# ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED DERNACART WIND FARM, COUNTY LAOIS

## VOLUME 2 – MAIN EIAR

## CHAPTER 1 - INTRODUCTION

## DECEMBER 2019

Statkraft

FEHILY TIMONEY
30 YEARS

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# 1 INTRODUCTION

Fehily Timoney and Company (FT) has prepared this environmental impact assessment report (EIAR) on behalf of Statkraft Ireland Ltd. (Statkraft). Statkraft intends to apply to Laois County Council for planning permission to construct the proposed Dernacart Wind Farm in Co. Laois. The location of the development is illustrated in Figure 1.1.

The proposed wind farm is located ca. 1.8km north of Mountmellick and approximately 7km west of Portarlington, Co. Laois. The townlands within the development boundary are Dernacart, Forest Upper, and Forest Lower, Co. Laois.

## 1.1 Applicant - Statkraft

Statkraft Ireland Ltd. is a wholly owned subsidiary of the Statkraft Group, 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, and supplies district heating and flexible grid services including battery storage projects. Statkraft is a global company in energy trading market operations. In October 2018, Statkraft acquired 100 per cent of the shares in Element Power Ireland Ltd. The team at Statkraft Ireland Ltd has established a portfolio of approx. 210 Megawatts (MW) of wind energy projects in Ireland and operates approx. 290MW. The Company has an established track record in wind energy, with its Irish team based in Tullamore, Co. Offaly and at their registered office in Cork. This team has developed over 16 wind farms in Counties Clare, Cork, Kerry, Donegal, Limerick, Galway, Waterford, Tipperary, Offaly and Tyrone.

## 1.2 Outline of the Proposed Development

The proposed development will comprise of up to 8 no. wind turbines with a tip height of up to 185m, turbine foundations, hardstanding areas, new access tracks and upgrading of existing access tracks, 1 no. substation including control buildings, meteorological mast, electrical and grid services equipment, underground electrical and communications cabling, drainage, sediment controls, temporary site compound, tree felling, roads, hardstands and associated works. The turbine model has not been chosen but will be dictated by the energy production efficiencies of various turbines on the market at the time of the turbine procurement stage. The selected turbines will not exceed the maximum size envelope set out within the development description in this document. Throughout the Environmental Impact Assessment (EIA) process, consideration of environmental impacts of the proposed development is based on the largest possible size of development i.e. assessment of the worst-case scenario. Further details on the proposed development including turbine delivery route and grid connection route are provided in Chapter 4. The site layout is presented in Figure 4.1.

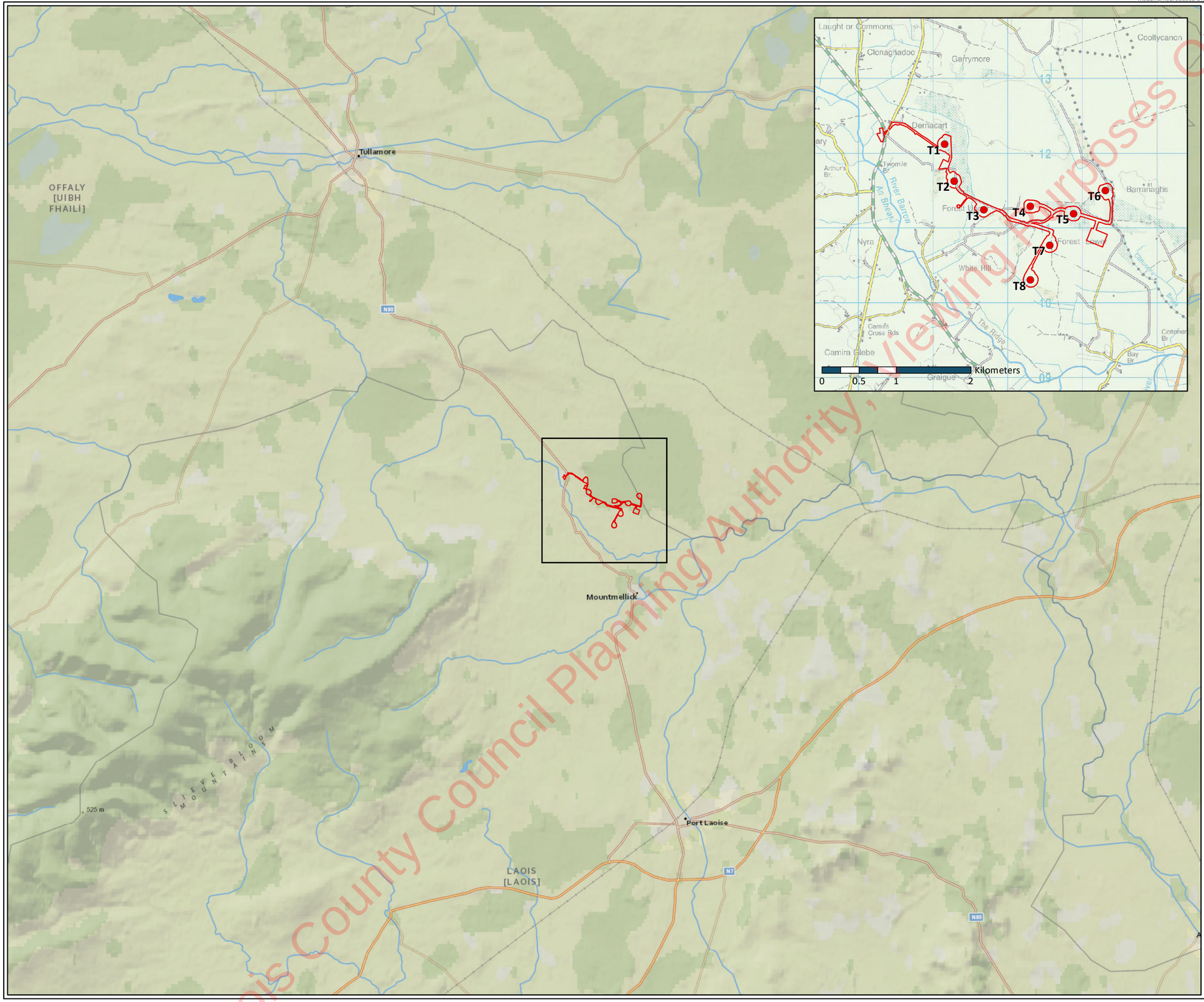
It is proposed that the development will connect to the future proposed Bracklone 110kV substation which is to be developed by ESBN/EirGrid. The proposed grid connection is ca. 16.5km in length and will be primarily constructed within road corridors. There will be no overhead lines required for the grid connection. Connection will be sought under the Enduring Connection Process (ECP) grid access regime. The grid connection does not form part of the planning application. Planning permission will be sought separately for the grid connection however the grid connection is assessed as part of this EIAR.

A full description of the proposed development, as per the public planning notice is as follows:

The development will consist of: up to 8 no. wind turbines with a tip height of up to 185 meters and all associated foundations and hardstanding areas; 1 no. on-site electrical substation; 1 no. temporary construction compound; all associated underground electrical and communications cabling connecting the turbines to the proposed on-site electrical substation; provision of new site access tracks and upgrading of existing access tracks and associated drainage; erection of 1 no. permanent meteorological mast of up to 110m in height; works to facilitate the delivery of turbines adjacent to the N80 within the townland of Dernacart and Forest Upper to include the laying of temporary surfacing; tree felling; and all associated site development works, ancillary works and equipment. Permission is sought for a period of 10 years and an operational life of 30 years from the date of commissioning of the entire wind farm.

Path: R:\Map Production\2018\P1892\Workspace\EIAR\Chapter 1 - Introduction\P1892_Fig1-1_SiteLocation_A3.mxd





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|---|---|---|---|
| **TITLE:** Site Location | | | |
| **PROJECT:** Dernacart Wind Farm | | | |
| **FIGURE NO:** | 1.1 | | |
| **CLIENT:** | Statkraft | | |
| **SCALE:** | 1:150000 | **REVISION:** | 0 |
| **DATE:** | 29/01/2020 | **PAGE SIZE:** | A3 |

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## 1.3 The Need for the Project

### 1.3.1 Climate Change

Carbon dioxide ($CO_2$) is a greenhouse gas which, if released in excessive amounts, can lead to increases in global temperatures known as 'global warming' or the 'greenhouse effect' which can influence climate change. Once the proposed wind farm is constructed there will be no negative impacts on climate change and in fact it will have a long-term positive impact by providing a sustainable energy source. Should the wind farm not be developed, fossil fuel power stations will be the primary alternative to provide the required quantities of electricity (see Section 1.3.3 below). This will further contribute to greenhouse gas and other emissions, and hinder Ireland in its commitment to meet its target to increase electricity production from renewable sources and to reduce greenhouse gas emissions.

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels and to limit the increase to 1.5°C. Under the agreement, Governments also agreed on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries and to undertake rapid reductions thereafter in accordance with the best available science.

The International Panel on Climate Change (IPCC) has put forward its clear assessment that the window for action on climate change is rapidly closing and that renewable energy sources such as wind will have to grow from 30% of global electricity at present to 80% by 2050 if we are to limit global warming. In this regard the Government enacted the *Climate Action and Low Carbon Development Bill 2015 which* provides for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy.

Ireland's greenhouse gas emissions are tracked and projected by the EPA for submission to the EU UNFCCC annually. Carbon dioxide emissions are reported alongside methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perflurocarbons (PFCs), sulphur hexafluoride ($SF_6$), and nitrogen trifluoride ($NF_3$). For 2017, total national greenhouse gas emissions are estimated to be 60.74 million tonnes carbon dioxide equivalent (Mt $CO_2$eq). This is 0.9% lower (0.53Mt $CO_2$eq) than emissions in 2016. Emissions reductions have been recorded in seven of the last 10 years, however, two of the last three years have seen large increases in emissions. In the last three years national total emissions increased by 6.4% or 3.65 Mt $CO_2$eq.

The Irish government has recently published the Climate Action Plan 2019 which sets decarbonisation targets for Ireland and a number of policy actions necessary to achieving the target to address climate change. In terms of renewable energy, an increase in electricity generated from renewable sources is to increase to 70% by 2030, with up to 8.2GW of increased onshore wind capacity.

### 1.3.2 EU 2020, 2030 and 2050 Renewable Energy Targets

The burning of fossil fuels creates greenhouse gases, which contributes significantly to climate change. These and other emissions also give rise to acid rain and air pollution. Sources of renewable energy that are utilised locally with minimal impact on the environment are necessary to meet the challenges of the future.

The EU adopted a Directive (2009/28/EC) on the promotion of the Use of Energy from Renewable Sources in April 2009, including a common EU framework for the promotion of energy from renewable sources for each Member State. This framework was designed to achieve the an overall 20:20:20 environmental target, consisting of a 20% reduction in greenhouse gas emissions, a 20% share of renewable energy in the EU's total energy consumption and a 20% increase in energy efficiency by 2020. To ensure that the mandatory national targets are achieved, Member States must follow an indicative trajectory towards the achievement of their target as outlined in Ireland's National Renewable Energy Action Plan (NREAP).

The 2030 climate and energy framework (https://ec.europa.eu/clima/policies/strategies/2030_en) sets three key targets for the year 2030:

- At least 40% cuts in greenhouse gas emissions (from 1990 levels)
- At least 27% share for renewable energy
- At least 27% improvement in energy efficiency

The framework sets a binding target at EU level to boost the share of renewables to at least 27% of EU energy consumption by 2030.

In December 2018, the revised Energy Efficiency Directive, the revised Renewable Energy Directive and the new Governance Regulation were formally adopted. The new regulatory framework includes a binding renewable energy target for the EU for 2030 of 32% with an upwards revision clause by 2023. This agreement will help the EU meet the Paris Agreement goals.

The main achievements of this agreement in terms of renewable energy production are:

- Sets a new, binding renewable energy target for the EU for 2030 of 32%, including a review clause by 2023 for an upward revision of the EU level target;
- Improves the design and stability of support schemes for renewables;
- Delivers real streamlining and reduction of administrative procedures;
- Establishes a clear and stable regulatory framework on self-consumption;
- Increases the level of ambition for the transport and heating/cooling sectors; and
- Improves the sustainability of the use of bioenergy.

The 2050 low-carbon economy roadmap (https://ec.europa.eu/clima/policies/strategies/2050_en) suggests that by 2050, the EU should cut greenhouse gas emissions to 80% below 1990 levels. This would require 40% emissions cuts by 2030 and 60% by 2040. This is in line with EU leaders' commitment to reducing emissions by 80-95% by 2050 in the context of similar reductions to be taken by developed countries as a group.

The Sustainable Energy Authority of Ireland (SEAI) report for 2017 stated that 30.1% of electricity generation in Ireland was from renewable sources, and that the use of renewables in electricity generation in 2017 reduced $CO_2$ emissions by 3.3 Mt and avoided €278 million in fossil fuel imports. Over 500 MW of wind generation was installed during 2017 and wind generation now accounts for 25.2% of the electricity generated (SEAI, 2018).

### 1.3.3 Energy Security

Electricity generation accounts for a third of all primary energy use in Ireland. Ireland is one of the most energy import-dependent countries in the European Union, importing 85% [ii]. This makes Ireland particularly vulnerable to future energy crises and price fluctuations given its location on the periphery of Europe. The international fossil fuel market is growing increasingly expensive and is increasingly affected by international politics which can add to price fluctuations. This volatility will be increased as carbon pric[ii] called for a review of options to replace it with low carbon alternatives within a decade. The Energy White Paper notes that *"There will be a substantial increase in the cost of carbon in the short and medium term, through the EU Emissions Trading Scheme".* Any steps to reduce dependence on imported fossil fuels will add to the financial autonomy and stability in Ireland. As the White Paper notes *"in the longer term, fossil fuels will be largely replaced by renewable sources".* SEAI has recently warned of our heavy dependence on imported fossil fuels, noting *"in 2014, 15% of our energy came from indigenous resources with renewable energy now starting to make a significant contribution. However, the remaining 85% of our energy requirements came from abroad, costing us more than €15million every day. This is a lost opportunity in terms of keeping this money here in Ireland and further developing our abundant renewable resources".*

### 1.3.4 Competitiveness of Wind Energy

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

In fact, the cost of support is more than offset by the fact that adding large quantities of wind to the wholesale market drives down auction process in any half hour trading period when the wind is blowing, i.e. a modern wind turbine produces electricity 90-95%[iii] of the time, but it generates different amounts depending on wind speed. Over the course of the year, it will generate about 31-35% of the theoretical maximum output. This is known as capacity factor.

A cost benefit study[iv] conducted by international energy specialists Pöyry and Cambridge Econometrics showed that reaching our targets in 2020 would reduce wholesale prices by more than the costs of new grid infrastructure, backup and subsidies paid to wind, resulting in a net saving of €43m per year in 2020.

### 1.3.5 Economic Benefits of the Project

In addition to helping Ireland avoid significant fines and reducing Irelands environmentally damaging emissions Dernacart Wind Farm would also contribute economically. To illustrate the severity of this issue, Ireland's failure to fully implement the 2009 Renewable Energy Directive suggested a penalty of €25,445.50 for each day that the Directive was not fully implemented. Whilst this action was discontinued due to the enactment of legislative measures to adapt the Directive, it provides context to the severity of not meeting European Energy targets. Work undertaken by the SEAI in 2016 indicated that the future cost to Ireland of not meeting our overall renewable energy targets may be in the range of €65 million to €130 million for each percentage point Ireland falls short of the overall 16% renewable energy target.

SEAI in its report Renewable Energy in Ireland[1] indicated that renewable electricity (mostly wind energy) in the past five years:

- has saved over €1 billion in fossil fuel imports;
- has reduced $CO_2$ emissions by 12 million tonnes and
- has not added to consumers' bills

Pöyry concluded that Ireland's renewable energy policy will reduce fossil fuel imports by nearly €700m by 2030, reducing $CO_2$ emissions by 5.5million tonnes per annum. This will actually lead to an increase in household disposable income.

An IWEA member survey in 2014 indicated that 3,400 people are employed in the sector in Ireland. A report published in 2014 by the ESRI and Trinity College Dublin[v], estimated direct and indirect employment under various realistic scenarios. The report, which estimated multiple thousands of jobs depending on the scenario, showed that there would be 8,355 jobs in the sector by 2020 if Ireland met the 4,000MW wind energy target.

Local benefits associated with this wind energy development will include:

- Significant Community Benefits Package,
- Job creation/Local Business Opportunities,
- Landowner payments,
- Development Contribution Scheme and rates (estimated at approx. €800,000 in rates to Laois County Council)

Statkraft are keen to work with communities to ensure that their projects bring value to the communities of over their project lifetime. The concept of directing benefits from wind farms to the local community is something that is promoted by the National Economic and Social Council (NESC) and Irish Wind Energy Association (IWEA) amongst others. Whilst it may be simpler and easier to put a total fund aside for a wider community area, Statkraft is endeavouring to develop new ways to direct increased gain towards the local communities and people, with particular focus on those closest to the wind farm. Statkraft is firmly of the belief that it is local people that best understand the needs and requirements of the local community. As such they have engaged proactively with local residents from an early stage in the design process in order to gain feedback on how local people feel that the most benefit can be brought to the area.



[1] 'Renewable Energy in Ireland' SEAI February 2014

## 1.4 Applications and EIAR Process

### 1.4.1 Requirements to Submit an EIAR

Under Section 172 of the Planning and Development Act (the Planning Act), 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 must be accompanied by an Environmental Impact Assessment Report. Accordingly, as the proposed development has more than 5 no. turbines and generating capacity of greater than 5MW this proposed development has been subject to impact assessment studies and an EIAR has been prepared in accordance with the Planning and Development Regulations.

Pursuant to Directive 2014/52/EU (the EIA Directive) of the European Parliament which has amended Directive 2011/92/EU this report constitutes an Environmental Impact Assessment Report (EIAR) and complies fully with the Directive.

A Natura Impact Statement (NIS) has also been submitted with this application.

### 1.4.2 EIAR Methodology and Structure

The Environmental Impact Assessment Report (EIAR) is a report of the effects, if any, which a proposed development, if carried out, would have on the environment. The EIAR provides the Competent Authority and the public with a comprehensive understanding of the project, the existing environment, the impacts and the mitigation measures proposed.

The Competent Authority is obliged to carry out an Environmental Impact Assessment (EIA). The obligations imposed on the Competent Authority by the EIA Directive are set out in Part X of the Planning Act.

Article 3 of the EIA Directive states that an *"environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*

*(a) population and human health;*

*(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*

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

*(d) material assets, cultural heritage and the landscape;*

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

### 1.4.3 EIAR Methodology

The EIAR has been prepared in accordance with the requirements of the EIA Directive. Schedule 6 of the Planning and Development Regulations 2001, as amended, and Annex IV of the EIA Directive set out the required contents of an EIAR. In addition, in the preparation of this EIAR scoping of possible impacts of the proposed development was carried out to identify impacts thought to be potentially significant, not significant or uncertain. Consultation with the relevant private and public agencies ensured that the most significant impacts and the areas of greatest concern were addressed during the EIA process. Details of the consultation carried out for the proposed development are outlined in Chapter 4 EIA Scoping, Consultation and Key Issues of this EIAR.

In accordance with Schedule 6 of S.I. No. 296 of 2018 "European Union (Environmental Impact Assessment) Regulations 2018", this EIAR contains:

1.

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

b) A description of the likely significant effects on the environment of the proposed development;

c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development;

d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.

2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:

a) A description of the proposed development, including in particular –

i. A description of the location of the proposed development;

ii. A description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;

iii. A description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and;

iv. An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during construction and operation phases.

b) A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;

c) A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;

d) A description of the factors specified in paragraph (b)(i) (I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example flora and fauna), land (for example land-take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;

e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things:

(I) the construction and existence of the proposed development, including, where relevant, demolition works,

(II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,

(III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,

(IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),

(V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,

(VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and

(VII) the technologies and the substances used, and;

(VIII) the description of the likely significant effects of the factors specified in paragraph (b)(i) (I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;

f) A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;

g) A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;

h) A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

The EIAR methodology applied is in accordance with the following best practice EIA guidelines and legislation:

- *Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)*
- *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, Draft, 2017)*
- *Advice Notes for Preparing Environmental Impact Statements (EPA, Draft 2015)*
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DHPLG, 2018)*
- *Wind Energy Development Guidelines for Planning Authorities (DoEHLG, 2006)*
- *Directive 2014/52/EU*
- *European Commission Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment, EU 2013*

This Chapter sets out the planning context and the background to the project and the proposed development. This provides the reader with the context as to the practical and dynamic process undertaken in order to arrive at the design and layout of the proposed development that will cause least impact on the environment.

Subsequent chapters deal with specific environmental topics for example, traffic, air and climate change, hydrology, noise, etc. The assessments presented may involve specialist studies and evaluations. The methodology applied during these specific environmental assessments is a systematic analysis of the proposed development in relation to the existing environment. The broad methodology framework for these assessments is outlined below and is designed to be clear, concise and allow the reader to logically follow the assessment process through each environmental topic. In some instances, further detail on assessment methodologies are outlined in the relevant chapters.

The broad framework used in all chapters includes:

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

*Introduction*
This section generally introduces the environmental topic to be assessed and the areas to be examined in 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 proposed 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 were undertaken for each specialist area. This literature review relied 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 is evaluated to highlight the character of the existing environment that is distinctive and what the significance of this is. The significance of a specific environment can be derived from legislation, national policies, local plans and policies, guidelines or professional judgements. The sensitivity of the environment is also 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 here. Impacts from both the construction and operational 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. Such criteria can include Irish legislation, international standards, European Commission and Environmental Protection Agency (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 are 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.

### 1.4.4 EIAR Structure

The EIAR has been prepared using the "grouped format structure" as outlined in EPA guidance documents (EPA, 2002; EPA, 2003). The format of this EIAR is designed to ensure that standard methods are used to describe all sections of the EIAR.

Using this structure there is a separate chapter for each topic, e.g. air quality and climate, 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 scale of the proposed Dernacart Wind Farm and consciousness of the need to ensure that the EIAR is readily accessible to the general public, as well as the statutory authorities, the EIAR team has structured the EIAR as described below.

The Main EIAR consists of the following chapters:

- Chapter 1: Introduction
- Chapter 2: Need and Alternatives
- Chapter 3: Policy
- Chapter 4: Description of the Proposed Development
- Chapter 5: EIA Scoping and Consultation
- Chapter 6: Population, Human Health and Material Assets
- Chapter 7: Shadow Flicker
- Chapter 8: Noise and Vibration
- Chapter 9: Telecommunications and Aviation
- Chapter 10: Traffic and Transportation
- Chapter 11: Landscape and Visual
- Chapter 12: Biodiversity
- Chapter 13: Land, Soils and Geology
- Chapter 14: Hydrology and Water Quality
- Chapter 15: Archaeology, Architectural and Cultural Heritage
- Chapter 16: Air Quality and Climate
- Chapter 17: Interactions of the Foregoing

The overall structure is as follows:

Volume 1 – Non-Technical Summary (NTS)
Volume 2 – Main EIAR
Volume 3 – Appendices to the Main EIAR
Volume 4 – Landscape and Visual Maps and Photomontages

For the sake of completeness, a Natura Impact Statement (NIS) has also been prepared and is provided in Appendix 12.1 of the EIAR.

### 1.4.5 Cumulative Impact

Potential cumulative impacts of the proposed development in combination with other existing, planned or proposed developments in the area are considered in each chapter with the purpose of identifying the influence the proposed development will have on the surrounding environment when considered cumulatively and in combination with relevant existing, permitted and proposed projects in the vicinity of the proposed site.

The assessment of projects in combination with other projects has four principal aims:

1. To establish the range and nature of existing projects within the cumulative impact study area of the Project.
2. To summarise the relevant projects which have a potential to create cumulative impacts.
3. To establish anticipated cumulative impact findings from expert opinions within each relevant field. Detailed cumulative impact appraisals are included in each relevant section of the EIAR.
4. To identify the projects that hold the potential for in combination effects and screen out projects that will neither directly or indirectly contribute to in combination impacts.

Assessment material for this cumulative impact appraisal was compiled on relevant developments in the vicinity of the proposed Dernacart Wind Farm development, including the proposed grid connection.

The material was gathered through a search of relevant County Council's Online Planning Registers, reviews of relevant EIA documents, planning application details and planning drawings, which served to identify past and future projects, their activities and their environmental impacts.

The details of the projects considered in the cumulative assessment are presented in Appendix 1.1.

The relevance of the projects was considered on a case by case basis in each chapter as necessary depending on the potential for interaction and likelihood of in combination impacts.

## 1.5 Contributors to the EIAR

Fehily Timoney and Company (FT) is a consultancy based in Cork, specialising in civil and environmental engineering, and environmental science. . The company has established a professional team specialising in wind farm developments and is well established as a leading consultancy in wind farm development in Ireland. This team has the support of key specialists including in-house engineers, scientists and planners.

FT was retained by the applicant to prepare the planning application which included undertaking the detailed environmental assessment and preparation of the EIAR for the proposed development.

Specialist and competent contributors involved in the preparation of the EIAR are outlined in Table 1.1 below. Curricula Vitae of contributors are presented in Appendix 1.2.

### Table 1-1: Contributors to the EIAR

| EIS Topic | Company | Name and Qualifications |
|---|---|---|
| Chapter 1 – Introduction | FT | Dr. Elaine Bennett BSc PhD MCIEEM |
| Chapter 2 – Need and Alternatives | FT | Eamon Hutton BSc, MSc |
| Chapter 3 – Policy | FT | Steve McCarthy BA MPlan |
| Chapter 4 – Description of the Proposed Development | FT | Dr. Elaine Bennett BSc PhD MCIEEM |
| Chapter 5 – EIA Scoping and Consultation | FT | Dr. Elaine Bennett BSc PhD MCIEEM |
| Chapter 6 – Population, Human Health and Material Assets | FT | Steve McCarthy BA MPlan |
| Chapter 7 – Shadow Flicker | TNEI | Mark Tideswell BSc (Hons), Dip, AMIOA<br>Jim Singleton BSc, Dip, MIOA, AES |
| Chapter 8 – Noise and Vibration | FT | Dr. John Mahon PhD BA BAI, MIEI, MIOA |

| EIS Topic | Company | Name and Qualifications |
|---|---|---|
| Chapter 9 – Telecommunications and Aviation | FT | Dr. Elaine Bennett BSc PhD MCIEEM<br>Conor Hughes BEng<br>Kevin Hayes |
| Chapter 10 – Traffic and Transportation | FT | James Redmond BA, BAI |
| Chapter 11 – Landscape and Visual | Macro Works | Richard Barker BA PG Dip MLA<br>Jamie Ball BA |
| Chapter 12 – Biodiversity | FT<br>Ecofact<br>Natural Power | Jon Kearney, BSc Applied Ecology; MSc Ecology<br>Ben O' Dwyer BSc<br>Orla Coffey BSc MSc<br>William O' Connor BSc PhD<br>Kathryn Robson BSc MSc |
| Chapter 13 – Land, Soils and Geology | FT | James Dunn BSc MSc<br>Emily Archer BSc MSc |
| Chapter 14 – Hydrology and Water Quality | FT | Kristian Divjak BSc MSc |
| Chapter 15 – Archaeology, Architectural and Cultural Heritage | John Cronin and Associates | Kate Robb BA MA Dip EIA/SEA Mgmt MIAI |
| Chapter 16 – Air Quality and Climate | FT | Dr. Elaine Bennett BSc PhD MCIEEM<br>Donna O' Halloran |
| Chapter 17 – Interactions of the Foregoing | FT | Eamon Hutton BSc, MSc |

## 1.6 Permission Period

Statkraft is applying for a 10-year planning permission for this development. That is, planning consent would remain valid for ten years following the final grant. The Planning Guidelines state that "*Planning Authorities may grant permission for a duration longer than 5 years if it is considered appropriate, for example, to ensure that the permission does not expire before a grid connection is granted. It is, however, the responsibility of the applicants in the first instance to request such longer durations in appropriate circumstances*"

A 10-year planning permission is considered appropriate for a development of this size to ensure all consents are in place. The expected physical lifetime of the turbines is approximately 30 years.

After this time, the developer will make a decision whether to replace or decommission the turbines. It should be noted that section 7.2 of the Planning Guidelines 2006[vi] includes for the following:

> *'The inclusion of a condition which limits the life span of a wind energy development should be avoided, except in exceptional circumstances'*

**In this respect, the applicant requests the grant of permission is on the basis of a 30-year operational period from the date of commissioning of the wind farm.**

This is requested due to the following:

1. Extending permitted period will lower the cost of energy for the consumer as it will allow the project to bid into energy auctions at lower prices as the project would be valued over a longer time period.

2. Turbine technology has now moved from design lives of 25 years to 30 years. Shorter time periods would thus be wasteful.
3. Longer permitting periods improve investor certainty and reduce borrowing costs.
4. Longer permitting periods will get the best return for the investment put into local electricity networks and wind farm infrastructure.
5. 20% more carbon savings.

## 1.7 Difficulties Encountered

In terms of difficulties encountered, the noise levels measured from noise monitoring location N5 were unexpectedly high. It has been concluded that these elevated noise levels are not representative of the baseline noise environment and as a conservative approach this information has been excluded from the analysis.

## 1.8 Pre-Planning Meetings

A pre-planning meeting was held with Laois County Council on the 20th June 2019. Those in attendance were:

- Donal Kiely, Senior Executive Planner, Laois County Council
- Colin Doyle, Executive Engineer, Laois County Council
- Steven Craig, Area Engineer, Laois County Council
- Farhan Nasiem, Executive Engineer, Laois County Council
- Tim Coffey, Project Manager, Statkraft
- Jim Hughes, Associate Director, Fehily Timoney and Company

It was recognised that the principle of wind energy was acceptable in the area and that the area has a low density of population. Information was provided on the grid connection and it was agreed that suitable engineering solutions are available to traverse watercourses including Directional Drilling to ensure that no in-stream works take place.

## 1.9 PSDP and PSCS

FT were appointed by Statkraft Ireland (the Client) as Project Supervisor Design Process (PSDP) under Safety, Health and Welfare at Work (Construction) Regulations (2006) for this project and have prepared a safety file. The role of Project Supervisor Construction Stage (PSCS) will not be determined until a contractor has been appointed.

## 1.10 Viewing and Purchasing of the EIAR

Copies of this EIAR including the Non-Technical Summary (NTS) and the Natura Impact Statement (NIS) may be inspected free of charge or purchased by any member of the public during normal office hours at the following location:

- Laois County Council, Áras an Chontae, JFL Ave., Portlaoise, Co. Laois, R32 EHP9

Information on the proposed development is also available on the EIA Portal.

## 1.11 References

[i] Sustainable Energy Authority of Ireland, Energy Security in Ireland – A Statistical Overview 2016 Report.

[ii] Department of Environment, Community and Local Government, National Climate Change Policy, available at: http://www.housing.gov.ie/environment/climate-change/policy/national-climate-policy

[iii] IWEA, Wind Energy Technology, Frequently Asked Questions, available at: http://www.iwea.com/technicalfaqs

[iv] "The Value of Wind Energy to Ireland" Cambridge Economics & Poyry on behalf of IWEA, March 2014

[v] "An Enterprising Wind; An Economic Analysis Of the Job Creation Potential of the Wind Sector in Ireland" ESRI and Trinity College, February 2014

[vi] http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1633,en.pdf