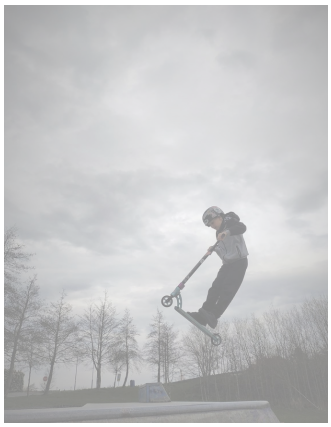
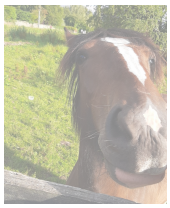
APPENDIX 2

WIND ENERGY STRATEGY

CDP 2023 2029

OUR KILDARE OUR PLAN





Misanna agus Misneach

Contents

1 Introduction

1.1 Context

One of Ireland's greatest natural resources is wind. The country has one of the most advantageous wind regimes in Europe suitable for the production of electricity especially during the winter months when energy demand is at its highest. Over the course of the last decade in particular, there has been a growing interest in the development of wind farming to harness this valuable and renewable resource. While the western and south-western seaboard counties boast the optimum wind resources, County Kildare also has a certain potential in this area notwithstanding its inland location.

This Wind Energy Development Strategy (Wind Strategy) incorporates a statement of the Council's objectives in relation to wind energy development and sets out the methodology for the identification of suitable locations for wind energy development in the county, having regard to the relevant policy context.

1.2 Background

Ireland (and by extension County Kildare) is at a cross-roads concerning the future of energy. The challenges of climate change resulting from increasing greenhouse gas emissions need to be tackled effectively, strategically, and urgently. Recent studies have contributed to growing awareness and knowledge of the problem, its long-term socio-economic consequences and have stressed the need for decisive and immediate action.

An integrated approach to climate and energy policy is needed given that energy production and use are primary sources of greenhouse gas emissions. Ireland's increasing dependence on energy imports threatens its security of supply and implies higher prices. Ireland is currently the most import dependent country in the European Union for energy. Ireland's import dependency was 67% in 2018, down from an average of 89% between 2001 and 2015. In 2018, oil accounted for 73% of total energy imports, natural gas 17%, coal 8.2% and renewables 1.4%. [1]. In contrast, boosting investment in renewable energy and new technologies has wide-reaching benefits and will play a fundamental part in the government's strategy for growth and expansion of the green energy sector.

Moreover, the greater use of renewable energy resources as a direct substitute for imported fossil fuels will lead to significant savings on the national fuel bill, greater security of supply and a reduction in the potential for serious economic impacts due to external factors which might affect energy prices. Renewable energy sources are largely indigenous, are not reliant on the future availability of conventional sources of energy, and their predominantly decentralised nature reduces vulnerability to volatile energy supply. Consequently, they will comprise a key element of a sustainable energy package going forward.

[1] Source: Energy Security in Ireland 2020 Report by the Sustainable Energy Authority of Ireland

Limiting greenhouse gas emissions is seen as vital in controlling global warming which is one of the most important environmental issues currently being addressed by the European Union. The promotion of renewable energy will play a significant part in achieving this target.

Renewable energy development will be a vital part of Ireland's strategy to tackle two major challenges facing the country today ensuring a secure supply of energy and combating climate change. In recent years Ireland has become heavily dependent on the importation of fossil fuels in order to meet its energy needs, with fossil fuels accounting for 89% of all energy consumed nationally as recently as 2015.

2 Policy Context

2.1 European Context

2.1.1 Paris Agreement

The Intergovernmental Panel on Climate Change's Special Report 'Global Warming of 1.5°C' published in October 2018, confirmed that the international community has a limited window for real action to reduce emissions to ensure that current and future generations can live sustainably in a low-carbon and climate-resilient world. It is, therefore, essential that the international community steps up its efforts towards meeting the Paris Agreement objectives of:

- Holding the increase in the global average temperature to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change.
- Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.
- Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

2.1.2 The European Green Deal

The European Commission introduced the European Green Deal at the end of 2019, clearly setting out increased levels of ambition for the EU as a whole. This aims to deliver net zero greenhouse gas emissions at EU level by 2050 and to increase the EU-wide greenhouse gas emissions reduction target from 40% to up to 55% by 2030.

2.2 National Context

2.2.1 The Climate Action Plan 2019

The Climate Action Plan 2019 is committed to achieving a net zero carbon energy system for Irish society and a resilient and sustainable country. This Plan sets out over 180 actions, together with hundreds of sub-actions, that need to be taken at a time when the warning signs are growing, and the time for taking action is rapidly reducing. This Plan identifies how Ireland will achieve its 2030 targets for carbon emissions and puts the Country on a trajectory to achieve net zero carbon emissions by 2050. The Plan embraces every relevant sector: electricity, enterprise, housing, heating, transport, agriculture, waste, and the public sector. In relation to electricity, the key objectives are outlined below:

- Increase reliance on renewables from 30% to 70% adding up to 8.2 GW of renewable onshore wind energy capacity with some of this delivered by private contracts via corporate power purchase agreements.
- Deliver the Renewable Electricity Support Scheme (RESS) which will provide support for renewable electricity projects in Ireland through a series of scheduled, competitive auctions.
- Put in place a coherent support scheme for micro-generation with a price for selling power to the grid.

- Open up opportunity for community participation in renewable generation as well as community gain arrangements.
- Streamline the consent system, the connection arrangements, and the funding support for the new technologies both onshore and off shore.

Key Actions relevant to this Wind Energy Development Strategy include:

18. *Facilitate additional hybrid connections (e.g. solar/wind/batteries) operating in the electricity market to increase RES-E penetration.*
19. *Ensure that the next phase of renewable connection policy is fit for purpose to deliver on renewable energy targets and community projects, and report annually on the timeliness of grid connection.*
21. *Ensure that updated planning guidelines for onshore wind are published in 2019.*
24. *Facilitate very high penetration of variable renewable electricity by 2030 (both SNSP and average) through system services and market arrangements.*
28. *Design and implement the RESS. Increase the volumes and frequencies of RESS auctions to deliver on the 70% renewable electricity target by 2030 ensuring an appropriate community/ enterprise mix to achieve an efficient delivery of renewables.*
30. *Develop an enabling framework for micro-generation which tackles existing barriers and establishes suitable supports within relevant market segments.*
145. *Develop a strategy to achieve at least a 30% reduction in CO2eq. emissions by 2030 and a 50% improvement in public sector energy efficiency.*

2.2.2 National Energy and Climate Plan 2021-2030

The production of National Energy and Climate Plans (NECPs) was agreed by the EU as part of the 'Clean energy for all Europeans' package which was adopted in 2019. These national plans outline how the EU countries intend to address energy efficiency, renewables, greenhouse gas, emissions reductions, interconnections and research and innovation.

Building on the policy framework of the National Mitigation Plan (NMP) and Project Ireland 2040, the Government published its Climate Action Plan in June 2019. The Climate Action Plan identifies how Ireland will achieve its 2030 targets for greenhouse gas emissions in a manner consistent with a trajectory to achieve net zero emissions by 2050. The Non-ETS (Emissions Trading System) sector accounts for 74% of total EU emissions in Ireland. The ESR enshrines a greenhouse gas emissions reduction target for Ireland of 30% by 2030 relative to 2005 levels. The Climate Action Plan sets out over 180 actions, together with hundreds of sub-actions, that need to be taken and embraces every relevant sector: electricity, industry, enterprise, housing, heating, transport, agriculture, waste, and the public sector.

2.2.3 Project Ireland 2040

Project Ireland 2040 comprises of the National Planning Framework (NPF), supported by the National Development Plan (NDP), and is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040.

The NPF sets out 10 National Strategic Outcomes (NSOs) and 75 National Policy Objectives (NPOs) to guide developments. NSO 8 is particularly relevant to this strategy which relates to ensuring a 'Transition to a Low Carbon and Climate Resilient Society'. Furthermore, NPO 55 seeks to 'Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.'

The associated National Development Plan (NDP) 2021-2030 sets out the investment priorities that will underpin the implementation of the National Planning Framework, one of which is climate action, and commits to providing an additional 8,000 MW of renewable energy with a full rollout of a Climate Action Fund to support initiatives that contribute to the achievement of Ireland's climate and energy targets.

The NPF will be implemented at a regional level through the Regional Spatial Economic Strategies (RSESs which is discussed further in Section 2.3) and at county level through statutory plans and strategies (discussed in Section 2.4). Furthermore, it is noted the recently formed Office of the Planning Regulator is responsible for monitoring implementation of the NPF in these regional and county level statutory plans and strategies.

2.2.4 Section 28 Ministerial Guidelines

Section 28 of the Planning and Development Act 2000 (as amended) requires a Planning Authority to append a statement to a Development Plan which includes information which demonstrates how the Planning Authority has implemented the policies and objectives of the Minister contained in Section 28 Guidelines when preparing the Plan. Guidelines relevant to this strategy include:

- Wind Energy Development Guidelines 2006
- Draft Revised Wind Energy Development Guidelines 2019

2.2.4.1 Wind Energy Development Guidelines 2006

Guidelines on Wind Energy were first published by the Department of the Environment in 1996, and these were then superseded by Guidelines published in 2006 by the Department of Environment, Heritage and Local Government. These Guidelines 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. They included a Landscape Sensitivity Analysis Methodology. This set out a step-by-step process, to aid in the formulation of a landscape sensitivity classification, and wind energy strategy areas for the county.

2.2.4.2 Draft Revised Wind Energy Development Guidelines 2019

The Draft Guidelines address a number of key aspects referring to plan formulation and project assessment. Chapter 3, Planning for Wind Energy Development, outlines how wind energy should be addressed in a Development Plan. This includes a step-by-step approach to identifying suitable locations for wind energy development.

The Guidelines state that planning authorities shall, in particular, have regard to the hierarchy of national plans, policies and strategies when making, reviewing, varying, or amending development plan or local area plan policies or objectives that relate to renewable energy, and in particular, wind energy developments.

It is a draft specific planning policy requirement (SPPR) under Section 28(1C) of the Planning and Development Act 2000 (as amended) that in reviewing, varying, or amending the development plan with policies or objectives that relate to wind energy developments, the relevant planning authority shall:

> ***SPPR 1***
> *1) Ensure that overall national policy on renewable energy as contained in documents such as the Government's 'National Energy and Climate Plan 2021-2030', and the 'Climate Action Plan 2019', is acknowledged and documented.*
> *2) Indicate how the implementation of the development plan over its effective period will contribute to realising overall national targets on renewable energy and climate change mitigation, and in particular wind energy production and the potential wind energy resource (in megawatts) taking into account the 'sieve mapping approach', in particular the potential contribution of the areas identified as 'acceptable in principle' and 'open for consideration'; and*
> *3) Demonstrate detailed compliance with Section 3.4 of the Guidelines (this sets out the policies and objectives that the Development Plan should include).*

The 4-step methodology that local authorities are required to use when formulating a countywide Wind Energy Development Strategy is set out in full in Table 1 below.

Table 1: Methodology for formulating Wind Energy Development Strategy.

Table 1: Identifying Suitable Locations for Wind Energy Development in Development Plans	
Step 1:	Assess the areas of wind potential ranging from areas with extensive wind energy resources to lesser wind resources using SEAI's Wind Atlas for Ireland. This wind mapping tool provides detailed information on wind speeds, direction, electricity transmission and distribution networks for specific locations around Ireland at national and county levels. To view the Wind Atlas resource, click here http://maps.seai.ie/wind/. Assistance in this regard can be obtained from the SEAI info@seai.ie.

Step 2:	Prepare or utilise an evaluation of the landscape and its sensitivity for wind energy developments. It is recommended that planning authorities contribute towards the protection of landscape designations as relevant. Factors that can inform landscape sensitivity to wind energy development include scenic quality, rarity, uniqueness, natural and cultural heritage, and environmental considerations. Special attention is recommended in areas (such as coastal or island areas) where there is higher potential for the occurrence of adverse visual impacts arising from limited assimilative capacity. Some local authorities have prepared landscape characterisation maps, which could support this process. This assessment should take into account the National Landscape Strategy for Ireland 2015-2025 (https://www.chg.gov.ie/heritage/built-heritage/nationallandscape-strategy/) and landscape character areas (including Northern Ireland Regional Landscape Character Areas), landscape sensitivity and value areas, high amenity zones, scenic views and prospects and land use objectives relating to landscape protection, National Parks, Special Amenity Order Areas and UNESCO World Heritage Sites. The local authority must, within their development plan and/or supporting documents, clarify how the landscape character and sensitivity analysis was undertaken and on what basis the relevant areas have been selected.
Step 3:	Prepare an overlay of the wind energy mapping and the landscape evaluation and sensitivity analysis, together with information regarding built and natural heritage, archaeological and amenity designations in the Development Plan and existing settlements within the functional area of the local authority. The designation of an area for protection of natural or built heritage or as an amenity area does not automatically preclude wind energy development. However, consideration of any wind energy development in or near these areas must be subject to Ireland's obligations under international, EU and national legislation. When identifying areas which may be either acceptable or open for consideration for wind energy development, existing settlements must be identified and these areas should be excluded as they will be subject to the project-level requirement for a minimum of 500m setback from individual properties as set out later in these Guidelines. This process will identify those areas affected by statutory obligations and will facilitate optimising visual integration into the landscape while at the same time maximising the utilisation of wind energy resources. The process of overlaying wind energy mapping and landscape assessment with the development plan designations and settlements will produce a basis for identifying broadly, the areas where wind energy developments would be 'acceptable in principle', where they would be

	'open for consideration', and where they would be 'not normally permissible'.
Step 4:	Integrate the areas identified in the above steps with information regarding accessibility to electricity transmission and distribution grids. Details of the electricity transmission and distribution network are provided in SEAI's Wind Atlas for Ireland. In addition, transmission network details are available on EirGrid's Smart Grid Dashboard: http://smartgriddashboard.eirgrid.com/#all/transmission-map. If further network information is required, it is recommended that the planning authority consult with the Transmission System Operator EirGrid) or the Distribution System Operator (ESB Network) as appropriate. In cases where the development is in close proximity to Northern Ireland, the local authority may need to contact SONI. This process will establish, at a general level, areas where wind energy resources are readily capable of development as well as identifying other areas where wind energy resources are capable of being developed but where there is a need for corresponding development of electricity grid infrastructure

Source: Draft Revised Wind Energy Development Guidelines 2019

Some other key aspects of the Guidelines include:

- The application of a more stringent noise limit, consistent with World Health Organisation noise standards, in tandem with a new robust noise monitoring regime, to ensure compliance with noise standards.
- A visual amenity setback of 4 times the turbine height between a wind turbine and the nearest residential property, subject to a mandatory minimum distance of 500 metres between a wind turbine and the nearest residential property.
- The elimination of shadow flicker; and
- The introduction of new obligations in relation to engagement with local communities by wind farm developers along with the provision of community benefit measures.

The second specific planning policy requirement (SPPR) of the Draft Guidelines is:

> ***SPPR2***
> *With the exception of applications where reduced setback requirements have been agreed with relevant owner(s) as outlined at 6.18.2 below, planning authorities and An Bord Pleanála (where relevant) shall, in undertaking their development planning and development management functions, ensure that a setback distance for visual amenity purposes of 4 times the tip height of the relevant wind turbine shall apply between each wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres from that residential property. Some discretion applies to planning authorities when agreeing separation distances for small scale wind energy developments generating energy primarily for onsite usage.*

The planning authority or An Bord Pleanála (where relevant), shall not apply a setback distance that exceeds these requirements for visual amenity purposes.

2.2.5 Methodology for Local Authority Renewable Energy Strategies 2013

This methodology was published in 2013 by the Sustainable Energy Agency Ireland (SEAI) and pre-dates the Draft Section 28 Guidelines for Wind Energy Development. This document laid out a methodology for Local Authority Renewable Energy Strategies, known as the LARES approach. This involved 4 steps, including:

- Step 1: Undertaking a Policy Review
- Step 2: Identify and Assess the Renewable Energy Resources and Potential
- Step 3: Constraints and Facilitators Review
- Step 4: Development of Renewable Energy Policy and Implementation.

Step 1 involved making a summary of the current renewable energy policies and legislation from the hierarchy of plans and strategies, while also consulting relevant bodies. It is noted the policy documents listed to review as part of this process are marginally out of date and have been recently updated.

The objective of step 2 is to produce sufficient data to, ideally, develop a GIS map of renewable energy resources available within the jurisdiction of the local authority, providing a foundation on which infrastructural constraints and facilitators and environmental constraints can be overlaid. It is noted this step also calls for a review of relevant planning applications to understand why some have been successful and others unsuccessful. It also calls for an investigation into which of these approved planning applications has been implemented.

It should be noted that there is no ‘one size fits all’ approach to the assessment of renewable energy resources and potential. Each technology type should be considered under its own merit. For example, wind, hydro and geothermal projects are entirely dependent on the location of the resource for energy generation. Bioenergy, conversely, is not subject to the same limitations.

Step 3 indicates local authorities should undertake a review of the infrastructural constraints and facilitators within their administrative area. These include the National Grid, telecommunications/aviation, Natural Heritage, landscape and visual, archaeology and architectural heritage, Water Framework Directive, tourism and amenity, cumulative and transboundary issues, community and socio-economic impacts and positive environmental impacts.

The fourth main step in the process for local authorities is to develop renewable energy policy and provide detail on its implementation, to be informed by the information obtained from the previous steps.

Table 2: Outlines the 4 steps of the LAREs approach.

	ACTIVITY	OUTPUT	PUBLIC CONSULTATION
PRELIMINARY PHASE	Define Requirement for LARES	Mandate to proceed with production of LARES	
	AA and SEA Screening	Decision on requirement to proceed with SEA and AA	
STEP 1	Renewable Energy Policy Review	Understanding of Renewable Energy Policy Drivers and "Snapshot" of Current Policy for inclusion in Renewable Energy Strategy	Consultation on LARES Issues Paper
STEP 2	Renewable Energy Resource Assessment	Understanding of available Resources within a Planning Authority area and Constraint and Success Factors for utilising those Resources	
STEP 3	Analysis of Constraints and Facilitators	Definition of 'Planning Authority area Renewable Energy Resource'	
STEP 4	Develop Renewable Energy Policy	Definition of Renewable Energy Policies	Draft LARES Consultation
		Definition of Planning Authority Aims and "Expectation" of Proposed Projects	
		Definition of Status of Renewable Energy within the Planning Authority area	
		Mapping where appropriate	Final LARES Consultation
		Definition of Planning Authority area Renewable Energy Objectives	

Source: Methodology for Local Authority Renewable Energy Strategies by the Sustainable Energy Authority of Ireland (SEAI) dated April 2013

2.2.6 National Landscape Strategy of Ireland 2015-2025

In 2015, the Department of the Environment, Community and Local Government issued A National Landscape Strategy of Ireland 2015-2025, which states that: *"Landscape Character Assessments will be prepared at local and intra-local authority level, building on the National Landscape Character Assessment, using Landscape Character Assessment Guidelines. These regional and local landscape character assessments will inform and guide landscape policy, action plans and local authority development plans."*

The National Landscape Strategy will be used to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing the landscape while positively managing its change. It will provide a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions.

The agreed Vision is:

Our landscape reflects and embodies our cultural values and our shared natural heritage and contributes to the well-being of our society, environment and economy. We have an obligation to ourselves and to future generations to promote its sustainable protection, management and planning.

It is noted at the time of writing the National Landscape Plan has not been drafted. County Kildare's landscape character assessment is discussed in Section 2.4.3 below.

2.3 Regional Context

2.3.1 Eastern and Midland Regional Authority Spatial and Economic Strategy (RSES) 2019-2031

County Kildare is located within the Eastern and Midlands Regional Authority area. The Regional Strategy includes a number of Regional Policy Objectives which are governed by the following key principles:

- Healthy Placemaking - To promote people's quality of life through the creation of healthy and attractive places to live, work, visit and study in.
- Climate Action – The need to enhance climate resilience and to accelerate a transition to a low carbon economy recognising the role of natural capital and ecosystem services in achieving this.
- Economic Opportunity – to create the right conditions and opportunities for the region to realise sustained economic growth and employment that ensures good living standards for all.

The RSES seeks to support an increase in the amount of renewable energy sources in the region.

It also states the region will need to shift from its reliance on using fossil fuels and natural gas as its main energy source to a more diverse range of low and zero-carbon sources, including wind energy. This strategy stresses decentralised energy will be critical to the region's energy supply, while ensuring the Region can become more self-sufficient in relation to its energy needs. Furthermore, the RSES outlines how incorporating renewable energy within Ireland's energy supply may improve the resilience of energy infrastructure as reliance on energy imports and the associated concentrated infrastructure is reduced. Distributed renewable energy sources can contribute to local energy system resilience.

The strategy identifies rural areas as having a significant role in the delivery of the energy needs of the region, in the form of wind, solar and biomass. The Strategy acknowledges that Bord Na Móna's Strategic Framework for the Future Use of Peatlands identifies cutaway bogs as areas which may be suitable for renewable energy as long-term alternative uses of these sites.

Regional Policy Objectives relating to this Wind Energy Development Strategy include:

- **7.35** - Eastern Midland Regional Authority shall, in conjunction with local authorities in the Region, identify Strategic Energy Zones as areas suitable for larger energy generating projects, the role of community and micro energy production in urban and rural settings and the potential for renewable energy within industrial areas. The Strategic Energy Zones for the Region will ensure all environmental constraints are addressed in the analysis. A regional landscape strategy could be developed to support delivery of projects within the Strategic Energy Zones.

- 7.36 - Planning policy at local authority level shall reflect and adhere to the principles and planning guidance set out in Department of Housing, Planning and Local Government publications relating to 'Wind Energy Development' and the DCCAE Code of Practice for Wind Energy Development in Ireland on Guidelines for Community Engagement and any other relevant guidance which may be issued in relation to sustainable energy provisions

Other RPOs of note are 4.84 (rural economy and renewable energy) and 10.20, 10.22 and 10.24 (the electricity network and renewable energy).

The plan states that a regional landscape strategy could be developed to support delivery of projects within the Strategic Energy Zones. At the time of writing this regional landscape strategy has not yet commenced.

2.4 County Context

2.4.1 Kildare County Development Plan 2017 - 2023

It is acknowledged in this Plan that wind energy can make a significant contribution to reaching Ireland's renewable energy targets to 2020 and beyond. Objective WEO 1 states:

> *It is an objective of the Council to prepare a Wind Energy Development Strategy and to publish it as a proposed variation of this plan following the completion of the review of the DECLG's Wind Energy Development Guidelines.*

It is also stated that any county-wide strategy will be structured in line with the "Methodology for Local Authority Renewable Energy Strategies" prepared by the Sustainable Energy Authority of Ireland (SEAI).

2.4.2 Pre-Draft Stage of Kildare County Development Plan 2023 – 2029

The Office of the Planning Regulator (OPR) made a submission to the pre-draft stage of the County Development Plan review and commented as follows in relation to climate action and energy:

> *Your authority will note that both the NPF (NPO 55) and the RSES (inter alia, RPO 7.35) promote and support renewable energy generation, which will contribute to achieving a net zero carbon economy by 2050. The continued promotion of renewable energy sources within the county in accordance with the section 28 Wind Energy Development Guidelines (2006), Circular Letter PL 5/2017: Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change and Wind Energy Development Guidelines 2006 – Update on Review (July 2017), or any replacement guidelines issued by the Minister for Housing, Local Government and Heritage, will also be critical to ensure Ireland meets its national targets and commitments to increase renewable energy supply and reduce greenhouse gas emissions.*
>
> *In this regard, the attention of the planning authority is drawn, in particular, to the SPPR under the aforementioned interim guidelines. This requires, inter*

> *alia, that the planning authority indicate how the implementation of its development plan over its effective period will contribute to realising overall national targets on renewable energy and climate change mitigation, and in particular wind energy production and the potential wind energy resource (in megawatts).*

It is therefore concluded that the Office of the Planning Regulator requests and supports the formation of a Wind Energy Development Strategy in County Kildare.

2.4.3 Landscape Character Assessment

The county's Landscape Character Assessment is included in Chapter 14 of the County Development Plan. The natural diversity of the landscape, coupled with human interaction in the form of introduced features such as hedgerows, woodlands, archaeological monuments, settlements and buildings, all serve to give Kildare its distinctive characteristic landscape. All development which takes place has the ability to impact on this landscape, positively and negatively. It is essential therefore that the landscape is protected and managed in a sustainable and coherent manner. A review of the Kildare County Development Plan landscape provisions was undertaken to provide a robust strategy which classifies the landscape of the county, appraises landscape sensitivity, making a judgement on sensitivity to change and taking into account historical, cultural, religious and other understandings of the landscape.

Based on the findings of the Landscape Character Assessment a landscape sensitivity rating was developed for each of the Landscape Character Areas. Landscape sensitivity is a measure of the ability of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and values. It is determined using the following factors: slope, ridgeline, water bodies, land use and prior development.

5 classes of sensitivity were developed, these include:

- **Class 1 - Low Sensitivity** - North-Western Lowlands, Northern Lowlands, Central Undulating Lands and Southern Lowlands.
- **Class 2 - Medium Sensitivity** - Eastern Transition Lands and South-Eastern Uplands.
- **Class 3 - High Sensitivity** - Western Boglands and Eastern Uplands.
- **Class 4 - Special** - Chair of Kildare, Northern Hills, River Liffey and River Barrow, Dun Ailinne and Old Kilcullen.
- **Class 5 - Unique** - The Curragh and Pollardstown Fen.

2.4.4 Kildare County Council Climate Change Adaptation Strategy 2019 - 2024

This Local Authority Adaptation Strategy takes on the role as the primary instrument at local level to:

- Ensure a proper comprehension of the key risks and vulnerabilities of climate change is grasped.

- Bring forward the implementation of climate resilient adaptation actions in a planned and proactive manner.
- Ensure that climate adaptation considerations are mainstreamed into all plans and policies and integrated into all operations and functions of the local authority.

The impacts of climate change experienced in County Kildare generally reflect the national pattern and trends of observed climate hazards. A review of extreme weather events over the past 35 years was undertaken using published Met Éireann data along with information from Kildare County Council. This assessment of climatic hazards identified four main climatic categories which occur in combination, including windstorms, extreme heat/drought events, extreme rainfall events and freezing conditions/snow events.

Climate change projections indicate that:

- Warming in Kildare will continue especially in the summer and winter.
- The County will experience more extreme weather conditions including rainfall events and storms.
- There will be an increased likelihood of fluvial flooding.
- Winters will be wetter and summers will be drier (which could lead to water shortages).
- These climate changes will impact the type, distribution and lifecycles of species.

These projections signal significant challenges for the future. Climate Change will have further effect on land use including agriculture, forestry and peatlands, on biodiversity, on water resources, human health, the economy and society.

This document includes a number of targeted policies to adapt and curtail these impacts around the county. It is noted Actions 4 and 5 of Goal 3, Land-use and Development support decarbonising electricity in the short to medium term.

2.5 Technical Context

2.5.1 All-Island Generation Capacity Statement 2020 – 2029 (EIRGRID and SONI)

On a combined, All-Island basis, the growth in energy demand for the next ten years varies between 17% in the low demand scenario, to 41% in the high demand scenario. Long-term system electricity demand in Ireland is increasing and is forecast to increase significantly, due to the expected expansion of many large energy users. This will be subject to a review once the full impacts of COVID19 are known later in the year.

The long-term demand forecast in Ireland continues to be heavily influenced by the expected growth of large energy users, primarily Data Centres. These need a lot of power and can require the same amount of energy as a large town. EirGrid's analysis shows that demand from data centres could account for 27% of all demand in Ireland by 2029 in our Median demand scenario.

Analysis shows that for the Median demand level there may not be adequate generation capacity to meet demand from 2026 for Ireland should Moneypoint close and long-term demand continue to rise. Should any other plant of equivalent capacity

close then this could also give rise to earlier deficits. Also, poor availability of the generation fleet, as seen in 2018 and 2019, could give rise to adequacy deficits in 2025.

New wind farms commissioned in Ireland in 2019 brought the total wind capacity to 4,127 MW11, contributing to the increase in overall Renewable Energy Source (RES) percentage to 35.7%. Other sources of RESs include biomass, hydro, solar PV and renewable waste. Achievement of the 40% RES target will depend on a number of different factors in 2020 including demand levels, renewables generation and system dispatched generation. EirGrid is targeting a RES target of 70% for 2030.

It can be assumed that Ireland's renewable targets will be achieved largely through the deployment of additional wind powered generation. There have been a number of grid access connection schemes to develop renewable generation. Currently there are 974MW in the Republic of Ireland connected to the grid and a further 245MW planned for in 2020 (based volumes of applications to EirGrid and does not factor in small scale generation of 5 MW and under).

Installed capacity of wind generation has increased from 135 MW at the end of 2002 to over 4127 MW at the end of 2019. This value is set to increase as Ireland endeavours to meet its renewable target in 2020 and beyond.

2.5.2 International Energy Agency (IEA) Wind Technology Collaboration Programme (TCP) Annual Report 2019

Nearly 84% of the winds generating capacity resides in counties participating in IEA Wind, including Ireland. These counties added about 52 GW of capacity in 2019. Wind power continues to steadily increase its share of the electricity mix. Six countries now meet more than 20% of their electricity demand with wind power, and ten countries meet more than 10%. The highest share, and a new record, was set by Denmark where 47% of the electricity demand in 2019 was met by wind energy, followed by Ireland at 32%, and Portugal at 27%. The highest wind shares in one hour, also setting new records, were reached in Denmark (160%), Portugal (106%), Spain (76%), and Ireland (close to 70%).

In Europe, National Energy and Climate Plans (NECP) for 2021 to 2030 are required in order to meet the EU's new energy and climate targets for 2030. In Denmark, France and Ireland, this land-based wind power target is exceeded by even higher targets for offshore wind power capacity. Ireland has set a first target of 3.5 GW.

Wind Turbines continue to increase in both height and capacity. The average rated capacity for new turbines installed in 2019 surpassed 2.75 MW. In the past ten years, the average rated capacity has grown by 1.2 MW, a 72% increase. In Finland, 175m towers were deployed in one wind farm erected in 2019. The average cost of land-based projects reported from IEA Wind member countries was 1,181 euros per kW. The shift from fixed guaranteed price support to tendering has prompted increasingly competitive prices for wind energy. Decreasing auction prices have been reported across IEA Wind member counties since 2017.

By 2030, 50% of the current installed capacity in Europe will have reached the end of its operational Life, these must be replaced to keep up with European net zero targets. To keep up with demand the permit and appeal processes should be streamlined. Grid connection opportunities are crucial to enable development of both land-based and offshore wind sectors to meet 2030 targets. In 2019, the Irish TSO EirGrid identified opportunities to add generation of up to 800 MW without significant network upgrades, on the east coast of Ireland, facilitating the development of wind development.

A 2019 Irish Wind Energy Association funded study by independent consultants found that wind energy would displace 33 million tonnes of power-sector CO2 emissions from 2000 to 2020, equivalent to almost three years of total carbon emissions in the power sector today.

2.5.3 Renewable Electricity Support Scheme Good Practice Principles Handbook for Community Benefit Funds 2021

The Renewable Electricity Support Scheme Good Practice Principles Handbook for Community Benefit Funds 2021 was prepared by the Department of the Environment, Climate and Communications. The Renewable Electricity Support Scheme (RESS) is a key policy initiative to deliver on the Government's Climate Action Plan commitment to generate at least 70% renewable electricity by 2030. A key feature of RESS is that all renewable electricity generation projects must establish a Community Benefit Fund to be used for the wider economic, environmental, social and cultural well-being of the local community. Not alone that, but the amount payable by RESS Projects into the Fund is mandated at €2 per Megawatt hour of generation of the RESS Project. For example, and in very rounded terms, this approximately works out as:

- For a 10MW wind farm, the Fund is expected to receive approximately €60,000 annually.
- For a 50MW wind farm, the Fund is expected to receive approximately €300,000 annually.
- For a 5MW solar farm, the Fund is expected to receive approximately €8,000 annually.
- For a 50MW solar farm, the Fund is expected to receive approximately €80,000 annually.

2.5.4 Windfarm Community Funds administered by SECAD Partnership CLG

ESB with its joint venture partners established wind farm community benefit funds with the aim to encourage stronger interaction and engagement with communities living in the vicinity of wind farms and to help the communities neighbouring ESB wind farms to become more sustainable through the support of positive local initiatives and activities. The funds are available to support projects that are aligned with local needs and opportunities such as the purchase of equipment, building or refurbishment work. Support for larger projects over a multi-annual basis may also be considered. Approximately €1 million is awarded annually via ESB's nominated grant making organisations.

This fund is available but not limited to registered charities, community development groups, tidy town committees, sports and recreation clubs and primary and secondary schools.

The 'Area of Benefit' or AOB is a radius of up to 10km around a wind farm, which is set to ensure that communities directly neighbouring our wind farms benefit most from the funds. These AOB radii are set out in the Draft Revised Wind Energy Development Guidelines 2019. As such, applications from within the AOB will receive priority over all others. In order for an application from outside the AOB to be considered for funding it must demonstrate the benefit provided to the communities within the AOB.

2.6 Planning History Context

2.6.1 Planning history of windfarm applications in County Kildare

Kildare, unlike some neighbouring counties, does not have an extensive planning history of wind farm development. There are currently no operational wind farms in County Kildare. However, two developments have been approved recently in north Kildare called the Drehid Wind Farm (1) and the Cushaling Wind Farm (2). A proposed wind farm development located in western Kildare called Ummeras Wind Farm (3) was refused by An Bord Pleanála, Kildare County Council and Offaly County Council.

1. The Drehid Wind Farm development consists of 12 wind turbines providing approximately 48 MW with a tip height of up to 169 metres, an on-site substation and associated amenity trail was assessed by Kildare County Council (KCC) under planning reference 181534. This application was refused by KCC as it was considered the local road network was not of sufficient standard to cater with such a quantum of development. An Bord Pleanála (ABP case ref. PL09.306500) approved as the development is in line with national policy regarding the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouse gasses, wind energy guidelines 2006, Eastern and Midland Regional Assembly Regional Spatial and Economic Strategy 2019-2031 and the Kildare County Development Plan 2017-2023. They considered a condition requiring a construction management plan would overcome any impacts this development may temporarily have on the adjoining road network. According to SEAI Wind Atlas this wind farm is not online, and no commencement notice has been recorded on the statutory register. A site visit on the 27/05/2021 determined no works have yet commenced.

2. The Cushaling Wind Farm development consists of 9 wind turbines providing approximately 49.5 MW. 8 of these turbines would be in Offaly providing approximately 44 MW and 1 in Kildare providing approximately 5.5 MW. Each turbine would have a tip height of 187 metres and this development also involves the construction of new access roads, an amenity trail and an off-site substation and battery storage facility. This application was refused by KCC under planning reference 191323, as the proposed development is within a Water Supply Project catering for the Eastern and Midlands Region identified in the NPF as NSO9. Another reason for refusal was the local road network is insufficient to cater for the scale of the proposed development. An Bord Pleanála (ABP case ref.

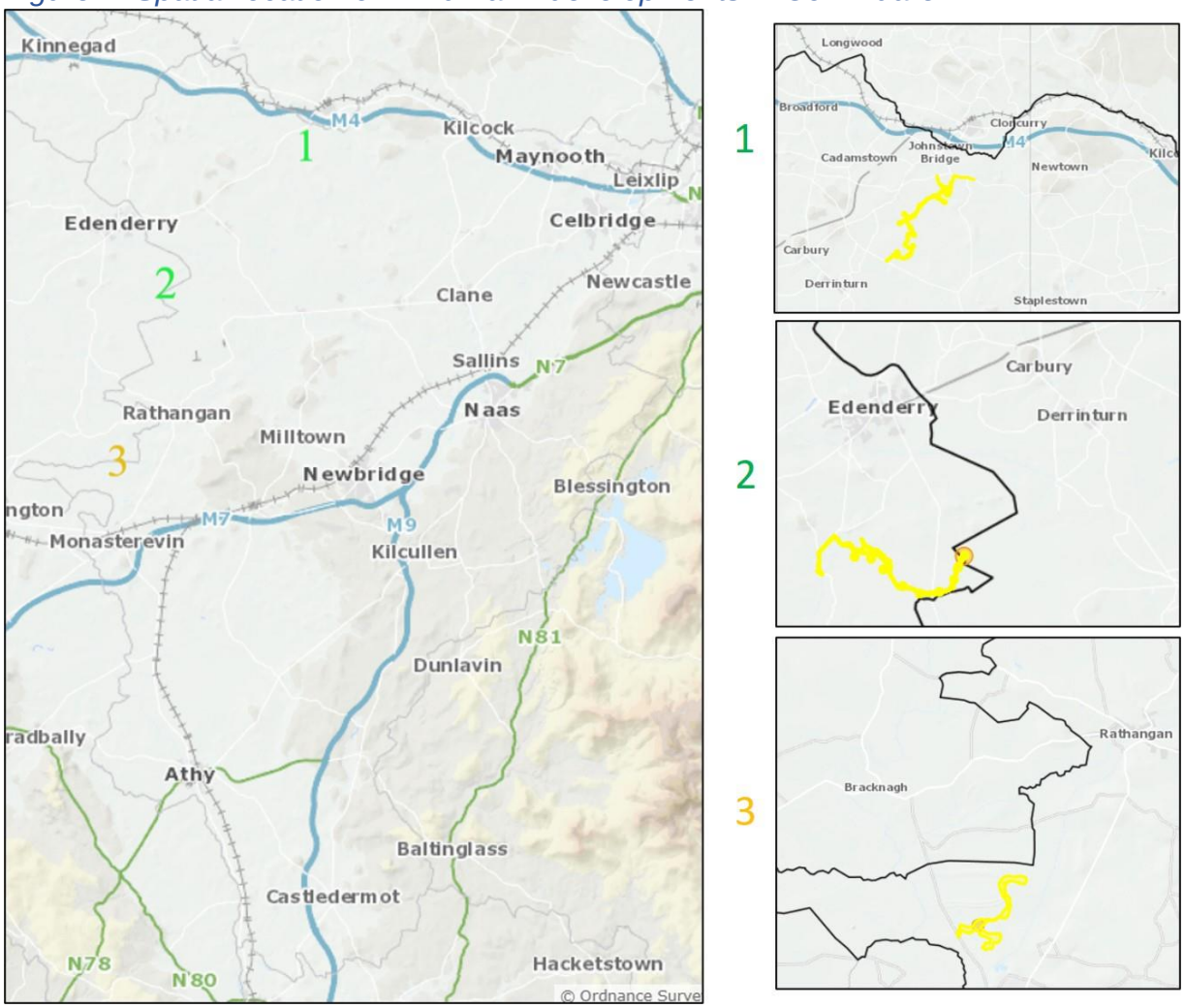
PL09.306748) approved the development subject to standard conditions. They concluded that the road infrastructure is sufficient subject to conditions and assessed that any water infrastructure projects would not be impacted so long as mitigation in the EIA is followed. According to SEAI Wind Atlas this wind farm is not online, and no commencement notice has been recorded on the statutory register. A site visit on the 27/05/2021 determined no works have yet commenced.

3. The Ummeras Wind Farm was recently refused by An Bord Pleanála (ABP case ref. PL09.309953). This proposed development had the potential to provide approximately 30 MW and consisted of 5 wind turbines with a tip height of up to 169 metres, an on-site electrical substation, a meteorological mast 100m in height and new access tracks. This development was refused for the following reason:

> *The site location for the proposed windfarm, where it is proposed to construct five turbines with a maximum blade tip height of 169 metres, is wholly within an area identified by the Department of Defence as a critical low-level route in support of Air Corps operational requirements. The windfarm site is locate beneath airspace EI-R16 which is used primarily for departure and arrival procedures for aircraft (both civilian and military) operating under Instrument Flight Rules, and within Military Operation Area 4 airspace wherein it is stated by the Department of Defence that this airspace is used for pilot training where aircraft will not be complying with the civil rules if the air. In this regard, it is considered that the proposed development would endanger or interfere with the safety of aircraft of the safe and efficient navigation thereof and would, therefore, be contrary to the proper planning and sustainable development of the area.*

These wind farms are labelled with their corresponding numbers in the map below (Figure 1). The green numbers 1 and 2 relate to the approved Drehid and Cushaling Wind Farm developments respectively, while orange number 3 relates to the refused Ummeras Wind Farm development. The three site location maps for each of these wind farm developments are also shown in Figure 1 below.

Figure 1: Spatial location of Wind Farm developments in Co. Kildare



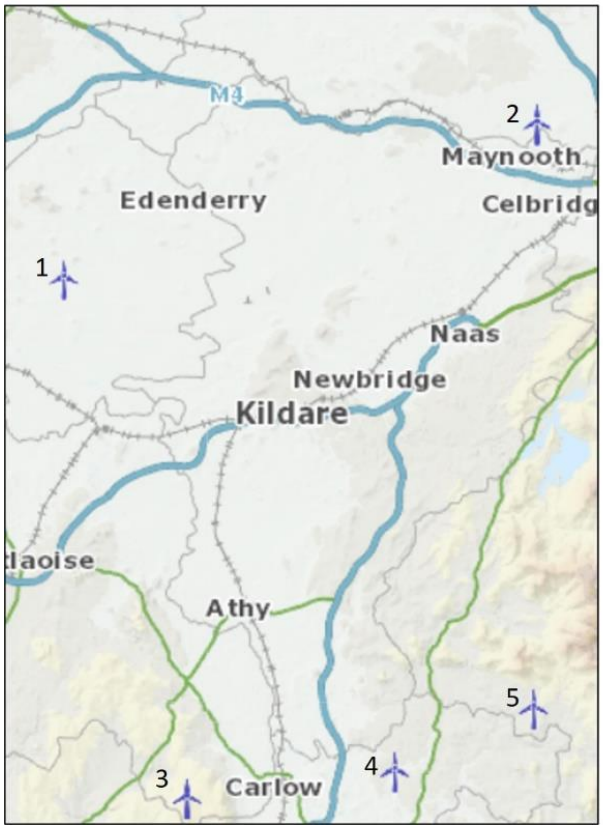
Source: Online Planning Enquiry System Kildare County Council (May 2021)

Planning applications for single domestic turbines and wind monitoring stations are not considered in this context as they are less relevant to this Wind Energy Strategy and historically have not contributed towards renewable energy for public consumption. This may change in the medium and long term and policies in this Wind Energy Strategy will reflect and encourage this.

2.6.2 Windfarms in adjoining Counties

There are five windfarms operational in counties surrounding county Kildare according to the Sustainable Energy Authority of Ireland Wind Atlas. These are listed in figure 2 below.

Figure 2: Windfarms in counties surrounding Co. Kildare



1. Mountlucas (Bord Na Móna) Windfarm in Offaly was commissioned in 2014 and consists of 28 turbines with a total installed capacity of 84 MW.

2. Owenstown in Meath was commissioned in 2010. It has one turbine with a total installed capacity of 0.02 MW.

3. Gortahile Windfarm in Laois was commissioned in 2010. It has 8 turbines with a total installed capacity of 21 MW.

4. Tullow Mushroom Growers Ltd. in Carlow was commissioned in 2010. It has one turbine with a total installed capacity of 0.13 MW.

5. St Patricks Missionary Society in Wicklow was commissioned in 2012. It has one turbine with a total installed capacity of 0.13 MW.

Source: SEAI Wind Atlas (https://gis.seai.ie/wind/)

3 Methodology

The Draft Wind Energy Development Guidelines (2019) set out a four-step approach to identifying suitable areas for wind energy development. This approach is based on the use of 'sieve mapping', using Geographical Information Systems (GIS). This allows data to be superimposed and combined, to identify areas where multiple overlapping constraints and opportunities exist. This methodology is laid out in Table 1 of the Policy Context of this strategy.

The SEAI Methodology for Local Authority Renewable Energy Strategies (2013) recommends the mapping of existing and proposed renewable energy projects as this indicates locations that windfarm operators have determined to be viable. It is considered this would be a useful layer to be mapped also. A further useful layer relates to aviation constraints, as County Kildare contains many civil and military aviation assets.

The methodology proposed for Kildare's Wind Energy Strategy follows that set out in the 2019 Draft Guidelines and utilises elements from the LARES approach, as follows:

Step 1: Examination of existing Wind Speeds

Step 2: Evaluation of the landscape and its sensitivity for wind energy developments

Step 3: Overlay of the Wind Energy Mapping with Landscape Evaluation and Sensitivity Analysis with information regarding built and natural heritage, archaeological and amenity designations in the Development Plan and existing settlements within the county

Step 4: Add information regarding accessibility to electricity transmission, distribution girds, aviation constraints and approved/proposed wind farm developments

The SEA and AA processes have also informed this sieve mapping methodology by highlighting environmental issues.

3.1 Step 1: Examination of existing Wind Speeds

3.1.1 Existing Wind Speeds

The first step in this process is to assess the areas of wind potential using the SEAI's Wind Atlas for Ireland (2013). This Wind Atlas provides information on wind speeds modelled at various heights above ground level. There are a number of factors which influence commercial wind farm viability, including wind speeds, the price of electricity, the distance from the electricity grid and the height and number of turbines to be located on site. All of these factors (apart from wind speed) are subject to continuous change.

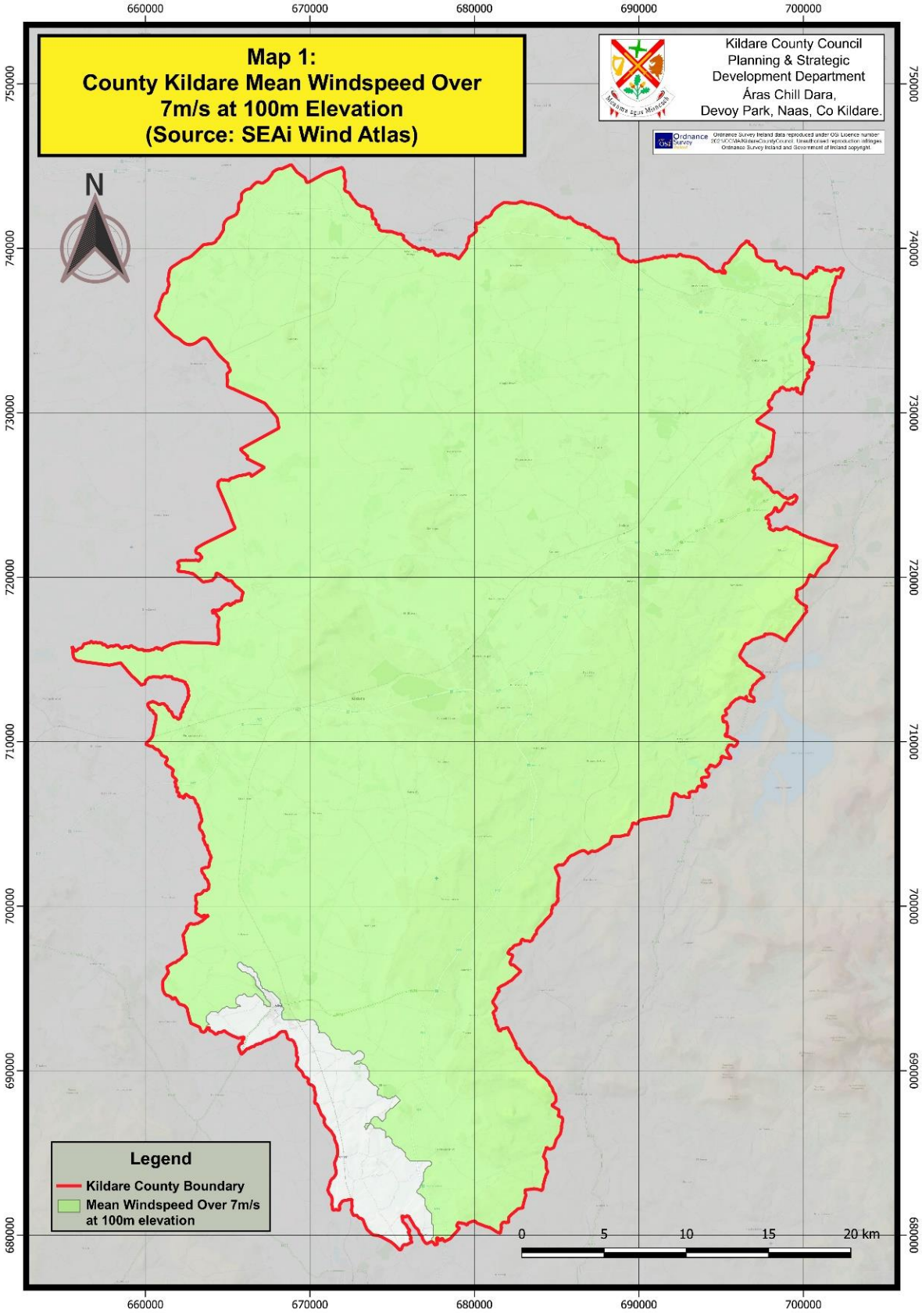
Available wind speed is therefore a key factor in determining the economic viability of potential wind energy locations. Wind speed increases with height above ground. For the purposes of this Strategy, wind speeds measured at 100 metres above ground level were utilised. This height was chosen as it was noted recently constructed wind turbines around Ireland and those permitted in Kildare are all over 100 metres in height. Increases in turbine heights in combination with advances in turbine technology and economies of scale, means that wind energy development can now be viable at much lower wind speeds. Wind energy development is therefore viable in a much larger area than before, as previously it was restricted to upland areas. However, as a consequence of the lower wind speeds, the turbines in locations of lesser wind potential, tend to be larger. Furthermore, it is noted the Wind Energy Strategy associated with the Draft Offaly County Development Plan 2021-2027 also measured wind speed at 100 metres above ground.

In the interests of maximising the wind resource potential and taking a plan-led approach, areas with wind speeds of 7 metres per second or above were identified as being the areas of extensive wind energy resources, which should be targeted. The rationale for including areas of 7 metre per second wind speed is threefold:

- This allows for a greater range of areas to be examined, in line with national targets, particularly given the reduction in area of higher wind speeds on the basis of the 2013 Wind Atlas data.
- This reflects advances in turbine technology which is now more viable at low wind speeds. It also acknowledges the continued reduction in construction and operation costs making lower wind speed sites viable.
- This approach is also consistent with most nearby authorities including Offaly, Laois, Carlow and Wexford who have used a similar wind speed threshold in their Wind Energy Strategies.

The potential wind resource available at 7m/s at 100m elevation is shown in Map 1 overleaf.

Map 1: Map of the extent of County Kildare which receives a Wind Speed of 7 metres per second or higher at 100m above the ground



Source: 2013 SEAI Wind Atlas (https://gis.seai.ie/wind/)

3.1.2 Evaluation of Step 1

The majority of the county has windspeeds suitable for wind farm development. However, the southwest corner of the county (south of Athy and north of Carlow Town) has wind speeds below 7 metres per second and therefore is considered unviable for large scale wind farm development.

3.2 Step 2: Evaluation of the landscape and its sensitivity for wind energy developments

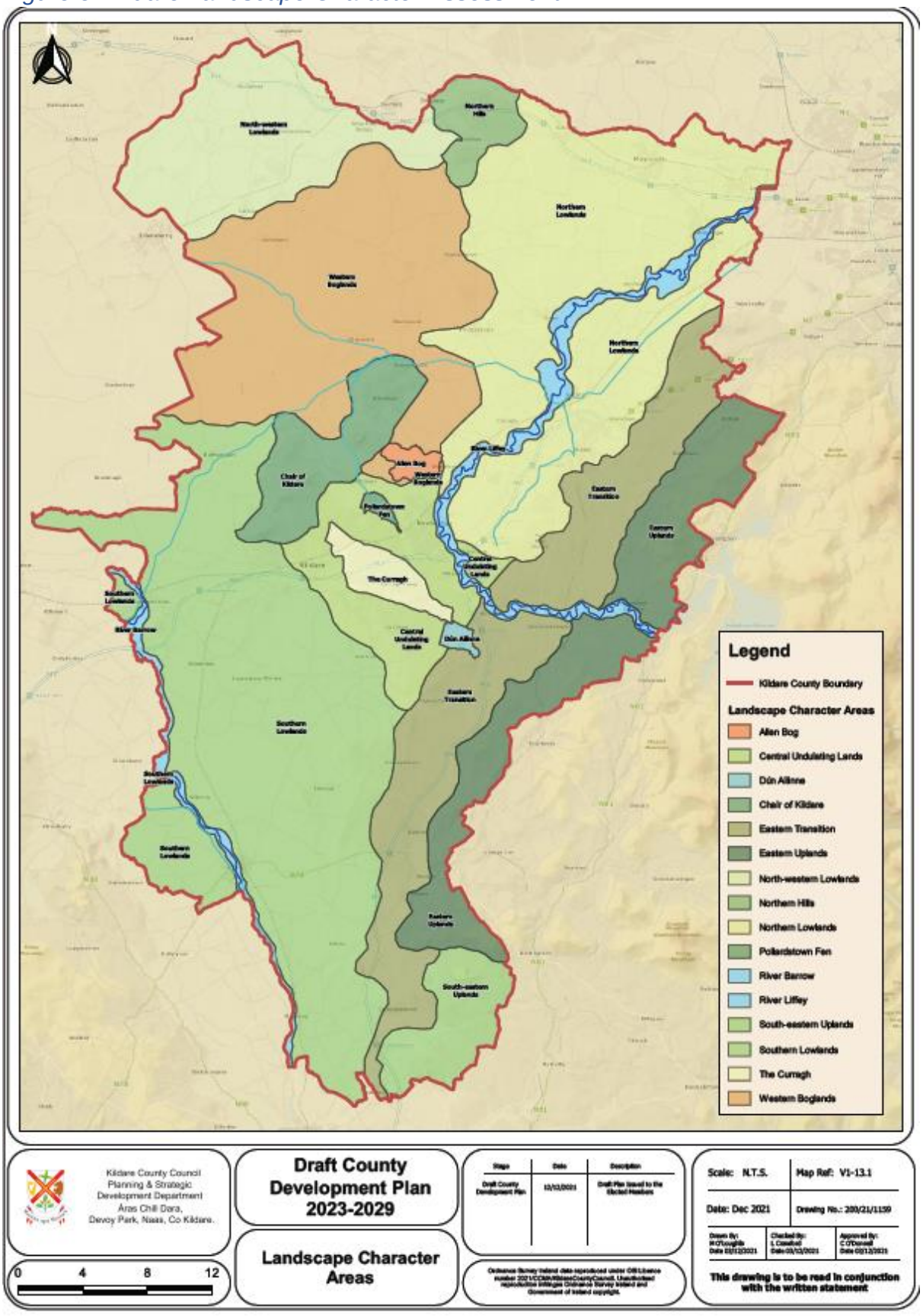
3.2.1 Kildare Landscape Character Assessment

The Guidelines recommend that an evaluation of the landscape and its sensitivity for wind energy developments be prepared or utilised. Factors that can inform landscape sensitivity to wind energy development include scenic quality, rarity, uniqueness, natural and cultural heritage and environmental considerations. Special attention is recommended in areas where there is higher potential for the occurrence of adverse visual impacts arising from limited assimilative capacity.

In 2004, a Landscape Character Assessment (LCA) of county Kildare was undertaken and included in Volume II of the Kildare County Development Plan 2005-2011. The LCA focused on the discernment of the character of the landscape based on its land cover and landform, but also on its values, such as historical, cultural, religious and other understandings of the landscape. It concentrates on the distinctiveness of different landscapes and on the sensitivity of that landscape to development. This LCA was also included in the Kildare County Development Plan 2017-2023 as it complies with National Landscape Strategy for Ireland 2015-2025.

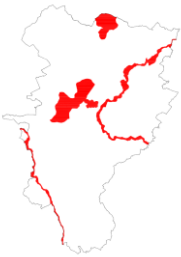
Figure 3 outlines the Landscape Character Areas of the county as contained in the draft County Development Plan (CDP). Landscape Character Areas are areas that generally share the same characteristics. Minor or very small distinctive features that arise from localised topographic circumstances – are outcrops, rivers, bogs, fens – are mapped as Subordinate Landscape Areas. Table 3 indicates the dominant sensitivity of each Landscape Character Area. It is important to note that within each of these areas there can be a wide variety of local conditions that can significantly increase or decrease sensitivity. Notwithstanding this observation, it is possible to identify a dominant sensitivity within each area – as highlighted in Table 3. This is determined by examining the presence/absence or dominance of sensitivity factors within each area by using landscape sensitivity. The resulting classification is then used to produce an evidenced–based Landscape Sensitivity Map.

Figure 3: Kildare Landscape Character Assessment



Source: Draft Kildare County Development Plan 2023-2027

Table 3: Classes of landscape sensitivity in County Kildare

Sensitivity	Landscape Character Area	Location	Description
Class 1 Low Sensitivity	North-Western Lowlands Northern Lowlands Central Undulating Lands Southern Lowlands		Areas with the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area.
Class 2 Medium Sensitivity	Eastern Transition Lands South-Eastern Uplands		Areas with the capacity to accommodate a range of uses without significant adverse effects on the appearance or character of the landscape having regards to localised sensitivity factors.
Class 3 High Sensitivity	Western Boglands Eastern Uplands		Areas with reduced capacity to accommodate uses without significant adverse effects on the appearance or character of the landscape having regard to prevalent sensitivity factors.
Class 4 Special	Chair of Kildare Northern Hills River Liffey River Barrow		Significant adverse effects on the appearance or character of the landscape having regard to prevalent sensitivity factors.
Class 5 Unique	The Curragh Pollardstown Fen Dun Ailinne		Areas with low capacity to accommodate uses without significant adverse effects on the appearance or character of the landscape having regard to special sensitivity factors.

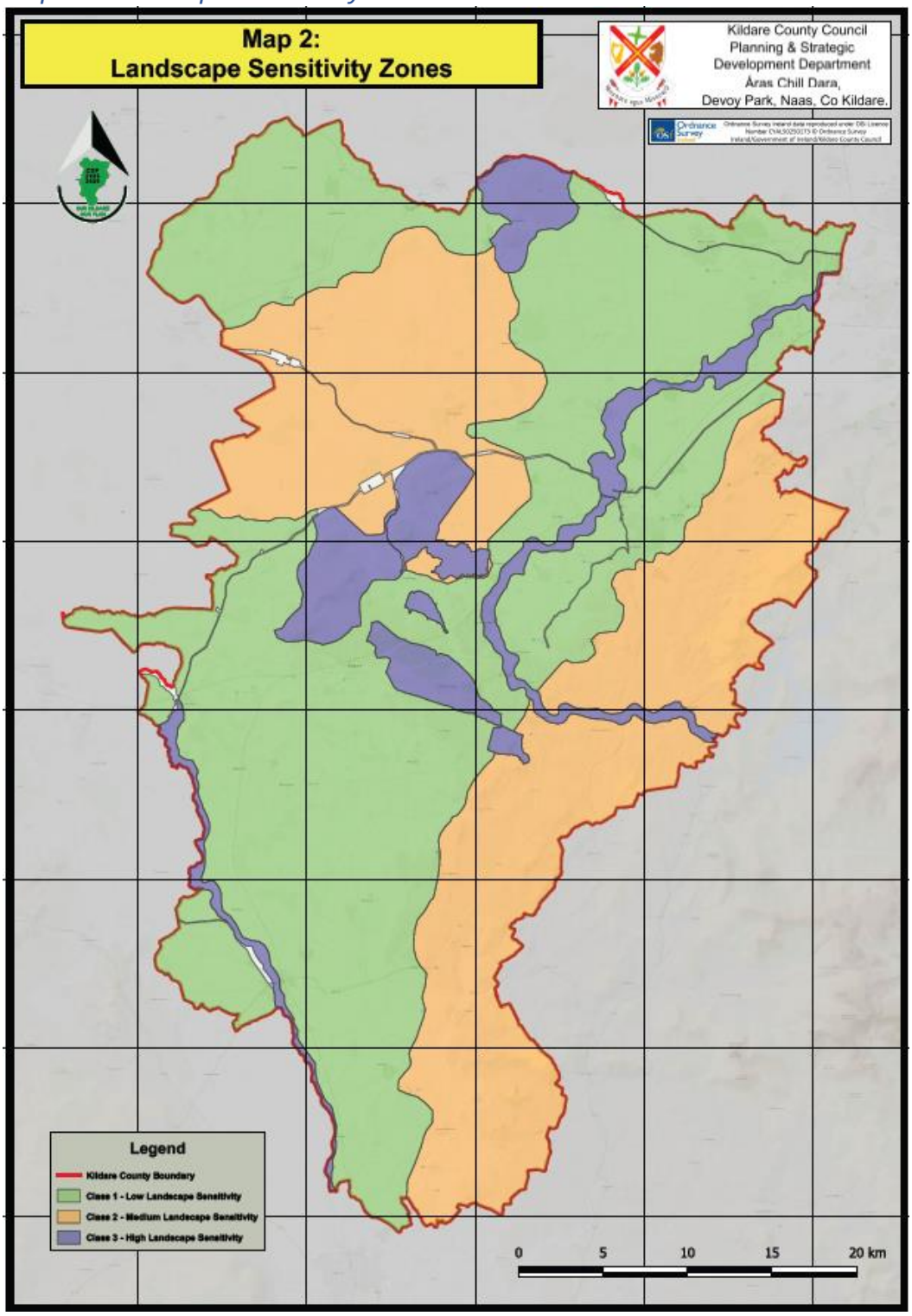
Source: Proposed Draft County Development Plan 2023-2027

This Landscape Character Assessment complies with the National Landscape Strategy for Ireland 2015-2025. Appendix 1 of the Draft Revised Wind Energy Guidelines 2019 states this assessment should convert this map using three sensitivity classifications. Therefore, the five classifications of landscape listed in the Kildare Landscape Character Assessment are converted into the three following classifications for the purposes of this Wind Strategy:

a) Low Landscape Sensitivity (Class 1 – Low Sensitivity)
b) Medium Landscape Sensitivity (Class 2 – Medium Sensitivity, Class 3 – High Sensitivity)
c) High Landscape Sensitivity (Class 4 – Special, Class 5 – Unique)

Below is a rationalised map of this landscape character assessment with these three levels of sensitivity mapped which will be used for the purposes of this Wind Energy Strategy.

Map 2: Landscape Sensitivity Zones



As per the Draft Revised Wind Energy Guidelines 2019 methodology areas characterised as Low Landscape Sensitivity form the basis for areas considered 'Acceptable in Principle' for windfarm development, areas of Medium Landscape Sensitivity form the basis for areas considered 'Open to Consideration' for windfarm development, while areas with High Landscape Sensitivity form the basis for areas considered 'Not Normally Permissible' for wind energy development.

3.2.2 Sensitivities identified in adjoining Development Plans

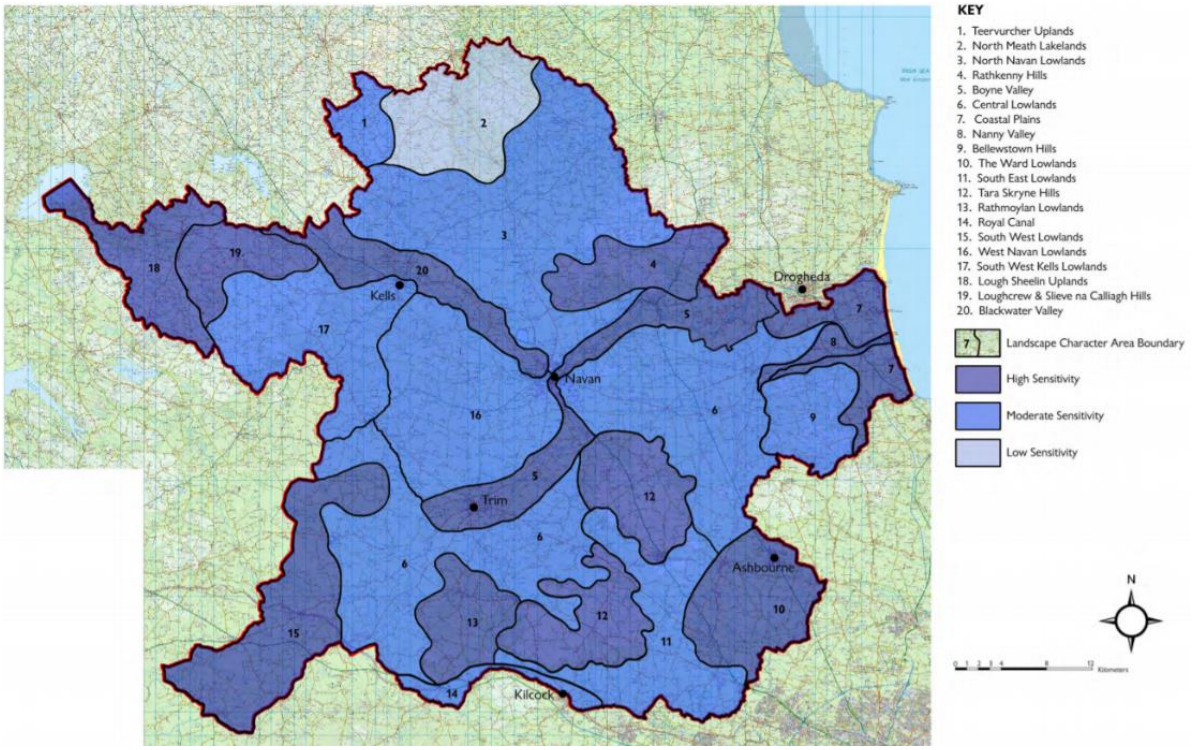
Appendix 1 of the Draft Revised Wind Energy Guidelines 2019 states it is critically important to consult with adjacent planning authorities to see how classifications in county Kildare fit with neighbouring counties. A review of the policies in adjoining Development Plans was conducted in order to establish any possible effects on adjoining authorities' landscape designations. This is set out in the figures below.

County Meath

The Landscape Character Assessment contained in the Meath County Development Plan 2021-2027 is the same as that contained in the Meath County Development Plan 2013-2019.

The majority of county Meath adjoining the northern boundary with county Kildare is annotated as 'Moderate Sensitivity' for wind development. However, there is an area adjoining the north west boundary below Kinnegad which is demarcated as having 'High Sensitivity' to wind development projects. See Figure 4 below for details.

Figure 4: Meath Landscape Character Assessment



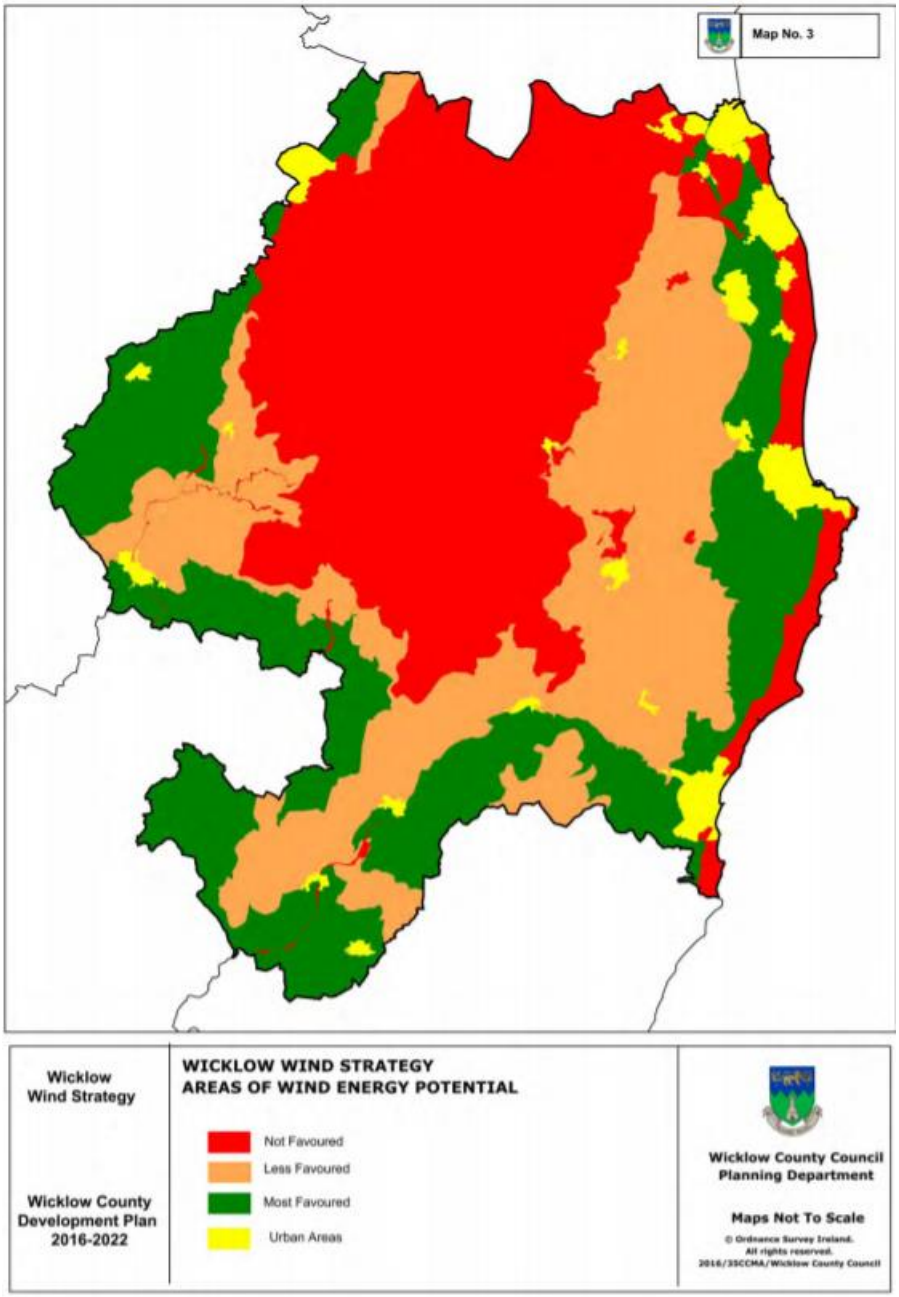
Source: Meath County Development Plan 2013-2019

County Wicklow

Wicklow County Council is currently reviewing the County Development Plan. It is noted Appendix 5 of the Draft Wicklow County Development Plan 2022-2028 'Wicklow Wind Energy Strategy' refers to Map No. 3 of the Wicklow County Development Plan 2016 – 2022 Wind Energy Strategy. Therefore, this Landscape Character Assessment is examined for landscape sensitivities.

The majority of county Wicklow adjoining the eastern boundary with county Kildare is annotated as 'Most Favoured' for wind development. Only a very small area is demarcated as 'Not Favoured' for wind development. See Figure 5 below for details.

Figure 5: Wicklow Wind Strategy Areas of Wind Energy Potential



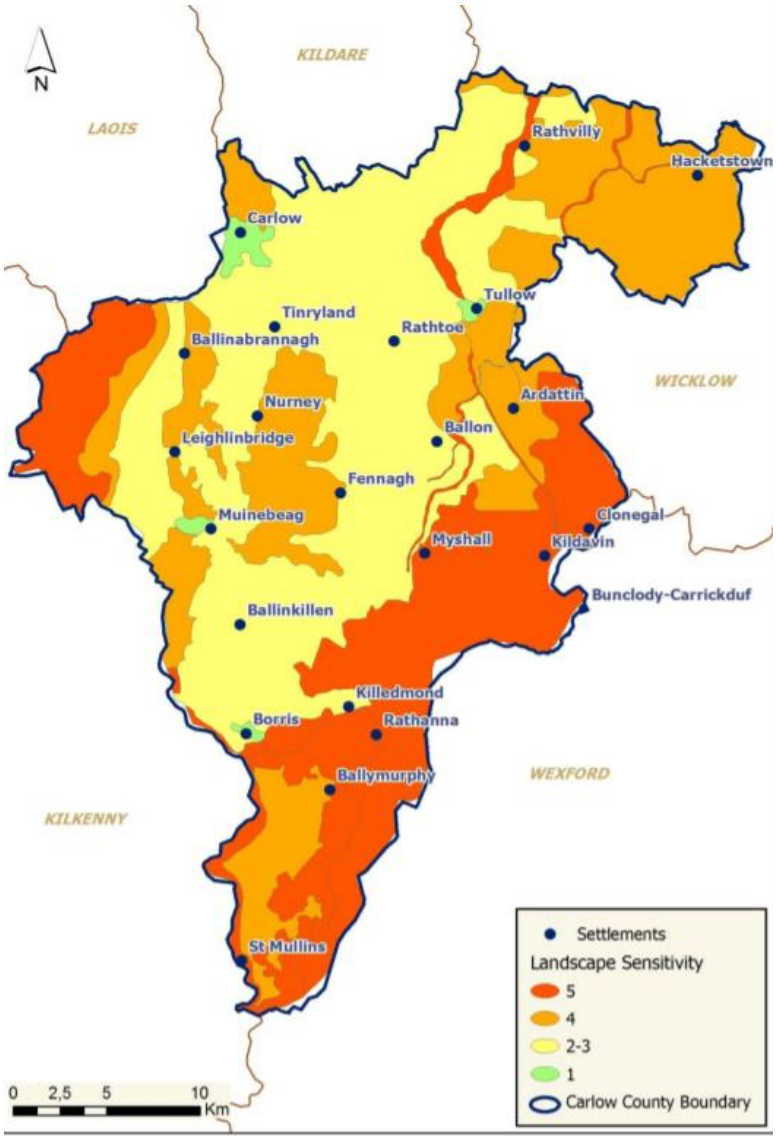
Source: Wicklow County Development Plan 2016 – 2022 Wind Energy Strategy (Map No. 3)

County Carlow

It is noted the Renewable Energy Strategy for the Draft County Carlow Development Plan 2022-2028 uses the established Landscape Character Assessment (2015). Therefore, this Landscape Character Assessment is examined for landscape sensitivities.

County Carlow has no area of very high landscape sensitivity adjoining the southern boundary with county Kildare. However, it is noted there is a small area between the border and north of Carlow town classed as class 4 (out of 5). See Figure 6 below for details.

Figure 6: Carlow Landscape Sensitivity Map



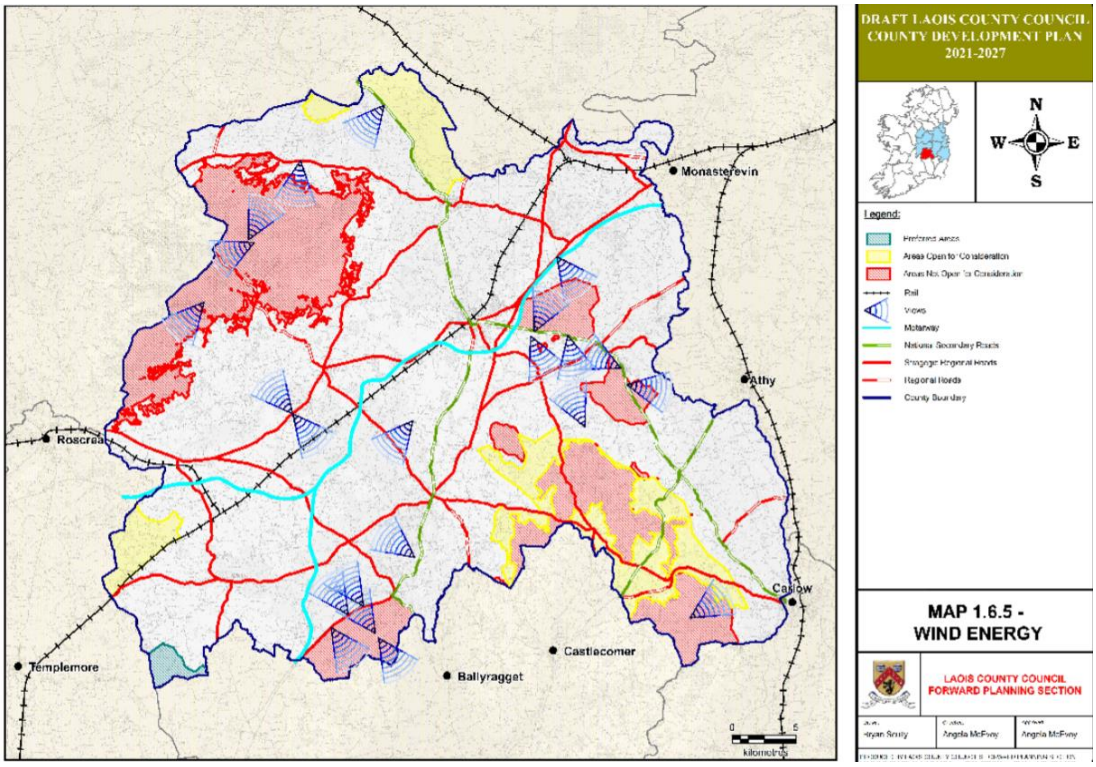
Source: Carlow County Landscape Character Assessment and Schedule 0f Protected Views (2015)

County Laois

The Laois Landscape Sensitivity Map Wind Energy Strategy Appendix - Draft Laois County Development Plan 2021-2027 is examined for landscape sensitivities.

County Laois to the west has no areas 'Not Open to Consideration' adjoining the boundary with county Kildare. However, it is noted there are no locations adjoining the boundary which are annotated as 'Open to Consideration' for wind development. See Figure 7 below for details.

Figure 7: Laois Landscape Sensitivity Map



Source: Wind Energy Strategy Appendix - Draft Laois County Development Plan 2021-2027

South County Dublin

The Landscape Character Assessment for South County Dublin is an appendix of the Draft South Dublin County Development Plan 2022 – 2028. In relation to wind energy the following is stated relating to regions of the county which adjoin the boundary with county Kildare.

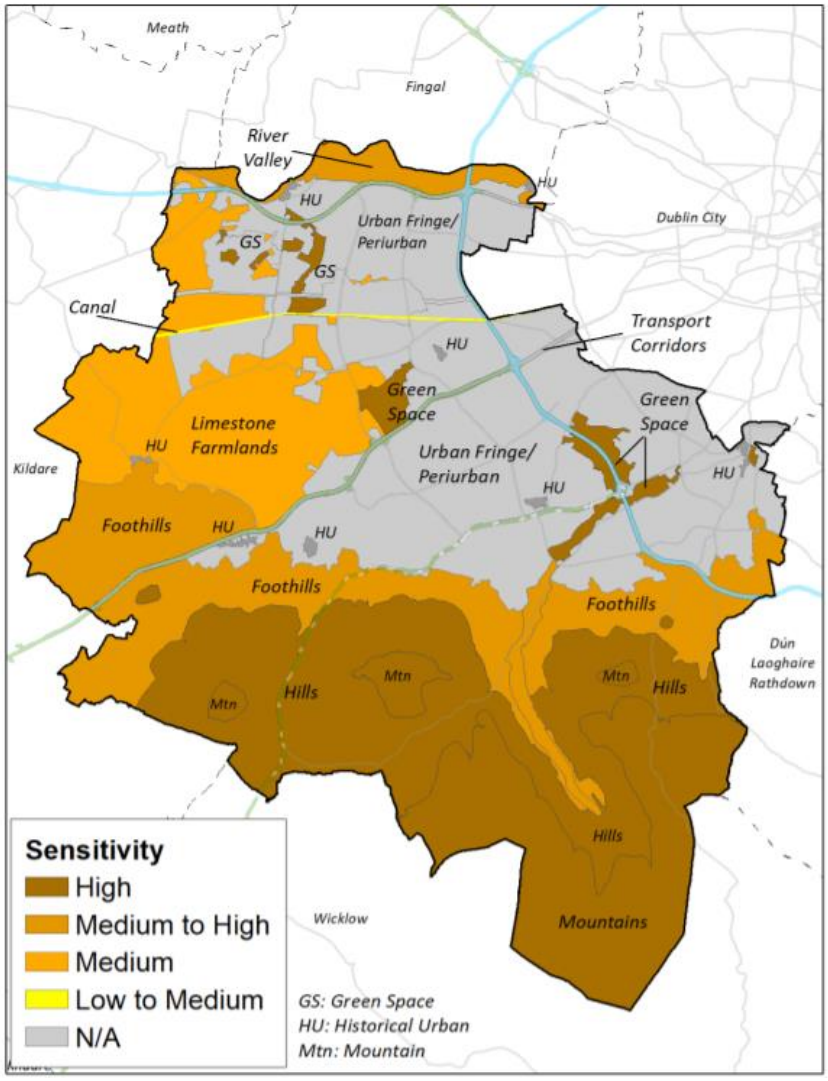
- The Liffey Valley region is stated to have a 'High Sensitivity' to wind energy development[2].
- The Newcastle Lowlands region is stated to have a 'Medium to High Sensitivity' to wind energy development[3].

[2] LCA 1: Liffey Valley, p. 97 of the Landscape Character Assessment of South Dublin County 2021.
[3] LCA: Newcastle lowlands, p. 99 of the Landscape Character Assessment of South Dublin County 2021.

- The Athgoe and Saggart Hills region is stated to have a 'High Sensitivity' to wind energy development[4].

This is depicted in the South Dublin County Council Landscape Character Assessment map below (Figure 8).

Figure 8: Landscape Character Areas of South Dublin County



Source: Figure 38 of the Landscape Character Assessment of South Dublin County 2021

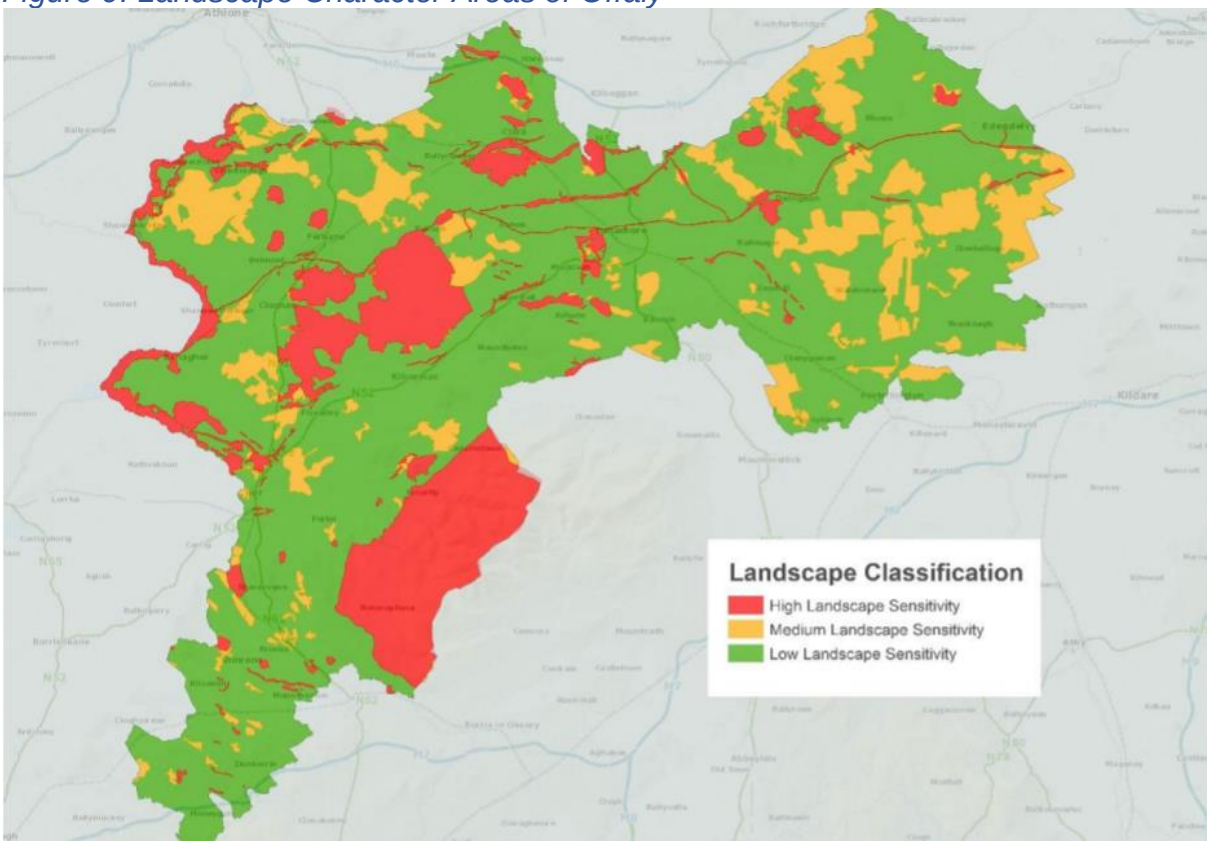
County Offaly

The Offaly County Development Plan 2021-2027 Draft Wind Energy Strategy has a Landscape Character Assessment which informs where wind energy developments should be located. The majority of the area adjoining the boundary with county Kildare is not considered overly sensitive, however it is noted the Grand Canal has

[4] *LCA: Athgoe and Saggart Hills, p. 100* of the Landscape Character Assessment of South Dublin County 2021.

been designated highly sensitive. This is depicted in the Offaly Landscape Character Assessment map below (Figure 9).

Figure 9: Landscape Character Areas of Offaly



Source: Map No. 3 of the Offaly County Development Plan 2021-2027: Draft Stage County Wind Energy Strategy

2.2.3 Evaluation of Step 2

County Kildare is mainly flat and has a landscape largely suitable for considerate wind energy developments. However, it does contain some prominent upland areas including the Chair of Kildare and the Northern Hills which would be sensitive to large scale development. Similarly, the Liffey and Barrow river valleys would also be sensitive to large scale development. Unique area of landscape including the Curragh and Pollardstown Fen would be sensitive to all types of wind energy development.

It is noted from a study of the Landscape Character Assessments of surrounding counties there are very few significantly sensitive landscapes bordering Kildare. There are three small areas which border county Kildare that have high landscape sensitivity as follows:

- Two border the northwest of county Kildare: an area in County Meath (south of Kinnegad) and in County Offaly (at the Grand Canal).
- One small area of uplands in South County Dublin bordering the north east of county Kildare (north of Blessington).

3.3 Step 3: Overlay of the Wind Energy Mapping with Landscape Evaluation and Sensitivity Analysis with information regarding heritage, archaeological and amenity designations in the Development Plan and existing settlements within the county

Step 3 of the process involves combining the wind energy mapping (from Step 1) and the landscape evaluations mapping (Step 2) with more detailed sensitivity analysis. The layers considered within step 3 are as follows:

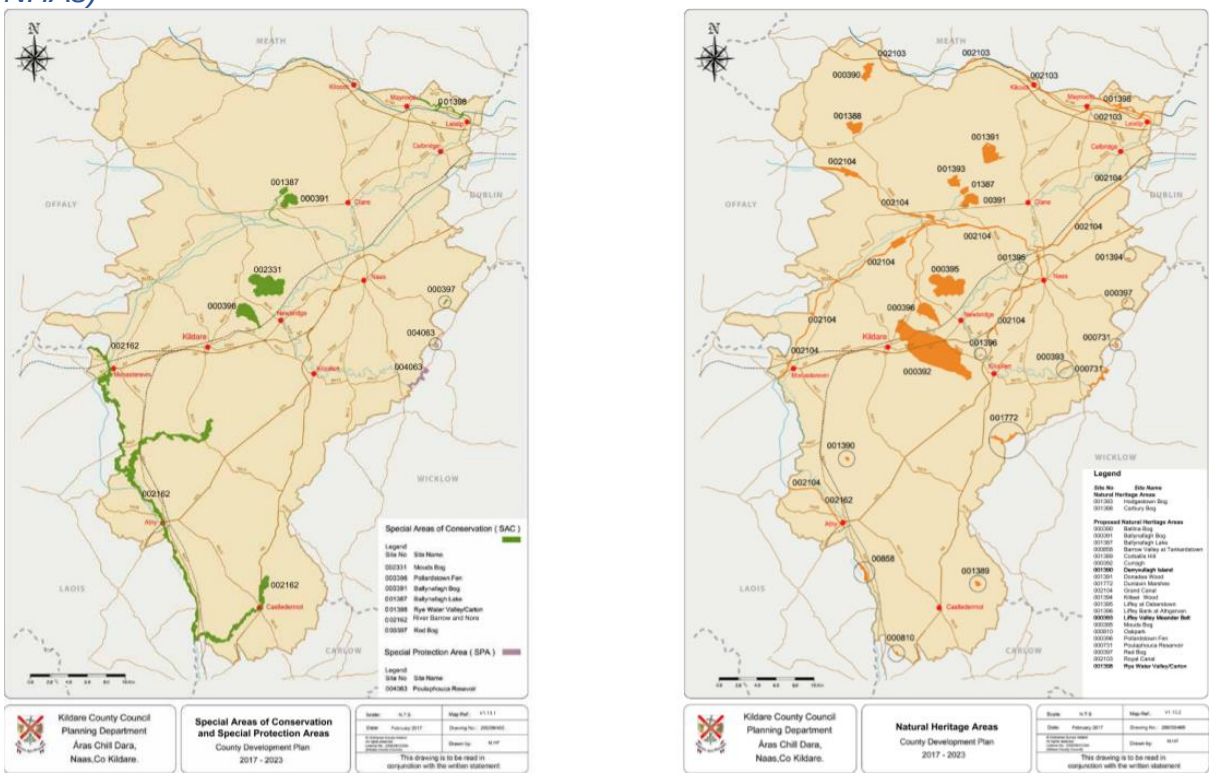
- Designated Sites- SACs, SPAs and NHAs.
- Protected Views
- Settlements

These are discussed further in more detail below.

3.3.1 Designated Sites

Figure 10 below shows the extent and location of the European and National Designated sites in County Kildare as listed in Kildare County Development Plan 2017-2023 – Chapter 13 Natural Heritage and Green Infrastructure. These European and National Designated Sites are not considered appropriate locations for wind energy developments and will be designated as areas where wind farms are 'Not Permitted'.

Figure 10: Map of European sites (left - SPAs and SACs) and National sites (right - NHAs)

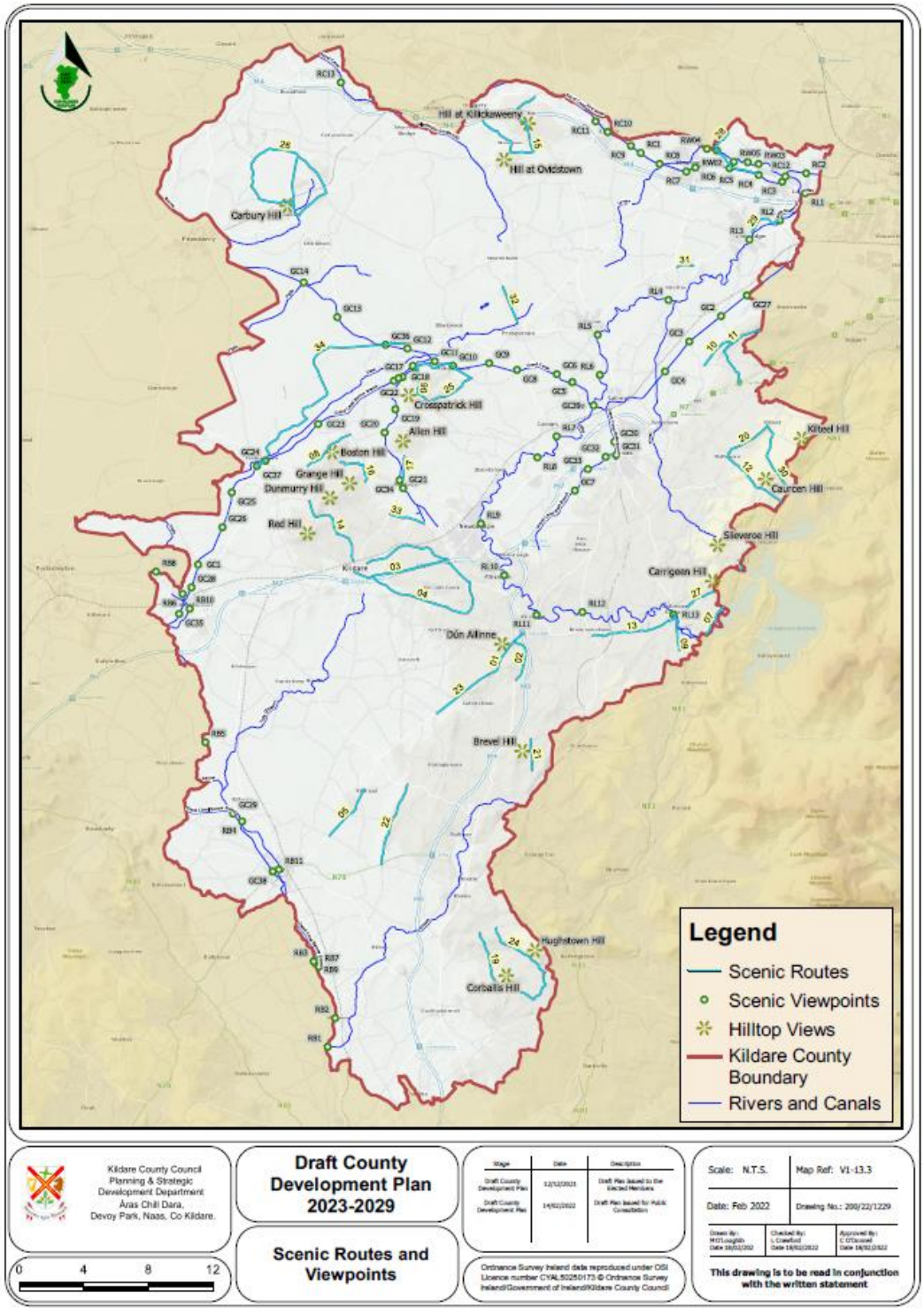


Source: Kildare County Development Plan 2017-2023

3.3.2 Protected Views

Kildare County Development Plan 2017-2023 – Chapter 14 Landscape, Recreation and Amenity identifies and lists Key Scenic Views and Prospects in County Kildare which offer a very attractive cross-sectional view and overall impression of differing landscapes as one traverses the county. Figure 11 below shows the location of these protected views and the direction of the vistas from scenic routes, bridges and roads. These views are listed in Chapter 13 of the Draft County Development Plan.

Figure 11: Scenic Routes and Viewpoints



Source: Draft Kildare County Development Plan 2023-2029

3.3.3 Settlements

The Draft Wind Guidelines 2019 recommend that settlements be excluded as they will be subject to the project level requirement for a minimum of 500 metre setback or four times the tip height of the turbine from individual properties (SPPR2). The Regional Spatial and Economic Strategy for the Eastern and Midland Region (2019-2031) provides for a Settlement Hierarchy of Key Towns, Self-Sustaining Growth Towns, Self-Sustaining Towns, Towns, Villages and Rural Areas. Table 4 below lays out this settlement hierarchy in county Kildare, as proposed in the Draft County Development Plan.

Table 4: Settlement hierarchy

Key Towns Naas, Maynooth
Self-Sustaining Growth Towns Newbridge, Leixlip, Kildare Town, Athy
Self-Sustaining Towns Celbridge, Kilcock, Monasterevin, Clane
Towns Sallins, Kilcullen, Kill, Prosperous, Rathangan, Castledermot, Derrinturn
Villages Athgarvan, Johnstown, Straffan, Ballymore Eustace, Allenwood, Johnstownbridge, CoillDubh, Cooleragh, Kilmeague, Caragh, Kildangan, Suncroft, Robertstown, Ballitore, Crookstown, Narraghmore, Moone and Timolin
Rural Areas

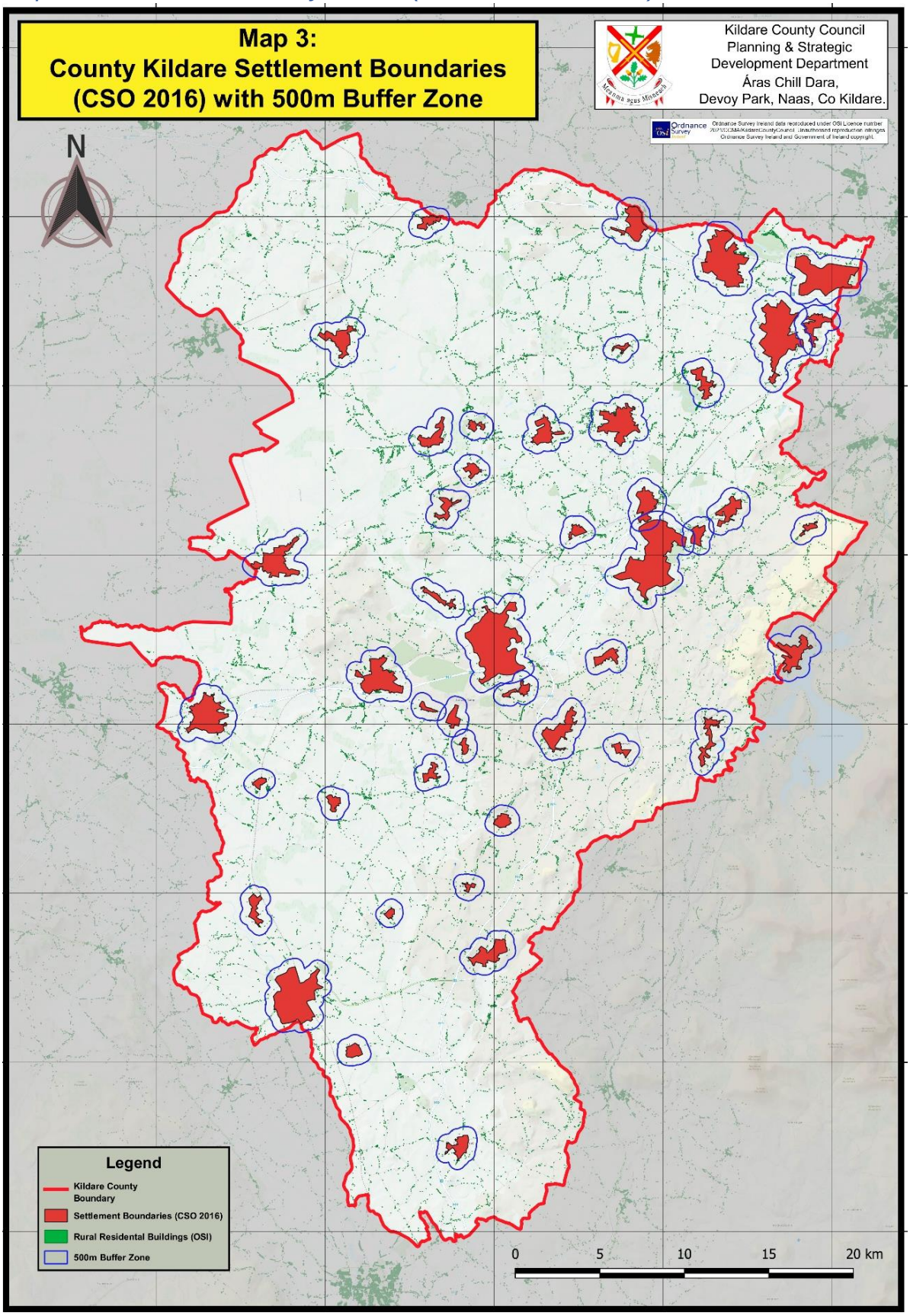
Source: Kildare County Development Plan 2023 -2029

While Kildare has a number of urban towns and villages it has quite a dispersed population. Map 3 below depicts this dispersed rural development in green. The Draft Revised Wind Energy Development Guidelines December 2019 require a mandatory minimum distance of 500 metres between a wind turbine and the nearest residential property.

For the purposes of legibility, only defined settlements with a 500 metre buffer will be excluded from mapping zones where wind farm development may be Acceptable in Principle and Open for Consideration. For the purposes of this strategy, and in line with the NPF, these settlements and their boundaries are defined by the Central Statistics Office - Census 2016 Small Area Population Statistics. Map 3 overleaf depicts these settlements with a 500 metre buffer marked in red.

Setback distances between any turbine and the nearest dwelling is governed by SPPR 2 of the Draft Guidelines (i.e. a minimum setback of 500 metres or a buffer of at least four times the tip height of the turbine). These setbacks will be considered and assessed at planning application stage as part of the development management process.

Map 3: Settlements in County Kildare (with 500 metre buffer)

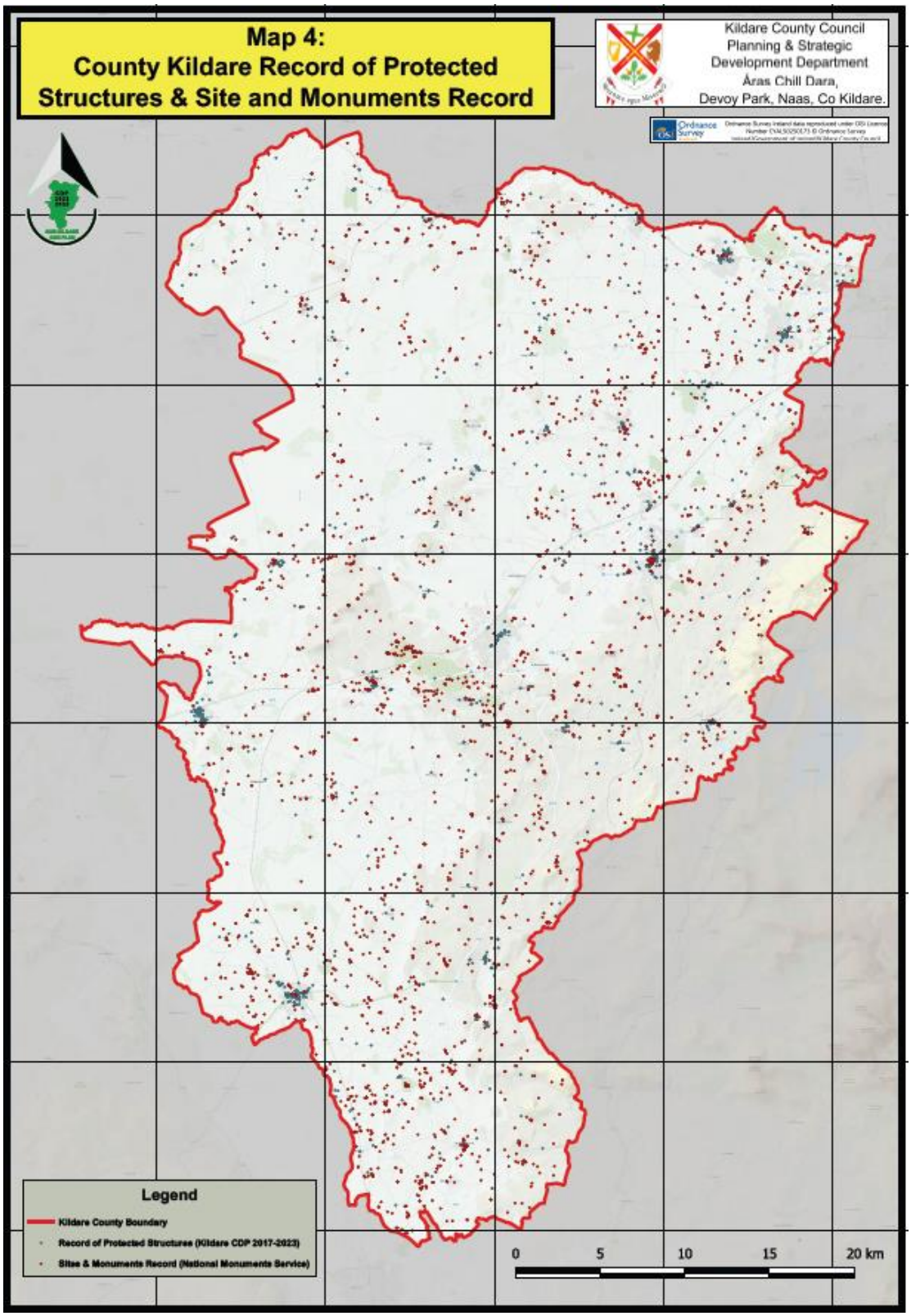


Source: CSO Small Area Population Statistics Map 2016 Census

3.3.4 Record of Protected Structures & Sites and Monuments Record

For information purposes, the following map illustrates the location of Protected Structures (RPS) and the Site and Monuments Record (SMRs) throughout the county.

Map 4: Record of Protected Structures & Sites and Monuments Record



3.3.5 Combining the layers as set out for Step 3

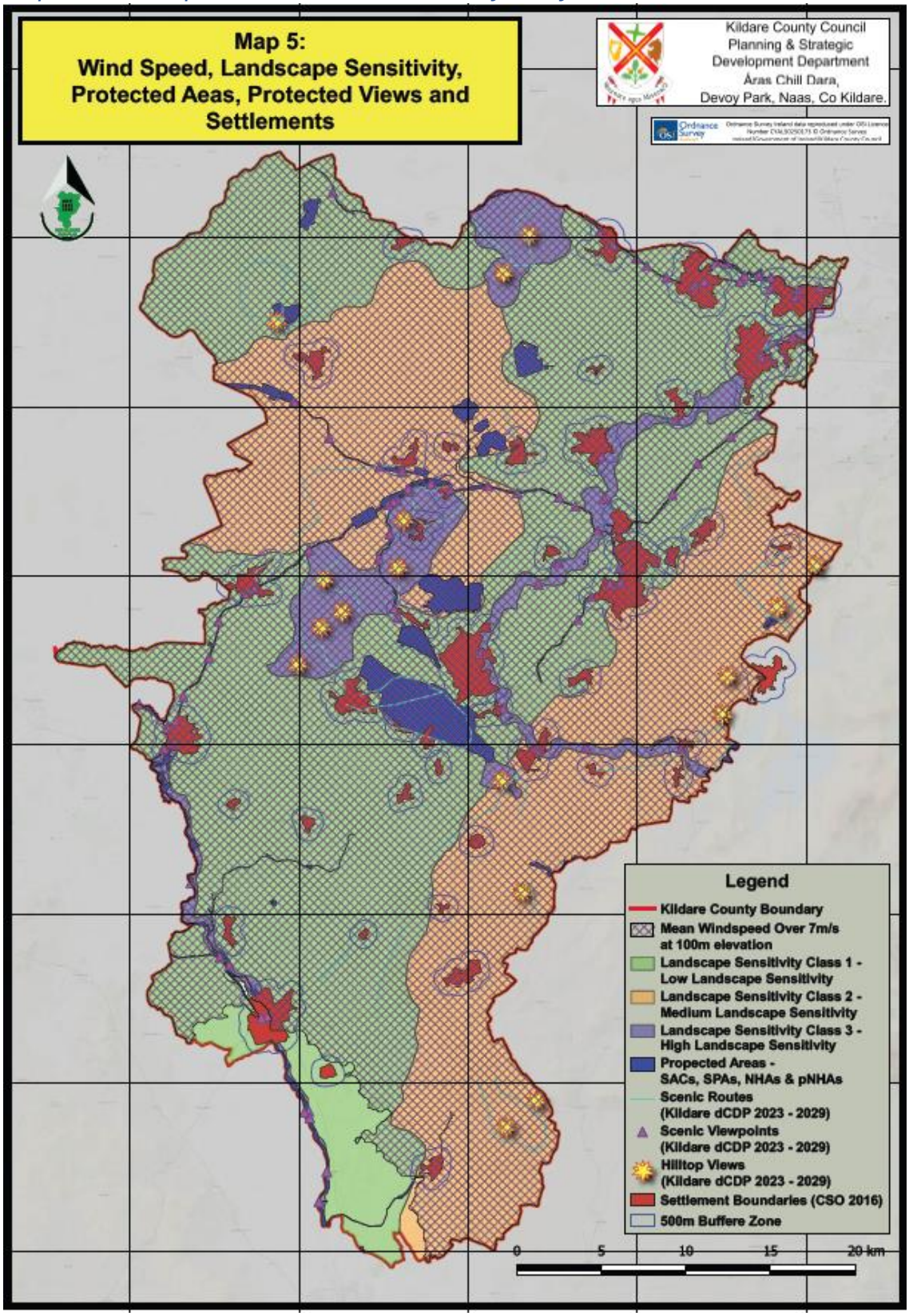
Step 3 of the Draft Guidelines recommends that the following layers are mapped and overlaid, including:

- Landscape evaluation and sensitivity analysis
- Built and natural heritage
- Archaeological and amenity designations in the Development Plan
- Existing settlements within the county

This is mapped in Map 5 below which shows that areas in the north east and south of the county are emerging as areas where there are less conflicts to potential wind farm development. This will be further examined in section 4 of this strategy.

In line with the Draft Guidelines, and for clarity, individual rural dwellings, protected structures and SMRs have been excluded from the following map.

Map 5: Landscape evaluation and sensitivity analysis



Source: CSO Small Area Population Statistics Map – 2016 Census and Draft Kildare County Development Plan 2023-2029

3.4 Step 4: Information regarding accessibility to electricity transmission, distribution grids, aviation considerations and approved/proposed wind farm developments

3.4.1 Accessibility to electricity transmission and distribution grids

Proximity to transmission lines and the ability to connect into these lines via step-down stations is a significant consideration for the siting of commercial wind farms. Map 6 shows the location of powerlines, cables, step-down stations and power generators within and around the county.

Kildare has an excellent electricity transmission network including 400 kV, 220 kV and 110 kV lines, with no area in the county being over 15 km of an electricity transmission line and it is not deemed necessary to exclude any areas on this basis. In turn, in order to facilitate the expansion in electricity generation installation from wind farms and other sources, the grid may itself require development and expansion. In this regard potential wind energy developers will need to complete detailed grid studies to evaluate the strength of the network in the development area. It is therefore prudent for the future development of electricity and wind farms in County Kildare that existing strategic pieces of grid infrastructure are protected from inappropriate development. In this regard, the Development Management Standards Chapter of the County Development Plan requires consideration of the provision of sufficient falling distance plus an additional flashover distance between turbines and overhead transmission lines in relation to wind energy developments.

3.4.2 Aviation constraints

A number of aviation constraints were identified in County Kildare particularly regarding aviation traffic. Airfields in county Kildare include Stramillan, Kilrush, Gowran Grange and Clarkestown. The obstacle limitation surfaces around these airfields have been demarcated as an exclusion zone for wind farm development in Figure 16 below. Furthermore, two airports operate on the borders of Co. Kildare in Dublin. Both of these airports have obstacle limitation surfaces which are in the north east of county Kildare, and these areas have been excluded for wind farm development also. The foregoing is also shown in Map 6.

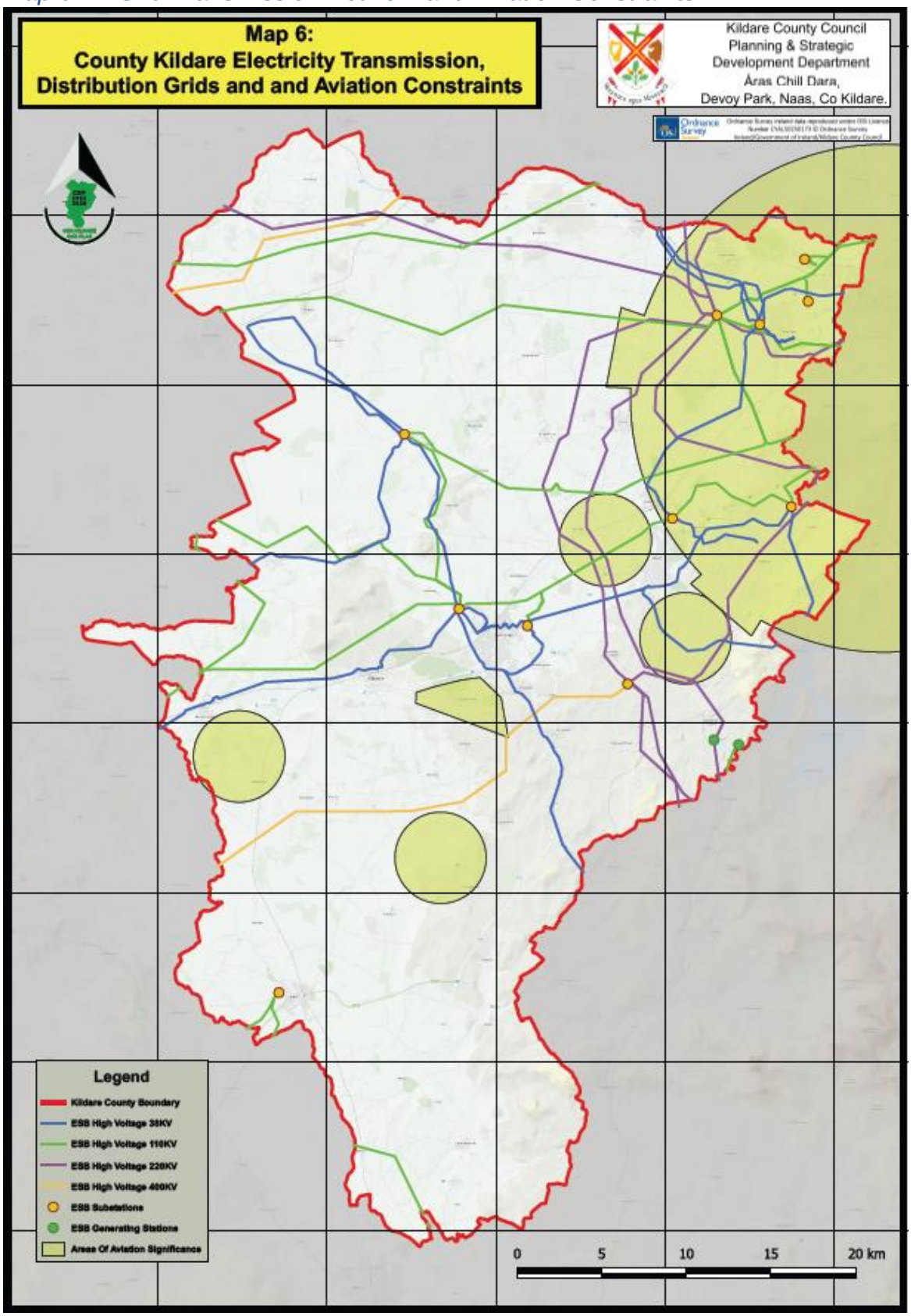
A Military Operating Area (MOA4), in which military flying may occur, covers most of County Kildare. It is noted that An Bord Pleanála have granted and refused wind energy developments within this zone. The Curragh Military Camp is located within this area where military air traffic is predominantly helicopter based.

In broad terms (as per the Irish Aviation Authority) any wind turbine above 90m in height above ground needs to be marked and fitted with aviation warning lights and identified on aviation charts. ICAO (the International Civil Aviation Organization) and EASA (the European Aviation Safety Agency) both provide further advice on this and this will be considered at planning application stage. Any wind farm applications within the larger Military Operating Area will be considered on its own merits in accordance with Development Plan standards and consultation with the Department of Defence.

3.4.3 Approved/proposed windfarm developments

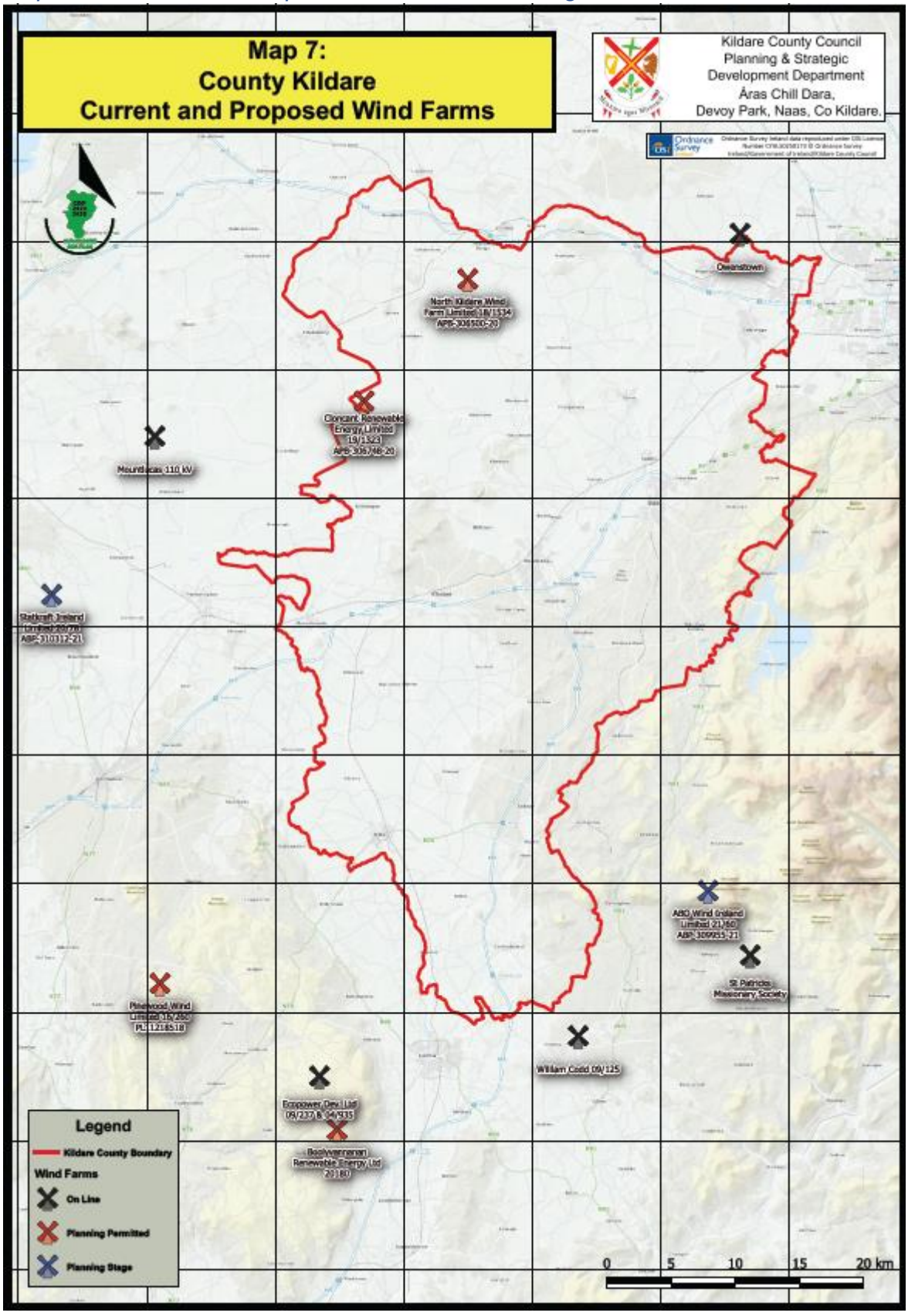
There are currently no operational wind farms in County Kildare. However, two developments have been approved recently in north Kildare: Drehid Wind Farm and the Cushaling Wind Farm. The location of these windfarms in Map 7 below indicates developers have considered the northwest of the county viable for windfarm development.

Map 6: EirGrid Transmission Network and Aviation Constraints



Source: EirGrid network (https://www.eirgridgroup.com/annual-report-2019/EirGrid-2020-Updates-to-Transmission-System-Map-A4-(Proof-1b).pdf) and Draft County Development Plan 2023-2029

Map 7: Wind Farm developments in and surrounding Co. Kildare



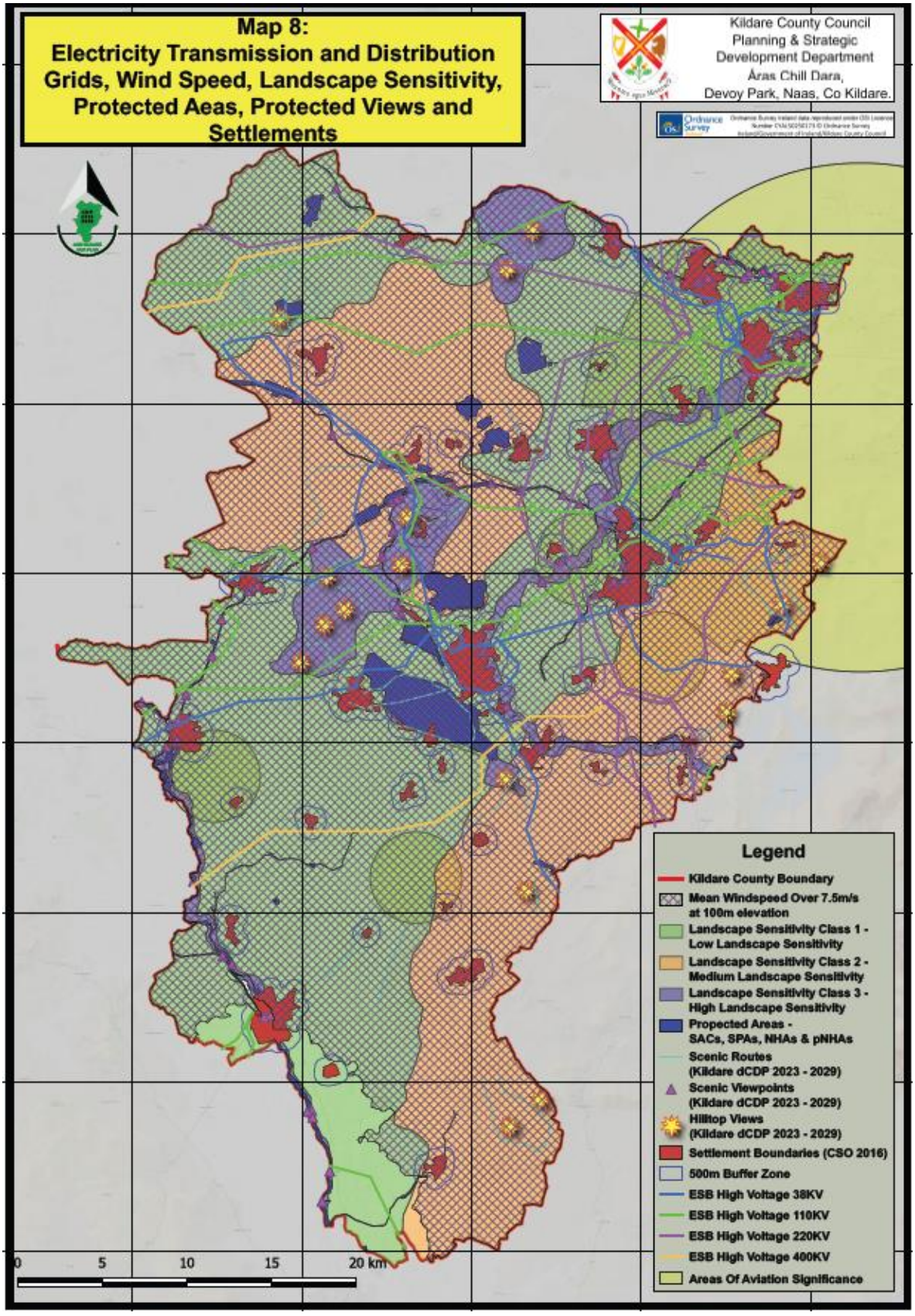
Source: Online Planning Enquiry System Kildare County Council and An Bord Pleanála (March 2022)

3.4.4 Combining the layers as set out for Step 4

Step 4 of the methodology involves mapping and overlaying the layers from Step 3 with information regarding accessibility to the electricity transmission and distribution grids.

This is shown in Map 8 below. Similarly, to Map 5 it is clear in Map 8 below, areas in the north west and south of the county are emerging as areas where there are less conflicts to potential wind farm development. This will be further examined in Section 4 of this strategy.

Map 8: landscape Sensitivity, Constraints and Electricity Grid



4 Strategic Zones

4.1 Three Strategic Areas

Implementing Steps 1 to 4 of the methodology results in identifying three strategic areas that relate to the acceptability of windfarm development. These three strategic areas are defined in the table below.

Strategic Area	*Description and Guidance*
Acceptable in Principle	This is the preferred area for wind energy development characterised by a robust landscape[5], a low housing density, adequate windspeeds and proximity to the existing electricity transmission and distribution grid, while having no significant conflicts with natural heritage designations. Wind farm developments will be facilitated in this area subject to compliance with normal planning and environmental criteria outlined in Section 5 of this report and the development management standards in the County Development Plan.
Open for Consideration	This area is characterised by medium landscape sensitivity[6] which is a less robust category of landscape sensitivity. It has the potential to accommodate wind farm development subject to a detailed assessment on the visual impact of the proposal on the landscape in particular, and cumulative visual impacts with existing and permitted wind farms. Wind farm developments will be facilitated in this area subject to compliance with normal planning and environmental criteria outlined in Section 5 of this report and the development management standards in the County Development Plan. Wind farm proposals in this area will be required to demonstrate potential for cumulative visual impacts at application stage.
Not Normally Permissible	This area is considered to be generally unsuitable for wind farm development as it is defined by highly sensitive landscapes[7], settlements[8], designated sites[9], areas of aviation significance[10] and/or low windspeeds[11]. Individual small scale turbines and community led initiatives may be considered on a case-by-case basis. Any development in this area will be subject to compliance with planning and environmental criteria outlined in Section 5 of this report and the development management standards in the County Development Plan.

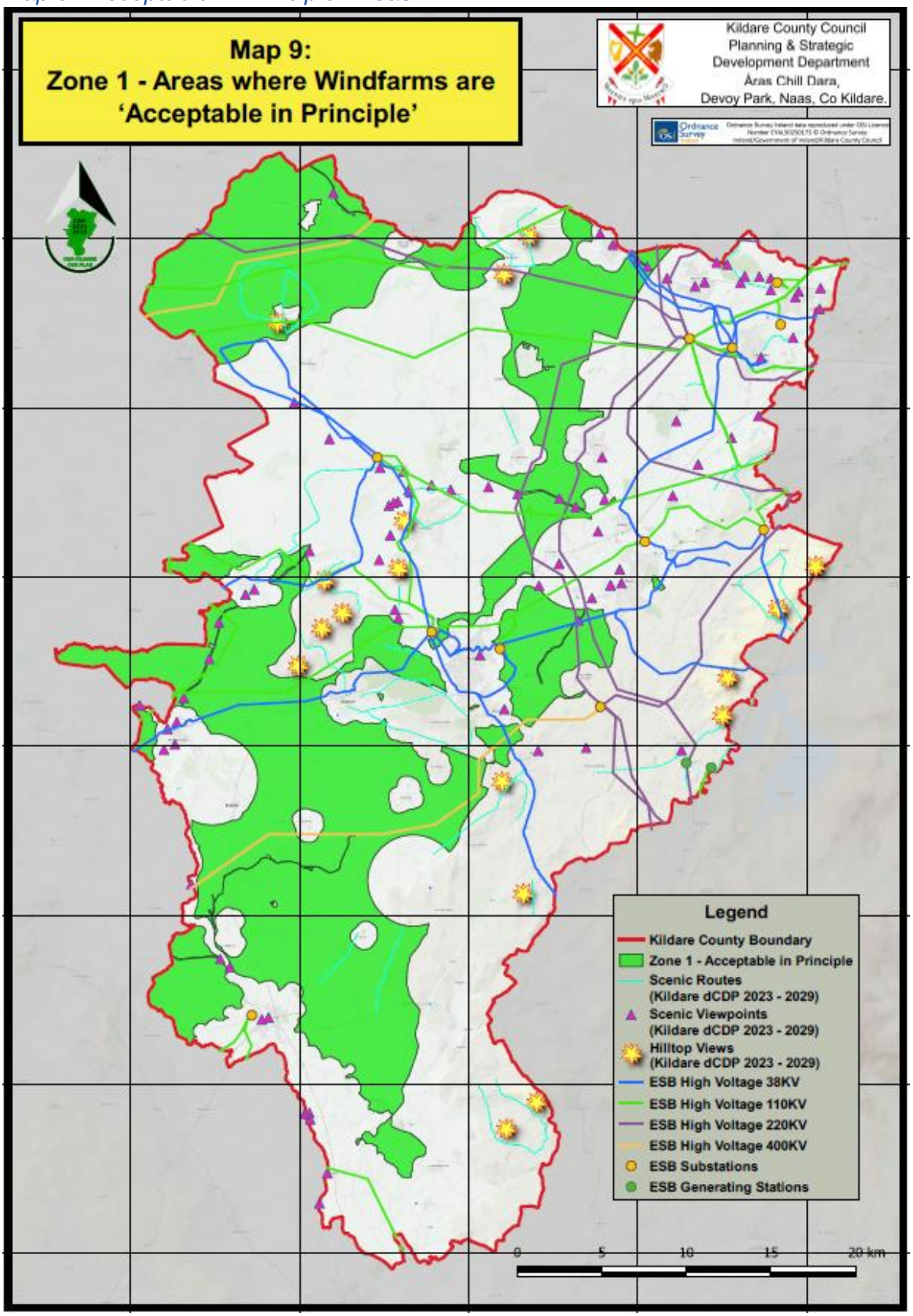
[5] Note Low Landscape Sensitivity defined and mapped in Section 3.2 of this report.
[6] Note Medium Landscape Sensitivity defined and mapped in Section 3.2 of this report.
[7] Note High Landscape Sensitivity defined and mapped in Section 3.2 of this report.
[8] Note the 500 metre buffer around settlements as defined by the Central Statistics Office - Census 2016 Small Area Population described and mapped in Section 3.3.3 of this report.
[9] Note the European and National Designated sites in County Kildare listed and mapped in Section 3.3.1 of this report.
[10] Note the areas of Areas of Aviation Significance defined and mapped in Section 3.4.2 of this report.
[11] Note the area with a windspeed lower than 7m/s at 100m elevation in the south east of the county mapped and defined in Section 3.1 of this report.

4.2 Acceptable in Principle

The part of the county that is considered ‘Acceptable in Principle’ for wind farm development has an area of approx. 55690 hectares. This ‘Acceptable in Principle’ zone is depicted in green in Map 9 below. This zone is predominantly flat, rural and well serviced by the existing electricity transmission grid. It contains the North-Western Lowlands, the Northern Lowlands, the Central Undulating Lands and the Southern Lowlands.

The location of a potential wind farm site within an ‘Acceptable in Principle’ zone should not be construed as a certainty that planning permission will be granted. All planning applications will be assessed on their merits. Particular attention should be given to how perspective schemes would be observed from scenic routes, scenic viewpoints and hilltop views, in particular those associated with the Royal and Grand Canals, and River Barrow. It should also be noted that while wind energy schemes may be ‘Acceptable in Principle’ within this area there are still many site-specific considerations such as impacts to residential amenity and biodiversity that will need to be examined and considered at planning application stage. These considerations are listed in the Draft Revised Wind Energy Development Guidelines 2019 and outlined in Section 5 of this strategy.

Map 9: 'Acceptable in Principle' Areas



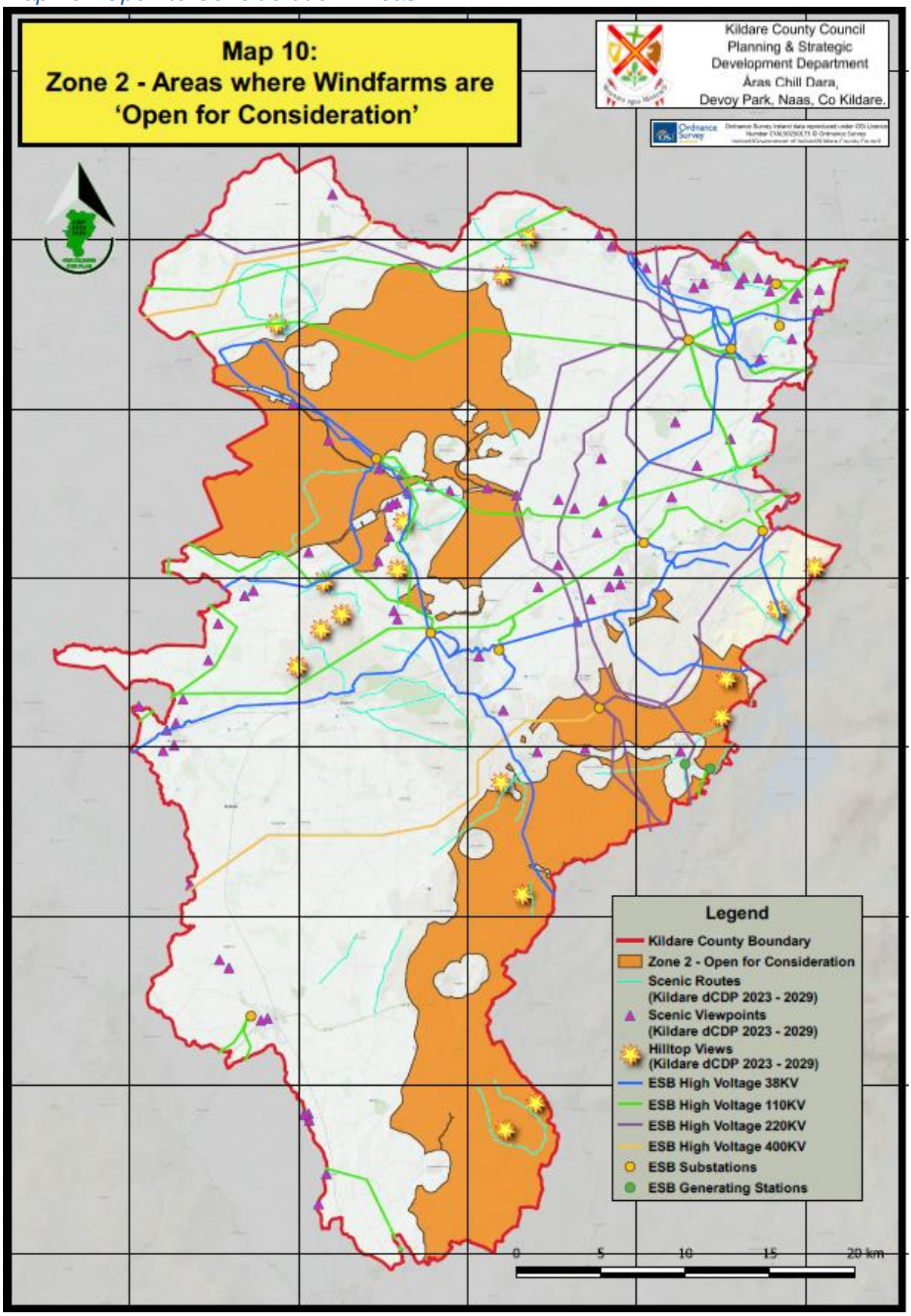
Source: EirGrid network, CSO 2016 Census and Draft County Development Plan 2023-2029.

4.3 Open to Consideration

The part of the county that is considered 'Open to consideration' for wind farm development has an area of approx. 44982 hectares. This 'Open to Consideration' zone is depicted in orange in Map 10 below. This zone is undulating in elevation while mainly flat. It does contain some uplands areas especially on the eastern boundary with county Wicklow including the Eastern Uplands, the Eastern Transition Lands and the South-Eastern Uplands. Hilltop views and Scenic Routes depicted in figure 11 must be a consideration for any wind energy development. This zone also contains the open area of the Western Boglands.

The location of a potential wind farm site within an 'Open for Consideration' zone should not be construed as a certainty that planning permission will be granted. All planning applications will be assessed on their merits. Particular attention should be given to how perspective schemes would be observed from scenic routes, scenic viewpoints and hilltop views, in particular those associated with the Royal and Grand Canals. It should also be noted that while wind energy schemes may be 'Open to Consideration' within this zoning there are still many site-specific considerations such as impacts to residential amenity and biodiversity will need to be examined at planning application stage. These considerations are listed in the Draft Revised Wind Energy Development Guidelines 2019 and outlined in Section 5 of this strategy.

Map 10: 'Open to Consideration' Areas



Source: EirGrid network, CSO 2016 Census and Draft County Development Plan 2023-2029.

4.4 Not Normally Permissible

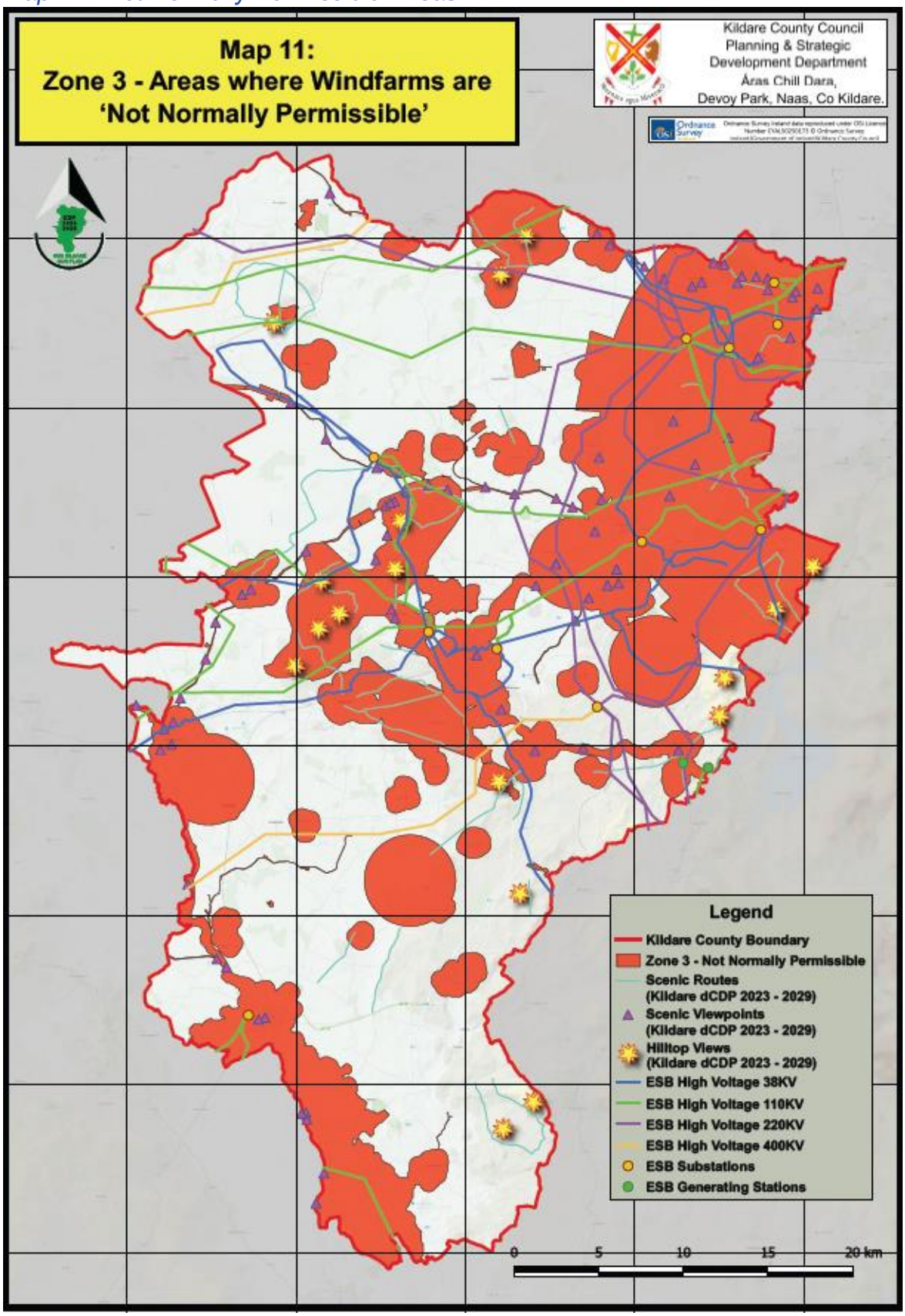
The 'Not Normally Permissible' zone is depicted in red in Map 11 below. This zone is defined by highly sensitive landscapes, settlements, designated sites, areas of aviation significance and/or low windspeeds.

It is therefore considered not appropriate to allocate a megawatt figure to this zone.

4.5 Wind Energy Strategy Map

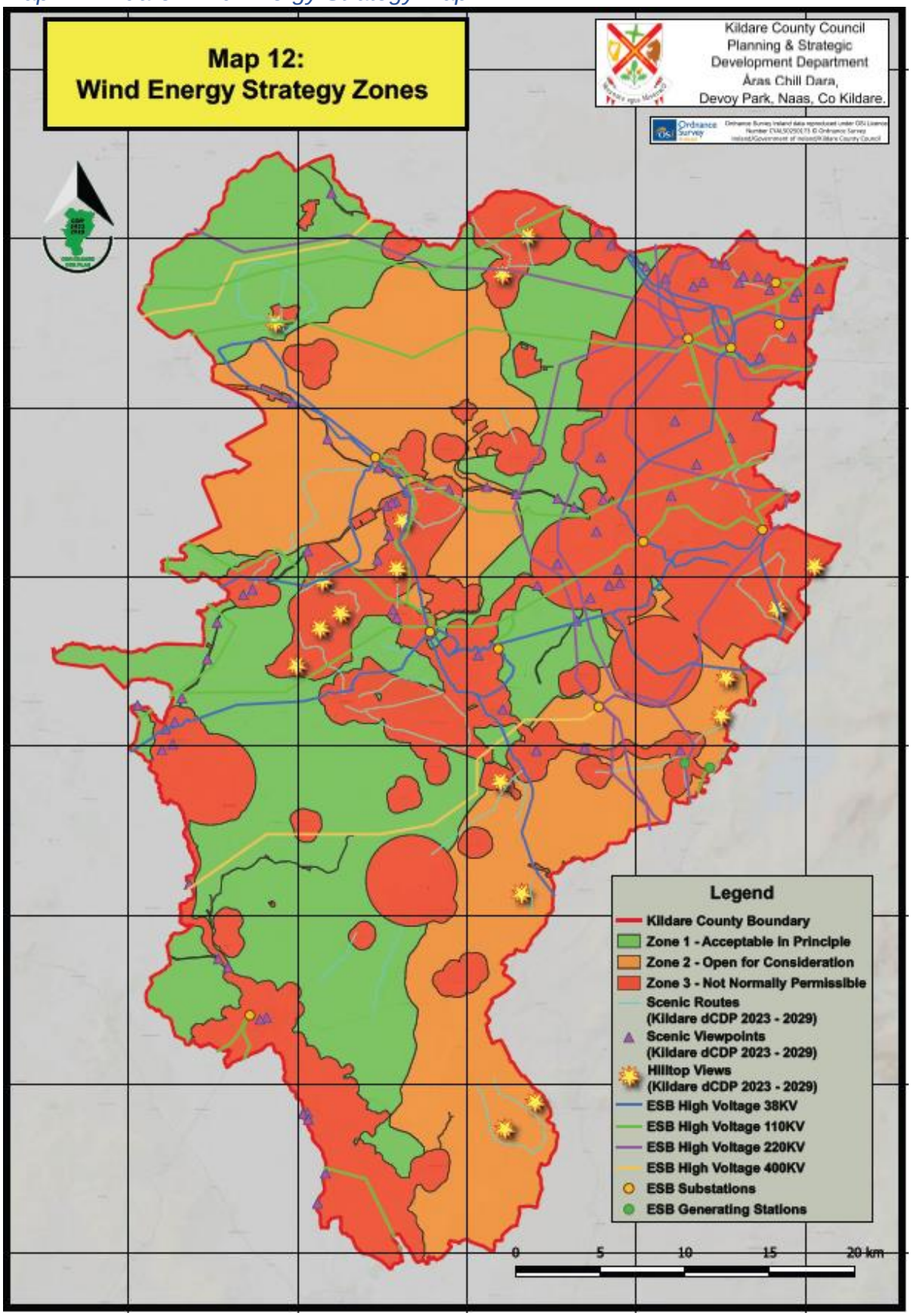
Map 12 depicts these three zones: 'Acceptable in Principle', 'Open for Consideration' and 'Not Normally Permissible', thus comprising the Wind Energy Strategy Map for County Kildare.

Map 11: 'Not Normally Permissible' Areas



Source: EirGrid network, CSO 2016 Census and Draft County Development Plan 2023-2029.

Map 12: Kildare Wind Energy Strategy Map



Source: EirGrid network, CSO 2016 Census and Draft County Development Plan 2023-2029.

5 Strategy Targets and Objectives

5.1 Targets

As set out in the *Climate Action Plan*, to meet the required level of emissions reduction by 2030, the country will increase the proportion of electricity consumption generated from renewable sources to 70% by 2030 and 100% by 2050.

The *Climate Action Plan* target is to add 8.2GW (8200 MW) of onshore wind capacity across the country by 2030. This is supported by the National Development Plan 2021-2030 which includes strategic investment proprieties to potentially deliver 8GW (8000MW) of onshore wind by 2030.

Given the national target of 8200MW of wind energy by 2030, and given that:

- County Kildare accounts for approx. 4.7% of the country's population
- County Kildare accounts for approx. 2.4% of the land area of the State

It is considered reasonable that a county target should be included to achieve 3.5% (an average between population and land area quotients) of the national target, i.e. 3.5% of 8200MW which is **287 MW by 2030.**

5.1.1 Results of Sieve Mapping

The sieve mapping exercise for this strategy has produced two zones where wind energy development is considered acceptable in principle and open for consideration. The combined land area of these two zones is approx. 100,00 hectares. These zones are not vacant lands. They comprise of agricultural land, rural dwellings, forestry, archaeological areas etc. and are not solely available for the development of wind energy.

Using Kildare's 3.5% target and applying this across the two zones, this would yield approx. 3,500 hectares where wind energy could potentially be considered and developed.

Using a standard rate of 12.5 hectares per megawatt[12], this would produce a potential County figure of **280 megawatts**.

5.1.2 Permitted and Proposed Projects

It is noted that there are two permitted wind energy projects in County Kildare that have the potential to be delivered during the lifetime of this County Development Plan. These are:

- The Drehid Wind Farm, permitted in 2018, which consists of 12 wind turbines and has the potential to provide approximately 48 MW.
- The Cushaling Wind Farm which, permitted in 2019, which consists of 1 wind turbine in county Kildare has the potential to provide approximately 5.5 MW.

These two projects could deliver **53.5 megawatts** of renewable energy to the county of Kildare during the lifetime of the County Development Plan 2023-2027.

[12] This figure is based on recent experience in onshore wind farm design with the latest capacity and dimensions of modern turbines and applying a separation to avoid excess turbine wake interaction and loading. The value is in line with assumptions used by Carlow and Galway counties in their similar assessments for example.

5.2 SPPR 1 Response

Given the practical issues in developing a wind project from site identification to end-of-construction, the timeframe is typically in the region of 4-5 years allowing for land negotiation, studies, grid agreement and the planning process and therefore the full potential resource of 280 MW may not be realised during this County Development Plan period.

However, it is considered reasonable that the existing permitted megawatt figure from wind energy in the county (i.e. 53.5MW) could be doubled during the lifetime of the plan.

Having regard to national targets contained in the Climate Action Plan, to the sieve mapping exercise carried out for this Wind Energy Strategy and to permitted and proposed wind energy projects in the county, it is considered that the implementation of the development plan over its effective period 2023-2029 has the potential to deliver **107MW**[13] of wind energy, as part of an overall county resource of **280MW.**

5.3 Strategy Objectives

The key objectives of this Wind Strategy are as follows:

- Recognise the importance of wind energy as a renewable energy source and ensure the security of energy supply by supporting, in principle and at appropriate scales and locations, the development of wind energy resources in the county.
- Promote the development of wind energy and other renewable energy sources in the county at appropriate locations to meet national renewable energy targets.
- Enable Kildare to generate the equivalent of 70% of its electricity needs[14] from renewable energy, of which wind energy is a contributor.
- Identify strategic areas in the county for potential wind energy development.
- Provide specific criteria for wind energy development that the planning authority will take into account when considering any wind energy or related proposals
- Support the potential for relatively small-scale wind energy developments within urban and industrial areas, and for small community-based proposals outside the strategic areas.

[13] 107 MW is calculated as twice the current permitted MW figure (53.5MW) in County Kildare that could be delivered during the lifetime of the Plan.

[14] Kildare County Council is currently preparing a Sustainable Energy and Climate Action Plan (SECAP) which may inform this wind energy strategy at a later date.

6 Considerations for Wind Farm Development Planning Applications

6.1 Introduction

This section sets out the considerations, guidelines and standards that will guide the preparation and assessment of planning applications for wind energy developments. These standards have been developed having regard to the Draft Revised Wind Energy Guidelines December (2019) and best practice.

6.2 Pre-Planning Considerations

Early consultation with Kildare County Council and the relevant statutory agencies will assist in identifying environmental sensitivities and other relevant designations and considerations during the preparation of a planning application. Wind energy developments with more than 25 turbines or having a total output greater than 50MW are Strategic Infrastructure Developments and applications must be submitted to An Bord Pleanála in the first instance.

6.3 Consultation with Local Community

The developer of a wind energy project shall engage in active consultation and dialogue with the local community at an early stage in the planning process and this must be demonstrated in the planning application. The developer shall identify the nature and extent of the communities affected by the proposed development and shall consult with all such communities. Methods of consultation include workshops, public open evenings, distribution of information leaflets, meetings/seminars with stakeholders or focus groups or another form of consultation appropriate to the area identified and the stage of the project. Developers should have regard to the advice contained in the Renewable Electricity Support Scheme Good Practice Principles Handbook for Community Benefit Funds 2021, the Draft Guidelines for Planning Authorities on Wind Energy Development (Department of Environment, Heritage and Local Government, 2019) , Best Practice Guidelines for the Irish Wind Energy Industry (IWEA, 2012) and Code of Practice for Wind Energy Development in Ireland – Guidelines for Community Engagement (DCCAE, 2016) in relation to community consultation.

The developer shall engage in early consultation (prior to submitting a planning application) with local residents and the communities identified as being affected by the proposed development regarding the following issues:

- Design and layout of the proposed wind farm
- The various stages of the project including planning, construction, commissioning, operation and decommissioning
- Anticipated project timetable (including any public exhibitions)
- Scoping of Environmental Impact Assessment Report and identification of likely significant impacts
- Analysis of findings in relation to shadow flicker and noise
- Traffic expected to be generated during the construction and operational phases of the development and the routes proposed
- Identification of mitigation measures

- An outline of environmental and social benefits that the development will affect both locally and globally, including any planning gain for the local community

A Community Report shall be prepared by the applicant and submitted with the planning application detailing how the final proposal reflects community consultation. The Community Report must also outline steps taken to ensure that the proposed development will be of enduring economic benefit to the communities concerned. While the precise benefit will vary according to the nature and scale of a project and the local communities' preferred options regarding the nature of the community benefit, it is essential that applicants/developers offer a form of community benefit that provides for a tangible long-term dividend to the community.

The community report shall detail the following:

- A map of the proposed project and the communities in the vicinity of the proposal within a radius of up to approximately 10 km of the turbines, depending on the circumstances of the case.
- The steps taken by the applicant seeking planning permission for the wind energy development to seek out the views of relevant communities in developing the project.
- A summary of the responses received as a result of the engagement process and a statement of any principal design adjustments or modifications undertaken in response to the feedback of the community before the project was submitted for planning permission.
- Proposed details as regards the steps to be taken to ensure that the proposed development will be of enduring economic benefit to the communities concerned, through the negotiation of a form of community investment/ownership, benefit or dividend in line with the Renewable Electricity Support Scheme Good Practice Principles Handbook for Community Benefit Funds 2021.
- Demonstrate how the proposed development will adhere to the Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (2016) (or any subsequent replacement Code of Practice)

Consultation shall continue throughout the construction, commissioning, operation and decommissioning phases of the development. The developer should appoint an individual to be accessible to the local community during these stages to allow for dialogue and communication and to keep the public informed about the progress of the project. Contact details should be made available to neighbouring residents and community groups. The operator should investigate any complaints from individuals and, where appropriate, work with the relevant authorities to address any issues raised.

6.4 Duration of Permission

The Planning Authority may grant permission for a duration longer than five years in certain circumstances, for example, to ensure that the permission does not expire

before a grid connection is granted. It is, however, the responsibility of the applicants in the first instance to request such longer durations in appropriate circumstances.

6.5 Siting, Layout and Design

The layout and design of wind farms should be suited to the landscape setting as defined in Section 4 of this report and aim to minimise visual impact on the landscape in so far as possible. Wind turbines will not be permitted to locate within a distance of four times the tip height between a wind turbine and the nearest point of the curtilage of any existing or permitted residential property, subject to a mandatory minimum setback of 500 metres (or four times the tip height of the turbines). An exception may be provided for a lower setback requirement from existing or permitted dwellings or other sensitive properties to new turbines where the owner(s) and occupier(s) of the relevant property or properties are agreeable to same, but the noise requirements of these Guidelines must be capable of being complied with in all cases. In such exceptional reduced setback situations, the relevant parties must provide written confirmation to the satisfaction of the planning authority that they have agreed to a reduced setback and have no objection to the proposed wind energy development. It is noted that some discretion applies to planning authorities when agreeing separation distances for small scale wind energy developments generating energy primarily for onsite usage. All applications will be required to include the GPS coordinates (Irish Grid or Irish Transverse Mercator) for each turbine on a site layout map.

6.6 Boundaries and Fencing

Fencing shall generally be permitted around the substation and not on any other part of the site unless agreed as part of a rehabilitation programme for on-site vegetation. In such cases fencing shall be permitted for the length of time required to ensure recovery of the vegetation.

6.7 Access Roads

Access roads within the site shall located and constructed so as to minimise their visual impact, with detailed design and materials being considered at planning application stage, subject to site characteristics, landscape character and project requirements. If the development is decommissioned, they shall be removed, unless an alternative use for them has been agreed in advance with the Planning Authority. Prior to commencement of development, details of access openings to the site shall be agreed with the Planning Authority. Site road embankments and associated areas shall be contoured and seeded to the satisfaction of the Planning Authority after construction. Surface damage to public roads created during the construction phase shall be reinstated to the satisfaction of the Planning Authority. Construction/delivery routes shall be assessed on a case-by-case basis.

6.8 Ancillary Structures and Equipment

No structures other than the wind turbines, substation, monitoring mast and other essential ancillary installations will be permitted. Cables from the turbines to the substation shall be located underground. The planning application shall include details of all such installations. All wind monitoring masts require planning permission. These are typically 70m or 80m masts required to monitor on-site wind

speeds over 1-2 years. If a permanent, hub height mast is required, permission will be considered only if the developer demonstrates that it is necessary for the economical operation of the wind farm.

6.9 Shadow Flicker

A Shadow Flicker Study shall be submitted detailing the outcome of computational modelling for the potential for shadow flicker from the development should accompany all planning applications for wind energy development. If a suitable shadow flicker prediction model indicates that there is potential for shadow flicker to occur at any particular dwelling or other potentially affected property, then a review of site design involving the possible relocation of one or more turbines to explore the possibility of eliminating the occurrence of potential flicker is required. Following such a review, if shadow flicker is not eliminated for any dwelling or other potentially affected property then clearly specified measures which provide for automated turbine shut down to eliminate shadow flicker should be required as a condition of a grant of permission.

6.10 Noise

- An acoustic report carried out by an appropriately qualified and competent person shall be prepared for all noise sensitive properties within a distance of ten times the rotor diameter of any proposed wind turbine location.
- A separate acoustic report shall be prepared where there are other existing or permitted wind farm developments within 2km of the proposed development.
- Relative related noise levels (LA rated, 10min) resulting from wind development and taking into account the cumulative impact of noise levels from existing and proposed wind energy developments shall not exceed:
  1) Background noise levels by more than 5 dB(A) within the range 35-43 dB(A), or
  2) 43 dB(A), Both measured as LA90, 10min outdoors at specified noise sensitive locations
- In lower noise environments where the background noise is less than 30 dB(A), the daytime level of the LA90, 10min of the wind energy noise shall be limited within the range of 35-40 dB(A).
- Noise shall be measured in accordance with the most up-to-date ISO standards for noise measurement or other best practice standards, as appropriate.
- Once commissioned, the development will be required to be monitored at the expense of the developer/operator. A noise monitoring report shall be submitted to the Planning Authority one year prior to commission and/or at the request of the Planning Authority. In the event that the monitoring report shows that any turbines is exceeding its projected noise levels and is having a detrimental noise impact, the wind turbines shall be turned off until compliance with noise limits is proven to the satisfaction of the Planning Authority. The Planning Authority reserves the right to commission an independent noise monitoring report to ensure compliance with noise limits are achieved, the costs of which shall be borne by the developer/operator.

The submitted acoustic report shall include the following:

1. A proposed noise monitoring and control procedure for the construction phase
2. A clear statement that the wind energy development shall not exceed the predicted LA rated levels per the acoustic report
3. A proposed detailed methodology for a post compliance noise survey in accordance with IoA GPG Supplementary Guidance Note 5: Post Completion Measurements for each turbine to be commenced within four weeks of commissioning of any turbine or group of turbines.
4. A map showing the noise monitoring locations for the ongoing phase of the wind energy development along with a detailed proposed noise monitoring and reporting procedure.
5. A proposal for a documented complaint handling procedure.

6.11 Electromagnetic Interference

The potential electromagnetic interference of any proposal shall be assessed by the applicant in consultation with the relevant bodies prior to submission of any application. Proposals shall include measures to monitor the effects of the development on telecommunications and procedures to remedy any interference when the wind farm becomes operational.

6.12 Grid Connection

While the grid provider is responsible for grid connections, details of likely routes shall be included with the planning application. Connections within the wind farm shall be laid underground.

6.13 Financial Contributions

Prior to commencement of development, the developer will be required to pay Kildare County Council a financial contribution towards the capital cost of providing infrastructure in accordance with the Development Contribution Scheme in place at the time of the application. In order to ensure the satisfactory completion of the development, the developer may also be required to pay a deposit or bond, the amount of which will be decided by the Planning Authority.

6.14 Landscape Impact Assessment

All wind farm applications should be accompanied by a Landscape Impact Assessment (LIA), either as part of the Environmental Impact Assessment Report (EIAR) where appropriate or as a separate report. The LIA should include the following:

- Description of proposed development, including alternatives considered during design process:
    - Description of geographic location and landscape context,
    - Details of which Wind Energy Strategy zone the site is located in (‘Acceptable in Principle’, ‘Open to Consideration’ and ‘Not Normally Permissible’)
    - Selection of viewshed reference points from where the proposal is examined in detail, to include the most prominent views of the proposed development from the closest town or villages, surrounding roads, canals and elevated points.

  - Assessment of the sensitivity of landscape from each viewshed reference point.
  - Preparation of photomontages.
  - Estimation of likely degree of impact on landscape; and
  - Recommendation of mitigation measures

- The visual impacts on established landmarks, landscape features and views should be considered as part of the LIA. Potential impacts in adjoining counties should also be identified and assessed. In particular designated scenic landscapes, views, routes and features of county, regional and local value may be considered and assessed for visual impacts.
- Should specific recommendations arise from the proposed National Landscape Strategy and National Landscape Characterisation, any future applications must take such guidance into consideration.
- Methods employed to mitigate the impact of wind turbines in the landscape setting in general will be influenced by the layout and design of the proposed wind farm. In this regard, applicants should have regard to Aesthetic Considerations in Siting and Design contained in Chapter 6 of the Draft Revised Wind Energy Development Guidelines (Department of Environment, Heritage and Local Government, 2009), and any updated version.
- Cumulative landscape and visual impacts must be assessed. For wind farm developments with a proposed tip height of over 100 metres, the cumulative impact should be assessed over an area of at least 20km from the proposed development. For smaller developments, an area of at least 15km from the proposed development will need to be considered.

6.15 Archaeology

Wind turbines and wind farms should be sited and designed to ensure that they do not unduly dominate or damage archaeological structures or sites. Adequate assessment and mitigation measures should be included as part of the EIAR or as a separate report where appropriate. All planning applications in close proximity to a Recorded Monument should be accompanied by an archaeological assessment prepared by a suitably qualified archaeologist detailing the impacts which the proposed development would have on archaeology in the area and any mitigation measures proposed.

A registered archaeologist should be present during the initial stripping of the topsoil at permitted development sites. Where developments are proposed close to National Monuments in State ownership or guardianship, and monuments subject to Preservation Orders, zones of visual amenity should be defined for them in order to assess potential impacts on the archaeological landscape and setting.

6.16 Architectural Heritage

Architectural Heritage Certain applications may be required to undertake an assessment of the impacts of a proposed development on architectural character, particularly in the vicinity of protected structures. Assessments should be undertaken by a conservation architect and it is advised that at preplanning stage, the Planning

Authority should be contacted to determine if there is a need for such an assessment.

6.17 Forest Clearance

An EIAR is required to be carried out for deforestation for the purpose of conversion to another type of land use, where the area to be deforested would be greater than 10 hectares of natural woodlands or 70 hectares of conifer forest.

A Limited Felling Licence (LFL) may be required from the Department of Agriculture, Food and the Marine. Two LFLs must be applied for: 1) to cover turbine bases, roads, buildings and 2) to cover the area on which turbulence felling will take place, if required.[15] The LFL applicant may be required to carry out replacement planting at an alternative site in their ownership as a condition of the licence. Developers should consult with the Forest Service in the Department at the earliest possible stage of the project in order to ensure that all forestry issues are identified and mitigated at the earliest opportunity. The Forest Service Policy on the Granting of Felling Licences for Wind Farm Development (Department of Agriculture, Food and the Marine, 2011) provides advice in this regard.

6.18 Traffic Management Plans

Traffic Management Plans should be submitted with applications and should include details of the road network/haulage routes, the vehicle types to be used to transport materials on and off the site and proposals to address impacts on residents in relation to construction activities. The carrying capacity, operational efficiency, safety and investment in national roads should be protected in relation to the implementation of the Wind Energy Strategy and Traffic Impact Assessments may be required to demonstrate same.

Construction traffic and machinery movement should be confined as much as is practicable to the roads and tracks that are part of the long-term development in order to minimise unnecessary compaction. Applicants will be required to comply with the development management standards contained in the County Development Plan in relation to sightlines and access onto national, regional and local roads.

6.19 Waste Management Plans

A Waste Management Plan (WMP) should be submitted with applications to address waste management impacts. This Plan should have regard to Best Practice Guidelines in Reuse and Recycling of Construction and Demolition Waste (Department of Environment, Heritage and Local Government, 2006). The WMP should be in compliance with county policies on construction waste management.

6.20 Environmental Impact Assessment

Environmental Impact Assessment (EIA) is required to be carried out for wind farm developments where more than five turbines are proposed or where the proposed

[15] Turbulence felling is deemed to be felling in the vicinity of the turbines, the purpose of which is to avoid turbulence that can be created by the forest canopy and that can affect the performance and efficiency of the turbines.

development would exceed 5MW. In these circumstances, an EIAR must be submitted with the relevant planning application.

EIA may also be required for projects under this threshold where the proposed development would be likely to have significant effects on the environment. Schedule 7 of the Planning and Development Regulations 2001 (as amended) sets out the criteria for determining whether a development would or would not be likely to have significant effects on the environment.

6.21 Construction and Environmental Management Plans

A Construction and Environmental Management Plan (CEMP) may be required to be prepared for wind energy developments. This would incorporate measures in relation to a range of environmental issues, such as surface water, groundwater protection, slope stability, flood risk potential, waste generation and management, ecology and protection of natural heritage and habitat restoration and management. The EMP should also include proposals in relation to annual monitoring procedures, particularly in the case of NHAs or Natura 2000 designated sites.

- A Construction and Environmental Management Plan (CEMP) must accompany the EIAR which outlines the measures taken to avoid dust impacts and negative impacts from construction traffic. CMPs developed as part of a planning application should address quarrying, borrow pits, soil management including storage, and opportunities for soil reinstatement where appropriate.
- Construction works should be timed and designed so as not to disturb breeding birds and site-specific advice should be sought from a qualified and experienced ecologist/ornithologist.
- The applicant shall have regard to the relevant objectives and measures set out in the National River Basin Management Plan (2018-2021) and associated Programme of Measures. In particular, works relating to construction and maintenance of wind energy developments should aim to prevent the deterioration and maintain high or good status for surface waters, limit pollution inputs and prevent deterioration of groundwater.
- Construction traffic and machinery movement should be confined as much as is practicable to the roads and tracks that are part of the long-term development in order to minimise unnecessary compaction.
- Where temporary earth works are required, ground and vegetation should be reinstated as soon as possible.
- All liquids and hydrocarbons stored on site during construction shall be stored in a waterproof bunded area.
- Silt traps shall be provided to intercept silt laden water from the site during construction.
- All ancillary construction equipment shall be removed from the site within one month of final completion.
- Prior to commencement, the developer shall agree with the Planning Authority details of the redistribution of any excess spoil generated during the construction phase.

- During the construction phase of works, regard should be given to the EU Noise Directive (2002/49/EC), the associated national noise regulations and any Noise Action Plans that may be prepared for the county.
- An Environmental Monitoring Report may be required during the construction phase, including mitigation measures to maintain habitats present on site in accordance with the details submitted in the EIAR and with the planning application, to be submitted to the Planning Authority at a minimum of every 12 months during construction.
- Where possible, after construction is completed, vegetation should be reinstated on banks and margins of roads that are constructed to accommodate the passage of construction machinery and trucks. This is especially critical where cut and fill has been required.

6.22 Bats and Birds

Potential impacts on birds in terms of collision, disturbance and any other impacts must be considered. It will be particularly important to assess effects in relation to breeding areas, roosting grounds and flight paths in consultation with an appropriate authority and to ensure compliance with83 the Habitats Directive 92/43/EEC and the Birds Directive 2009/147/EC in relation to deterioration or disturbance of breeding sites or resting places. Advice should be sought from a qualified and experienced ecologist/ ornithologist.

Pre and post-construction monitoring of birds at wind farm developments will be required where appropriate. The post-construction monitoring schedule will be agreed in consultation with Kildare County Council and National Parks and Wildlife prior to the granting of permission.

6.23 Designated Sites (Natura 2000 and NHAs)

All development proposals must be screened for Appropriate Assessment and shall be subject to full Appropriate Assessment where they have the potential to have significant adverse impacts on the integrity of a Natura 2000 site, either individually or in combination with other plans or projects, in accordance with Article 6 of the Habitats Directive 92/42/EEC. Permission will only be granted where the Appropriate Assessment concludes that no likely significant effects are likely to occur.

Applicants should have regard to the following documents in the preparation of Appropriate Assessments:

a) Planning and Development Act 2000 (as amended)
b) European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997)(as amended)
c) European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011)
d) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2009)
e) The Wind Energy Developments and Natura 2000 Guidance Document (European Commission, October 2010)

- Where a development is proposed close to or within a Natural Heritage Area, further ecological or geological surveys may need to be undertaken by suitably qualified ecologists or geologists.
- Where construction and maintenance of wind energy developments are proposed close to designated freshwater pearl mussel rivers, any impacts shall be assessed and adequate measures for the protection of these areas will be required as part of the EIAR/EMP.
- Other biodiversity issues should be considered where these are protected under Irish legislation such as the 1999 Flora Protection Order, the provisions of the Wildlife Acts 1976-2000 and international legislation such as Article 10 of the Habitats Directive.
- The protection of non-designated habitats, species and local biodiversity features should be promoted through site design and landscape management plans.

6.24 Habitat Mapping

Habitat mapping (including wetlands) and ecological impact assessment may be required for wind energy applications. This habitat mapping should be undertaken at an appropriate scale and in accordance with Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011). The habitat map should be overlaid with the proposed development to highlight sensitive habitats and help assess potential impacts. The applicant shall consult with Kildare County Council and National Parks and Wildlife Service in this regard.

Biodiversity Maps

Biodiversity Maps is a national portal that compiles biodiversity data from multiple sources and makes it freely available on-line. The National Biodiversity Data Centre is an Initiative of the Heritage Council and is operated under a service level agreement by Compass Informatics. The data centre is funded by the Department of Culture, Heritage & the Gaeltacht and the Heritage Council. This is a resource that provides many broad datasets and mapping layers that relate to flora and fauna in the Republic of Ireland and includes mapping layers for *inter alia* habitats, bat landscapes, bird sensitivity to wind energy, and geology.

6.25 Invasive Species

The implementation of measures to control and manage alien and invasive species such as Japanese Knotwood (Fallopia Japonica), Giant Rhubarb (Gunnera tinctoria/manicata) and noxious weeds such as ragwort may be required as part of the EIAR/EMP. In particular, attention should be paid to the potential for construction activities to introduce such species to an area.

6.26 Landslide Susceptibility

Landslide susceptibility and risk assessment must be undertaken for all proposed developments to ensure all factors contributing to slope instability are identified and addressed appropriately. The developer should consult with the Geological Survey of Ireland and obtain professional advice/source reports from suitably qualified geotechnical engineers, engineering geologists or geologists as appropriate. If

upland sites are proposed, the application should be accompanied by a statement from a geologist, a hydro-geologist or an engineer with expertise in soil mechanics.

For wind farm developments in areas of modified or degraded peatland habitat a peatland conservation and management plan must be developed, where appropriate and in agreement with National Parks and Wildlife Service, in line with the Ireland's Peatland Conservation Action Plan 2020 (Irish Peatland Conservation Council, 2009).

The potential impacts on slope stability relating to climate change impacts, most particularly flash floods and changing weather patterns shall be considered and adaptation measures should be developed to account for same. Regard shall be given to The Planning System and Flood Risk Management Guidelines and Technical Appendices (Department of Environment, Heritage and Local Government and Office of Public Works, 2009).

6.27 Monitoring

- Developers may be required to undertake and submit a monitoring report at appropriate intervals in the construction and operation phases to monitor mitigation measures and environmental impacts particularly in terms of soils, water quality and biodiversity.
- The monitoring report must be undertaken by appropriately qualified professionals and the terms of monitoring should be agreed in advance with Kildare County Council. Developers may be required to inform Kildare County Council in advance of key construction activities in sensitive areas and facilitate the monitoring of construction activities by Kildare County Council to ensure mitigation measures are being implemented adequately.

6.28 Decommissioning

- The wind energy development shall generally be decommissioned and removed 30 years after the date of commissioning of the wind energy development unless, prior to the end of this period, planning permission has been granted for the continuation of the use of the land as a wind energy development for a further period in accordance with prevailing legislation.
- A Decommissioning Management Plan may be required for wind farm developments to ensure that the site of the development is appropriately reinstated. This may be required as part of the planning application and/or EIAR, or it may be required by way of a condition of planning permission.
- If any turbine has been non-operational continuously for 12 months, it shall be decommissioned by the developer unless otherwise agreed in writing with the Planning Authority during the 12 month period. If the wind energy development is deemed to be operating unsatisfactorily, the Planning Authority will require that all necessary mitigation or other measures are implemented to ensure that the development complies with the conditions of planning permission.
- The sites of developments that are decommissioned shall be reinstated through the removal of on-site structures and other visually intrusive works and the re-establishment of appropriate soil and vegetation cover and drainage.

6.29 Replacement, Re-powering and Redevelopment

Proposals for replacing existing turbines or for the re-powering or redevelopment of existing wind energy developments will be considered. Such proposals will generally require planning permission, unless it can be demonstrated to the satisfaction of the Planning Authority that changes are of a sufficiently minor nature, would not constitute a material change to the development and would not generate additional impacts.

6.30 Cumulative Impacts of Wind farms

The cumulative or in-combination impacts of wind energy developments in the county, in particular in areas close to Natura 2000 sites, will be carefully monitored over the lifetime of the Strategy. All development proposals must be screened for Appropriate Assessment and shall be subject to full Appropriate Assessment where they have the potential to significantly affect the integrity of a Natura 2000 site, either individually or in combination with other plans or projects, in accordance with the Habitats Directive 92/42/EEC.

In order to preserve the spatial, scenic and rural integrity of areas zoned for wind energy development the cumulative effect on the landscape will be taken into consideration. A balance will need to be struck between visual impacts and the benefits of clustering wind farms in terms of efficient use of infrastructure.

Cumulative impacts on biodiversity, flora and fauna, population and human health, soil, water, air, material assets, cultural heritage and landscape shall be considered. Consideration of cumulative impacts on population and human health shall include the cumulative assessments carried out in accordance with sections above in relation to shadow flicker, noise and visual impacts.

6.31 Aviation Requirements

In broad terms (as per the Irish Aviation Authority) any wind turbine above 90m in height above ground needs to be marked and fitted with aviation warning lights and identified on aviation charts. ICAO (the International Civil Aviation Organization) and EASA (the European Aviation Safety Agency) both provide further advice on this and this will be considered at planning application stage.