

Wind Energy Strategy

OCTOBER 2009

A faint, light-colored illustration of two hands reaching towards each other, positioned in the lower right quadrant of the page. The hands are rendered in a simple, stylized manner, with fingers spread. The background is a light beige or cream color, and the hands are a slightly darker shade of this color, creating a subtle watermark effect.

Wind Energy Strategy



Comhairle Contae Fhine Gall
Fingal County Council



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Executive Summary

This report recommends a strategy to direct the location of proposed wind energy development, i.e. both wind energy developments consisting of single isolated wind turbines, and largescale wind energy developments, within the landscape of Fingal County.

The Irish Government's stated goal is that of ensuring, "that energy is consistently available at competitive prices with minimal risk of supply disruption" (*Government White Paper, Delivering a Sustainable Energy Future for Ireland, The Energy Policy Framework 2007-2020*, p.6). Wind energy is seen as a vital component of supplying Ireland's future energy needs. To this end, this document has several objectives,

- To develop a wind energy strategy to guide the location and layout of future wind energy development within Fingal County.
- To provide direction as to the suitability of areas within the county for wind energy development. Note that a wind farm consists of two or more wind turbines which are adjacent (i.e. within 500 metres of each other, and are considered to be part of the same development). The report sub-divides the county into areas which are considered to be:
 - "Acceptable in Principle" for wind energy development, or
 - "Open to Consideration" in which case the tendency would be to be more positive towards wind energy development but the imperative would be upon the developer to make a case for the suitability of the location for wind energy development, or
 - Areas which are "Not Acceptable" for wind energy development.
- To produce a range of guidelines relating to key issues in the location of typical wind energy developments, and which should be considered comprehensively in any application for planning permission for the location of wind energy developments within the county.
- To give specific guidelines on the location of small-scale wind energy developments especially when located within the urban framework.

Developing this strategy involves a "sifting process" with the following stages:

1. The county landscape is described according to six possible descriptors given within the Department of the Environment, Heritage, and Local Government Planning Guidelines on the Planning for Wind Energy. These descriptors are:
 - a. Mountain moorland.
 - b. Hilly and flat farmland
 - c. Flat peatland
 - d. Transitional marginal land
 - e. Urban/industrial land
 - f. Coastal land
2. The county is assessed for sensitivity, i.e. the "potential for significant change to any element in the environment that is subject to impacts", to the location of wind energy development. Having made an assessment of sensitivity based on listed criteria, the sensitivity of the landscape is mapped for the location of wind energy development, to be:
 - a. Not acceptable
 - b. Open to consideration
 - c. Accepted on principle

3. The landscape sensitivity mapping is overlaid with the landscape character types.

The Fingal County Council “Wind Energy Strategy” gives direction give direction on the potential for the location of wind energy development within each of the four landscape character types which are found within Fingal.

4. A Wind Energy Strategy for the location of wind energy development results from the overlaying of sensitivity, wind speed, and landscape character. This Strategy is shown on map 4.

This strategy indicates that strategic land areas in the eastern and north west areas of the county offer the maximum potential for the development of the county’s wind energy potential, and these areas are designated as “Accepted in Principle” for wind energy development.

In other areas of the county the tendency may be positive towards wind energy development, and these areas are designated “Open to Consideration”. In these latter areas, potential Wind Energy developments will be treated on their merits, with the proposed developer having a clear responsibility to demonstrate why the development would the development should be granted planning permission. Otherwise the areas designated “Not Acceptable” are considered not suitable for the location of wind energy developments.

Note that in areas which are judged “Open to Consideration” for wind energy development, potential Wind Energy developments will be treated on their merits, with the developer having a clear responsibility to demonstrate why the development should be granted planning permission.

5. “Small-scale wind energy developments” (i.e. developments of two or less wind turbines each located on masts no more than twenty metres high), which are not exempted development from requiring planning permission, shall be considered in certain additional urban areas.

These additional urban areas are outside the key areas identified in the Wind Energy Strategy as appropriate for wind energy development (i.e. outside areas which are designated “Acceptable in Principle” or “Open to Consideration” for wind energy development). Therefore, these additional areas in which small-scale wind energy developments will be considered are designated “Not Acceptable” for wind energy development.

Wind energy development which does not meet definition of small-scale wind energy development will not be considered within the areas designated as “Not Acceptable”.

Chapter 3 provides details on planning guidance relating to small-scale wind energy developments.

CHAPTER 1:

Formulation of Fingal Wind Energy Strategy

1.1 Introduction

This document outlines a strategy for the location of wind energy development within Fingal County. Possible wind energy development comprises of:

- Single wind turbines which are more than twenty metres high, and multiple wind turbines (i.e. more than one) which are built as a system or “wind farm”, and individually located no more than 500 metres apart.
- Individual or a pair of wind turbines which are each less than twenty metres high.

The bulk of this document deals with the issue of the possible location within the county of single turbines which are more than twenty metres high, and wind farms. The location of wind turbines which are less than twenty metres high is approached specifically in chapter 3.

The location of wind energy development within Ireland, and Fingal County in particular, is an increasingly important issue as Ireland faces an immediate future beyond “peak oil” production. In this new environment, Fingal must confront its responsibility to contribute in a significant way to both the county’s and the country’s energy needs.

1.2 Background context

Irish Government and European Union policy

European Union and Irish government policy on energy and, in particular, the provision of wind energy, supports the expansion of renewable energy, and wind energy supply in particular, in the immediate future, as indicated in the following documents:

Energy for the Future: Renewable Sources of Energy, White Paper for a Community Strategy and Action Plan, 26/11/1997, (European Commission, Com(97) 599 final [26/11/1997])

This document, speaking about the European Union’s future energy supplies, places a strategic goal of, “achieving a 12% penetration of renewables in the Union by 2010...(which is)...an ambitious but realistic objective” (p.10). Wind energy is considered to be a major contributor to the forecasted growth in renewable energy sources. “Wind energy, with a contribution of 40 GW is likely to have the second most important increase” (p.11) in energy contribution to the Union’s total energy consumption.

Ireland, National Climate Change Strategy 2007-2012 (Department of the Environment, Heritage, and Local Government, 2007)

This document presents the Irish Government’s strategy to tackle climate change. Climate change is occurring as a result of the release of carbon dioxide into the atmosphere from the increased use of fossil fuels. The document confirms the Government’s commitment to renewable energy sources with a goal of 33% of the state’s electricity sourcing in renewables by 2020 (p.20). This action is projected to limit the growth in the use of fossil fuels, and thereby the growth in the production of carbon dioxide.

Government White Paper, Delivering a Sustainable Energy Future for Ireland, The Energy Policy Framework 2007-2020, (Department of Communications, Marine and Natural Resources, 2007)

This document gives the position of the Irish Government with regard to delivering

sustainable and renewable energy supplies, and states that, “the Government is committed to delivering a significant growth in renewable energy as a contribution to fuel diversity in power generation with a 2020 target of 33% of electricity consumption. Wind energy will provide the pivotable contribution to achieving this target.” (p.26)

Strategy for Intensifying Wind Energy Deployment, (Renewable Energy Strategy Group, Government of Ireland, 2000)

This document states that, “a more plan-led approach to wind farm development be adopted...(which)...involves identifying areas which are deemed suitable or unsuitable for wind energy, under the following categories...strategic areas...preferred areas...areas open for consideration...(and)...no-go areas”. (p.9)

Revised Wind Energy Development Guidelines for Planning Authorities, (Government of Ireland, Department of the Environment, Heritage and Local Government, 2007) (henceforth known as the, “Guidelines”).

These Guidelines are intended, “to ensure a consistency of approach throughout the country in the identification of suitable locations for wind energy development and the treatment of planning applications for wind energy developments” (p.1). They provide direction on preparation of a “plan-led approach” to a Development Plan Wind Energy strategy. Specifically these Guidelines provide direction on the location of wind energy development, and specific guidance on the content of applications for permission and location of individual wind energy developments within a local authority area.

Growth in demand for electricity in Ireland

Growth in annual demand for electricity in Ireland is in the range 3.2% to 3.8%. Currently over 95% of Ireland’s electrical energy is generated from non-renewable fossil fuels.

Satisfying Ireland’s future needs

The prognosis for Ireland’s future supply of fossil fuels looking beyond the next five to ten years is not optimistic with peak world production of fossil fuel expected to occur within the next five years (from 2008), and annual production to decline thereafter. Consequently, the World, Ireland, and Fingal County, specifically, must look to alternative means for the supply of its future energy needs. Renewable sources of energy are considered as a priority in this search offering the potential of a sustainable and permanent security for Irish national energy and electric supply.

Wind energy potential

Wind provides an important key energy resource. Wind offers Ireland a major opportunity which can be exploited to deliver a major portion of the country’s future energy, in particular electricity, needs (as indicated by European Union and Government of Ireland documents).

The importance of a Wind Energy Strategy

A wind energy strategy to guide the location of wind energy development within the county is an imperative for Fingal. Such a strategy and the resultant location of wind energy developments within the county borders will allow Fingal to exploit this valuable resource, and thereby make a valuable contribution to local and national energy supply and sustainability.

Energy needs of Fingal - how many wind powered turbines will be required to supply Fingal’s needs?

It is not expected that locally produced wind-generated electricity would supply the total needs of Fingal. However, it should be expected that Fingal would make a significant contribution towards electricity generation needs in Ireland. This contribution should be related both to the county’s use of electricity and its potential for energy generation.

The following exercise will put an approximate measure on Fingal's requirements for electricity energy, the production of which will have to be located somewhere within the boundaries of the state. Currently, the Fingal area is estimated to use approximately 300 MW of power (based on a population of 239,992 people (CSO 2006), and associated industrial need. To supply Fingal's current annual electricity needs by wind energy units alone, (assuming a typical large-scale wind energy facility of rated generating potential, 2,500 KW), will require approximately 200 wind energy turbines. This approximation exercise assumes that the wind turbines will operate at approximately 60 % efficiency given that the wind is not always blowing at maximum speed, and that all turbines are not operating at maximum efficiency.

Document purpose

Guidance on the possible location and layout of these potential units within the county which will assist planners and potential developers and operators of wind energy developments is the purpose of this document. This document lays out a strategy which clarifies the planning policy of Fingal County Council regarding the location of wind energy development in the county area.

1.3 Methodology for derivation of wind energy strategy

The methodology for the development of a wind energy strategy for Fingal County involves a staged and "sifting" process which is consistent with the approach outlined in the Guidelines. The proposed approach includes the following elements to be approached in sequence;

A. County landscape character mapping

This involves the mapping of every area of the county according to one of six landscape character descriptors which are defined in the Guidelines. *Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities*, p8, define landscape character as,

"visual distinctiveness and identity through a continuity of similar characteristics".

The six landscape character types defined in the Guidelines are,

1. Mountain moorland
2. Hilly and flat farmland
3. Flat peat-land
4. Transitional marginal land
5. Urban/industrial land
6. Coast

The purpose of this mapping of the county according to these pre-defined landscape character types is that any potential location of wind energy development within the county would be consistent with the direction given in the Guidelines for the relevant particular landscape character descriptor. Descriptive details of the methodology to assess the landscape character which is applied to the areas of the county are given in appendices 1, 2, 3, and 4. The landscape character mapping of areas within Fingal county is shown on map 1.

B. Preparation of the landscape sensitivity of the county

This involves a survey of the county to classify the sensitivity of the county to wind farm development. This mapping will ensure that wind energy development is directed to areas which the local landscape sensitivity would allow.

Sensitivity measures the degree to which the landscape has, “the potential for significant change to any element in the environment that is subject to impacts” (“Guidelines”, p. 106), i.e. the rated sensitivity of the area will be determined by the degree of likelihood of significant change in the landscape when that landscape is exposed to impacts.

The definition of sensitivity is further refined (*Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities, Department of Environment, Heritage & Local Government 2000p. 13*), as:

“where a wide range of development would sit comfortably in a particular landscape and not interfere with a character or interfere with or eliminate or seriously damage an irreplaceable value (i.e. defined as the environmental or cultural benefits...that are derived from various landscape attributes), such a landscape would be considered to be of low sensitivity.

On the other hand where any proposed development would seriously damage a character or eliminate or seriously damage an irreplaceable value, such a landscape would be considered to be highly sensitive”.

Environmental criteria which bear on landscape sensitivity are given in Appendix 2.

This process of defining the sensitivity of the county will classify the landscape into the following categories,

- a. Acceptable in principle.
- b. Open to consideration
- c. Not acceptable.

The sensitivity analysis of the county is shown on map 2, while the rationale for this mapping is given in appendices 2, 3, and 4.

C. Provision of the wind speed map for the Fingal area to define areas within Fingal which are high and low potential for wind energy development.

The wind speed map which is used is the Unconstrained Onshore Wind Resource, Annual Mean Wind Speed at 75m above ground, as plotted by ESBI. Areas in which the unconstrained wind speeds, at a height of 75m above the ground are 4 m/s or above are considered to be areas of high potential for wind energy. The unconstrained wind speed for the county is shown in map 3. Sustainable Energy Ireland state that “Wind turbines start operating at approximately 4-5 m/s, reach a maximum output at 12 – 14 m/s and automatically shut down at wind speeds greater than 25 m/s (www.sei.ie, *Sustainable Energy Ireland, Technology of Wind Energy*, p.2).

Note, that the whole of Fingal is an area with wind speed potential which will allow the productive location of wind energy development. The average unconstrained wind speed in all areas of the county is more than the threshold speed of 4 m/s.

Note, that the “constrained wind speed” map plots wind speeds more than 6.5 m/s (which was previously assumed to be the minimum wind speed for the effective operation of a wind turbine), and excludes wind speeds for areas which are considered unsuitable for “planning” reasons by the ESBI for wind energy development (i.e. areas which have a high density of existing built development).

D. A review of the landscape character, landscape sensitivity, and wind speed mapping for the county, with access to the electricity delivery network.

This review will reveal areas of the county which have a wind speed and landscape sensitivity suitable for wind energy development. By including a review of the

landscape character of the county, the appropriate guidance, for areas which are suitable for wind energy development, can be sourced from the Guidelines.

The review of the electricity network details ensures that any proposed wind energy development within Fingal should have access to the network which is necessary to distribute the resulting electric power.

It is to be noted that the Fingal area has good access to the electricity network. Providing access to this network, which will be provided by the DSO Generators Division of the ESB, or EIRGrid (where the electricity generated is more than 15-20 MW), may require, with current technology and systems, up to five to seven years according to current estimations by Eirgrid personnel.

This sifting exercise results in the designation of the county into areas (in a way which is consistent with the methodology in the Guidelines, p. 12) for the location of wind energy development as,

1. Areas in which wind farm developments are “acceptable in principle”, and which are deemed as eminently suitable for wind farm development and where permission should normally be granted.
2. Areas where such development is “open to consideration” i.e. applications for planning permission will be treated on their merits, with the developer having a clear responsibility to demonstrate why the development should be granted planning permission. In these areas, the tendency may be positive towards wind energy development.
3. Areas where such development would be, “not acceptable” being areas which are identified as particularly unsuitable for wind farm development.

1.4 Wind energy strategy

The study concludes with a statement of the wind energy strategy which describes the suitability of the various areas of the county for wind energy development.

The overlay of the landscape character, landscape sensitivity, and wind speed mapping for the county is shown in map 4, with resultant areas of potential for wind energy development mapped according to the prescribed designations given above. This map constitutes the Fingal County Council Wind Energy Strategy.

Map 4 is the distillation of the “sifting” process which the development of the county wind energy strategy involves. This map delineates the areas of the county according to their suitability or not for the location of wind energy development. The county is described according to whether an area is “acceptable in principle”, “open to consideration”, or “not acceptable”. This mapping provides the strategic structure to describe the location of wind energy development within the Fingal County Council borders.

Of key strategic importance, map 4 indicates that two strategic areas located one in the north west and the second in the east of the county are “accepted in principle” as suitable for the location of wind energy development.

Of note, map 4 indicates that the Garristown Hills and the Naul uplands are “open to consideration” for the location of wind energy development. Therefore, the imperative will clearly be upon any applications for proposed wind energy development in these areas to be:

“treated on their merits, with the developer having a clear responsibility to demonstrate why any proposed such development in these areas should be granted permission”.

To partner the Wind Energy Strategy mapping, guidelines, most notably in Chapters 2 and Appendix 3, 6 and 7 are included with this strategy. The guidelines for detailed execution of wind farm development given within this manual, together with this mapping are intended to direct and achieve the location of wind energy development within Fingal county in a manner which is consistent with the “proper planning and sustainable development of the area”.

1.5 Conclusion

The direction contained within this document on the location of Wind Energy development within Fingal County, and the associated maps, form a land use “roadmap” for any proposed wind energy development within the county. It is intended that by adhering to these guidelines that developers will be able to leverage the wind potential within Fingal to the benefit of the people of Fingal and the country as a whole.

Chapter 2

Guidelines for applications for planning permission for wind energy developments.

2.1 Introduction

This chapter details the issues which an applicant for planning permission for a proposed wind energy development within the area of Fingal County Council must address comprehensively within any application for planning permission. Note that any application must include both the possible impact of the proposed development itself, and the impact of the associated transmission lines, buildings and access roads on the landscape, landscape character, and any adjacent townscapes. Details of any proposed connections to the electrical grid need not be included in any planning application for wind energy development. If they are not included, they should be included in a separate planning application which is submitted simultaneously with the planning application for the proposed wind energy development. Importantly, the application for planning permission for any wind energy development should include information on indicative electricity grid connections.

2.2 Location

The location and grouping of the proposed structures must assimilate with the scale and pattern of the landscape in which the proposed structures are located. The proposed location and groupings should be consistent with the recommendations on siting and design for proposed wind energy development which are given in the Guidelines for each of the four characteristic and comprehensive Landscape Character Types. Of note, no wind energy development should occur within the following exclusion zones. All minimum distances from proposed exclusion areas are subject to issues which are highlighted in the submitted Landscape Impact Assessment.

Exclusion area	Minimum distance of proposed development from exclusion area
Towns, rural villages, and rural clusters	500 m from the outer limits of the urban zoned land, i.e. land with zoning objective RS, RS1, MC, SC, NC, RV1, or RC.
National primary or secondary route	NRA recommendation, at least 200m from the outer edge of the route.
Other public route	Distance to be agreed with Fingal County Council Transportation Department
Electricity cables	100m from the cables
Prime designated amenity areas (i.e. SAC's, SPA's, NHA's, SAAO's, RAMSAR sites)	500 m from the outer boundary of the designated area.
Individual dwelling houses	200 m
Any archaeological monument which is listed on the Department of the Environment, Heritage, and Local Government "Record of Monuments and Places", or location listed for protection within Development Plan.	200m from the outer boundary of existing Sites of Monuments of Record or otherwise protected sites.

2.3 Visual impact on the landscape

The visual impact of any proposed structure is considered to be the most significant impact of any proposed wind energy structure on the environment, and shall be assessed. The visual impact relates to the relationship of any proposed structure with its context (i.e. how well the proposed structure assimilates with the character of the landscape in which the proposed structure is to be set). The likely degree of impact of any proposed wind energy development on the landscape, particularly the impact of the proposed structure on the aesthetics of the location, and on the surrounding and adjoining existing and proposed landscape and development, should be reflected in a Landscape Impact Statement (which should be produced according to the format for such a statement within the Guidelines) submitted with the application. This assessment must ensure that the proposed development should be in proportion with, and not overwhelm, key adjoining and adjacent landscapes and key landscape and architectural elements. Thereby, the proposed development must avoid visually dominating this surrounding and adjoining landscape.

In addition, the proposal, including any associated transmission lines, buildings, and access roads shall have no excessively deleterious, impact on the historic and natural landscape, landscape character, townscape, archaeology or amenity of the landscape in which the proposal is located. (see note page 32)

2.4 Cumulative impact

Any proposed wind energy development should be sensitive to its cumulative impact upon the landscape when other existing wind energy developments are taken into consideration. The cumulative impact of such development will be considered in any planning applications for wind energy development so that the landscape value of an area is not excessively impacted.

Potential wind energy developments should be sensitive to the cumulative impact of their location (with other existing and proposed wind energy development) on the landscape. An assessment (which should include photomontages of the proposed and existing wind energy developments) of the cumulative impact of the proposed wind energy development, with existing wind energy developments in the area should be submitted with the planning application. Specifically, the Landscape Impact Statement should assess the visual impact of proposed wind farm development, taking into account, the cumulative visual impact of the subject development with any other existing or proposed wind energy development within five km of the subject development.

Computer-based GIS, in particular the “Zone of Visual Impact” tool, should be employed to provide a comprehensive view of the visual impact of the proposed structure.

2.5 Vistas and sight lines

Landscapes invariably involve key vistas and panoramas. Most notable vistas in Fingal County are the views from the Garristown uplands and the Naul Hills. The possible impact of the proposed development on vistas and sight lines, especially any impact on those views and vistas which are preserved within the Fingal Development Plan, must be highlighted and evaluated within the subject application for planning permission. The applicant is to demonstrate that any proposed wind energy development does not have a detrimental impact on such preserved vistas.

The applicant shall demonstrate that the proposed development shall not infringe upon any established ridge lines. Wind turbines shall not be allowed where the turbine or support structure for any turbine infringe upon, or break, any ridge line. The applicant must demonstrate the possible impact of the proposed structure upon ridgelines in the area of the proposed development.

Particularly important are those ridge lines in the area of the Naul Hills and the Garristown Hills which have the zoning objective HA ie, “to protect and improve High Amenity areas”, and/or are designated to be sensitive landscapes in the Fingal Development Plan.

Particular attention shall also be paid to the potential impact on vistas seen in the area of the Naul Hills and the Garristown Hills of any proposed wind energy development. Any proposed wind energy development shall avoid any negative impact on these important vistas.

Wind turbines are also to respect any strategic inter-visibility which may exist between landscapes, and may be an important feature of, any adjacent archaeological features. The impact on the landscape which any proposed wind energy developments have on the inter-visibility between places should be evaluated. Proposed wind energy development should avoid interrupting strategic landscape views.

2.6 Noise

Noise is considered to be an especially significant issue for those living in proximity to any proposed wind energy structure. The application shall contain a full assessment of the potential noise impact of the proposed development. Noise requirements for any proposed wind energy development are:

- Proposed structures in proximity to existing residences or other noise-sensitive uses should be avoided with proposed noise-sensitive structures located at least 200m from any adjacent existing residence or other noise-sensitive property.
- Noise from proposed wind energy development should not have any particular distinguishable tonal or impulse character.
- Planning permission applications should contain details of noise levels from proposed wind energy structures, particularly for dwellings and other existing structures within 500 metres of the proposed structures.
- The Guidelines, p30, state that measured daytime noise level from the proposed structure should be at most 45 dB(A), and should not exceed 5dB(A) above the background noise at the nearest noise sensitive location within 500 m of the proposed structure. In a low noise environment, where background noise is less than 30dB(A), it is recommended that the daytime level of LA90 (i.e. the noise level, not exceeded for at least 90 % of the time) wind energy development noise should be limited to an absolute 35-40 dB(A).
- Planning conditions should be considered requiring the developer to undertake noise monitoring at specified locations in the area of the proposed structure during the first year of operation, and mitigating factors should be taken if these noise levels are higher than those proposed within the planning application or by the planning authority which is Fingal County Council.

2.7 Ancillary developments

Ancillary developments (i.e. access roads, transformers, substations, distribution/transmission lines) should assimilate with the environment in which they are located. The proposal should contain details of ancillary developments which are consistent with the proposed development:

Connecting power lines within any proposed wind energy development should be located underground. If it is proposed that they be located above ground, the planning permission application should provide rationale for doing so. No other structure, other than the proposed wind turbines and a wind measuring mast, should be located on the wind energy development site. Transformer housing should be contained within a wind turbine tower or underground. Foundation pads of the proposed towers should be at least 500mm below natural ground level. Access roads to the proposed site should be unsurfaced, and follow the natural contours of the proposed location

of the land within the area of the proposed site. Access roads to sensitive areas (i.e. sites of ecological or archaeological interest) should not be open to the public.

2.8 Wind measurement masts

Wind measurement masts which accord with development described by CLASS 20A, S.I. No. 235 of 2008, Planning and Development Regulations 2008 are exempt from requiring planning permission. Otherwise, the planning authority will facilitate the location of wind measurement masts, wherever possible, by granting them temporary planning permission, for a period not exceeding 15 months in any 24 month period. However, a temporary planning permission should not be seen as reflecting on the possibility of a grant of planning permission for any subsequent related development on site. A permanent wind measurement mast shall only be permitted if demonstrated to be necessary for the operation of the wind energy development.

2.9 Operation of wind energy developments

Measures must be taken to minimise the disturbance of the environment from the operation of any proposed development. The developer must demonstrate that measures have been taken to minimise this possible disturbance. An assessment of the shadow flicker resulting from any wind farm development should be submitted within the planning application including its impact on any adjacent dwellings. Calculations should include the hours per day, and the days per year for potential shadow flicker on the nearest adjacent building. Proposed mitigation factors shall also be submitted.

An assessment of any potential electromagnetic interference of any proposed wind energy development shall be included within any proposed application. Details of any proposed mitigation factors, and proposals to remedy any electromagnetic interference from a proposed wind farm shall also be included.

2.10 Bird migratory routes

Wind energy developments will not be permitted on the known migratory flight path of any wild fowl. Details of any flight paths within the area (i.e. within 20 km) of the proposed development should be submitted.

2.11 Fencing

Fencing shall be permitted around the substation associated with the proposed wind energy development, and not on any other part of the site unless part of an agreed rehabilitation programme. The height and nature of the fencing shall be agreed in any proposed planning application.

2.12 Roads

Access roads within any proposed wind energy site shall be unsurfaced and shall be located and constructed to minimise their visual impact. If the development is decommissioned, they shall be removed and the areas reinstated at least equal to the area prior to occupation by the use as a wind energy development. Details of access roads should be included in the application for permission.

Prior to the commencement of development, details of openings to the site shall be agreed with the Planning Authority. The developer shall submit and agree with the Planning Authority, proposals relating to vehicle types, and use of public roads during the construction phase. Any, including surface, damage to public roads during construction shall be reinstated prior to the operation of the proposed wind energy structure.

2.13 Grid connection

Where the developer proposes connection to the electricity grid, indicative details at least, of the likely routes, of this proposed connection should be included with the planning application. Connections within the proposed wind energy development will be laid underground. Of note, the applicant should, at least, agree in advance with the Planning Authority the information on the proposed electricity grid connection that is considered necessary to fully assess a planning application for the subject wind energy development.

2.14 Consultations with Eircom

A letter of approval from Eircom should be included with the planning application. This letter should indicate that the developer of the proposed wind energy development has had consultative discussions with Eircom concerning the potential impact of the proposed wind energy development on the operation of the Eircom network. This letter should also indicate that Eircom approves of proposed arrangements for the wind energy development.

2.15 Ancillary structures

No other structures other than wind turbines, substation, monitoring mast, and other essential ancillary installations shall be permitted within the curtilage of the subject site. The planning application shall include details of any such proposed ancillary installations.

2.16 Proposed construction and decommissioning processes

The applicant shall include the following measures to ensure that the proposed construction and decommissioning of any wind energy development does not detract from the existing ambience of the surrounding area to an excessive degree.

- Access routes to the proposed site shall be minimised during and after construction to minimise effects on ground conditions.
- The number, weight, width, and axle loading of vehicles to the proposed site shall be restricted where necessary during construction and operation of any proposed development.
- Details of the proposed decommissioning of the proposed facility and measures to ensure site reinstatement to a state which is at least equal to the site condition prior to the commencement of the proposed development shall be included with the application. Decommissioning shall include the removal of all machinery, material and equipment associated with proposed development from the proposed site, and the complete restoration of the site, including original contours, and vegetation after its use for a proposed wind energy development.
- A financial bond to cover site reinstatement shall not be imposed on the developer given that such a bond would place an excessive burden on the developer.

2.17 Archaeology/ecology

The proposed wind energy development planning application shall include an assessment of potential impacts on the archaeology and ecology of the area (in line with Department of the Environment, Heritage and Local Government guidelines). Negative impacts on the archaeology and ecology shall be avoided.

The proposed developer in the planning application shall pay particular attention to the potential impact of proposed development on south facing slopes where there tends to be located a higher level of items of archaeological interest. The proposed developer shall include details within the planning application which demonstrate that,

- The proposed development will not have a significant negative impact on a site of either ecological or archaeological significance.
- Arrangements have been made to ensure satisfactory protection of monuments of archaeological or geological interest, and proposed for conservation.

2.18 Airport facilities

All proposed wind energy development which is located within the Fingal County Council area will be submitted for consultation to the Irish Aviation Authority.

The Irish Aviation Authority Air Navigation Services, Policy on Consultation by Planning Authorities, section 7 states that,

“It is a requirement that the following types of construction/building be assessed even when outside the areas defined as restricted areas in ICAO EUR DOC 015:

(including)...Wind Turbine Generator...”

2.19 Financial contributions

The developer shall pay a contribution levy prior to the commencement of development on site in accordance with the Fingal County Council Development Contribution Scheme. To ensure the satisfactory completion of the development, prior to the commencement of development on site, the developer shall pay a bond, the amount which is to be decided by Fingal County Council.

2.20 Pre-planning discussion and consultation

Before any substantive work is undertaken on any application for planning permission for a wind energy development, it is essential to consult with the Planning Department in Fingal County Council on the proposed development. Such consultation will serve to address any issues which there might be with the proposed development, prior to the submission of a planning application

It is recommended that the applicant meet with a representative of the Planning Department to discuss the details of the application and the planning implications of the proposed development. In order to increase the discussion's productiveness, this discussion should include an assessment of the visible impact of the proposed development.

It is also recommended that the applicant meet with the local community in order to allay and address fears which the community might have related to the development prior to the submission of the proposed application. Details of the outcomes of any such meeting(s) with the Planning Authority and the local community should be included in the planning application.

2.21 Requirement for an Environmental Impact Assessment (EIA)

An EIA is required for wind energy developments which contain more than five turbines or with total output more than five MW (Section 176 of the 2000 Act, Article 3 and First Schedule, Part 1, Paragraph 3(i) of the 1999 Regulations). However, Fingal County Council has the option to request an EIA for smaller wind energy developments if they believe that significant environmental impacts may result.

2.22 Requirement for an Appropriate Assessment

If the proposed wind energy development may impact upon the conservation objectives of any designated Natura 2000 site, or that such an impact cannot be ruled out, adopting a precautionary approach, an Appropriate Assessment, “based on best scientific knowledge, by a person with ecological expertise, of the potential impacts on the conservation objectives of any Natura 2000 site (including Natura 2000 sites not situated in the area encompassed by the draft plan or scheme)” shall be necessary to be included within the application for planning permission.

Guidelines for small scale wind energy developments

3.1 Objective

The objective of this section is to present guidelines for:

Location of small-scale, i.e. two or less wind turbines, located within industrial and urban areas i.e. areas which have zoning objective, MC, SC, NC, GI, GI1, ST, ST1, MEC, MEC1, or WD.

These small scale wind energy developments are located outside key areas identified as appropriate for wind energy development (i.e. areas which are designated “Acceptable in Principle”, or “Open to Consideration”).

3.2 Background

A small scale wind energy development is defined as two or less turbines located each on a mast no more than twenty metres high. Higher wind turbine developments of two or less turbines will be considered in industrial areas (i.e. areas which are zoned, GI, GI1, ST, ST1, or WD) which are not already designated, “Acceptable on Principle” or “Open to Consideration”. These proposed developments will be subject to the developer demonstrating that the development will not impact in a negative way to an excessive degree on any neighbouring existing development.

Note a single wind turbine which meets the standards within S.I. No. 235 of 2008, Planning and Development Regulations 2008 (to include turbine height not more than twenty metres, and rotor diameter of eight metres), is considered to be “exempted development” which does not require planning permission when placed within the curtilage of an industrial or light business premises building.

3.3 Policy considerations

The location of wind energy development in a landscape is dependent on the sensitivity of that landscape to change brought about by the location. Sensitivity of landscape is defined as the “potential for significant change to any element in the environment that is subject to change” (*Revised Wind Energy Development Guidelines, Department of the Environment, Heritage, and Local Government, 2007, p.106*). The location and design of the proposed development must consider the sensitivity of the landscape in which it is proposed to be located. The applicant must have particular regard to the visual and environmental impact of the proposed development.

Landscape sensitivity

Within any urban area, there is a degree of high localised sensitivity to change resulting from wind energy development sourced in the proximity of population, and the facilities required for that population’s sustainability. Any wind energy development has the potential to change the nature and ambience of the existing development in a negative manner.

Conversely, within industrial areas, there is a low localised sensitivity owing to the nature of the existing or proposed development. Any wind energy is considered to be similar in form and purpose to the existing or proposed industrial uses. Therefore, it is considered not to have an excessively negative impact on the nature and ambience of the existing development.

Sensitivity on long range area-basis must also be considered in particular the cumulative impact of any proposed and existing wind energy development in the area.

Visual presence

It is important that in the proposed location of potential wind energy in any area, the impact of the visual presence upon the existing development be estimated. The following should be noted in the application:

An application should provide the absolute dimensions, and demonstrate through photomontages the dimensions relative to the surrounding existing

and proposed development.

- An intrusive or dominating impact on the area by the proposed development is to be avoided.
- The qualitative impact of the proposed development on surrounding existing development should be assessed by a submission of a landscape impact statement. The application should pay particular attention to the overshadowing impact of the development, and any potential “flicker” resulting from the rotation of the turbine blade.

Aesthetic impacts

The application should analyse the potential aesthetic impact of the development.

Particular attention should be paid to:

- The number of wind energy developments in areas, and the cumulative impact of the location of the proposed development.
- The size and relative scale of the proposed wind energy development. Mitigating factors should also be considered in the planning application by way of:
 - Location
 - Spatial extent
 - Cumulative impact
 - Spacing
 - Layout
 - Height

3.4 Requirements for planning permission applications

The following should be noted and addressed in a proposed application for planning permission for a small scale wind energy development:

- An application should provide the absolute dimensions of the proposed development, and demonstrate through photomontages the dimensions relative to the surrounding existing development.
- The suitability of the proposed height of the wind energy development within the overall, and particularly the landscape, context of the proposed development must be supported.
- The qualitative impact of the proposed development on the surrounding existing development should be assessed by a submission of a Landscape Impact Statement. The application must pay particular attention to the overshadowing impact of the development, and any potential “flicker” resulting from the rotation of the turbine blade. Any intrusive or dominating impact on the area by the proposed development must be avoided. The number of existing and proposed wind energy developments in the area, and the cumulative impact with existing, and other proposed, wind energy development must be assessed to ensure an appropriate aesthetic setting with the target landscape.
- Details of the noise levels from the proposed development should indicate that noise levels will be in line with the standards given in section e. of Chapter 2.

3.5 Development control standards

- Proposed small scale wind energy development should be limited to one such development per land holding.
- The proposed development shall be subject to the noise and visual standards given for wind farm development in Chapter 2. The proposed development shall be located more than 200m from adjacent house, or any other existing development which is sensitive to noise. If it is proposed to locate the development any closer to any existing noise sensitive development, the rationale for doing so should be contained within the application for planning permission.

Appendix 1

Landscape Character Assessment of Fingal County

Objective

The objective of this exercise is to decide the boundaries of the landscape character types within Fingal County. The types are defined in the Guidelines, and are,

- Mountain moorland,
- Hilly and flat farmland,
- Flat peatland,
- Transitional marginal land,
- Urban/industrial land, and Coast.

Landscape character is defined as, “a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse” (www.landscapecharacter.org.uk).

Area definitions

Mountain Moorland

Characteristics

- Mountains and uplands
- Unenclosed
- Blanket bog
- Remote

Definition of the area - Above 200m in altitude, comprising the Corine categories of Moorland, Natural Grassland and Forestry

There are no such areas located in Fingal.

Hilly and flat farmland

Characteristics

- intensively managed farmland, flat or hilly.
- patchwork of fields
- scattered houses
- significant roads and cable lines
- working, inhabited landscape

Definition of area - Less than 200m in altitude, covering land principally occupied by agriculture with areas of natural vegetation, broad leaved forests, or complex cultivation patterns. The land is principally occupied by agriculture comprising the Corine area of moorland, non-irrigated arable land, and pastures. Boundaries align approximately with the following Fingal Development Plan, 2005-2011, zoning objective boundaries, GB, RU, RC, RB, GB, HA, and RV1 areas, excluding the areas delineated under the Coastal zone. The county’s rural villages are included in this area in line with guidance in Guidelines.

Transitional marginal land

Characteristics

- moorland and farmland with a mix of small fields, tight hedgerows,
- may include rugged terrain
- higher ground is wet and boggy, lower is cultivated, and managed as fields

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- houses are common
- bridge between farmland and raised moorland

Definition – Areas below 200m which exhibit Corine categories of Broadleaved forests, Coniferous, Mixed forest, moors and heaths. Areas must be greater than 100ha.

There are no such areas located in Fingal

Urban and industrial

Characteristics

- urban complexity
- dominated by built structures

Definition - all lands within the Corine classification defined as “green urban area”, “discontinuous urban fabric”, and “industrial or commercial units”. Boundaries align with the Fingal Development Plan, 2005-2011 zoning objectives, MC, SC, NC, GI, GI1, ST, ST1, WD, and DA areas.

Coastal

Characteristics

- beaches, dunes, and cliffs
- scrub, heather and gorse are land cover
- harbours, villages and towns some of which are developed as resorts
- involves openness, nature, and recreation and may be identified as being of rare scenic quality

Definition - Lands which approximately align with the HA and OS boundaries adjacent to the coast of Fingal, and include the Estuary areas delineated on the Fingal Development Plan 2005-2011 Landscape Character Area type.

The coastal areas of Howth Head, Portmarnock, Malahide, Corballis, Portrane, the Burrow, Loughshinney, Rush, Skerries, and Balbriggan are included in this Landscape Character type. This area includes the areas zoned, “high amenity” adjacent to the coastline.

Appendix 2

Evaluating the sensitivity of the Fingal landscape

Objective

The objective is to evaluate and define the sensitivity of the Fingal landscape to the location on this landscape of wind turbine development.

Background

The Guidelines advise on the location of wind energy development according to whether the proposed development is located within one of the six landscape character types which are defined within the Guidelines (i.e. mountain moorland, hilly and flat farmland, flat peatland, transitional marginal land, urban/industrial land, and coastland).

The “*Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities*”, p. 8, define “Landscape Character” thus,

“where there is visual distinctiveness and identity through a continuity of similar characteristics”.

This document employs the same Landscape Character descriptors as defined within the Guidelines for the description of the landscape character within Fingal. Therefore, the applicant will be able to refer to the Guidelines for direction on the location of a wind energy development within Fingal County Council. The relevant advice to be followed will depend on the landscape character type in which the development is to be located.

The key determinant on whether or not to allow wind energy development in a particular location is the “sensitivity” of that location. “Landscape sensitivity” is defined as the potential for significant change to any element in the environment that is subject to impacts (“Guidelines”, p.106). This section describes the procedure which was followed in the evaluation of the landscape sensitivity.

Evaluating landscape sensitivity

The process of evaluating landscape sensitivity takes three steps:

1. Establishment of Landscape Character types which comprehensively cover the county.
2. Description of values which derive from the landscape character types seen within the county. These values may be described as, “the environment or cultural benefits that are derived from various landscape resources”.
3. Designation of the landscape sensitivity. This sensitivity results from consideration of character and values, and is a measure of the landscape’s ability to, “accommodate change without unacceptable loss of existing character or interference with values”.

The process of determining landscape sensitivity involved a review of the four landscape character types as they occur within the county to highlight areas of sensitivity to wind energy development. This review of sensitivity allocates the various landscapes of the county into one of the categories given below:

- a. Areas that are deemed acceptable in principle for wind energy development.
- b. Areas which open to consideration for wind energy development subject to local planning considerations and which shall be treated on their merits with an onus on the application to demonstrate suitability.

- c. Not acceptable areas, which are locations which are unsuitable for wind farm development, and where wind farms would be unacceptable.

Appendices 3, 4, and 5 demonstrate the link by which the Landscape Character Areas within the county are determined to be associated with particular sensitivities. The key link is the “values” which are attached to the Landscape Character Areas. To provide signposts for determining area sensitivity to the location of wind energy development, the following values and criteria within the landscapes were analysed.

Values and criteria which were used in evaluating leave the sensitivity of areas to the location of wind energy facilities-

The following values and criteria and their interaction were used to determine the sensitivity of the various landscapes which are present within Fingal:

- Fingal Development Plan 2005-2011 land use zoning
- Presence of ecological features in the landscape, including habitats, biotopes, wildlife sanctuaries, Special Areas of Conservation, Natural Heritage Areas, Special Protection Areas, areas covered by Special Amenity Area Orders.
- Scale of landscape
- Nature of landform
- Sense of enclosure
- Complexity of land-cover and features
- Man-made influence in landscape
- Presence of skylines and settings
- Visibility and views
- Landscape condition and quality
- Scenic quality, i.e. visual appeal of important views
- Wildness and tranquillity of landscape
- Presence of natural and cultural heritage features including archaeological and historical heritage.
- Cultural associations, including settlements, monuments, and items relating to social history and geography of the area.
- Amenity and recreation
- Quality, integrity and distinctiveness, of the characteristics of the area.

Conclusion

Following an analysis of the landscape, the Fingal landscape is described in relation to its sensitivity, drawing on the criteria listed above. Each area of the landscape is described according to whether wind energy developments, in that area, are acceptable in principle, open to consideration, or not acceptable. The resultant sensitivity of urban and rural areas of Fingal is set forth in appendices 3, 4, and 5, and mapped on the map 2.

Appendix 3

Definition of “Hilly and Flat Farmland” Landscape Character Type, and resultant sensitivity to wind energy development

Landscape character type	Landscape location	Definition of key landscape and visual values	Resultant sensitivity to Wind Energy Development
Hilly and Flat Farmland	North of Dublin Airport to northern boundary of county.	<p>Scale: Landscape is broadscale and expansive with rolling hills, rising to 120 m AOD in the north of the area. Liffey River valley runs in an east-west direction along the southern boundary of the county. The Liffey Valley landscape area is smaller and more intimate in scale than is seen elsewhere in Fingal.</p> <p>Landform: Flatter more gently inclined landscape with large fields enclosed by hedges in the mid and southern region of the county. Extensive rolling hills located to the north of a line between Ballyboghil and Lispopple. Particularly prominent hills on the northern border of the county at the Naul, and Garristown with small/medium sized fields enclosed by hedges.</p> <p>Enclosure: Hedges with scattered trees enclosing small/medium sized fields.</p> <p>Complexity of landcover/features: Landscape comprises largely small/medium sized fields with few irregularities.</p>	<p>Low to medium to high sensitivity to the location of wind energy developments.</p> <p>This is an area of open country side with rolling hills and small to medium size fields and a number of dispersed settlements.</p> <p>The greater part of this area with its gently undulating landscape is considered to be a generally unexceptional landscape which is considered to be “acceptable” for the location of wind turbines. The rolling landscape is generally unspoilt, rural and tranquil.</p> <p>Particular areas exist where wind energy development is only “open for consideration” or “not acceptable”.</p> <p>In the north of the area, on the Naul and Garristown Hills, protected views of rolling countryside are expansive. As a result, these hills are areas which are considered only, “open for consideration” for the location of wind energy developments.</p> <p>The Green Belts around major settlements are areas of high and particular amenity for the residents of these settlements, and as a result these areas are considered to be areas which should be protected from extensive wind energy development which might be detrimental to the rural amenity. Hence, these areas are considered to be, “open for consideration” for the location of wind energy developments.</p>

Landscape character type	Landscape location	Definition of key landscape and visual values	Resultant sensitivity to Wind Energy Development
		<p>Human-made influence: Extensive human made influence in the area. The area contains several small villages, and a proliferation of one-off houses. The Roganstown development and golf course is also located towards the south of the area</p> <p>Skylines/settings: No particularly prominent and distinctive skylines in the area.</p> <p>Visibility and views: Striking views to the south and south west from the Naul and Garristown uplands.</p> <p>Landscape quality: Condition good with well-maintained farm-buildings and intact field boundaries.</p> <p>Scenic quality: The views from the Naul and Garristown Hills in all directions are attractive. Protected views occur in particular around Garristown and the Naul Hills, along the Swords to Rowlestown road, and in the vicinity of Balrothery.</p> <p>Wildness and tranquillity: The area is located relatively close to Dublin. However, the lack both of major road links through the area and of major population centres within the area render it quiet and isolated.</p> <p>Natural and cultural heritage features: The Liffey Valley SAAO with its unique scenic value is located on the southern boundary of the area and proposed Natural Heritage Areas are also located in the area along the Royal Canal, the Bog of the Ring, and the Cloghran areas.</p>	<p>The Liffey Valley is an area of particularly high sensitivity to the location of wind energy development, given the scenic and amenity value which have resulted in these areas being largely zoned, "high amenity" and designated as SAAO. As a result, these areas should be defined as, "not acceptable" for wind energy developments.</p>

Appendix 4

Definition of “Coast” Landscape Character Type, and resultant sensitivity to wind energy development

Landscape character type	Landscape location	Definition of key landscape and visual values	Resultant sensitivity to Wind Energy Development
Coast	Located along the eastern boundary of the county, i.e. the coastal side. These lands align approximately with the areas with zoning objective, HA and OS, adjacent to the coast of Fingal County, and also include the Estuary Landscape Character type delineated on the Fingal Development Plan 2005-2011.	<p>Scale: Landscape is generally of an open, low-lying coastal form.</p> <p>Landform: Generally flat interspersed with occasional sandy areas and estuaries along the coastal stretch. Low rockfaces occur occasionally at the sea boundaries. The coastline does not have any high and dramatic cliffs which would make any wind energy development additionally prominent.</p> <p>Enclosure: Open landform, with large open fields bounded by low hedges and occasional trees.</p>	<p>Medium to high sensitivity to the location of wind farm developments.</p> <p>This landscape area has a high strategic amenity value given its proximity to the Greater Dublin Area. Of particular note are views of, and to the north and south from, the coastline. The coastline is also, in several locations, the protected habitat for numerous animal and bird species as indicated by its designation as a, “candidate Special Conservation Area”, or a “Special Protection Area”. Together these factors mean that the coastline has a value which must be not disrupted by the presence of wind energy development.</p> <p>The coastline does not have any high and dramatic cliffs which would make any wind energy development additionally prominent.</p> <p>Given the sensitivity of the landscape, resulting from its scenic, amenity, and/or landscape quality value, this area is designated for prospective wind energy development to be, “not acceptable”.</p>

Landscape character type	Landscape location	Definition of key landscape and visual values	Resultant sensitivity to Wind Energy Development
		<p>Complexity of landcover: Simple landcover, with large open fields, lined with hedges interspersed with occasional trees. Areas of sand dunes close to sea edge at frequent locations along coast e.g. Portmarnock and Portrairie.</p> <p>Human-made influence: Major population settlements including harbour facilities at key points along the coast. The Balleally refuse dump located on the northern side of the Rogerstown Estuary is a large and distinctive human-made feature. There are also several coastal golf courses located at Donabate, Corballis, and Portmarnock.</p> <p>Skylines and settings: There are frequent skyline settings along this coastal stretch. The “sweep” of coastal land between Skerries and Balbriggan, and in the area of Howth Head constitute settings of a particularly scenic nature.</p> <p>Visibility and views: This is an open landscape with coastal views to the north extending to the Cooley and Mourne Mountains and to the south, extending to Howth, and beyond to the Wicklow coastline and Hills.</p> <p>Landscape quality: The condition of the landscape is, at most, good as a result of high level of human usage of the area, e.g. intensive farming, residential/recreational uses, and Balleally (Lusk) dump site.</p>	

Landscape character type	Landscape location	Definition of key landscape and visual values	Resultant sensitivity to Wind Energy Development
		<p>Scenic quality: There are areas of good scenic value with fine views of the coastline along much of this coastal area, including Howth, Portrane, Skerries, and Balbriggan. Protected views occur at Ardgillan, Loughshinny, Portmarnock, and Howth.</p> <p>Wildness and tranquillity: There is little sense of wildness within the area given the high level of human influence. A sense of tranquillity is readily available within the area at many locations which are removed from human settlement.</p> <p>Natural and cultural heritage features: Candidate Special Areas of Conservation and Special Protection Areas at Rogerstown Estuary, Malahide Estuary, Portmarnock, Howth Head, the Skerries islands, Lambay Island, and Ireland’s Eye. There are also several proposed Natural Heritage Areas and the Howth Head SAAO within this area. Ardgillan House, Howth Castle, and Newbridge House are locations of special heritage value.</p>	

Appendix 5

Landscape sensitivity of specific areas within county

Area	Sensitivity	Rationale for Sensitivity
Bremore strip	Not Acceptable/Open to Consideration	Area with HA zoning objective overlooking sea, forming green barrier with Drogheda-based development to the north. Rolling landscape with fine seaside views in quality rural setting.
Naul uplands	Open to Consideration	HA zoning in hilly and rural area with good views in all directions result in a quality rural setting.
Garristown uplands	Open to Consideration	HA zoning in raised rural area with good but limited views of the surrounding countryside.
Loughshinney strip	Not Acceptable	HA or RU zoning with sensitive designation in area of low rolling hills overlooking the sea to the east. Fine views of the sea with an excellent rural setting combine to result in this rural area having a particularly high scenic and amenity value.
Ardgillan strip	Not Acceptable	Scenic rural area with fine views over the sea to the north. Ardgillan House with historic and amenity associations is located in this area. There is a need to preserve the unique amenity, and cultural value of this area
Lusk triangle between the M1, Loughshinny, Ardgillan Estate, and Rogerstown Estuary to the south.	Open to Consideration/Acceptable on Principle	This is an area of flat or gently rolling countryside of medium size fields and limited scenic potential. Hence it is considered to have wind energy development potential. The area located to the east in the vicinity of Baldongan and Milverton has scenic value, and is considered to be Open to Consideration for wind energy development.

Area	Sensitivity	Rationale for Sensitivity
Strip between M1 and Donabate	Open to Consideration	Flat open rural landscape adjacent to Donabate to the east. Newbridge House Demesne is located within this area. The open, lightly wooded nature of this rural area means that the area is considered to be Open to Consideration for wind energy development.
Rural band between Swords green belt and Naul	Acceptable on Principle	Open expanse of country side with low rolling hills mean this area is considered to be suitable for the location of wind energy development.
Green belt to north, east and west of Swords	Open to consideration	Low rolling hills to the north and west of this area, and flatter landscape located to the east and south west are of limited landscape value. The landscape to the south west is considered to be particularly suitable for wind energy development. The total area has a high rural amenity and recreational value for the residents of Swords. Any proposed wind energy development must act to maintain this amenity.
Donabate, Portrane, Corballis	Not Acceptable	Flat open large fields with coast on the eastern side of this area form a green belt between Donabate and Portrane. The coastal edge is marked by extensive sand dunes, and is a critical wild bird habitat. The area includes parts which are designated SAC and SPA. There is a need to preserve this unique seashore landscape, and hence it is considered unsuitable for wind energy development.
Portmarnock (peninsula and wetlands) Howth	Not Acceptable	Area marked by sand dunes of Portmarnock peninsula and craggy headlands of Howth. The area includes major parts which are designated SAC and SPA. Howth Head is a unique scrub, and gorse-covered landscape with fine views in all directions, and thus is designated an SAAO. There is a need to preserve this unique coastal landscape and habitat, and hence it is considered to be unsuitable for wind energy development.

Area	Sensitivity	Rationale for Sensitivity
Liffey Valley	Not Acceptable	Area marked by fine rural scenery with Liffey river, and heavily wooded valley. There is a need to preserve this unique river valley landscape, and thus the area is designated an SAAO, and is considered unsuitable for wind energy development.
All urban areas	Not Acceptable	There is a need to preserve the residential amenity of the residents and users of the urban area, and also the special physical and social character of the urban area. Thus these areas are considered to be unsuitable for large scale wind energy development. One-off wind turbines might be acceptable, subject to the principles of the proper planning and development of the area, within these areas..
All industrial areas (i.e. those which are zoned GI, G11, ST, ST1, and WD)	Open to Consideration if located adjacent to an area which is not acceptable. Otherwise, these areas are designated as Acceptable in Principle	These are areas of limited value for activities other than industry. Hence, they are at least considered Open to Consideration for wind energy development

Appendix 6

**Recommendations on proposed wind energy developments depending on
landscape character type**
(ref. Revised Wind Energy Development Guidelines for Planning Authorities, Department
of the Environment, Heritage, and Local Government, 2007, p.78)

Landscape character type	Location	Spatial extent	Cumulative effect	Spacing	Layout	Height
Hilly and flat farmland	Anywhere	Generally limited to small wind energy developments.	Acceptable depending on appropriate siting and design.	Regular	Linear and staggered linear layout on ridges and clustered on hilltops.	Medium typically preferred but tall may be acceptable.
Urban/Industrial	Close to but distinct from contiguous structures.	Tend towards small-relate in scale to height and spatial extent of contiguous structures.	Minimal tolerance.	Regular spacing is preferred. Graded spacing may be acceptable where composed relative to existing structures.	Linear or staggered linear is preferred. A grid may be acceptable contiguous to larger structures.	Short enough so as not to over-power existing buildings. A few tall turbines may be successful relative to the scale of existing buildings.
Coastal	Set back from water.	Do not cross over between beaches and rocky promontories.	A second wind farm may be acceptable only at a very great distance with minimal visual presence.	Regular is most appropriate. Graded spacing may be acceptable on promontories	Linear especially along beaches. A cluster may be acceptable on promontories	Tall may be acceptable, especially along beaches. Profile should be even.

Appendix 7

Information required for all wind energy planning applications

This appendix lists the essential information which must be included in any planning permission application for a wind energy development located within Fingal.

1. A detailed description of development.
2. A Landscape Impact Assessment for the proposed development, according to the layout in Appendix 3 of the Department of the Environment, Heritage, and Local Government Guidelines on the location of Wind Energy Development, 2007. This proposed report will assess the performance of the proposed development particularly as it relates to all the items listed in Appendix 7.
3. Assessment of the current local archaeology, flora, fauna, geology, landscape, noise, soils, watercourses, and aquifers.
4. Description of the visual and physical impact of the proposed development on the subject landscape.
5. Description of any proposed mitigation factors related to potential impacts of the proposed wind energy development.
6. Assessment of potential noise impact of proposed development, including background noise monitoring over at least five days.
7. Turbine coordinates
8. Trial pits and reports at each turbine location.
9. Assessment of the levels of anticipated traffic and traffic routes associated with the proposed development.

Illustrations

1. Location map using 1:50,000 Discovery Series Map.
2. Layout map with turbine coordinates using 1:2,500 maps.
3. Turbine, turbine pad, standing area details, and sub-station compound at a scale not less than 1:200.
4. Site roads at a scale not less than 1:200, with sections at a scale of not less than 1:25.
5. Map showing local archaeological sites at a scale not less than 1:2,500
6. Map showing local wild life habitats at a scale not less than 1:2,500.
7. Map using 1:50,000 Discovery Series Map of any environmental designations (e.g. (candidate) Special Areas of Conservation, (candidate) Special Protection Areas, (proposed) Natural Heritage Areas, Sensitive Areas, Ramsar Convention Areas) within ten km of the proposed development.
8. Map using 1:50,000 Discovery Series Map showing any landscape designations (Sensitive Areas) within ten km of the proposed site.
9. Map using the 1:50,000 Discovery Series Map showing the location of aquifers within ten km of the proposed site.
10. Map using the 1:50,000 Discovery Series Map, showing VRP's (the viewshed reference point, i.e. the location of viewpoints from which the photographs were taken to generate photomontages). A list indicating the physical location of the VRP's with VRP grid references shall be included.
11. Map using the 1:50,000 Discovery Series Map, showing ZTV (zone of theoretical visibility) of the proposed development.
12. Set of photomontages based on visibility of half blade length, showing the impact on the landscape of the proposed development from the viewpoints given under point 10.

Chapter 3

Appendices to application

1. Technical description of the proposed turbine type with drawings showing maximum dimensions.
2. Shadow flicker data.
3. Baseline noise data.
4. Photomontage data. This data will show the coordinates of the viewpoints onto the

Appendix 8

Consultation with adjoining Local Authorities

The Guidelines recommend that a Local Authority preparing a Wind Strategy consult with adjoining Local Authorities in order to assure that the Wind Strategy which is being prepared is consistent with those of the neighbouring authorities.

As of the 31st May 2008, Kildare County Council. confirms that it is not yet considering the formulation of a wind energy strategy, As of 29th April 2009, South Dublin County Council, and Meath County Council, all confirm that they are not yet considering the formulation of Wind Energy Strategy. Dublin City Council has not yet replied to the request for information on this issue.

Note: Planning permission for the location of any wind energy development on any land areas which are Open to Consideration or Accepted in Principle for Wind Energy development will mean that the Zone of Visual Influence of the proposed development does not extend to any excessive, or unacceptable degree into any adjacent area which is designated Not Acceptable for wind energy development.

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