

# Appendix 6: Wind Energy Strategy



# Wind Energy Strategy

## 1.1 Introduction

At present, most of Ireland and the world's energy needs are met by fossil fuels; oil, coal and natural gas. Reserves of these fuels are finite, and the present trend of increasing fossil fuel consumption is unsustainable. The emission of greenhouse gases caused by fossil fuel combustion contributes to climate change. The development of wind energy resources, replacing the need for conventional power plants can help to conserve limited fossil fuel reserves, reduce environmental damage and slow the rate of climate change.

It is acknowledged that Ireland has a wind resource that is among the richest in Europe. This is mainly concentrated in the mountainous and coastal areas where landscape quality and environmental designations can often be of considerable significance. This, in many cases, leads to significant land use planning conflicts, which require careful resolution.

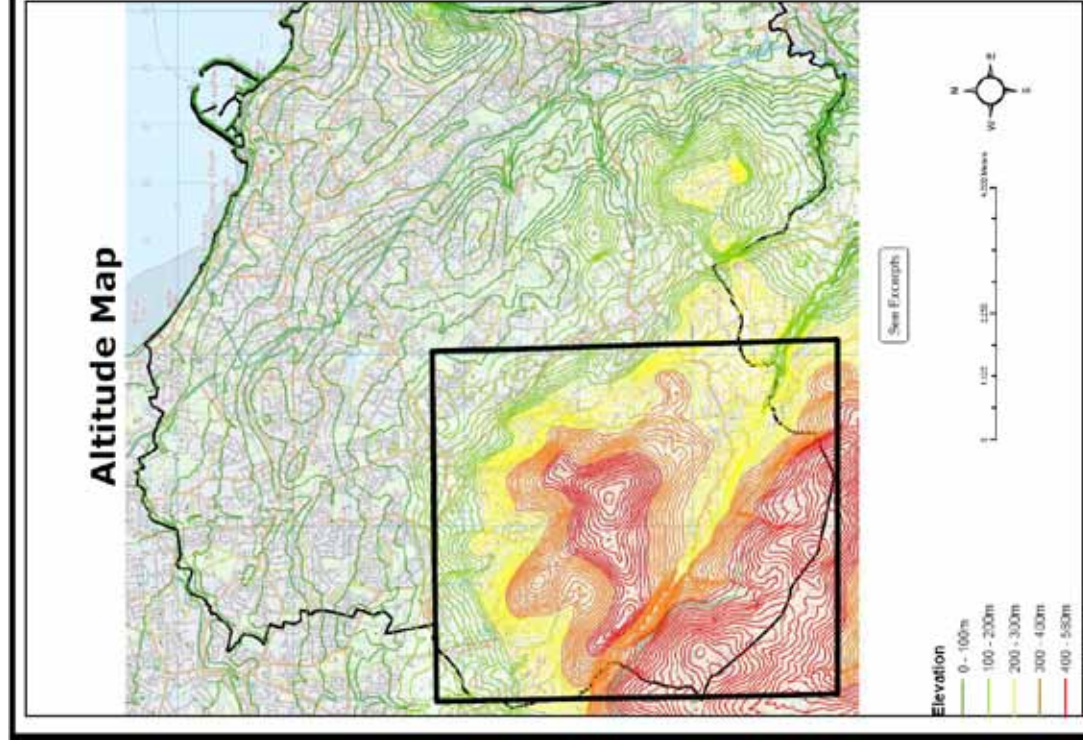
Dún Laoghaire-Rathdown County Council recognises the need to reduce dependence on fossil fuels for energy generation, and supports the development of renewable resources.

## 1.2 County Description

The County is framed by its coastal and upland landscapes and the range of landscape character areas between the mountains and the sea testify to the variety of those landscapes in what is the smallest administrative County in Ireland. The coast and the Dublin Mountains are both significant to the identity of the County.

The 17km coastline of Dún Laoghaire-Rathdown is diverse varying from rocky headlands with a variety of inlets, long established harbours and high quality beaches. The Dublin Mountains form a distinct south-western edge to the Dublin conurbation, acting as an accessible resource for both active and passive recreational pursuits.

The Dublin Mountains to the southwest of the County rise in excess of 500m in some places - the peaks of Two Rock, Glendoo and Glencullen Mountains. In terms of wind speed intensity, these locations offer the most obvious potential for wind energy generation in the County.



## 1.3 Policy Context

### 1.3.1 National

Development of alternative energy sources is a priority at National and European level for both environmental and energy policy reasons. The context in Ireland is set by Government policies for the provision of electricity from renewable and indigenous sources in line with official European and United Nations targets for reducing dependency on fossil fuels and emission of greenhouse gases.

The 'Wind Energy Development Guidelines' issued by the Department of the Environment, Heritage and Local Government in 2006 aim to offer advice to Planning Authorities on planning for wind energy through the Development Plan process and in determining applications for planning permission. They also provide a sample methodology for the identification of suitable locations for wind energy development within their boundaries and the treatment of planning applications for wind energy development proposals. The Guidelines are also to be used as a useful guide for developers and the wider public when considering wind energy developments.

The Department of Environment, Community and Local Government is currently conducting a targeted review of the Guidelines solely in relation to three potential impacts: noise, setback distances and shadow flicker. It is a targeted review focusing on these specific issues. All other sections of the Guidelines (including existing appendices) will remain as originally drafted.

A key proposal in the Review document is that a minimum separation distance of 500m between commercial scale wind turbines and the nearest point of the curtilage of any property in the vicinity be maintained. The draft revisions to the Guidelines also propose a more stringent absolute noise limit (day and night) of 40dBA compared with the previous higher fixed daytime limit of 45dBA and 43dBA at night. The Review is expected to be concluded by the end of 2014.

### 1.3.2 County Level

#### General

The Council recognises the importance of wind energy in fulfilment of its overall policy to support the National Climate Change Strategy .

#### **Policy CC2: Development of National Climate Policy and Legislation.**

*It is Council policy to support the Government Programme for the Development of a National Climate Change Policy and legislation on an ongoing basis through the implementation of supporting policies in the Development Plan, particularly*

*those promoting use of alternative and renewable energy sources, energy efficiency, sustainable transport and land use planning.*

#### **Policy CC4: Wind & Wave Energy.**

*It is Council policy to support and promote, in conjunction with other relevant agencies, wind energy initiatives – both on-shore and offshore – when these are undertaken in an environmentally acceptable manner.*

The aspirations for renewable energy must be balanced with the requirements to preserve natural resources throughout the County as amenity assets as set out in the County Development Plan as follows:

#### **(i) Recreation and Amenity Policies**

##### **Policy LCHB3: High Amenity Zones**

*It is Council policy to conserve and enhance existing High Amenity zones and to seek to manage these and other areas to absorb further recreational uses and activity without damaging the amenities that affords them their special character.*

##### **Policy LCHB5: Protection of Natural Heritage and the Environment**

*It is Council policy to protect and conserve the environment including, in particular, the natural heritage of the County and to conserve and manage Nationally, Internationally important and EU designated sites such as Special Protection Areas, Candidate Special Areas of Conservation and proposed Natural Heritage Areas, Ramsar sites as well as non-designated areas of high nature conservation value which serve as 'Stepping Stones' for the purposes of Article 10 of the Habitats Directive.*

##### **Policy LCHB17: Habitats Directive**

*It is Council policy to ensure the protection of natural heritage and biodiversity, including European sites that form part of the Natura 2000 network, in accordance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines.*

##### **Policy LCHB20: Non-Designated Areas of Biodiversity Importance**

*It is Council policy to protect and promote the conservation of biodiversity in areas of natural heritage importance outside Designated Areas and to ensure that notable sites, habitats and features of biodiversity importance – including species protected under the Wildlife Acts 1976 and 2000, the Birds Directive 1979, the Habitats Directive 1992, and rare species – are adequately protected. Ecological assessments will be carried out for all developments in areas that support, or*

have potential to support, features of biodiversity importance or rare and protected species and appropriate mitigation/avoidance measures will be implemented. In implementing this policy regard shall be had to the recommendations and objectives of the Green City Guidelines (2008) and "Ecological Guidance Notes for Local Authorities and Developers" (Dún Laoghaire-Rathdown Version 2013).

**Policy LCHB10: Dublin Mountains Strategic Plan**

It is Council policy to support the vision and objectives of the Dublin Mountains Strategic Plan for Development of Outdoor Recreation (2007-2017) including the continued development and enhancement of the Dublin Mountains Way.

**Policy LCHB12: Recreation Access Routes**

It is Council policy to preserve all Recreation Access Routes which contribute to general amenity.

**Policy LCHB13: National Park**

It is the policy of the Council to cooperate in the establishment of a Wicklow Mountains National Park.

**Policy LCHB27: Trails, Hiking and Walking Routes**

It is Council policy to promote the development of regional and local networks of hiking and walking routes/trails and to develop Sli na Slainte Routes. These should be waymarked/signposted and listed where feasible and appropriate.

**(ii) Policy on Landscape:**

**Policy LCHB1: Preservation of Landscape Character Areas\***

It is Council policy to continue to preserve and enhance the character of the County's landscapes in accordance with the recommended strategies as originally outlined in the Landscape Character Assessment (May 2002 and since updated), in accordance with the "Draft Guidelines for Landscape and Landscape Assessment" (2000) as issued by the Department of Environment and Local Government, in accordance with the European Landscape Convention (Florence Convention) and in accordance with "A National Landscape Strategy for Ireland – Strategy Issue paper for Consultation" (Sept 2011). The Council shall implement any relevant recommendations contained in the Department of Arts Heritage and the Gaeltacht's National Landscape Strategy for Ireland, 2014 – 2024 as and when it is finalised and published.

**Policy LCHB4: Historic Landscape Character Areas**

In assessing development proposals it is the policy of the Council to have regard to the recommendations and findings of the Historic Landscape Character Assessments (HLCA) undertaken for the urban rural-fringe areas of the County

**Policy LCHB5: Views and Prospects**

It is Council policy to protect and encourage enjoyment of views and prospects of special amenity value or special interests.

**Policy LCHB24: Geological Sites**

It is Council policy to protect sites of Geological and Geomorphological importance, in particular the proposed Natural Heritage Areas (NHAs) and any County Geological Sites (CGS) that become designated during the lifetime of this Plan.

**(iii) Policy on Built Heritage**

**Policy AH1: Protection of Archaeological Heritage**

It is Council policy to protect archaeological sites, National Monuments (and their setting), which have been identified in the Record of Monuments and Places (RMP), whilst at the same time reviewing and assessing the feasibility of improving public accessibility to sites and monuments under the direct ownership or control of the Council.

**Policy AR11: Industrial Heritage**

It is Council Policy to: i. Have regard to those items identified in the Industrial Heritage Survey listed in Appendix 9 when assessing any development proposals. ii. Identify further sites of industrial heritage significance with a view to assessing them for inclusion in the Record of Protected Structures.

## 1.4 Analysis of Suitable Areas for Wind Energy

### 1.4.1 Methodology

The methodology adopted for this study is largely derived from the 'Wind Energy Planning Guidelines' issued by the Department of the Environment, Heritage and Local Government in 2006.

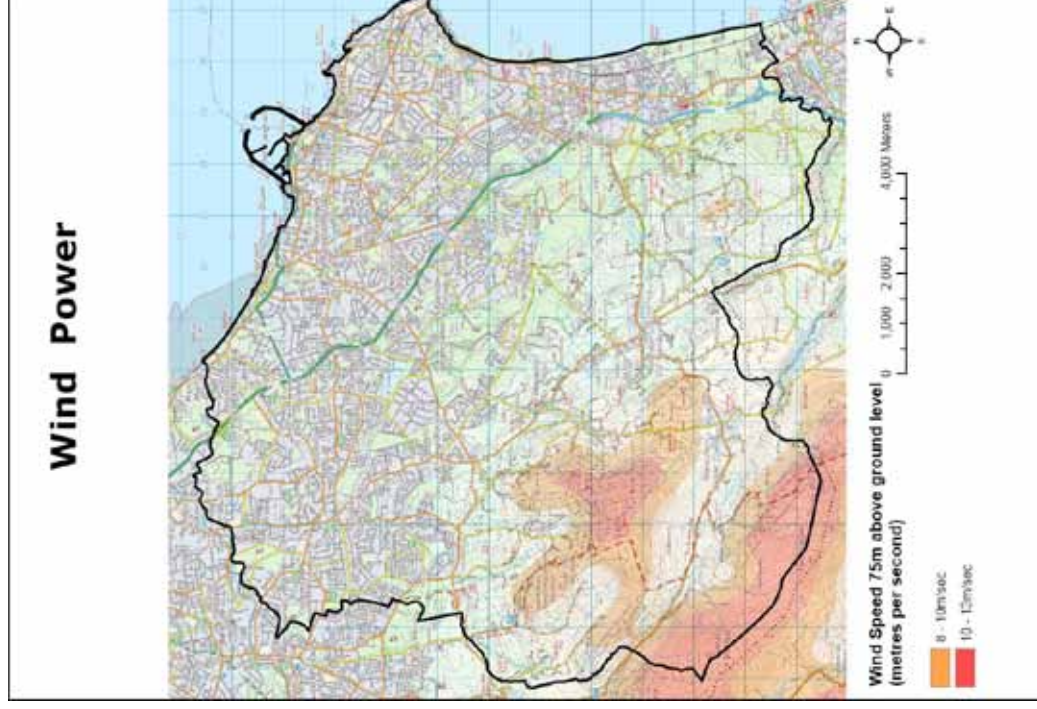
### 1.4.2 Wind Potential

An evaluation of the wind resource for Dún Laoghaire-Rathdown County is presented in mapped figures as part of this report. The data, abstracted from the Wind Atlas 2003 prepared by Sustainable Energy Ireland (SEI) illustrates the 'constrained wind resource' for the county at 75m above ground level. The SEI provides data on wind speeds at 50m, 75m and 100m above ground level, to provide an indication of present and future potential. The decision to use the 75m wind speed potential for the analysis is on the basis it represents the median wind speed potential and that the relative difference between the 75m and 100m wind speed potential is marginal. The 'constrained wind speed' is presented on a County Map (see map 2). The areas in which the wind speeds are sufficient for harnessing of wind energy encompass those areas with an average wind speed in excess of 8 metres per second, and will be referred to as the 'Area of Potential' in this report.

As can be seen in Map 2, the areas of highest wind speed intensity are in the southwest quadrant of the County, focussed on the peaks of Two Rock, Glendoo and Glencullen Mountain. The remainder of the County has generally low average wind speeds, from 3-7 metres per second and would not be considered viable for commercial wind energy production.

It is intended to focus on the assessment of the 'Area of Potential' for wind energy and to balance the potential of the area for wind energy generation with potential impacts on the natural and built heritage – focusing cumulatively on:

- Areas of environmental designation
- Landscape Character Area
- Archaeological Heritage
- Architectural Heritage
- Protected Views and Prospects
- Residential Amenity



Map 2: Wind Speeds measured at 75m above ground level.



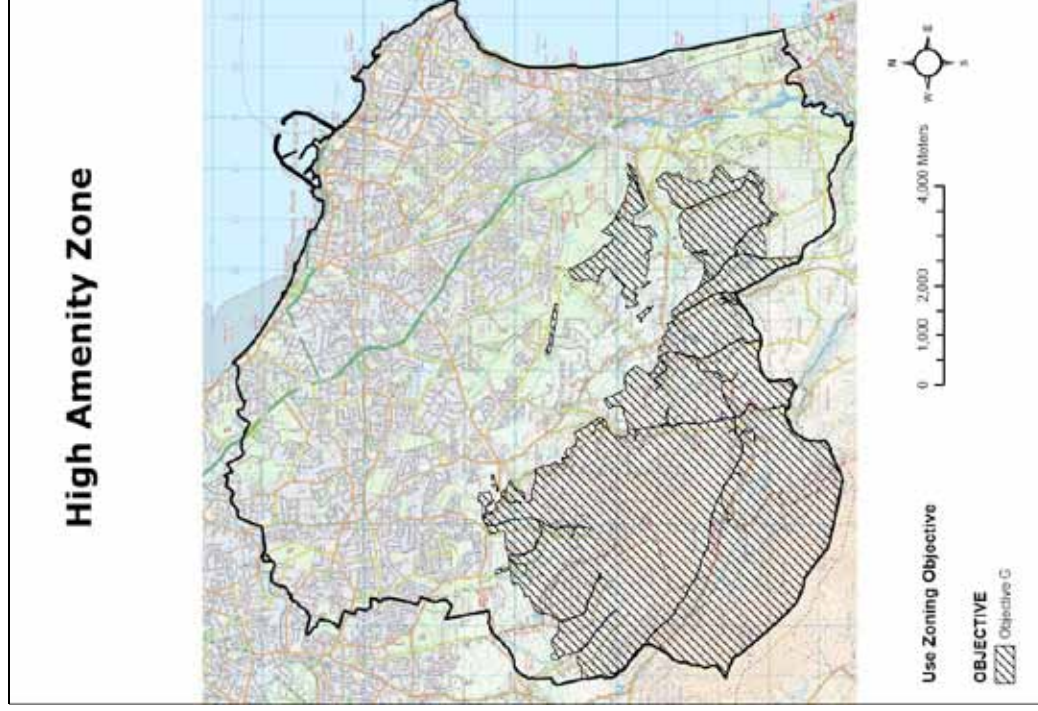
### 1.4.3 Landscape Evaluation and Sensitivity

Dún Laoghaire-Rathdown contains significant areas of landscape importance. The importance of these areas is particularly key due both to the established built-up nature of the majority of the County and the continuing pattern of densification and intensification. There is a clear presumption, as set out in Council Policy framework referred to above, in favour of conserving, maintaining and enhancing the landscape character of the County to enable those living within, and those visiting Dún Laoghaire-Rathdown to reap the benefits of the high quality environment and leisure and recreation amenities which this landscape facilitates.

The 'Area of Potential' is located entirely within the land use zone 'Objective G' - "To protect and improve high amenity areas". High amenity lands are considered the most sensitive lands in the County and are afforded the greatest level of protection of any zone. It is Council policy that, within zoned high amenity areas, any development not related directly to the area's amenity potential or its existing use for agriculture, mountain or hill farming shall not be permitted.

In 2002, during the preparation of the 2004-2010 County Development Plan, a Landscape Character Assessment of the primarily rural areas of the County was carried out. This identified 13 Landscape Character Areas with a recommended strategy for each area. The Landscape Character Assessment process provides a high level planning tool to aid decision-making and management in these areas. The updated Landscape Character Assessment is attached as Appendix G to the main Written Statement.

The 'Area of Potential' is located predominantly in the 'Glendoo Valley' Character Area. This enclosure encompasses much of the Glencullen river valley and is bounded on either side by Glendoo Mountain and Two Rock Mountain. The upper reaches of Glendoo Mountain which are forested but underlain with peat form part of the proposed Wicklow Uplands Park. Scrubland and deciduous species predominate in this river valley. Development is sparse and the land use is still predominantly agricultural.



Map 3: High Amenity (Zoning Objective 'G')

#### 1.4.4 Natural and Built Heritage, Archaeology, Development Plan Designations

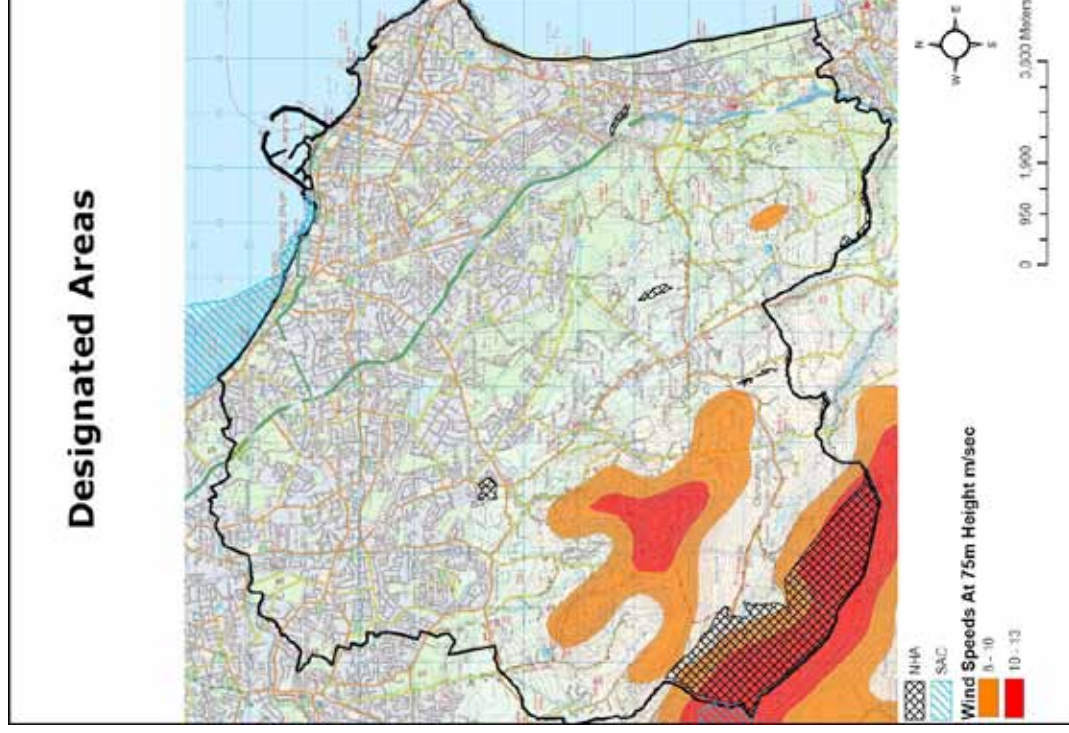
An overview of the heritage resources, archaeology and designations within the Development Plan for the County is presented in the context of the potential constraints arising that may restrict or inhibit potential wind energy developments. This assists in identifying those areas affected by statutory obligations and helps to balance environmental sensitivities with the goal of maximising the utilisation of wind energy resources.

##### **Natural Heritage:**

There is a range of sites in the County that are designated under National and EU legislation. The National Parks and Wildlife Service designates Special Protection Areas (SPA) and candidate Special Areas of Conservation (SAC) under the EU Birds and Habitats Directives respectively. Proposed Natural Heritage Areas (pNHAs) are designated to conserve species and habitats of national importance as well as sites of geological interest. All of the sites designated for natural heritage protection are part of a European network of designated sites called "Natura 2000".

The Wicklow Uplands is a designated site of international and national importance located within the 'Area of Potential'. It is both a proposed Natural Heritage Area and a proposed Special Area of Conservation.

The geographical location of the above is shown on Map 4. The 'Area of Potential' is located partially within the Wicklow Uplands SAC. The National Parks and Wildlife Service state that the Wicklow Uplands is "*important as a complex, extensive upland site*". It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats with heath, blanket bog and upland grassland covering large, relatively undisturbed areas. In all, ten habitats listed on Annex I of the EU Habitats Directive are found within the site. Several rare, protected plant and animal species occur.



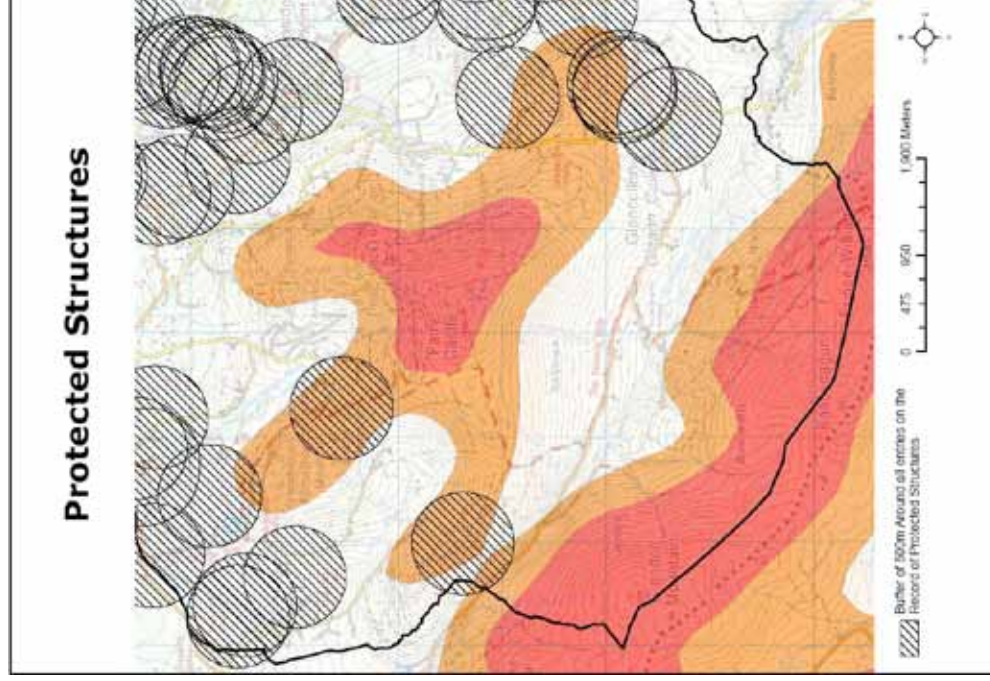
Map 4: Environmental Designations - cSAC, pNHA.



**Built Heritage:**

Dún Laoghaire-Rathdown has a diverse architectural heritage that is reflected in the number of areas of special character, which are defined as Architectural Conservation Areas, and a very high number of Protected Structures. The Record of Protected Structures is listed in Appendix C of the written statement and are shown on the County Development Plan Maps.

There are a number of Protected Structures within proximity to the 'Area of Potential'. A buffer of 500m was mapped around all Protected Structures in the area (see Map 5) and there is some overlap between the buffer areas and the 'Area of Potential', particularly around Glencullen Village and Ballyedmonduff Road.



Map 5: Architectural Heritage - 500m buffer around all Protected Structures

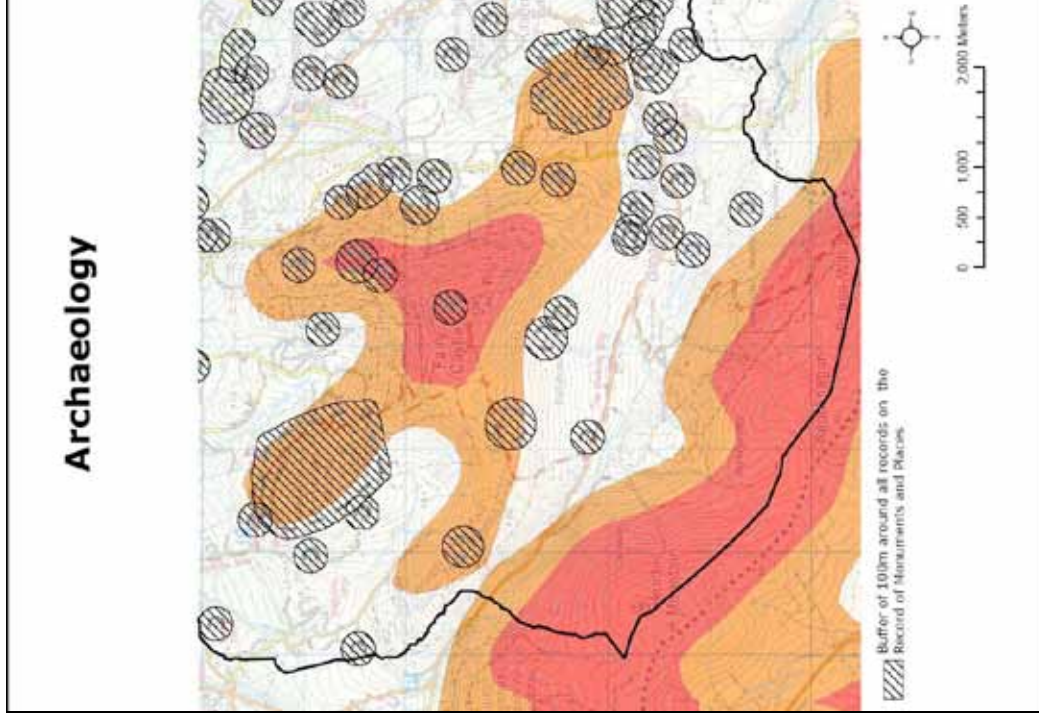
### **Archaeology:**

Dún Laoghaire-Rathdown has a rich archaeological heritage, which has left its traces in the landscape. This heritage includes structures, constructions, groups of buildings, moveable objects, developed sites, all recorded monuments as well as their contexts whether situated on land or underwater. The Council fully recognises its role in protecting this resource for future generations to enjoy.

The Record of Monuments and Places (RMP) is accompanied by a set of maps on which monuments are designated by the relevant reference number and denoted by a circle defining a Zone of Archaeological Potential. These are shown on the Development Plan Maps and listed in Appendix C of the written statement.

There are a number of Recorded Monuments within the 'Area of Potential'. A buffer of 100m was mapped around all Recorded Monuments in the area and there is some overlap between the buffer areas and the 'Area of Potential', particularly around Two Rock Mountain.

While the location of features of archaeological interest does not preclude, definitively, the potential for wind farm development, clearly the significant number of recorded sites in the area places a potential constraint.



Map 6: Record of Monuments and Places – 100m buffer

### **Development Plan Designations**

**Zoning:** The zoning maps of the County Development Plan highlight areas that are zoned as High Amenity areas. These areas consist of landscapes of special value where inappropriate development would contribute to a significant diminution of the landscape setting of the County. These areas include the Glencullen Valley, Glendoo Valley and Kilmashogue Valley. The areas adjacent to the High Amenity areas are also sensitive landscapes as development in these areas may affect directly or indirectly the quality of the High Amenity areas. The Area of Potential falls within the high amenity zoning.

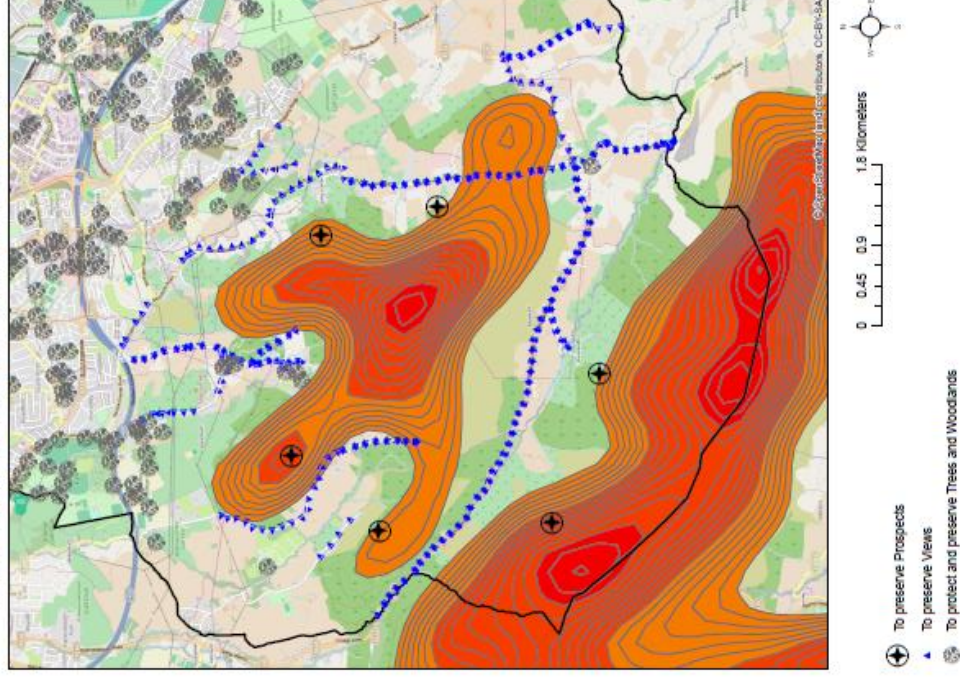
Within zoned High Amenity areas the Council will generally resist any development not related directly to the area's amenity potential or its existing use for agriculture, mountain or hill farming.

### **Views and Prospects:**

The County contains many sites, areas and vantage points from which views over areas of great natural beauty, local landmarks, historic landscapes, adjoining counties and the City of Dublin may be obtained. In addition to scenic views, the County also contains important prospects i.e. prominent landscapes or areas of special amenity value or special interest which are visible from the surrounding area. Views and prospects for protection have been identified in the Plan. Of the fourteen prospects listed in the Development Plan to be preserved, six are concentrated in the general area of the 'Area of Potential', as demonstrated by Map 7. These are:

- **Three Rock Mountain and Two Rock Mountain from the Enniskerry Road (Sandyford -Kiltiernan area) and Sandyford Village**
- **Three Rock Mountain and Two Rock Mountain from the Ballybrack Road**
- **Three Rock Mountain and Kilmashogue Mountain from Marlay Park**
- **Tibradden Mountain and Kilmashogue Mountain from Kilmashogue Lane**
- **Glencullen Mountain and Valley from the Ballybrack Road**
- **Glendoo Mountain from the Ballybrack Road**

## **Protected Views and Prospects**



Map 7 Views and Prospects



### **Specific Local Objectives (SLO):**

Specific Local Objectives relating to the identified area include the following:

SLO 35: "Through the Council's membership of the Dublin Mountains Partnership, to improve the recreation potential of the public lands in the Dublin Mountains, including the provision of a Dublin Mountains Interpretive Centre".

SLO 49: "To protect and conserve the Wicklow Mountains National Park Candidate Special Area of Conservation."

SLO 51: "To protect and conserve the Knocksink Wood Candidate Special Area of Conservation."

### **1.4.5 Electricity Transmission and Distribution Network**

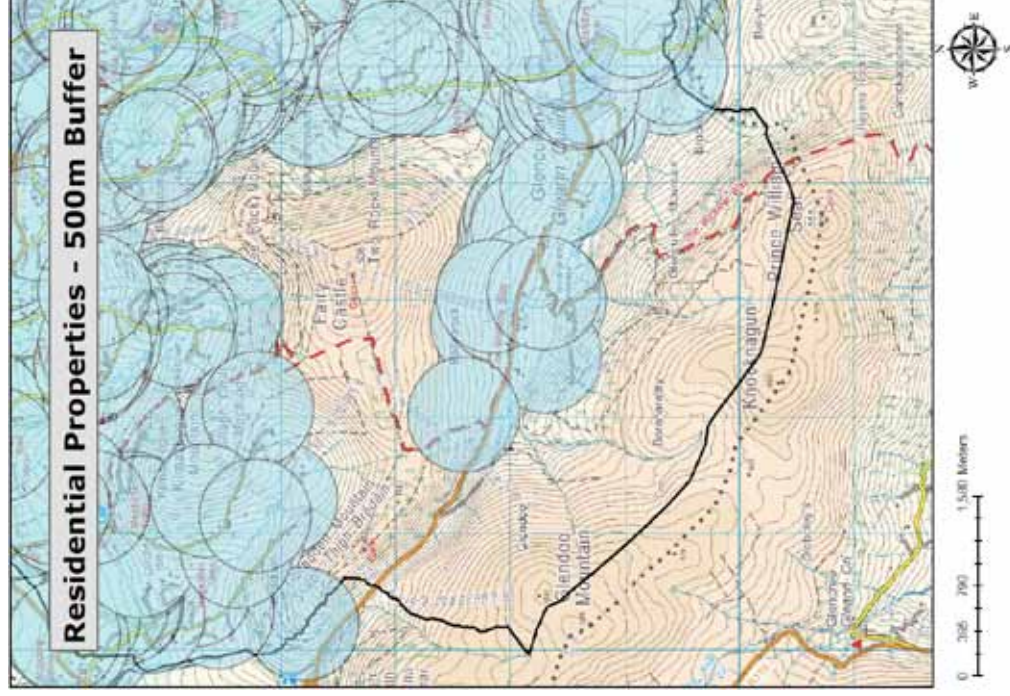
Details of the electricity transmission and distribution network are provided in Sustainable Energy Ireland's Wind Atlas for Ireland. The location of the existing transmission and distribution network, which serves the adjoining urban area, has been analysed and is considered to be in sufficiently close proximity to the 'Area of Potential' to facilitate potential wind farm development.

While physical proximity to the transmission and distribution network is not considered an issue, the question of the visual impact of the works that would be required to connect to any potential wind farm development and the precedent that these works would represent for further development in the uplands of the Dublin Mountains would be a serious issue for the Planning Authority and would act as a major potential constraint to the development of wind energy infrastructure.

### **1.4.6 Residential Properties**

The *Wind Energy Development Guidelines* states that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property exceeds more than 500m. It also makes reference to a 500m separation distance in terms of shadow flicker: "It is recommended that shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day.

Map 8 indicates a 500m buffer zone around residential dwellings within the vicinity of the 'Area of Potential'. It is clear that the presence of many residential properties in close proximity to the 'Area of Potential' act as a potential constraint to the development of wind energy infrastructure.



Map 8. Buffer of 500m around residential properties

## 1.5 Conclusion

A relatively small area has been identified, through the methodology set out in the *Wind Energy Development Guidelines for Planning Authorities' 2006*, as having wind speeds sufficient for harnessing wind energy. This area is shown on Map 9 and Map 10 and amounts to roughly 400ha.

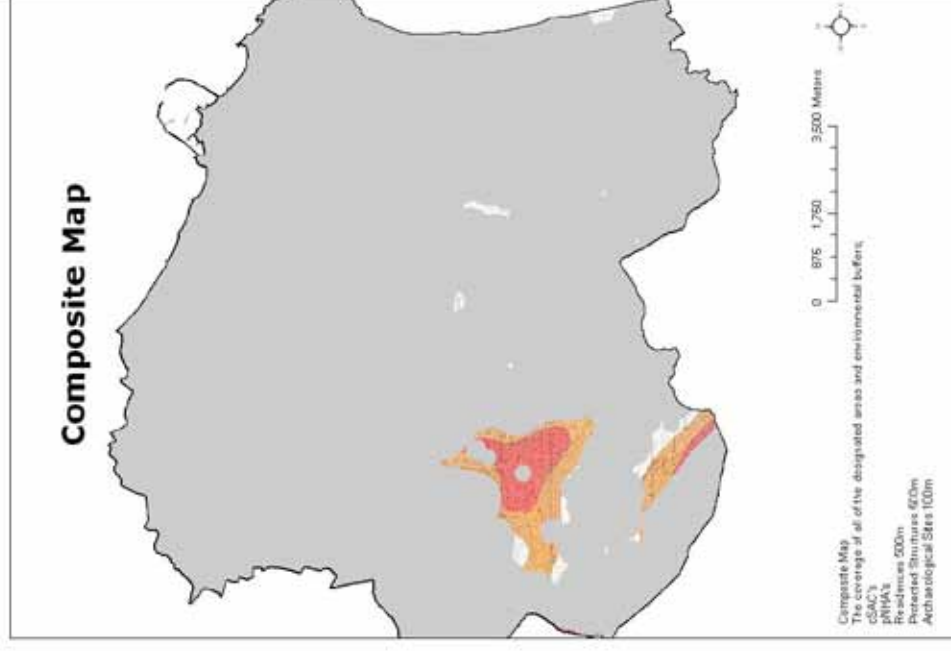
The infrastructure (i.e. service roads and power lines) associated with wind farm developments can cause an adverse visual and environmental impact. Not only will this have a disproportionate effect on Metropolitan Dublin vis a vis skyline issues and adverse visual impact, but will also set a precedent of opening up the Dublin Mountains for further development. The Dublin/Wicklow Mountains provide an extremely important recreational and visual amenity for the whole City of Dublin. The Mountains provide both a dramatic visual backdrop to the City and a recreational opportunity for the urban population of Greater Dublin to gain relatively easy access to a contrasting, unspoilt rural landscape.

The Council acknowledges that wind energy as a renewable energy source could have an important role to play in achieving national targets in relation to reductions in fossil fuel dependency and therefore greenhouse gas emissions. However, as demonstrated there is a strong correlation between areas suitable for wind energy generation and vulnerable, sensitive upland landscapes. As such the Council seeks to strike a balance between the benefits of renewable energy developments and negative impacts on our rich environment.

The *Wind Energy Development Guidelines for Planning Authorities' 2006* set out the methodology for determining the classification of various landscapes in terms of their potential for wind energy developments. It is recommended that Planning Authorities classify areas where wind energy developments are either

- (a) acceptable in principle;
- (b) open to consideration; or
- (c) not acceptable.

The Wind Strategy has assessed the 'Area of Potential' for wind energy generation in relation to environmentally designated areas, land use zoning objectives and specific local objectives, protected views and prospects, archaeological and built heritage and the potential impact on the residential amenity of adjacent dwellings.



Map 9 – Area in the County with potential wind speed – not covered by designation/buffer

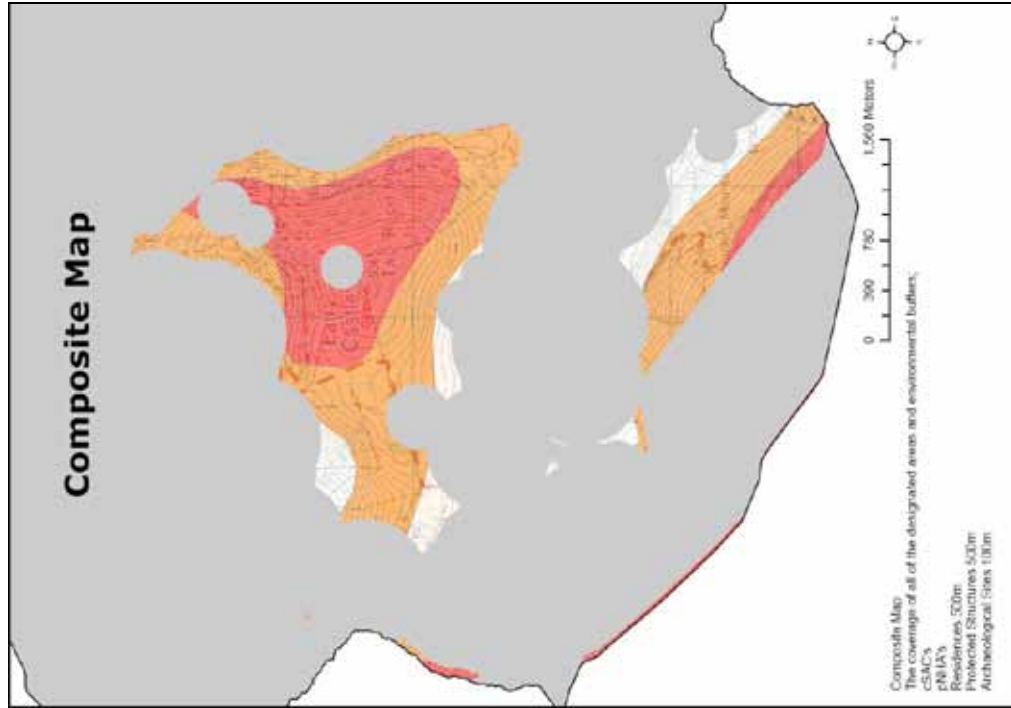


It should be reiterated that the 'Area of Potential' is located entirely within the land use zone 'Objective G' - "To protect and improve high amenity areas". This layer has not been included on the composite map opposite. However, high amenity lands are considered the most sensitive lands in the County and are afforded the greatest level of protection of any zone. It is Council policy that, within zoned high amenity areas, any development not related directly to the area's amenity potential or its existing use for agriculture, mountain or hill farming shall not be permitted.

It is considered that, in weighing up the costs of introducing wind energy generation in the mountains, the visual and environmental impacts of associated development such as access roads, plant, grid connections etc. and the precedent that these developments would set for further development in the mountains, in light of the limited 'Area of Potential', outweighs the potential benefits in planning and environmental terms.

In summary, having regard to the very limited scale of the 'Area of Potential' in the County, and the issues outlined above, there are no areas in the County that the Planning authority can recommend where large scale commercial wind energy infrastructure should be either "acceptable in principle" or "open to consideration".

Notwithstanding the above, the Council remains supportive of off-shore wind energy development and small-scale wind energy developments within urban and industrial areas.



Map 10 - Excerpt of Area in the County with potential wind speed not covered by designation/buffer