

Chapter 1:

Introduction

1.1 Introduction

This Environmental Impact Statement (EIS) has been prepared by Galettech Energy Services (GES) Limited to inform the Environmental Impact Assessment (EIA) to be carried out by the competent planning authorities in respect of their assessment of a planning application by Pinewoods Wind Limited (PWL) for the development of a wind farm project comprising 11 no. turbines and all associated site development and ancillary works on lands in the townlands of Knockardugar, Boleybawn, Garrintaggart, Ironmills (Kilrush) and Graiguenahown, County Laois and Crutt Co. Kilkenny.

EIA is a process to ensure that projects which are likely to have significant effects on the environment are subject to a comprehensive examination, analysis and evaluation of environmental effects prior to planning permission being granted. An EIS is a statement of the effects, if any, which the proposed development, if carried out, would have on the environment and provides information which competent authorities can use in undertaking EIA and in informing their decision. It consists of a systematic analysis of the proposed development in relation to the existing environment. The EIS is carried out at a stage in the project design process to allow for preventative action and where changes can still be made to the project which anticipate and avoid adverse impacts. The EIS can also be used by third parties as part of the public participation process to evaluate the proposed development and its likely impacts.

1.2 EIA Screening

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

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

The project consists of 11 no. 3.2MW turbines with a total rated power output of 35.2MW and is therefore of a scale which exceeds the mandatory threshold for EIA and, consequently, an EIS has been prepared and submitted with the planning application.

1.3 Content of the EIS

In order to be relevant, complete and legally compliant, the content of this EIS includes all of the information required by the EIA Directive and national legislation, as appropriate and necessary to the specific characteristics of the proposed development.

A range of best-practice guidance documents were also consulted in preparing the content of this EIS, including:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Advice Notes on Current Practice in the Preparation of EIS (EPA, 2003);
- Wind Energy Development Guidelines for Planning Authorities (DoEHLG, 2006);
- Best Practise Guidelines for the Irish Wind Energy Industry (IWEA, 2012).

The impact classification and sensitivity terminology described in the EPA guidelines is used in this EIS. Further, specific guidance, legislation and standards pertinent to particular environmental topics is also described in each individual chapter of this EIS, where relevant.

1.4 Format of the EIS

This EIS follows a ‘grouped format’ structure where each environmental topic is assessed and presented as a separate chapter. In order to provide for a consistent approach, each chapter is systematically organised so as to follow a similar basic structure, describing:

- **The existing environment:** A description of the context, character, significance and sensitivity of the receiving (baseline) environment in order to predict the likely significant impacts of the proposed development;
- **The likely significant impacts of the proposed development:** The aspects of the construction, existence and operation of the proposed development that are likely to affect the existing environment including, as appropriate, predicted, potential, residual, ‘do nothing’ and ‘worst case’ impacts. The significance of impacts is determined with reference to magnitude, intensity, integrity, duration and probability;
- **The measures to mitigate and monitor adverse impacts:** The range of methods which are proposed for mitigation by avoidance, reduction and remedy of impacts together with ongoing monitoring the effectiveness of mitigation measures.

This EIS is presented as two volumes as follows:

- Volume I: Main Report;
- Volume II: Photomontages;

A short, accessible non-technical summary has been prepared as a separate and self-contained document which can be distributed to the public who are likely to be affected by the proposed development. It also contains the details on how members of the public and other organisations can submit any observations. The non-technical summary is laid out in a similar, but condensed, format to the main EIS, i.e. describing the project, existing environment, impacts and mitigation measures, and avoids technical language.

1.5 EIS Project Team

GES has been appointed as agents by PWL to manage and co-ordinate the production of this EIS. GES is an Irish multi-disciplinary renewable energy consultancy that specialises in the delivery of advisory, project management, planning, environmental and technical engineering services from project feasibility through to delivery and operation. GES combines the expertise of some of the industry’s leading experts in renewable energy.

EIA is critically dependent on the expertise, experience, independence and objectivity of environmental specialists. They characterise the existing environment and evaluate its significance and sensitivity. Individual specialist and technical consultants were also appointed in the preparation of this EIS in order to undertake assessments and prepare specific chapters, where necessary. Each specialist was selected having regard to their knowledge of relevant environmental legislation; familiarity with pertinent standards and criteria for the evaluation and classification of significance of impacts; the ability to interpret technical documents and to work with project designers to arrive at practical and reliable measures to mitigate and monitor impacts; and to clearly and comprehensively present their findings in a concise manner.

An overview of the specialist consultants involved in the preparation of each chapter of this EIS is provided in **Table 1.1** below.

<i>Chapter</i>	<i>Environmental Topic</i>	<i>Specialist Consultant</i>
1	Introduction	GES
2	Description of the Proposed Development	GES
3	Human Beings & Community	GES

4	Flora & Fauna	Ecofact Environmental Consultants
5	Soil & Geology	Hydro-Environmental Services
6	Water	Hydro-Environmental Services
7	Air & Climate	GES
8	Landscape & Visual Impact	MosArt Ltd
9	Archaeology & Cultural Heritage	Dermot Nelis Archaeology
10	Noise	Mike Simms, Acoustic Consultant
11	Shadow Flicker	GES
12	Infrastructure & Telecommunications	GES
13	Transport & Access	GES
14	Interaction of the Foregoing	GES

Table 1.1: Specialist Consultants involved in the preparation of this EIS

All photomontages were prepared by GES (**Volume II**). The non-technical summary was also prepared by GES.

1.6 Scoping

The scoping process identifies the issues that are likely to be important during EIA and eliminates those that are not. The prior determination of the nature and detail of the information to be contained in the EIS is one of the most important stages of EIA and may be conducted through a formal or informal process. Scoping helps ensure that the EIS remains focussed on issues that are environmentally based, likely to occur and may have significant and adverse effects.

In establishing the scope of this EIS, the statutory obligations as set out in Schedule 6 of the Regulations and a range of guidance documents were consulted, including the *EPA Advice Notes on Current Practice in the Preparation of EIS (2003) (Project Type 33)* and the *Wind Energy Development Guidelines for Planning Authorities (2006)*. The Laois County Development Plan 2011–2017 and the Kilkenny County Development Plan 2014–2020, and their associated Strategic Environmental Assessments (SEA), were also consulted. Other similar projects on the subject site and similar sites which were subject to a satisfactory EIS were furthermore examined. In addition, continuing scoping took place throughout the project design process in order to iteratively inform measures to avoid, reduce or remedy any likely significant environmental impacts. The scope of this EIS also includes an assessment of relevant ‘off-site’ developments including:

- The proposed connection to the national grid (In accordance with the judgement of the High Court in respect of *O’Grianna & Ors v An Bord Pleanála* judicial review proceedings);
- Indirect impacts in respect of the extraction of aggregates and material to be used in the construction phase;
- Transport and access considerations, including the haul route for turbine components.

A number of other third-party planning applications have been made in the environs of the subject site comprised mainly of residential and agricultural developments. The likely impact on these proposed developments is also addressed in this EIS.

A variety of statutory and non-statutory organisations were also consulted at an early stage in the process to gather their views on the scope of likely significant environmental impacts of the proposed development. The written consultation provided a brief description of the proposed development along with the site location and invited comments from each consultee. **Appendix 1.1** and **Appendix 1.2** details all of the organisations consulted, a sample copy of the consultation letter

issued and of the responses received. **Table 1.2** below lists the organisations consulted and whether or not a response was received.

<i>Body</i>	<i>Response</i>
2RN – RTE Transmission Network Ltd	No
3G Hutchinson	No
An Taisce	No
Birdwatch Ireland	Yes
BGN Asset Integrity	No
Commission for Energy Regulation	Yes
Communications & Information Services Corps	No
Department of Agriculture Food and the Marine (Climate Change & Biodiversity Policy Division)	Yes
Department of Agriculture, Fisheries & Food	No
Department of Communications, Energy & Natural Resources	No
Department of Defence	Yes
Department of Environment, Community and Local Government (Archaeological & Architectural Heritage)	No
Department of Environment, Community and Local Government (Nature Conservation)	Yes
Eircom (Radio Design)	Yes
Eirgrid	No
Failte Ireland	No
An Garda Siochana	No
Gas Networks Ireland	Yes
Geological Survey of Ireland	Yes
Irish Aviation Authority	No
Irish Wildlife Trust	No
Kilkenny County Council	Yes
Kilkenny Tourist Office	No
Laois County Council	No
Laois Tourism	No
Meteor Ireland Ltd	No
National Ambulance Services	No

<i>Body</i>	<i>Response</i>
National Parks & Wildlife Services	No
O2 Ireland Ltd	No
Transport Infrastructure Ireland (formerly The National Roads Authority)	Yes
Sustainable Energy Authority of Ireland	No
Southern Regional Fisheries Board	Yes
TETRA Ireland Communications Ireland Ltd	No
The Heritage Council	No
Vodafone	No

Table 1.2: Summary of Written Consultations

A public consultation event was also held at an early stage in the process in Spink Community Centre, Spink, Co. Laois between the 20th and 21st of July 2015. Interested parties were invited to meet representatives of the project design team and to discuss any queries in relation to the project. In addition, there was direct engagement with each property within a 2km radius of the proposed development site. For the most part these consultations were undertaken with homeowners but also included local businesses and clubs. This process further guided the scoping of the issues to be addressed by the EIS.

A comprehensive overview of all of the extensive consultation undertaken as part of this project is presented in a separately bound report.

1.7 Habitats Directive Appropriate Assessment

A separate Natura Impact Statement (NIS) to inform an ‘Appropriate Assessment’ to be carried out by competent authorities in accordance with the provisions of the Habitats Directive (Council Directive 92/43/EC) has been prepared by Ecofact Environmental Consultants and is submitted as a separate document.

1.8 Difficulties Encountered in Compiling the EIS

No specific difficulties (technical deficiencies or lack of know-how) were encountered in compiling the information required as part of the EIS.

1.9 Note on Quotations

It is important to acknowledge that statutory obligations call for a comprehensive description of the existing environment as well as all likely impacts. The EIS therefore contains statements describing the positive and negative aspects of a proposed development. Selective quotation out of context may not be representative of the overall findings of the EIS. Where possible, therefore, quotations should be taken from the overall conclusions of each chapter.

Appendix 1.1: Sample Consultation Letter and Map



IWCM Ltd.
Clondargan
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Co. Cavan
Ireland

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info@iwcm.ie

3G Ireland

28/29 Sir John's Rogerson's Quay

Dublin 2

5th February 2015

Re: Proposed Wind Farm Development in North Kilkenny and South Co. Laois

Pinewood Wind Ltd. is proposing to erect 11 no. 2.85MW turbines in south Co. Laois and north Co. Kilkenny. The proposed site is to be known as “*Pinewoods Wind Farm*”.

IWCM Ltd is currently carrying out a detailed project assessment on behalf of the applicant, in order to confirm the and suitability of the site for this development. As part of the site assessment and EIA feasibility process, IWCM Ltd endeavours to engage all stakeholders in the project at an early stage.

The proposed wind farm and ancillary development is located in the townlands of Graignahown, Knockardugar, Boleybawn, Ironmills/Kilrush, Co. Laois and Crutt Co. Kilkenny. The turbines proposed for the site are that of 11 no. 2.85MW Enercon E82 turbines giving a total output of 31.35MW. The typical dimensions of this turbine type are:

- Hub height: 85m
- Rotor Diameter: 103m
- Height not exceeding: 148m (ground to blade tip)

The location of the proposed turbines is as follows, please refer to attached map for further details:-

ID	Easting	Northing	Altitude
T1	251604	182460	260
T2	251693	182105	268
T3	251677	181752	275
T4	250937	181833	295
T5	251205	181628	298
T6	250756	181489	298
T7	250415	181184	280
T8	250700	180989	295
T9	250811	180698	292
T10	250926	180409	290
T11	250356	180406	269
Met Mast	250900	182093	290
Switchroom	251080	181800	288

The assessments to date indicate that this would be a very positive development for the area. The development would contribute to reducing CO2 production and assist with meeting our national obligations to reduce CO2 emissions.

To assist with the consultation process, I would be grateful if you would provide comment on this proposed development. Please note that the exact details of the proposed development maybe subject to change as the project progresses through the EIA process.

If you have any questions about the development, please do not hesitate to contact me. I look forward to your reply.

Yours Sincerely,



Catherine Keogan
Project Planner for and on behalf of IWCM Ltd
email: ck@iwcm.ie

Appendix 1.2: Consultation Responses



BirdWatchIreland
protecting birds and biodiversity

Unit 20 Block D
Bullford Business
Campus
Kilcoole

t: +353 1 281 9878
e: info@birdwatchireland.ie
w: birdwatchireland.ie

Patron
Michael D.
Higgins
President of

Éarlamh
Micheál D Ó hUigínn
Uachtarán Na
hÉireann

Catherine Keogan,
IWCM Ltd.,
Clondargan,
Stradone,
Co. Cavan

Your Ref:

Our Ref: 28.01.15LS

13-03-15

Re: Proposed Wind Farm Development in North Kilkenny and South Co. Laois

Dear Ms. Keogan,

Thank you for your consultation regarding this proposed wind farm development. BirdWatch Ireland is supportive of the development of low carbon energy sources in Ireland, in particular wind energy and is working in a proactive way in order to ensure energy targets can be met, in addition to obligations to protect and enhance important areas for wildlife under the EU Nature Directives¹. Given the potential for wind farms to have direct, indirect and cumulative impacts on bird populations, BirdWatch Ireland would have concerns over any developments which were not ecologically sustainable, specifically developments with potential for significant impacts on bird populations within designated sites and in the wider countryside. We would have particular concern for priority species².

We have significant concerns regarding the construction of a wind farm at the location indicated in your scoping letter, as recent records show the possible presence of breeding Curlew within this area. Curlew are a red listed species in the Birds of Conservation Concern in Ireland 2014-2019 report and the breeding Curlew population in Ireland has suffered serious declines (82%) since 1987². Curlew are known to be particularly sensitive to disturbance and displacement from wind infrastructure³, in addition Curlew densities have been shown to decrease significantly during wind farm construction with populations showing no recovery post-construction⁴.

¹ EU Nature Directives [Birds Directive (79/409/EEC) & Habitats Directive (92/43/EEC), Environmental Impact Assessment (EIA) Directive (85/337/EEC as amended by 97/11/EC), and Strategic Environmental Assessment (SEA) Directive (Directive 2001/42/EC).

² Colhoun K. & Cummins, S. 2013 Birds of Conservation Concern in Ireland 2014-19. *Irish Birds* 9:523-544

³ Pearce-Higgins, J.W., Stephen, L., Langston, R.H.W., Bainbridge, I.P. & Bullman, R. (2009) The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*, 46, 1323-1331.

⁴ Pearce-Higgins, J.W., Stephen, L., Douse, A. & Langston, R.H.W. (2012) Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*, 49, 386 – 394



Directors: K O'Byrne (Chairman), B Lavery, JB Peart, Seamus Bridgeman, Gerry Lyons, Margaret Stephens, David Fay. Registered charity no. 5703. BirdWatch Ireland is the trading name of the



BirdWatchIreland
protecting birds and biodiversity

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Uachtarán Na
hÉireann

We would recommend that a detailed review is undertaken concerning the potential impacts of wind farms on the bird species relevant to this site and its surrounding areas, in addition to appropriate surveys to determine species utilization of the area, including flight-lines. Potential impacts of the proposed development alone should be considered in addition to the potential cumulative impacts from existing, approved and/or proposed developments in the area. Furthermore, should the development go ahead we would recommend post construction monitoring to include vantage point surveys and fatality monitoring.

We would appreciate if you could let us know if or when this proposal enters the planning process and if you would forward us a copy of the survey results and the Ecological Impact Assessment reports for this proposed wind farm when they become available. Digital copies are welcomed (Email: casework@birdwatchireland.ie).

Yours sincerely,

Karen Carrigy
Policy & Advocacy Team



Directors: K O'Byrne (Chairman), B Lavery, JB Peart, Seamus Bridgeman, Gerry Lyons, Margaret Stephens, David Fay. Registered charity no. 5703. BirdWatch Ireland is the trading name of the

Ms. Catherine Keogan,
Project Planner,
IWCM Ltd.,
Clondargan,
Stradone,
Co. Cavan.

27 January 2015



Re: Proposed Wind Farm Development in North Kilkenny and South Co. Laois.

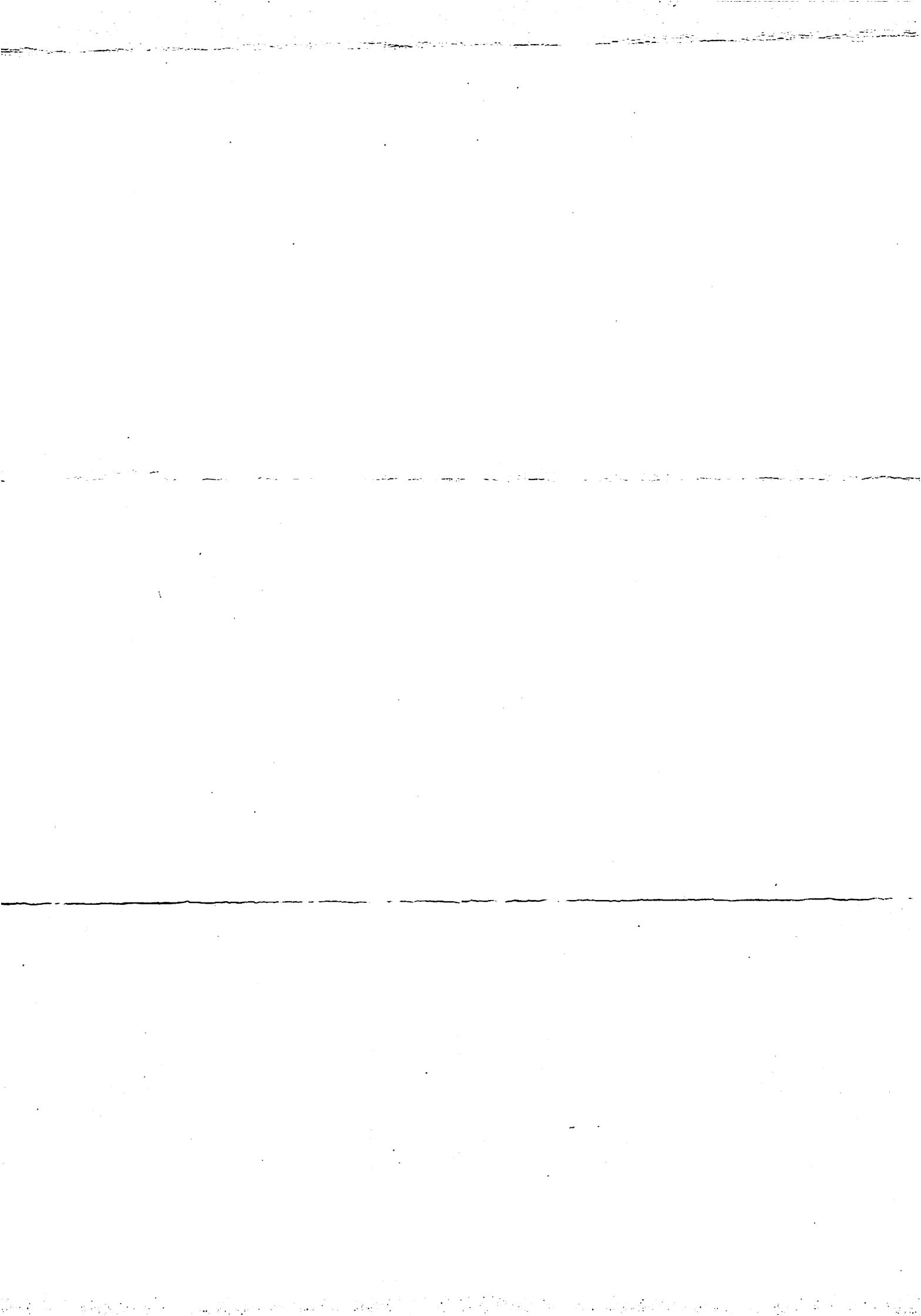
Dear Ms. Keogan,

I refer to your letter dated 2nd December 2014. The Commission for Energy Regulation has no comments to make on the above proposed development.

Yours sincerely,

Liz Kavanagh

Liz Kavanagh
Licensing Officer
Commission for Energy Regulation



Ms Catherine Keogan
Project Planner
IWCM Ltd.,
Clondargan,
Stradone,
Co. Cavan

16th February 2016.

Re; Proposed Wind Farm Development in North Kilkenny and South Co. Laois.

Dear Ms Keogan,

I refer to your recent correspondence concerning the above. It is suggested that you consider the likely impact, if any of the proposed development on agriculture/agricultural activities in the locality as part of the Environmental Impact Assessment. Aspects that could be considered include the following:

- Likely impacts during the site preparation, excavation and erection phases (examples of impacts include impact on water quality, risk to soil stability).
- Likely impacts when the development is complete.

Please also note:

**Forest Service Policy on the Granting of Felling Licences
for Wind Farm Development**

[Effective from 3rd June, 2011]

Where a developer intends to construct a wind farm within a forest, or partially within a forest, or that will affect a forest environmentally or that will require tree felling, it is extremely important that the developer consults the Forest Service at the earliest possible stage of the project. This approach may help to develop a collaborative approach that will ensure that all forestry issues are identified and mitigated at the earliest opportunity.

1. Only Limited Felling Licences (LFL) should be applied for and will be issued for wind farms. No General Felling Licences (GFL) will be granted. GFL's carry an obligatory replanting condition, whereas LFL's provide flexibility with regard to the imposition of a replanting condition and the extent of such a condition. Two LFLs must be applied for – 1) to cover the turbine bases, the roads, buildings, etc; 2) to cover the area on which 'turbulence felling' will take place, if required.

NOTE: Where a person intends to fulfil the replanting condition of a Limited Felling Licence by planting an area other than the area felled under the licence, Section 41(1)(a)(i) of the Forestry Act, 1946, stipulates that the licensee must own the alternative site at the date of the grant of the licence.

Turbulence felling is deemed to be felling in the vicinity of the turbines, the purpose of which is to avoid turbulence that can be created by the forest canopy and that can affect the performance and efficiency of the turbines. Turbulence felling may be allowed in certain cases, at the discretion of the Minister and subject to replanting requirements as outlined at section 10 below.

2. As it is Forest Service policy to facilitate wind energy as much as possible within the requirements of sustainable forest management, please note the following **as guidance**:
 - i. The felling required to facilitate the turbine bases, the roads, buildings, etc. will not be considered turbulence felling.
 - ii. A felling coupe is defined for this purpose as a contiguous or adjacent area, any part of which is felled in a 2 (calendar) year period. As a felling coupe of less than 20 hectares is usually consistent with sustainable forest management, where a cumulative total area of 20 hectares or less is adjacent to one or more turbines and it is proposed to fell this area in accordance with normal good forest practice, such felling will not be considered turbulence felling.
 - In the context of this section 2(ii), the felling required to facilitate the turbine bases, the roads, buildings, etc. will not be considered to be part of the 20 hectare limit. That is to say, there can be a felling of up to 20 hectares in the wind farm development plus the area for the bases, etc., e.g. a 20 hectare felling plus, say, 4 hectares for the bases, etc.
 - The granting of a licence for a felling of 20 hectares or less will be subject to the normal checks carried out by the Forest Service in respect of silvicultural, environmental and landscape considerations, etc.
 - A licence granted in respect of such an area of 20 ha or less will contain a replanting condition, as normally imposed by the Forest Service for such felling. The replanting condition may require the replanting of slow growing species. There will be no requirement for additional land to be planted; the area to be planted will be equal to the area felled (e.g. if 16 hectares are felled, then the replanting condition will require planting of 16 hectares).
 - Excluding the area for the turbine bases, etc. from the limit, the 20 hectare limit specified in this section is a total limit for the entire wind farm development. The limit is not interpreted as 20 hectares per turbine or any other interpretation that is deemed by the Minister to be in excess of a total of 20 hectares per wind farm development.
 - Subsequent to a licence being granted for 20 hectares or less, any cumulative felling applied for above the 20 hectare limit will be considered to be turbulence felling. This will be deemed to be 'project splitting' and, therefore, the original area of 20 hectares or less that was licensed will also then be regarded as turbulence felling. For example, if 20 hectares are felled in the first year and a further 12 hectares of felling is applied for in say year 3, then the additional 12 (if granted) and the original 20 hectares will be treated as 32 hectares of turbulence felling. The rules for turbulence felling will then apply to all 32 hectares.

See the scenarios outlined in section 10 below.

3. As standard, areas cleared for turbine bases, access roads, and any other wind farm related infrastructure must be replaced by replanting at an alternative site. Under the Forestry Act, 1946, the felling licence applicant must own the alternative site at the time the licence is granted. The alternative area will not be eligible for any grants or premiums from the Forest Service.

Please note that any alternative replanting area(s) must be formally approved by the Forest Service before a felling licence is granted. Consequently, in order to avoid any undue delays in

the granting of a licence, the proposed alternative replanting site(s) should be submitted for approval as early as possible, ideally at the same time as the felling licence application is submitted.

Approval must be applied for using the Afforestation Scheme application Form (Form 1 - Application for Preplanting Technical Approval). As no grants or premiums are payable on these sites it should be stated on the form that only technical approval and not financial approval is required.

4. In line with general Forest Service policy, where grant-aided forestry is to be used for wind farm development, any grants and premiums that were paid by the Forest Service in respect of the areas felled for the turbine bases, roads, and infrastructure must be refunded. (The refunding of grants applies to the areas licensed under LFL "1" above.)
5. Notwithstanding any requirement for the wind farm developer to produce an Environmental Impact Statement (EIS) in respect of the development and the desirability of scoping the impact of tree felling/replanting proposals in an EIS, when felling licence applications are made, the Forest Service may require the developer to report on the potential loss of soil and biomass CO₂, and the reduction in productivity of the forest area associated with different wind farm, forestry management, and landscape plans. Potential impacts to be reported on and assessed may also include stability of the site, water quality, landscape issues, habitats, archaeology and other issues that may be deemed appropriate by the Forest Service.
6. When possible, both Limited Felling Licences should be applied for at the same time. This is advisable as developers should be aware that it is possible, for example, that the LFL for the bases, and roads, etc. could be granted, while the LFL for the area of turbulence felling could be refused.
7. The required felling licences should be applied for as early as possible. This will minimise delays by giving the Forest Service timely notice of the full felling requirements. It also lessens the risk of commitments being made by the developer before felling licences are granted. However, it should be noted that under the Forestry, 1946, the validity of a Limited Felling Licence is currently limited to 2 years.

As soon as planning permission is granted for the development by the local authority or Bord Pleanála, a copy of the full planning permission should be submitted to support the felling licence application(s).

8. If turbulence felling is necessary it should be kept to the absolute minimum required.
9. Where turbulence felling is necessary, replanting with slow growing species may be made a condition of the LFL. The approach may allow premature clearfell with replanting using slow growing species; lodgepole pine or another suitable species should be used, with clearfell again once the crop is 10 metres high. The height of 10 metres is a guideline; the height is selected on turbine manufacturers' specification and loss of turbine efficiency.

10. In light of the consideration that the effect on the forest estate should be kept to a minimum and the principal of retaining healthy and permanent forest, the Forest Service requires the establishment of an area that will provide the same wood production and 'climate change benefit' over the long term plus an additional 10% to allow for the increase in soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management.

To this end, as standard, the requirement will be for replanting on a hectare for hectare basis for the footprint of the turbines and the other infrastructure developments. In the case of the area to undergo turbulence felling, the requirement will be for replanting on a hectare for hectare basis plus an additional 10% to allow for the increase in soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management. See **example 1** below.

However, where the proposed felling is less than 20 hectares (excluding the felling in respect of the bases, roads, buildings, etc.) as stated in section 2 above, there will be no requirement to plant an additional 10% for turbulence felling. See **example 2** below.

Example 1:

In the case of a 200 ha plantation, where say 15 ha will be for turbine placement, other buildings and roads, etc., and 100 ha will undergo turbulence felling, the requirement would be:

- replanting on 15 ha for the turbines, etc.;
- replanting on 100 ha for turbulence felling;
- replanting on 10 ha (10% of 100) for soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management.

Total replanting in this example = 125 ha, with 100 being on the site of the turbulence felling; and the 25 ha balance being on alternative land owned by the licence applicant at the time the licence is granted.

Example 2:

In a 200 ha plantation, where say 15 ha will be for turbine placement, other buildings and roads, etc., and an additional felling of say 18 ha (i.e. Less than 20 ha) is sought, the requirement would be:

- replanting on 15 ha for the turbines, etc.;
- replanting on 18 ha for the additional felling;

Total replanting in this example = 33 ha, with 15 ha being on alternative land owned by the licence applicant at the time the licence is granted.

Example 3:

In a 200 ha plantation, where say 15 ha will be for turbine placement, other buildings and roads, etc., and an additional felling of say 18 ha is initially sought, but an additional area of say 12 ha of felling is sought within the next few years, then the requirement would be:

- replanting on 15 ha for the turbines, etc.;
- replanting on 18 ha for the additional felling;
- replanting on the additional 12 ha

- replanting on 3 ha which is 10% of the turbulence felling, i.e., 10% of 30 ha (i.e. 18 ha + 12 ha) for soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management.

Total replanting in this example = 48 ha, with 30 being in respect of the turbulence felling; and the 18 ha balance being on alternative land owned by the licence applicant at the time the licence is granted.

11. In exceptional circumstances a contribution condition can be imposed on a felling licence instead of a replanting condition. Where, for any reason, a contribution condition is imposed, the cost of the contribution condition should be calculated on the area as calculated at policy section 10 above. That is to say, the area on which the calculation is based will contain an additional 10% of the turbulence felling area.

By way of an indication, the contribution amount will equal the cost of acquiring good quality planting land (i.e. at the upper levels of current market prices); the cost of the replacement trees; the planting operation cost; fencing costs; and a 10-year maintenance cost. An additional 10% of the total cost of the aforementioned to cover administration costs, etc. if grants and premiums were paid in respect of the land in question.

If an area is to be licensed for turbulence felling, there will be an additional 10% added to the cost calculated above to allow for the increase in soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management, as under Section 10 above.

Yours sincerely



PP Danfelle Coll
Climate Change & Bioenergy Policy Division
Department of Agriculture Food & the Marine
Pavallion A
Grattan Business Park
Dublin Road
Portlaoise
Co. Laois.



Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

31st May 2010

Ms. Catherine Keogan,
Environmental Manager,
IWCM Ltd.,
Cootehill Enterprise Centre,
Cootehill,
Co. Cavan,
Ireland.

Our Ref: G2010/152
Your Ref:

Re: Proposed Windfarm Development at Knockardagur, Co. Laois



A Chara,

With reference to the above mentioned proposed Windfarm please find below the nature conservation recommendations of the Dept. of the Environment, Heritage and Local Government.

With regard to any EIS for this proposed development an ecological survey should be carried out on the proposed development site to survey the habitats and species present. Such surveys should be carried out at an appropriate time of the year depending on the species being surveyed for. The EIS should include the results of the surveys. The impact of the development on the flora, fauna and habitats present should be assessed, and in particular the impact of the proposed development should be assessed on habitats listed on annex I of the Habitats Directive, on areas important for birds, on species protected under the Wildlife Acts of 1976 and 2000, on species listed on Annexes II and IV of the EC Habitats Directive (92/42/EEC) and on birds listed on Annex I of the EC Birds Directive (Council Directive 79/409 EEC). Where negative impacts are identified suitable mitigation measures must be detailed if appropriate. The impact on any flight paths of animals such as bird and bat species should also be included in the EIS. Should the survey work show that the wind turbines would impact on flight paths, such as migratory routes or routes from roosts to feeding areas, there will be a need for further consultation with the National Parks and Wildlife Service of this Dept. The EIS should also include mention of invasive alien species and the methods required to ensure they are not accidentally introduced or spread during construction.

The EIS should assess the impact on Natura 2000 sites and any other sites designated for nature conservation. In particular it should assess the impact on the habitats and species listed by NPWS as

being within such sites and any other protected species which may be present. Where negative impacts are identified suitable mitigation measures must be detailed if appropriate. This proposed development is within 2 km of the River Barrow River Nore candidate Special Area of Conservation (cSAC) (site code 002162) designated under the Habitats Directive (Council Directive 92/43/EEC). The project should be screened for appropriate assessment (AA) and if necessary subject to appropriate assessment. The EIS and AA should also assess cumulative impacts with other plans or projects if applicable.

In addition we refer you to the documents listed below which may be of use to you.

The final draft EU Guidance on Wind Energy Developments and Natura 2000 which can be downloaded from
http://circa.europa.eu/Public/irc/env/wind_nature/library?l=/final_draft_guide/guide_march_2010doc/EN_1.0_&a=d

The Departmental Wind Energy Planning Guidelines which can be downloaded from
<http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload.1633.en.pdf>

Windfarms on Peatland (2008-2010) Mires and Peat volume 4 which can be found on
<http://www.mires-and-peat.net/mpj3.html>

Best Practice guidance for Habitat Survey and Mapping (pre-publication version) by George F Smith, Paul O'Donoghue, Katie O'Hora and Eamon Delaney, January 2010, The Heritage Council, which can be downloaded from
http://www.heritagecouncil.ie/fileadmin/user_upload/Publications/Wildlife/HabitatMappingPre-Pub.pdf

The Departmental guidance document on Appropriate Assessment available on the NPWS web site www.npws.ie under the section entitled Wildlife Planning and the Law

The EU Commission guidance entitled "Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC"

Finally, this recommendation is based on the papers submitted to this Department on a pre-planning basis and is made without prejudice to any decision the Minister may take upon sight of a former planning application or the submission of an Environmental Impact Statement.

Is mise le meas,



Simon Dolan
Development Applications Unit
Phone No.: 053 9117377
Simon.Dolan@environ.ie

Subject: Proposed Windfarm North Kilkenny / South Co. Laois - Attn: Catherine Keogan
Date: Tuesday 27 January 2015 14:31:31 Greenwich Mean Time
From: Donncha O'Sullivan
To: 'ck@iwcm.ie'

Catherine,

Your letter dated 2nd December 2014 refers:

We have reviewed the townlands where you propose to erect Wind Turbines. We are pleased to advise you there is no Gas infrastructure in any of the subject vicinities. As such, Gas Networks Ireland has no proposal to make in regard to the development.

Please accept our apology for this delayed response.

Regards,

Donncha

You are reminded that all work in the vicinity of Gas Networks Ireland Pipelines and Installations must be completed to comply fully with the relevant guidelines to be found in the current editions of the Health & Safety Authority publications, 'Code Of Practice For Avoiding Danger From Underground Services' and 'Guide To Safety In Excavations'. Both documents are available free of charge from The Health And Safety Authority. www.hsa.ie, 1890-28 93 89.

Donncha Ó Sullivan BE CEng MIEI
Development Liaison Engineer

Gas Networks Ireland
P.O. Box 51, Gasworks Road, Cork, Ireland

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E donncha.osullivan@gasnetworks.ie

gasnetworks.ie | Find us on [Twitter](#)

Tá an fhaisnéis á seachadadh dírithe ar an duine nó ar an eintiteas chuig a bhfuil sí seolta amháin agus féadfar ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh tráchtála de a bheith mar chuid de. Tá aon athsheachadadh nó scaipeadh den fhaisnéis, aon athbhreithniú ar nó aon úsáid eile a bhaint as, nó aon ghníomh a dhéantar ag brath ar an bhfaisnéis seo ag daoine nó ag eintitis nach dóibh siúd an fhaisnéis seo, toirimiscthe agus féadfar é a bheith neamhdhleathach. Níl Líonraí Gáis Éireann faoi dhliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo nó maidir le haon mhoill a bhaineann léi. Ní ghlacann Líonraí Gáis Éireann le haon dliteanas faoi ghníomh nó faoi iarmhairtí bunaithe ar úsáid thoirimiscthe na faisnéise seo. Níl Líonraí Gáis Éireann faoi dhliteanas maidir le seachadadh ceart agus iomlán na faisnéise sa chumarsáid seo nó maidir le haon mhoill a bhaineann léi. Má fuair tú an teachtaireacht seo in earráid, más é do thoil é, déan teagmháil leis an seoltóir agus scríos an t-ábhar ó gach aon ríomhaire.

Féadfar ríomhphost a bheith soghabhálach i leith truaillithe, idircheaptha agus i leith leasaithe neamhúdaráithe. Ní ghlacann Líonraí Gáis Éireann le haon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo i ndiaidh é a sheoladh nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin. Más é do thoil é, tabhair faoi deara chomh maith go bhféadfar monatóireacht a dhéanamh ar theachtairreachtaí chuig nó ó Líonraí Gáis Éireann chun comhlíonadh le polasaithe agus le caighdeáin Líonraí Gáis Éireann a chinntiú agus chun ár ngnó a chosaint. Ervia ag trádáil mar Líonraí Gáis Éireann corparáid reachtúil a bunaíodh de bhun an Achta Gháis 1976 agus a bhfuil a phríomháit ghnó ag Webworks, Sráid Eglinton, Corcaigh.

Go raibh maith agat as d'aird a thabhairt.

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Networks Ireland accepts no liability for actions or effects based on the prohibited usage of this information . Gas Networks Ireland is neither liable for the proper and complete transmission of the information contained in this communication nor for any delay in its receipt. If you received this in error, please contact the sender and delete the material from any computer. E-Mail may be susceptible to data corruption, interception and unauthorized amendment. Gas Networks Ireland accepts no responsibility for changes to or interception of this e-mail after it was sent or for any damage to the recipients systems or data caused by this message or its attachments. Please also note that messages to or from Gas Networks Ireland may be monitored to ensure compliance with Gas Networks Ireland's policies and standards and to protect our business. Ervia trading as Gas Networks Ireland a statutory corporation established pursuant to the Gas Act 1976 and having its principal place of business at Webworks, Eglinton Street, Cork.

Thank you for your attention.



Ms Catherine Keogan
Project Planner
IWCM
Clondargan
Stradone
Co Cavan.

10 February 2015

RE: Proposed Wind Farm Development in North Kilkenny and South Co Laois

GSI Ref: 15/16

Dear Ms Keogan

I would like to acknowledge receipt of your your correspondence of 02 December 2014 concerning the above Windfarm Development.

Please see the attached for details of geological heritage sites near or within the study area provided.

Please note that Geological Heritage data can now be viewed online on the GSI Public Data Viewer at: http://spatial.dcenr.gov.ie/imf/imf.jsp?site=GSI_Simple – see below.

Datasets

The Geological Survey of Ireland, as the national earth science agency, has datasets on Bedrock Geology, Quaternary Geology, Mineral deposits, Groundwater Resources, Geological Heritage, Landslides 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.

To assist with an Environmental impact Assessment (EIA), and especially the “Soils & Geology” and “Surface Water & Groundwater” parts, maps/databases are available on the GSI website under “Online Mapping”- direct link: <http://www.gsi.ie/Mapping.htm> with datasets currently available for Bedrock, Geological Heritage, Groundwater, Karst, Geotechnical boreholes, Mineral locations. More recent viewers accessible from the same link include the National Landslide Viewer, the Aggregate Potential Mapping and the Geotechnical Viewer.

Please note that Geological Heritage data can now be viewed online on the GSI Public Data Viewer at: http://spatial.dcenr.gov.ie/imf/imf.jsp?site=GSI_Simple

There are two map layers under ‘Geological Heritage’:

1. ‘Geological Heritage Sites Boundaries’: a national dataset (one shapefile with boundary polygons) showing the nine County Geological Sites audits to date (Carlow, Clare, Kildare, Sligo, and Meath, Kilkenny, Fingal, Waterford and Roscommon, at July 2013).



County Geological Sites audit data are still available for download (as individual county shapefiles and site report pdfs; with direct links to individual reports in the most recent 5 audits) at: <http://www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/>

2. 'Geological Heritage Sites No Boundaries': a national dataset (one shapefile with buffer polygons) covering all the other counties not yet audited, indicating the provisional location/extent of sites. These sites have buffers appropriate to their type (or theme), ranging between 200m, 500m and 1000m (for the largest landscape/glacial features). These are not 'mitigation' buffers, but an attempt to encompass the extent of the particular type of site.

These will all be available to download as well in the next few weeks from: <http://www.dcenr.gov.ie/Spatial+Data/Geological+Survey+of+Ireland/GSI+Spatial+Data+Downloads.htm>

Data Updates

The 'No Boundaries' data is provisional data only. As each county's geological heritage is audited, the 'No Boundaries' data will be replaced with the audited 'Boundaries' data, **so please re-visit the viewer regularly for updates. There can also be *ad hoc* updates of individual site data at any time.**

We anticipate that with necessary funding and the ongoing good partnerships of local authorities and the Heritage Council, that it will be possible to complete the remaining county audits within the next 5 years. Please note that all the above sites are of, at least, County Geological Site (CGS) status (some are also recommended for designation as Natural Heritage Areas) and are included in the relevant County Development Plan with associated protection policy/ies.

Other comments

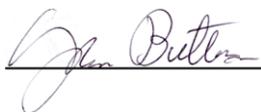
Should you identify a Geological Heritage Site with buffer within your study area, please contact Sarah Gatley, Head of the Geological Heritage and Planning Programme at sarah.gatley@gsi.ie, for further information and possible mitigation measures if applicable.

As GSI's karst dataset is far from comprehensive due to important data gaps, GSI would welcome complementary data collected during any EIA; data which would be added to the national database. If you wish to contribute data, please contact Caoimhe Hickey for details (caoimhe.hickey@gsi.ie).

At a later stage, GSI would much appreciate a copy of reports detailing any site investigations carried out. 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 (beatriz.mozo@gsi.ie, 01-678 2795).

I hope that these comments are of assistance, and if the GSI can be of any further help, please contact me.

Yours sincerely,



John Butler, Clerical Officer





3rd February, 2015

Catherine Keogan
Project Planner
IWCM Ltd
Clondargan
Stradone
Co. Cavan

Re: Proposed Wind Farm Development in North Kilkenny and South Co. Laois

A Chara,

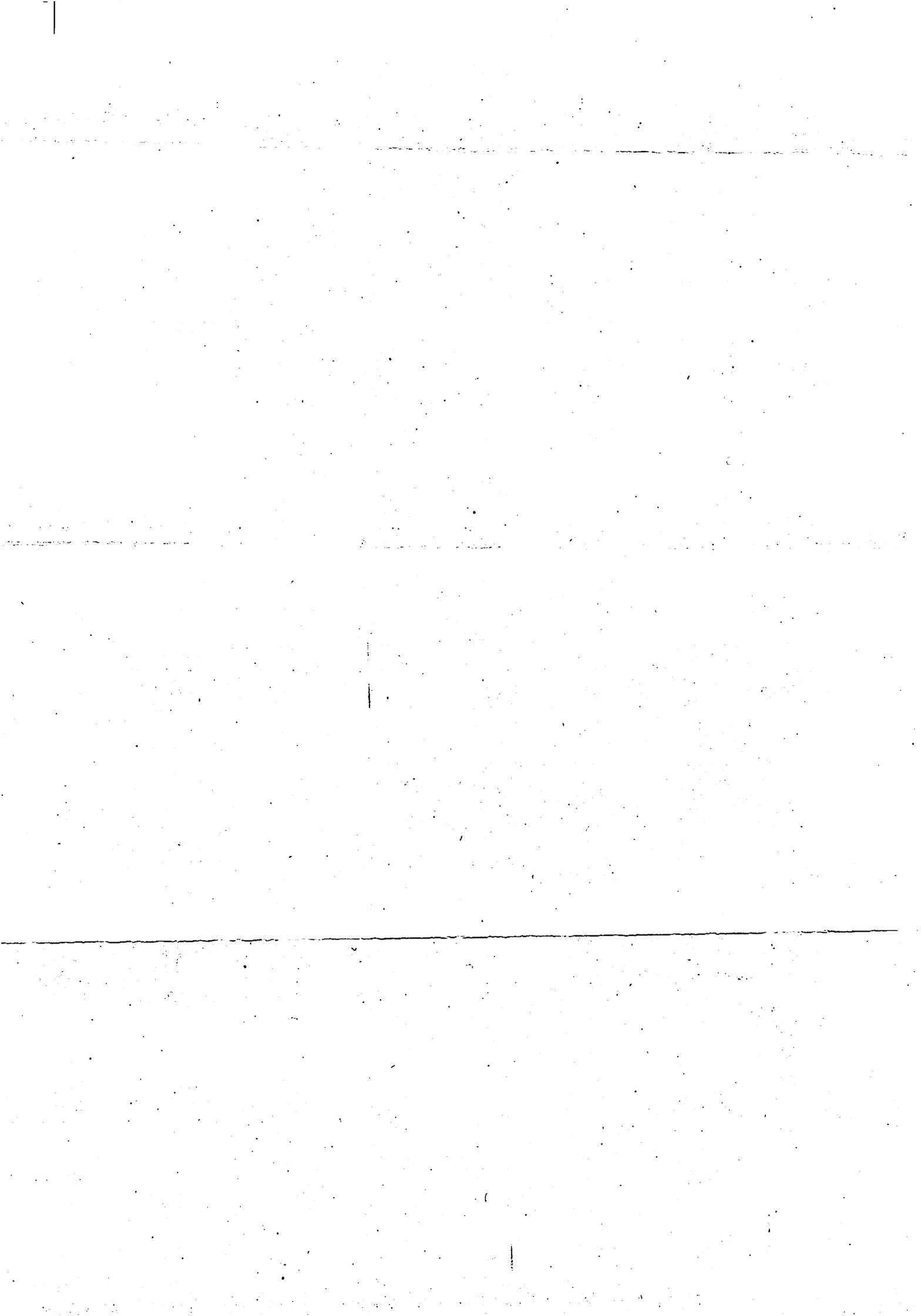
Further to your letter of the 27th January, 2015 and pre-planning meeting held on the 4th December, 2014, I refer you to the Kilkenny County Development Plan (2014-2020). The sections relating to wind energy are as follows:

- Section 10.5 Wind Energy
- Section 10.5.1 Current Status
- Section 10.5.2 Wind Energy Development Strategy
- Section 10.5.3 Development Management Standards
- Section 10.5.4 Wind Energy Policy Areas
- Appendix J: Wind Energy Development Strategy

The Development Plan (2014-2020) is available on our website www.kilkennycoco.ie.

Mise le meas,

Anne Maria Walsh
Senior Executive Officer
Planning





An tÚdarás um Bóithre Náisiúnta
National Roads Authority

Ms. Catherine Keogan
Project Planner
IWCM Ltd.
Clondargan
Stradone
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Teach Naomh Máirtín / Bóthar Waterloo / Baile Átha Cliath 4
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Dáta | Date 3 February 2015

Ár dTag | Our Ref.

NRA15 91515

Bhur dTag | Your Ref.

Re: Proposed Wind Farm Development in North Kilkenny and South Co. Laois

Dear Ms. Keogan

The Authority wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. The Authority will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by the Authority in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (Department of Environment, Community & Local Government, 2012). Regard should also be had to other relevant guidance and circulars available at www.nra.ie.

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

The Authority has previously indicated to IWCM Ltd. that we would welcome site location mapping with any similar future EIS Scoping referral to enable a more relevant response to issue. This remains the position of the Authority. Please provide relevant mapping with future EIS Scoping requests.

With respect to EIS scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIS, which may affect the National Roads Network.

The developer should have regard, *inter alia*, to the following;

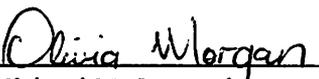
- Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes,
- The Authority would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development; N77 and N78,
- The developer should assess visual impacts from existing national roads,
- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard to any potential cumulative impacts,

- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA DMRB and the NRA Manual of Contract Documents for Road Works,
- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA'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),
- The EIS 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)),
- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment 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. The Authority's Traffic and Transport Assessment Guidelines (2014) should be referred to in this regard. The scheme promoter is also advised to have regard to Section 2.2 of the NRA TTA Guidelines which addresses requirements for sub-threshold TTA.
- The designers are asked to consult the National Roads Authority's DMRB *Road Safety Audit* (NRA HD 19/12) to determine whether a Road Safety Audit is required,
- In the interests of maintaining the safety and standard of the national road network, the EIS should identify the methods/techniques proposed for any works traversing/in proximity to the national road network.
- In relation to haul route identification, the applicant/developer should 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.
- In relation to cabling and potential connection routing, the scheme promoter should note locations of existing and future national road schemes, and in the context of existing national roads, should be aware that separate approvals may be required for works traversing the national road network. The Authority requests referral of any agreements between the local authority and the scheme promoter in that regard, for record.

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 practise.

I hope that the above comments are of use in your scoping process.

Yours sincerely


 P.P. Michael McCormack
 Policy Adviser (Planning)



Southern Regional Fisheries Board

Bord Iascaigh Réigiúnach an Deiscirt

14th May 2010.

Ms. Catherine Keogan,
IWCM Ltd.,
Unit 1 Cootehill Enterprise Centre,
Cootehill,
Co. Cavan.



Fisheries Ireland
Our Natural Heritage

PROPOSED WIND FARM AT KNOCKNARDAGUR BY GALETECH ENERGY DEVELOPMENTS LTD.

Dear Ms. Keogan,

I refer to your letter dated 9th March 2010 to the Eastern Regional Fisheries Board. Kindly note the proposed development site is situated within the functional area of this Board.

As you may be aware, the Southern Regional Fisheries Board is charged with the protection, conservation and promotion of fisheries within our functional area. Board policy is aimed at maintaining a sustainable fisheries resource through preserving the productive capacity of fish habitat by avoiding habitat loss, or mitigating harmful alteration to habitat. Projects such as proposed have the potential to impact on downstream fisheries resources if they are not carried out in an environmentally sensitive manner.

The following observations and comments are of necessity of a general nature, as construction proposals and method statements are not as yet available. While they apply to the proposed development in general, the waters in fisheries terms likely to be impacted act primarily as contributories to downstream habitat for juvenile salmonids and other species as well as macrophytes, algae and macroinvertebrates which as drift form a significant part of the food supply to the downstream fisheries of the Owenbeg Catchment. They also, in the context of the proposed works, have the potential to convey deleterious matter from those works such as concrete, silt, fuel, lubricating and hydraulic oils from construction plant and equipment downstream unless proper safeguards are in place.

Stream size can be misleading in regard to fish presence. A significant amount of fish rearing occurs in very small channels and seasonal streams. These streams may not be recognised as fish or macroinvertebrate habitat and their importance to fisheries sometimes overlooked.



The Southern Regional
Fisheries Board
Anglesea Street
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E: enquiries@srfb.ie
www.srfb.ie

Stream crossings structures should not damage fish habitat or create blockages to fish and macroinvertebrate passage. Design and choice of structure is up to the engineer or qualified person who must make a decision based on the technical and economic feasibility of the structure to pass fish and macroinvertebrates (and the requirement to protect critical fish habitats e.g. fish spawning and over wintering areas) and prevention of erosion and sedimentation. In the case of the proposed development, noting the location of the proposed turbines, it is unclear as to whether a crossing or crossings of the Owenbeg River headwaters will not be required.

Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. Pre-cast concrete should be used whenever possible, to eliminate the risk to all forms of aquatic life. When cast-in-place concrete is required, all work must be done in the dry and effectively isolated from any water that may enter the drainage network for a period sufficient to cure the concrete.

One of the potential impacts of the proposed development is the discharge of silt-laden waters to fisheries streams from newly developed sites at which earth moving and excavation works are ongoing. Silt can clog salmonid spawning beds, and juvenile salmonids are particularly sensitive to siltation of gill structures. Similarly, plant and macroinvertebrate communities can literally be blanketed over, and this can lead to loss or degradation of valuable habitat. It is important to incorporate best practices into construction methods and strategies to minimise discharges of silt/suspended solids to waters.

Silt traps should be constructed at locations that will intercept run-off to the drainage network. Traps should not be constructed immediately adjacent to natural watercourses. A buffer zone should remain between the silt trap and the watercourse with natural vegetation left intact so as to assist silt interception. All natural watercourses which have to be traversed during site development and road construction works should be effectively bridged prior to commencement. The crossing of watercourses at fords is unacceptable because of the amount of uncontrolled sedimentation that can be generated by their use.

All oils and fuels should be stored in secure bunded areas, and particular care and attention should be taken during refuelling and maintenance operations on plant and equipment. Where site works involve the discharges of drainage water to receiving rivers and streams, temporary oil interceptor facilities should be installed and maintained.

Additionally, we would request that in terms of stability both during the construction and operational phases, the developers assess and critically review the soil type and structure at the proposed turbine locations, and along the route of any proposed access track(s)/road(s) including areas where temporary or permanent stock piling of excavated material takes place. This is particularly important if the areas concerned contain peat soils.

During the construction process and operational phase, natural flow paths should not be interrupted or diverted so as to give rise to or create potential for erosion. Furthermore, excavation and installation of road(s)/access track(s) should be undertaken so as not to result in the creation of preferential flow paths that may result in erosion. Where imported materials are used in road construction, these should be such as not to be liable to become

crushed by vehicular movement, and lead to discharge of fine particulates to downstream receiving waters.

I trust these preliminary observations will be of assistance, and would be obliged to receive more detailed information, particularly as regards the proposed location of temporary and permanent access tracks/routes, as soon as same is available.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Patrick Kilfeather', written in a cursive style.

Patrick Kilfeather,
Senior Fisheries Environmental Officer.