbon society would mean for them.

Apprehension of the changes that climate action requires

In discussing this proposal and climate action in general, we found that many people, whilst concerned about climate change, were also apprehensive about the changes that may be required in order to deliver effective climate action. In terms of the Dernacart wind farm proposal, a number of concerns were raised. These included how the turbines would look and operate in the local area and concerns regarding previous flooding in the area. People also wanted an assurance, that if this proposal was developed, that it would make a difference in terms of climate action and that there would be benefits for the local area.

Stage	Planning	Preconstruction	Construction	Operation
Indicative Timelines	12 – 18 Months 2019 - 2020	6 – 12 Months 2020 - 2021	12 – 18 Months 2021 - 2022	Commence 2023

Local feedback on this proposal

Feedback on local flooding

We have been advised that flooding has been an issue in recent years. It was generally accepted that should climate change go unchecked, that this area is likely to experience further climate change associated flooding. Despite this, some still held concerns that the wind farm could potentially contribute to this problem.

The design of this wind farm has taken this into account. Not only has the drainage been designed to control water flows to account for today's experiences and conditions but to effectively cope with a 1 in 100 year flood event plus an additional 20% extra capacity to cater for future climate changes.

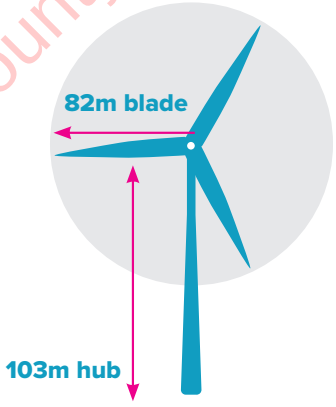
Feedback on visuals

As is the case in most areas, people's thoughts on how wind turbines look ranged from those who like wind turbines and see them as a beacon of hope for the future, to those who simply don't like how they look.

People who don't like the visual aspect, raised this as a concern. This said, some acknowledged that vegetation such as trees and hedgerows would provide screening and that the early design changes to reduce the number of turbines proposed would help, with fewer turbines being considered in the area. Their role in delivering effective climate action was also acknowledged by many. On the other side of this, people who liked the look of wind turbines, welcomed our proposals.

Our transition to a low carbon society will inevitably bring visual changes to our landscape. The perception of this development in terms of how it would look, in the context of effectively combating climate breakdown and the benefits associated with local electricity generation, is ultimately a very personal matter.

Typical configuration



Feedback on noise and shadow flicker

Early commitments that shadow flicker would be eliminated were welcomed and seen as a positive step. Some people held concerns regarding potential noise from the wind farm however most advised that the changes made in terms of reducing the number of turbines from 16 to 8 and increasing the distance between turbines and homes in the area from 500m to 740m, provided comfort that noise will not be an issue with this development. One of the advantages of this design is that there is also greater spacing between each of the turbines. This is to say, that not only is the closest turbine further away, there are less turbines within any given area. We would always advise that anyone with an interest in terms of these issues, to visit a wind farm and talk to people living in the local area.

Delivering effective climate action

Some questioned the effectiveness of wind energy in terms of delivering climate action. In the majority of these cases, this view was held based on a misunderstanding of how the Irish electricity generation system works and how it is evolving.

Wind energy is currently displacing vast amounts of fossil fuels on our electricity grid system and it has the capacity to play an even greater role. One of the developments in grid system services that allows greater quantities of renewable energy on our grid, is the development of services that minimises the need for conventional fossil fuel back ups. Whilst this is developing at a rapid rate, it is not possible, nor would it be sensible to eliminate conventional back up entirely until the required alternative systems are fully in place. Where the major savings are currently being achieved is by renewable energy displacing the most polluting fossil fuels (coal and peat) from the generation system.

Reaching a position where fossil fuel back up is eliminated when renewable energy is generating is getting closer. Wind energy is currently saving this country millions in imported fossil fuels and saving millions of tonnes of CO_2 emissions annually. Dernacart wind farm has a very important role to play in this transition. The Irish grid system presently operates with approximately 65% renewable energy at any given time which shows that we are not that very far away from having a Grid system which can be run almost exclusively on renewable energy.

What will this wind farm deliver for the local area?

Feedback on community benefit

Dernacart wind farm can deliver benefits at both local and national level. Our electricity system is shifting away from a small number of fossil fuel fired power stations, to generating our electricity from local renewable energy projects. Under the new Renewable Energy Support Scheme (RESS), the government is endeavouring to ensure that these renewable energy projects deliver real benefits to local areas. Delivering climate action that protects the future of our youth and the generations to come is now bringing unprecedented opportunities to the rural areas where suitable and appropriate renewable energy projects are developed.

During the meetings that we have held, many people provided feedback on how they felt that the local area could benefit most from the community benefit fund associated with this project. As outlined previously, this fund is expected to be in the region of €250,000 per year for the life time of RESS support or equivalent term. This would form a multimillion euro fund which would be available for the local area.

During our discussions, the unprecedented opportunity associated with a fund of this value, for a local rural area was generally appreciated. In the government's latest briefing on the new RESS Scheme (November 2019), it was indicated that there would be support for providing direct return to local households and for climate action measures such as the proposed Greener Living Initiative.

If you would like further information on the community benefit fund or if you have ideas on how it might deliver real benefits for your area, please let us know.

Website and Community Engagement

The Dernacart wind farm website (www.dernacartwindfarm.ie) will be updated throughout the development process and contains information on many aspects of the proposal including detailed maps outlining proposed turbine locations, proposed roads, substation location, access points and will include information on traffic management. We would highly recommend that people visit this website to gain further information. Our community liaison team will also be on hand to continue to gather feedback and provide information throughout the development process.

Our obligations and responsibilities

As a developer of renewable energy and as a society in general we have a responsibility to, not only do what is right, but to do it in the right way. We would hope that our first steps in the development of this proposal will be recognised as open, transparent and respectful. Addressing climate change and protecting our future generations warrants nothing less.

Should this proposal come to fruition, it goes without saying that there will be an onus on us to operate the wind farm in a responsible way. This is a responsibility that we take very seriously. During our consultation, we have not sought support for this project but rather to provide information which will allow you to develop a considered opinion, based on the correct information, on what this proposal has to offer. As this process develops, we will continue to work with you to make sure that this wind farm delivers, not only effective climate action, but that it delivers for the local area. It is our intention to have numerous more meetings with people in the local area to ensure that this happens.

Feedback on Community Benefit

Direct Return	Greener Living Initiative	Support for community groups	Educational Support Fund	Local Enterprise Scheme	Other
41	31	19	12	13	9

❶ Visit a wind farm

If you want to really experience wind energy for yourself, without any doubts about the quality and accuracy of the information you are getting – visit a wind farm and talk to the people living in that area. Locally, the Mount Lucas Wind Farm consists of over 3 times more turbines (27) which are of a similar scale.

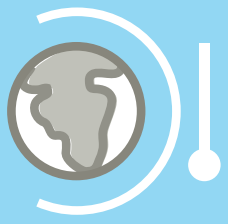
❷ Visit the following websites

www.iwea.ie Irish Wind Energy Association (IWEA) and www.youtube.com/watch?v=eqKZkcxeKR8	**www.laoiscoco.ie** Laois County Council
www.windenergy.ie Wind Energy Facts	**www.epa.ie** Environmental Protection Agency
www.seai.ie Sustainable Energy Authority Ireland (SEAI)	**www.gsi.ie** Geological Survey Ireland
www.un.org/climatechange UN Climate Change Website	**www.fisheriesireland.ie** Inland Fisheries Ireland
www.climatecouncil.ie Ireland's Climate Change Advisory Council	**www.npws.ie** National Parks and Wildlife Service

❸ Talk to our Project Communication Officer

George O'Connor is the local Community Liaison Officer for this project. George has many years' experience in both wind energy and working with communities. Whilst he is very knowledgeable about renewable energy projects, he also has a very good appreciation for the fact that individuals and communities have many different thoughts on what works in different areas. Pat O'Sullivan and Jim O'Reilly work alongside George and we are available to provide information on this proposal or indeed the wider issues of climate action.
We would encourage anyone who has an interest in this proposal to contact us on the below contact details:

- **By phone:**
  George O'Connor – 087 352 1511
- **By email:**
  enquiries@dernacartwindfarm.ie



"Climate change is a fundamental problem that we must solve and not merely pass on to the generations to come. We can't let our children and grandchildren look back on this critical period in time and say that we failed them." Mary Robinson

Privacy Policy

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Contact Us

Statkraft, Axis Business Park, Clara Road Tullamore, Co Offaly.

Phone: 057 936 1540 **Mobile:** 087 352 1511
Email: enquiries@dernacartwindfarm.ie

Statkraft

Dernacart Wind Farm

Information Booklet

Considering opportunity, promoting engagement, striving for sustainability

Statkraft

Introduction

With a growing general understanding of the impacts of Climate Change and the announcement of the Climate Change & Biodiversity Emergency we are all being challenged to consider the part we play in climate action. The Climate Action Plan 2019 sets out a plan to make Ireland a leader in delivering effective climate action.

It is clear that in order to deliver effective action on climate breakdown, we must embrace new ways of thinking. Presently we use fossil fuels to generate our electricity, heat our homes and run our cars however the majority of people now realise and accept that this needs to change. The development of renewable energy is the foundation upon which effective climate action can be delivered.

Despite the challenges, the low carbon vision for Ireland is a very positive one. Assuming that we achieve what has been set out in the government's Climate Action Plan 2019, we will not only benefit from having taken real and effective climate action, we can also enjoy many economic and social benefits along with providing a more sustainable future.

Renewable energy is critically important for the delivery of effective Climate Action

Each of us now has an obligation to assess our own carbon footprint and each community has the opportunity to assess what renewable energy has to offer, not only for the country, but for their local area. It is important that these facilities not only work well where they are located, but that they also bring real benefits to local people and that they support the economic, social and environmental sustainability of those local areas.

With this proposal, we believe that there exists the potential to develop a wind farm with significant set back distances from houses which would work very well in the local area. We also believe that this proposal has the capacity to bring very real benefits to local people whilst delivering climate action. We would hope that you might consider this project in terms of the challenges being addressed, the appropriateness of the design and the potential to bring benefit to the local area.

About us - Statkraft

At Statkraft Ireland we believe that a better, cleaner and more sustainable world is possible to achieve and that by working together, we can avoid the worst impacts of climate change. A just transition to a low carbon society for the betterment of all can be achieved and we believe that it is not only possible to maintain the quality of life that we enjoy today, but to enhance it. We believe that it is within the gift of our generation to create an environmentally, socially and economically sustainable future for ourselves, our children and their children to enjoy.

As Europe's largest generator of renewable energy, Statkraft is already playing a significant role in combating climate change. Statkraft Ireland is endeavouring to develop suitable and appropriate renewable energy projects that will bring long lasting benefits, not only to our country and our future generations, but also the local communities in which they are located. We believe that through positive engagement with local communities and the public, renewable energy projects that are socially and environmentally appropriate can be developed. The transition to a low carbon society should be just and as such, how renewable energy projects will work in local communities and the potential benefits that can be brought to those areas is a central consideration for any project being proposed.

Statkraft Facts

Statkraft is not only involved in hydroelectric, wind and solar energy generation but is also currently pursuing a strategy which includes the develop new businesses within the wider area of decarbonisation including:

- The development of *District Heating*
- Providing solutions for *Electric Vehicle* charging
- The development of grid system services to facilitate the transition to a low carbon electricity gird system
- The development of initiatives in the area of *Biofuels*
- The development of initiatives in the area of *Hydrogen* as an alternative fuel source.

Climate Change

The urgent need to take effective action on climate change is now well accepted all over the world. The last 5 years form the top 5 of the hottest years on record. Extreme weather events are occurring on a regular basis now and this is projected not only to continue but to get significantly worse. We cannot stop climate change, but we can and must take action to limit global warming in order to avoid the worst effects that climate change can bring.

"the last 5 years form the top 5 of the hottest years on record"

The Scientific Evidence

97% of scientists agree that greenhouse gases and Carbon Dioxide (CO_2) emissions are directly responsible for this global warming. There is no debate remaining on this or on the fact that we are responsible for what is happening with our climate. It is also accepted that we still (although not for very long) have the chance to make a difference.

For 20 years scientists have warned us of global warming and how it would affect our climate. When 20 years ago the scientific community warned us that we would experience extreme snow, flooding, droughts and storms all in the one year, few people took the threat seriously. Yet we have seen that their computer modelling has been proven correct.

It is now clear that we need to listen to what climate science is telling us.

"Global warming has to be limited to below 2^{0}C compared to the average temperature in pre-industrial times to prevent the most severe impacts of climate change and possibly catastrophic changes in the global environment" *– European Commission on Climate Action*

Ireland and Climate Change

People, young and old, across Ireland and Europe are realising that their future quality of life is in the balance. There is a growing understanding that governments alone will not solve this problem and that we cannot bury our heads in the sand. To do this would be to steal an inherent right from our young people – the right to live in a sustainable world.

Despite Ireland currently ranking as one of the worst preforming country in the EU on climate action (according to the Climate Change Performance Index), government is now taking action to address climate breakdown. A Climate Change and Biodiversity Emergency has been declared and the Climate Action Plan 2019 has been announced. These are the first steps towards placing Ireland on a path to delivering real climate action.

As individuals, communities and as a nation, we have the ability to shape the future.

Climate change is inextricably linked to how we source and use the energy that we consume in our daily lives. We cannot continue to rely on fossil fuels for our energy needs. How we actively participate in embracing the adoption and development of low carbon technologies, in a way that works, will ultimately form the legacy that our generation leaves behind . We have the opportunity to do the right things and to do them in the right way.

"There's one issue that will define the contours of this century more dramatically than any other, and that is the urgent and growing threat of a changing climate."

— U.S. President Barack Obama

Renewable energy and climate change

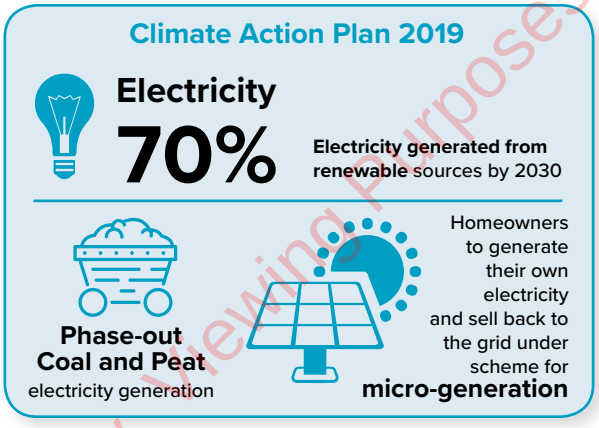
Delivering effective climate action is almost entirely dependent on sourcing our electricity from clean renewable energy sources. Emissions associated with the burning of fossil fuels are the largest contributor to climate change. Electricity generated from renewables does not require the burning of fossil fuels.

Renewable energy is the cornerstone of delivering effective climate action!

Renewable energy allows us to carry out our daily practices of powering our businesses, heating our homes and traveling in a sustainable way that protects our future.

The Climate action plan 2019, sets out goals in terms of changing how we generate and use energy in Ireland. Over the coming decade we will have the opportunity to adopt low carbon technologies in our everyday lives that are based on the use of electrical energy.

With our electricity coming from renewables, we can make a real difference in tackling climate change.



What does wind energy deliver?

Given our position on the edge of the Atlantic, Ireland has one of the best wind energy resources in the world and it currently plays a very significant role in our electricity generation system.

Wind energy:

- Currently provides up to 65% of our electricity on any given day
- Accounted for 30% of all the electricity used in Ireland in 2018
- Modern wind turbines generate electricity at low wind speeds. It does not have to be 'windy'.

According to the SEAI, in 2018, Wind Energy saved:

- 2.7 Million tonnes CO_2 emissions. The equivalent emissions of approx. 900,000 cars!
- 1.1 Million tonnes of oil equivalent (Mtoe)
- €226 Million in imported fossil fuels

WIND ENERGY AND NATURE

NO fuel

NO greenhouse gases

NO air pollution

NO water pollution

YES clean energy

Renewable energy mix

Wind energy can provide for the majority of our energy requirements however we will need to develop other renewables such as solar, biomass etc in order to ultimately eliminate fossil fuels from the system. There is no 'silver bullet' in terms of replacing fossil fuels however wind energy is Ireland's best resource in terms of renewable energy. For more information on this please visit the Dernacart Wind Farm website at www.dernacartwindfarm.ie

Dernacart Wind Farm

The proposed Dernacart Wind Farm consists of 8 turbines with a potential output in excess of 40MW of electricity. This would have the capacity to power approximately 30,000 homes with clean green renewable energy. The project will also incorporate a significant community benefit fund which assuming RESS (Renewable Energy Support Scheme) support, will form a multimillion-euro investment opportunity specifically for the local community. Under this scheme an investment opportunity would also be available for people who would like to invest in and get a return from the wind farm.

The area being considered is located to the north west of Mountmellick, just south of Garrymore bog. This area includes the townlands of Dernacart, Forrest Upper and Forrest lower.

How has this proposal evolved?

The location under consideration was initially identified following a review of areas that could provide suitable distances from houses and which were identified within the Laois County Development Plan. At the initial stages of consideration, designers drafted a project outline that would maximise the wind energy potential of the site. Staying in line with the guidelines, the following initial assumptions were made: The initial distances to houses was taken at 500m (subsequently increased), shadow flicker curtailment was taken at the maximum allowable levels, the turbine height was taken at 169m. The resulting layout consisted of 16 turbines with a potential electricity output of approximately 45MW.

Placing local appropriateness as a fundamental consideration, a review of this design was carried out in terms of commonly received community feedback during which, factors such as distance to houses, number of turbines, shadow flicker and noise were considered. It was found that it was possible to increase the distances to houses, reduce turbine numbers and improve general performance levels of the proposed wind farm by increasing the tip height by 16m. Essentially, the redesign resulted in 8 turbines being dropped from consideration and the distance to houses increased to 740m and over. The design changes are set out in the following table:

	Initial consideration	Current design proposal
Distance to houses	500M	740M
Number of turbines	16	8
Shadow flicker	In line with guidelines	Eliminated – no shadow flicker
Turbine height	169M	185M
Potential capacity (approx.)	45Mw	40Mw
Revised layout benefits	N/a	Further from houses 50% Reduction in turbine numbers Optimal design for general performance Less construction traffic Significant community benefit

Having established a working design layout, environmental surveys were carried out to ensure the suitability of the location. Many factors are considered as a part of the assessment process including the local environment, geology, hydrology etc. These surveys are ongoing and will form part of the planning application once submitted to the planning authority.

In addition to the above we had some initial conversations with people living in the local area regarding how this project could work best and deliver the most benefit possible to the area. As part of this ongoing engagement, we would like people not only to consider the design of the proposal being brought forward but also how funding from the development could play an important role in assisting the development of the area in the coming years.

The more feedback that you provide to us, the more potential this proposal has to be of benefit to you!

Dernacart Wind Farm at a Glance

- 8 turbines
- 740m and upwards – distance from nearest houses in the community to the nearest turbine
- No Shadow Flicker at any homes in the area
- The capacity to provide clean, green energy to approximately 30,000 homes
- In excess of 40MW of renewable energy for the Irish grid system
- The maximum height would be up to 185m
- All cables would be under ground
- There will be a substation associated with the wind farm
- Associated works will include access tracks, turbine foundations and hardstanding areas, drainage works, temporary site compound, grid systems services, underground electrical and communications cables between turbines and an underground cable to connect the proposed project to the local substation.

Design Proposal and Next Steps

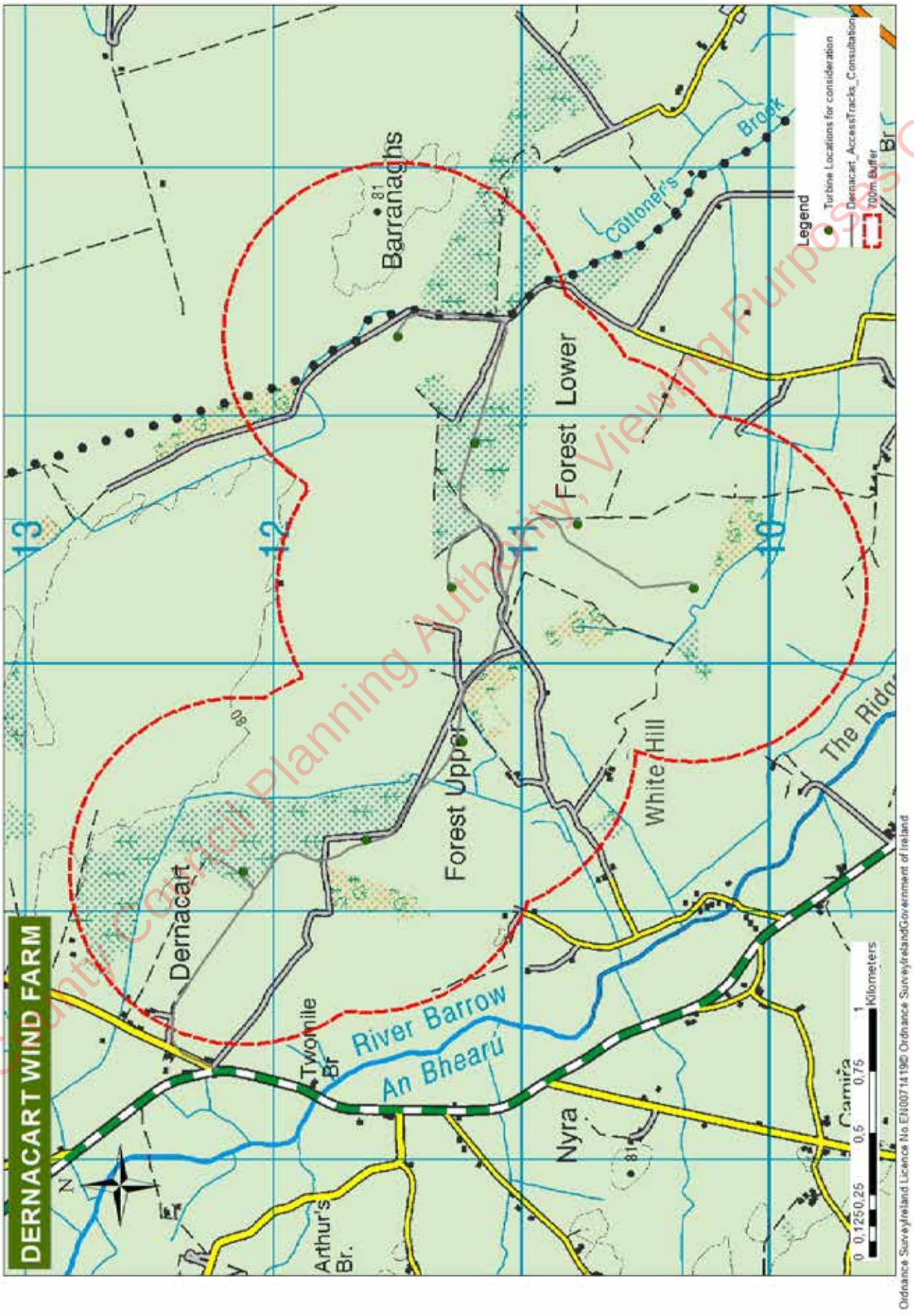
This proposal is still at design stage and as such details of the proposal may change. Our community engagement team will be working in the area to ensure that information is available and that you have an opportunity to discuss the various aspects of this proposal.

Overview of the Design Stages		
Design Stage	**% Design**	**Description**
Initial Scoping	0 – 40%	Based on high level information
Preliminary Layout	40% - 80%	Fluid and frequently open to change
Design Layout	***80% - 100%***	**Sufficiently fixed to allow meaningful discussion**
Planning Layout	100%	Fixed for presentation to the appropriate planning authority.

As this proposal is being developed (and before it is submitted to the planning authority) we will be providing information on the design layout and on the project in general. We would like to hear how you think that this proposal could work best in the area, how you think it could bring the most benefit to the local area and to discuss any queries or concerns that you might have regarding the proposal.

We would also like to discuss with you the reasons behind why this project is being brought forward for consideration and the issues that we need to consider in terms of the move away from a fossil fuel based electricity system towards renewable electricity.

Our community liaison team will be calling to people in the local area and we would invite you to meet with us. If you would like to contact us to arrange a visit, please do not hesitate to do so on the contact details located at the back of this booklet.



Harvesting the Local Benefits of Wind Energy

The development of renewable energy is a natural step in the evolution of locally generated electricity. Harvesting peat for electricity has brought significant economic gain for many areas of the midlands over the years. Ireland is now on a path of decarbonisation and the energy that we are using is switching from fossil fuels to renewables. The potential to extract local economic and societal gains remains with the development of renewable energy projects. All renewable projects that are developed over the coming years will attract a significant community benefit fund for the local area which will often equate to multimillion-euro investment opportunities for local communities.

Local people know the local needs best

In all communities, it is the local people who know the area best. It is you, the people who live here that know the strengths, weaknesses, desires and aspirations of the area. As an area with a community that has proven its ability to identify opportunities and to develop successful initiatives such as the local Mountmellick Development Association Business Park, we believe that the community benefit fund associated with this project could deliver very significant benefits for the local area.

From initial conversations, it has been highlighted that Mountmeillick has a vision of developing initiatives that will allow the area to lead the way on low carbon living. The fundamental principal of our community benefit package is that we seek to work with local people to deliver increased environmental, economic and social sustainability to local communities. We would be very interested in hearing what ideas you have on how this wind farm could deliver the most benefit to you and your local area.

Through working with the local community, we aim to ensure that the community benefit fund delivers the maximum possible benefit and that it delivers for you. This fund will support the economic, environmental and social sustainability of the local area.

The new Renewable Energy Support Scheme (RESS)

In July 2018, the government announced details of the new renewable energy support scheme (RESS) which is aimed at encouraging the development of a *sustainable* renewable energy mix in Ireland. Should this proposal achieve planning consent and secure RESS support, there would be two very significant community opportunities.

1. Community benefit Fund. A very significant increase in community funds. For this proposal it would mean that there would be in the region of €250,000/year available for the local community for the duration of the scheme.

2. Community Investment Opportunity. A community investment opportunity for those living within 10km of the project with priority given to people living within 5km.

What can the fund be used for?

We are keenly aware that money on its own means nothing. What money does bring is potential, and in order to maximise this potential what is needed is critical assessment and vision.

As part of our consultation process, we would like to challenge everyone to consider the needs of the local area and local people. Some of the questions that may warrant thought are:

- What are the strengths of the area and how could they be built on?
- What challenges do people in the area face?
- What support do local services require?
- What vision do you have for the local area?
- Are there gaps in the services in the local area?
- How could investment be used to support local people?

We would like you to tell us how you think that this fund should be used!

Dernacart Wind Farm Community Benefit Fund

The significant community funds that would be associated with this proposal could be used to support a wide variety of initiatives.

The development of renewable energy is a very positive move for society in general given the role that it plays in effective climate action, but we believe that it is important to go further than this and to deliver the positive benefits of renewable energy to local communities.

Below we have outlined some initiatives that could be considered as part of this proposal. We would welcome, not only your feedback on these, but also any other ideas that you may have.

What initiatives have other areas considered?

Direct return - In many areas it is felt that those living closest to the wind farm should receive a direct return from it. This is based on the principal that locally generated electricity should directly benefit those living in the local area. This is a concept that we support and one that we have worked with other communities on.

Greener Living Initiatives - Government has accepted that it will not be able to carry the cost of transitioning our society and way of living towards low carbon solutions. This means that whether through carbon taxes or the costs associated with upgrading our homes and cars, there will be implications for us all. That said, despite initial costs, making the change to low carbon solutions will lower your bills. This initiative is aimed at providing financial support for people to adopt low carbon solutions, reduce their bills and reduce their carbon footprints.

Support for local community groups - The community benefit fund can be used to develop local groups that service the needs of the local area. These would include local youth groups, services for the elderly, sporting organisations, schools etc.

Local educational fund - For some, the cost of access to further education, be that for themselves or their children, can be prohibitive. Part of the community benefit fund can be used towards assisting local people with these costs.

What innovative ideas might there be for your area?

A Low Carbon Community Initiative

Positioning the Mountmellick area as a leader in the transition to a low carbon society is not an unrealistic or unachievable objective. Should there be a local desire to lead the way on climate change, its urban size and rural hinterland could give the area some significant advantages. Whilst the area has historically had competition from the larger neighbouring towns when it has come to attracting funding and employment, its size and history of community development, coupled with support from renewable energy projects, could allow for the development of an area recognised as being a low carbon leader. This would in turn present an attractive location for future enterprise development.

A Greener Farming Initiative

Given that the fundamental behind the development of the wind farm is to tackle climate change, the local farming community could be supported by way of helping them to lower their carbon footprint.

If you are interested in any of the above, please let us know. These are only some initial ideas on how the community benefit fund could be leveraged to provide long term, lasting benefits for the local area but we would be very interested to hear from you as to what you might think would work in your local area.

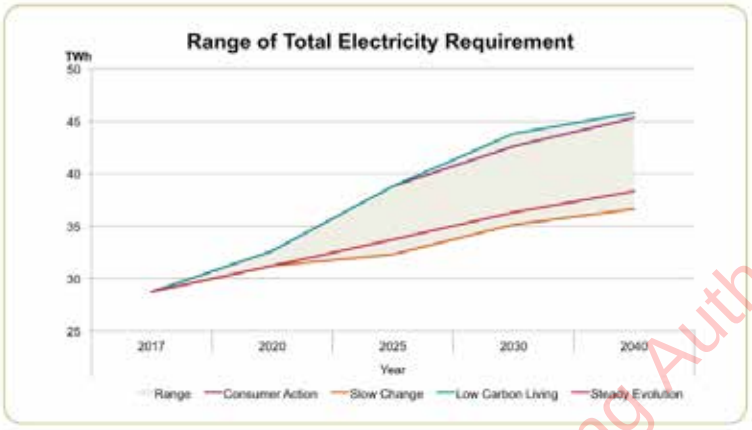
Achieving great things is not the exclusive domain of others – Great things can be achieved when we all work together towards a common goal.

Energy in Ireland

Ireland has enough energy to power itself however, we imported 66% of our energy in 2017. The vast majority of the energy imported comes in the form of fossil fuels with some electricity coming from the existing interconnector with the UK. We use this energy in our transport, heating and electricity generation systems.

In the coming years, Ireland (along with most of the rest of the world) is going to be working towards increasing the electrification of the heating and transport sectors. What this will mean for our homes is that many people will be moving away from burning oil and coal etc for heating and using electricity based solutions such as heat pumps instead. Likewise, in transport, most manufacturers are moving towards electric vehicles (EVs) and it is predicted that EVs will become mainstream in the near future. **This would all be pointless if our electricity is still generated by burning fossil fuels!**

Developing renewable energy is key to reducing our reliance on fossil fuels and tackling climate change. The amount of renewable electricity required to achieve this will continue to grow. The target is for Ireland to reach a renewable penetration level of 70% of electricity from renewables by 2030.



Source – EirGrid's Tomorrows Energy Scenarios Report 2017

The future of our climate is in the balance. Clean, green electricity is the foundation upon which it can be saved!

As can be seen from the above table, should we be successful in achieving a low carbon living (which is the aim), our electricity requirements are going to significantly increase. What is also interesting, is that even in a scenario where we fail to take effective climate action, and where there is slow change, our electricity requirements are still going to grow to a significant degree.

Irelands electricity grid started out as a world leader in renewable energy with the construction and operation of the Ardnacrusha hydroelectric facility in the 1929. Around this time, Ireland had the second lowest consumption of electricity in Europe. The demand for electricity has grown since those times and we have relied predominantly on fossil fuels as our source of energy. It is clear that our electricity demand is going to continue to grow and it is also clear that our electricity generation system needs to revert to its roots in developing a clean, green renewable energy mix.

Find more info on our Project Website - www.dernacartwindfarm.ie

On our project website we have endeavoured provide further project information and to expand on the topics covered in this booklet. There is information on climate change and the challenges that we face along with information on the various different types of renewable energy that we need to develop detailing the benefits and limitation of each. Throughout this website we have facilities for you to contact us with any questions that you may have. Alternatively, you can reach us on the contact details located on the final page of this booklet.

Climate Change

- The 5 hottest years on record? – the last 5 years
- 14 of the 15 hottest years have been since the year 2000
- The temperature of our oceans significantly influences our weather. Ocean temperatures are rising.
- Ireland is particularly exposed to extreme weather events due to our location on the edge of the Atlantic. We have already experienced widely varying extreme weather events.
- Climate change has the potential to cause catastrophic impacts on our weather
- The Irish government have declared a climate change and biodiversity emergency
- Changes in weather patterns will impact on our homes, businesses, economy and our daily lives.
- The Arctic is expected to be Ice free by the summer of 2040 – Global warming temperatures are given as an average across the globe. The actual temperature increase in the Arctic at present is closer to 3°C. This will impact very seriously on sea levels and weather events in Ireland. Latest studies predict a sea level rise of between 1m and 2m rise before the end of the century
- Carbon is responsible for climate change. Carbon in the atmosphere passed 400ppm for the 1st time in 2013. It failed to drop below this level in 2016 and is unlikely to ever again. We may not be able to reverse this but we can work to stop or limit it.
- We are the first generation to see the effects of climate change, and the last that can do anything about it.

Wind Energy

- Wind energy is our largest and cheapest source of renewable energy
- A cost benefit analysis has shown that between the years 2000 and 2020, wind energy has cost less than €1 per person per year
- Wind energy's entry onto the Irish gird system has displaced expensive and polluting sources of electricity generation
- In 2018, wind energy provided 30% of Irelands total electricity demand
- March 14th 2018 wind energy delivered 3, 655MW of renewable electricity
- SEAI figures for 2017 show that Wind Energy avoided:
  - €226million of imported fossil fuels
  - 1.1 Million tonnes of oil equivalent (Mtoe)
  - 2.7 Million tonnes of carbon dioxide ($MtCO_2$)
- Wind farms deliver clean, green electricity for Irish homes and businesses
- Wind farms work well in local areas
- Wind farms deliver significant benefits and opportunities for local communities
- Wind farm community benefit funds are delivering millions of euros for communities across the country
- Wind energy is Irelands greatest asset in terms of developing an appropriate renewable energy mix on the Irish grid and combating climate change

Are you on the right side of climate change?

- Assess your own carbon footprint
- Seek out information on supports for low carbon solutions
- Seek out new opportunities for renewable energy
- Consider all renewable energy proposals
- Make climate action a consideration in your day to day living
- Join a local Sustainable Energy Community or other Climate Action Group

Your actions do not need to be big and dramatic! Each step on the path brings you closer to your goals.

❶ Visit a wind farm

If you want to really experience wind energy for yourself, without any doubts about the quality and accuracy of the information you are getting – visit a wind farm and talk to the people living in that area. Locally, the Mount Lucas Wind Farm consists of over 3 times more turbines (27) which are of a similar scale.

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www.windenergy.ie Wind Energy Facts	**www.epa.ie** Environmental Protection Agency
www.seai.ie Sustainable Energy Authority Ireland (SEAI)	**www.gsi.ie** Geological Survey Ireland
www.un.org/climatechange UN Climate Change Website	**www.fisheriesireland.ie** Inland Fisheries Ireland
www.climatecouncil.ie Ireland's Climate Change Advisory Council	**www.npws.ie** National Parks and Wildlife Service

❸ Talk to our Project Communication Officer

George O'Connor is the local Community Liaison Officer for this project. George has many years' experience in both wind energy and working with communities. Whilst he is very knowledgeable about renewable energy projects, he also has a very good appreciation for the fact that individuals and communities have many different thoughts on what works in different areas. Pat O'Sullivan and Jim O'Reilly work alongside George and we are available to provide information on this proposal or indeed the wider issues of climate action.
We would encourage anyone who has an interest in this proposal to contact us on the below contact details:

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Contact Us

Statkraft, Axis Business Park, Clara Road Tullamore, Co Offaly.

Phone: 057 936 1540 **Mobile:** 087 352 1511
Email: enquiries@dernacartwindfarm.ie

Statkraft

Appendix 5.4

Community Benefit

Dernacart Wind Farm Community Benefit

An important part of wind farm development is the Community Benefit Scheme. The concept of directing benefits from wind farms to the local community is promoted by the DCCAE through the new RESS scheme, the National Economic and Social Council (NESC) and the Irish Wind Energy Association (IWEA) among others. The new RESS scheme in particular promotes the concept of directing benefits from locally generated electricity, back to the local area and local community.

While it may be simpler and easier to put a total fund aside for a wider community area, Dernacart wind farm is endeavouring to develop new ways to direct increased gain towards the local community with particular focus on those living closest to the wind farm. Given that local people understand the needs and requirements of the local community best, consultation with those in the local community on the form that the community benefit package should take has formed an integral part of developing this proposal.

A significant community benefit fund will be available for the local area and should the project be developed under the RESS scheme, based on the proposed layout, €250,000 per year would be available for the local area for the lifetime of the scheme. To put this in perspective, €1.25 million would become available within the first 5 years of operation and €3.75 million within 15 years. The value of this fund will be directly proportional to the level of MWs produced by the wind farm, on the project being successful in securing RESS support and the duration of that support. Further detail on the RESS scheme is outlined in Chapter 5.

As detailed in Chapter 5 of this EIAR public consultation and engagement with the local community began at an early stage in the development process. At this time, a nominated Community Liaison Officer (CLO) was appointed to the area and since then the CLO responsible for the area has been the main point of contact to the local community with a dedicated phone number being assigned to the CLO.

Since this time and through engagement with the local community and local businesses, feedback was actively sought on ideas regarding the form that the Community Benefit Scheme should take and how best to achieve maximum potential benefit from the available funding. Further detail on the consultation background is given in Chapter 5.

Local Economic and Environmental Sustainability Schemes

Renewable energy projects should seek to increase the economic and environmental sustainability of households within the local communities and help to create communities which will not only benefit directly from having a renewable energy project such as a wind farm in their area but also facilitate households and the wider community in reducing their carbon footprint and becoming more economically and environmentally sustainable.

In order to achieve this, we are proposing the following schemes as part of our Community Benefit Package. The final design of these initiatives will ultimately be guided by the local community.

Local Economic Sustainability – Direct Return

Feedback from people in the local area showed that people felt strongly that those living closest to the wind farm should benefit directly from the project. This is a concept that we support in principle and a concept which the DCCAE have indicated should get priority within the community benefit obligations of the new RESS schemes.

The exact form that this direct return will take will be subject to any criteria set out in the final RESS scheme and will require further consultation with the local community however, it would be envisaged that the principle of providing a direct return mechanism for all houses that are located out as far as 1.4km from a constructed turbine, could benefit from a direct payment from the wind farm.

Local Environmental Sustainability – Greener Living Scheme.

The Greener Living Initiative is aimed at assisting local households within the area of the proposed development towards becoming more environmentally friendly, more sustainable and future proofing properties in terms of energy usage into the future. During consultation with the local community many people recognised the long-term financial benefits that could be achieved through transitioning towards low carbon solutions for their homes and transport. In Ireland's move towards transitioning to a low carbon economy the Dernacart wind farm would like to assist the local community in becoming more energy savvy and see locals reaping long term gains from the Greener Living Scheme. The details of how this scheme would ultimately work would be developed through consultation with the local community should planning be granted but the fundamental ideas that people expressed an interest in are as follows:

- Homes – Provide grant assistance for people within the area that would like to carry out energy efficiency works in their homes in order to reduce their fossil fuel usage, their carbon foot print and reduce their energy bills

- Electric Cars-Provide grant assistance for people who would like to consider buying an electric car. Electric vehicles can reduce a car's fuel bill by up to 74% whilst also reducing your carbon footprint

- Work – Grant assistance towards facilitating home working which would reduce the need for commuting to work

Community Investment Opportunity

In order to provide those in the wider community with an opportunity to get involved in green projects, the new Renewable Energy Support Scheme has outlined the requirement that any project developed under this scheme offers a community investment opportunity for anyone within 10km of the proposal with priority being given to those within 5km. We have advised the public of this potential opportunity and invited those who may be interested in investing in this wind farm and getting a return from it to contact us. The exact details of the scheme are yet to be finalised and ultimately this opportunity would be dependent on securing RESS support and the structure would be subject to compliance with the final RESS guidelines or other relevant governing directives.