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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED DREHID WIND FARM AND SUBSTATION, CO. KILDARE

VOLUME 2 – MAIN EIAR

CHAPTER 2 – NEED FOR THE DEVELOPMENT, SITE SELECTION & ALTERNATIVES CONSIDERED

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2.1 Introduction

The following chapter sets out the need for the Proposed Development having regard to climate change, national policy and national renewable energy targets. Following the establishment of the need for the Proposed Development, the chapter details the reasonable alternatives studied by the developer, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. It describes the site selection process, alternative design philosophies considered, alternative site layouts, the do-nothing alternative and alternative processes, amongst other things.

2.2 Need for the Proposed Development

The Proposed Development is necessary to produce renewable energy for the Irish national grid in order to transition Ireland to a low carbon economy. The Proposed Wind Farm will play a role in providing renewable electricity in the Republic of Ireland, where in April 2025, the Irish Government published the latest update of the Climate Action Plan (CAP) which sets out an objective to achieve a 51% reduction in greenhouse gas emissions by 2030 (compared to 2018 levels) and climate neutrality by 2050, as mandated by the Climate Action and Low Carbon Development (Amendment) Act 2021 (Climate Action Plan, 2025). The plan also sets specific targets for onshore wind (6GW by 2025, 9GW by 2030).

The Proposed Substation is necessary to facilitate connection of the Proposed Wind Farm to the national grid. Other methods of connection have been explored and will be detailed further in this chapter. However, a 110 kV substation with loop-in/loop-out connection to the existing Kinnegad-Rinawade 110 kV overhead line has been identified as the most favourable solution.

At a strategic level, the need for the Proposed Development is supported by International, European, and National environmental and energy commitments and policies. In Chapter 4 of this EIAR, a detailed analysis of these commitments and policies is outlined. This is in the context of substantial and continuing failure by Ireland in meeting climate targets to date.

The Climate Action Plan 2025 (or CAP25) provides a framework for delivering the Government's target of a 51% reduction (relative to 2018) in greenhouse gas (GHG) emissions by 2030. CAP25 follows the Climate Act 2021, which commits Ireland to a legally binding target of net zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030, with the CAP25 stating:

> '(*The plan) is our latest assessment and measurement of what we have achieved over the past year, building on actions taken over previous years. More importantly, it sets out what we need to do into 2025, so that we are prepared to take on the challenges of our second carbon budget period 2026-2030...*
>
> *… Effective planning is crucial, but our focus must now turn to turbocharging delivery, accelerating the significant progress that has been made in recent years...*
>
> *...Climate change is a 'threat multiplier' – wars and famines are being exacerbated as warming continues unabated and millions of climate refugees are displaced from their homelands. In the changing international environment it is critical that Ireland, and the European Union, continue to accelerate climate action.*

This is against the backdrop of the EU Copernicus Climate Change Service reporting that 2024 was the hottest in recorded history, with warming above the lodestar of 1.5C. The world has been passing milestones of temperature records, month after month, with devasting impacts. For every Climate Action Plan there are many new extreme weather events to reference. This year, we have witnessed deadly flooding in Spain, the sweeping destruction of Hurricane Milton in the United States and more recently the impacts of Storm Éowyn on our own communities. Climate change is not something in our future. It is very real, right now, and has been accelerating for years.'

At the County level the Kildare County Development Plan (CDP) 2023-2029 demonstrates a clear need for the Proposed Development. Chapter 7 of section 7.5 of the CDP refers to the 53.5 MW of "permitted wind farm developments" within Co Kildare. However, 48 MW of this share is actually accounted for by 'Drehid Wind Farm'. It is clear that The Proposed Wind Farm, considered "permitted" in the CDP, forms the majority of the county's existing permitted wind development. This section of the CDP may have been drafted at a time when a previous iteration of the Proposed Development had been consented, therefore considering it "permitted" in the context of the CDP. However, the decision to give consent for the development was appealed by a third party to the High Court and that the Applicant decided to concede in the High Court solely on the grounds of the Derryadd decision, as the Applicant believes that the application was otherwise fully appropriate. The current application for the Proposed Wind Farm presents specific turbine dimensions.

It is evident that the current applications for the Proposed Development are broadly in line with the previously consented development; but now include the specific details required following the Derryadd decision, and the design has been refined further to reduce the potential impacts on the environment and local road network.

The Kildare CDP calculates that the county should have 280 MW of installed wind energy by 2030 but states that a more realistic 2030 target at this stage is 107 MW. The CDP states that there is currently 53.5 MW of permitted wind energy development within the county. However, The Proposed Development is used to calculate this figure. Without the Drehid Wind Farm, the permitted wind development within the CDP should be quoted as 5.5 MW. It is clear that County Kildare has a lot of ground to make up and that The Proposed Development is critical in attempting to meet this target of 107 MW of installed wind energy by 2030.

2.2.1 Climate Change

The scientific community and governments across the world are in agreement that the global climate is changing. This is due to human activities which have significantly contributed to climate change through our emissions of greenhouse gases. This interference is resulting in increased air and ocean temperatures, drought, melting ice and snow, rising sea levels, increased rainfall, flooding and other influences (EPA, 2023).

On the launch of the Climate Action and Low Carbon Development (Amendment) Act (2021), the then Taoiseach Michéal Martin, remarked that:

"The impact of our actions on the planet is undeniable. The science is undisputed. Climate change is happening. And we must act." (Government of Ireland, 2020)

In this regard, the Government of Ireland enacted the Climate Action Plan (CAP) in June 2019 and subsequently, the Climate Action and Low Carbon Development (Amendment) Act 2021. The current CAP25 sets out actions to cut emissions and make Ireland a zero-carbon economy by 2050. The Climate Action and Low Carbon Development (Amendment) Act 2021 will establish a legally binding framework with clear targets and commitments set in law, and ensure the necessary structures and processes are embedded on a statutory basis to ensure Ireland achieves its national, EU and international climate goals and obligations in the near and long term through a process of carbon budgeting, with the Irish government committed to "*reducing emissions by*

an average 7% per annum by 2030."

With an installed maximum export capacity of 52.8 MW, the proposed wind farm has the potential to produce 161,885 MWh (megawatt hours) of electricity per year, as calculated in the "Power Output" Section of Chapter 3, Description of the Proposed Development. This results in a positive impact by removing the GHG emissions that would have otherwise been part of the output of traditional energy generation through the burning of fossil fuels. Impacts to climate can have the potential to affect human health and the environment, as detailed in Chapter 6: Air and Climate.

Greenhouse gases and other emissions from fossil fuels give rise to global warming, acid rain and air pollution. Fossil fuels still dominate Ireland's electricity production. The Proposed Development will provide renewable energy to the national grid with minimal impact on the environment, offsetting the need for burning of fossil fuels. This is necessary to meet the challenges of future climate change.

The Department of Environment, Climate and Communications (DECC) in a recent policy statement from April 2023, recognises that:

> "*Accelerating the deployment of wind and solar power is a central pillar of long-term decarbonisation of the electricity system which aligns with Ireland's EU commitment's and support for the RePowerEU Plan*".

The Proposed Development will assist in mitigating the effects of climate breakdown and help Ireland achieve its climate neutral economy by no later than 2050, within the '*National Climate Objectives'*, as set out in the Climate Action and Low Carbon Development (Amendment) Act 2021. Furthermore, the Climate Action Plan seeks a total installation of 9 GW of onshore wind capacity by 2030.

2.2.2 EU Renewable Energy Targets and National Policy

As further detailed in Chapter 3 of this EIAR, Ireland has adopted binding agreements to reduce dependency on fossil fuels and increase energy production from sustainable sources, creating a requirement for the nation to transition to a low carbon economy.

This is supported by the latest Programme for Government (2020) '*Our Shared Future*' which presents strong climate governance in rapidly reducing climate change in order to protect and improve public health and quality of life. The government are committed to rapid decarbonisation of the energy sector with an aim of providing the necessary actions to deliver national renewable electricity targets.

The 2030 Climate and Energy Framework (European Commission, 2014) adopted by the EU set out a framework for the long-term perspective beyond 2020 targets. The 2030 Climate and Energy Framework set out three key targets for the year 2030:

- At least 40% cuts in greenhouse gas emissions (from 1990 levels);
- At least 32% share of renewable energy;
- At least 32.5% improvement in energy efficiency.

Further to this the European Commission in 2016 published its 2030 emissions targets break down for each Member State. While the overall EU target is a reduction of 40% on 1990 greenhouse gas emissions by 2030, every Member State negotiates an individual target. Ireland will have to reduce its emissions by 30% relative to

its 2005 emissions. However, more recently the EU published the 2030 Climate Target Plan[1]. Under this plan, the EU aims to achieve a greenhouse gas emission reduction of at least 55% by the year 2030, compared to 1990 levels; in order to achieve net-zero greenhouse gas emissions by 2050. The EU Climate Law[2] obliges all EU institutions across all areas of competence, and the Member States, to work collectively to achieve the greenhouse gas emission reduction target of 55%. Further to this, in April 2023 the Effort Sharing Regulation was amended, revising Ireland's target for emission cuts by 2030 from 30% up to 42% relative to 2005 levels[3]. It is clear that the continued ramping-up of emission cut targets represents an increasingly urgent situation to deal with our carbon emissions.

Ireland has adopted renewable energy targets into CAP25 which includes a target to increase electricity generated from renewable sources to 80% by 2030. This will require a significant ramping up of Ireland's production of electricity from renewable sources, which stood at just 23.9% in 2021 (SEAI, 2022). The 2030 target sets out the pathway to the goal of net zero greenhouse gas emissions by 2050.

To achieve 80% renewable electricity production by 2030, substantial new development will be required. The CAP sets out a target of 9 GW of onshore wind capacity in Ireland by the year 2030. The CAP acknowledges the requirement to update the national grid in order to facilitate the connection of such largescale renewable energy development. The proposed Substation would be an example of these necessary upgrades to the national grid which will facilitate connection of renewable energy developments.

The binding EU targets have been transposed into Irish National Policy in the CAP25 which focuses a large amount of future electricity production on the wind energy sector. This demonstrates the significance of wind energy in the Irish energy context and highlights the need for the proposed Wind Farm in reaching both EU and national renewable energy targets.

2.2.3 Energy Security

Secure supplies of energy are essential for Ireland's economy and for maintaining safe and comfortable living conditions. Energy import dependency is a significant indicator of the country's energy security. Ireland is one of the most energy import-dependent countries in the European Union, with an import dependency of 67% in 2018 at an estimated cost of €5 billion (SEAI, 2020a). The largest share of energy imports in 2018 was oil, accounted for 73% of total energy imports, natural gas 17%, coal 8.2% and renewables 1.4%. Import dependency increased to 69% in 2019 (SEAI, 2020).

Price volatility of fossil fuels may increase as carbon prices escalate in the future. The cost of carbon credits is included in all electricity trade, and the price of electricity generated by coal is particularly vulnerable due to the high carbon emissions per unit of electricity generated. Coal still generates a significant amount of Ireland's electricity. The proportion of electricity in Ireland generated from burning coal has followed a general decreasing trend in recent years, with 7% of electricity produced by coal in 2018 (SEAI, 2020) down from 18.3% in 2017 (SEAI, 2018).

However, in 2021, electricity produced by coal rose to 13.9% due to gas-fired power plants being out of commission for maintenance purposes as well as 2021 being a "low wind year" (SEAI, 2022). It is clear that while we are trending towards lower coal-powered electricity, we continue to encounter problems which require coal as the solution. Continued use of coal will incur significant cost of carbon credits, impacting our energy security.

A recent shock to the State's energy security was observed when demand increased as we emerged from the global COVID-19 pandemic; coupled with a reduction in supply associated with geopolitical issues with Russia.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0562
[2] https://climate.ec.europa.eu/eu-action/european-green-deal/european-climate-law_en
[3] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0857&qid=1689157627690

Following its invasion of Ukraine, the EU placed sanctions on Russia. Moscow retaliated by cutting gas supplies to Europe. In light of these revelations, a number of policies were introduced across the EU to combat the energy security issue, including the EU's 'RePowerEU' plan which proposed to secure new sources of gas supply as well as ramp up the rollout of renewable energy developments such as wind farms. On a national level, Ireland's Department of the Environment, Climate and Communications published the 'National Energy Security Framework' (DOECC, 2022) in April 2022. Within this publication is a '10-point plan to cut oil use' which specifies point number 4 as:

> '*Accelerate the deployment of new wind and solar projects'*

The report notes throughout that wind energy represents a very important part of Ireland's future energy markets if we are to reduce reliance on imported fossil fuels and therefore strengthen our domestic energy security.

The electricity produced by the Proposed Development will reduce dependence on imported fossil fuels and add to financial autonomy and energy stability in Ireland, further emphasising the need for the Proposed Development.

2.2.4 Competitiveness of Wind Energy and Economic Benefits of the Proposed Development

In addition to helping Ireland reduce environmentally damaging emissions and helping avoid significant fines from the EU, the Proposed Development will also contribute positively to the national and regional economy.

SEAI, in its report Energy in Ireland (SEAI, 2024), indicated that in 2023 wind energy:

- Generated 33.7% of all electricity;
- Avoided 4.55 million tonnes of CO^2 emissions; and

Additionally, a report published in January 2023 (Baringa, 2023) states that:

> *"Our analysis reveals that a total of 14.3 terawatt-hours (TWh) of wind generation at the day-ahead stage was able to displace a total of almost €2.6 billion worth of fossil gas and carbon credits from the wholesale market in 2022*".

According to the same report, high wind speeds in February of 2022 saw a cost saving of €360 million across the island of Ireland in that single month. A further €390 million was saved the following month due to the surge in fossil fuel prices in March of 2022.

2.2.5 Conclusion on the Need for the Proposed Development

In conclusion, the need for the proposed Wind Farm, and its connection to the national grid by way of the Proposed Substation, is a result of the need for action to fight against climate change by reducing consumption of fossil fuels. Ireland has accepted this need in entering into binding renewable energy targets with the European Union with an overall aim to become carbon neutral by 2050. The government has indicated that wind energy will play a key role in providing renewable electricity to the national grid. This will comprise of a target of 9 GW of onshore wind capacity by 2030 (CAP25). The increase in domestic renewable energy of 52.8 MW of renewable electricity as a result of the Proposed Development will also assist Ireland in improving resilience in energy security by reducing the requirement for import of fossil fuels.

2.3 Alternatives Considered

The requirement in relation to alternatives in the EIA process is set out in Directive 2011/92/EU, amended by Directive 2014/52/EU, in Article 5 (1)(d), which states that an EIAR should include:

> *"a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment" Article 5(1)(f) of the EIA Directive requires that the EIAR contains "any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected."*

Annex IV of the EIA Directive states that the information provided in an EIAR should include a:

> *"description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

This section has particular regard to the environmental considerations which influenced the selection of alternatives and details the evolution of the Proposed Development through alternatives considered, indicating the main reasons for selecting the chosen option taking into account the effects of the Proposed Development on the receiving environment and considering the comparison of environmental effects of each alternative.

The alternatives considered have been described in line with the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022). The Guidelines state that:

> *"It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required."*

Furthermore, the Guidelines note the following regarding high level plans and strategies which may influence or pre-determine decisions in the development process:

> *"Higher level alternatives may already have been addressed during the strategic environmental assessment of relevant strategies or plans. Assessment at that level is likely to have taken account of environmental considerations associated. Thus, these prior assessments of strategic alternatives may be considered and referred to in the EIAR."*

The section also details non-environmental factors of the development process where they are relevant to the evolution of the Proposed Development.

2.3.1 Alternative Technologies

2.3.1.1 Bio-Energy

Bioenergy presents an alternative to wind in assisting Ireland to meet its renewable energy targets. Bioenergy refers to the production of renewable energy from a variety of materials of a biodegradable nature and is generally considered under the headings of solid biomass, biogas and biofuels.

A report entitled *Unlocking Ireland's Biomass Potential – Converting Moneypoint Coal Fired Power Station to Sustainable Biomass* (March 2016)[i] suggests converting the Moneypoint generation station from coal to biomass would solve Ireland's renewable energy issues is misinformed and risks creating false hope. The report, prepared by UK consultants BW Energy for the Rethink Pylons campaign group, argued that this one action would enable Ireland to meet its 2020 renewable energy targets at a single stroke. The report also claimed it would allow us to abandon our plans for investment in wind energy and transmission infrastructure. Unfortunately, the reality is not that simple:

The idea of one simple action to solve our renewable energy problems, meet our targets and avoid the need for new infrastructure appears attractive, however, the conversion of Moneypoint to biomass has been considered a number of times over the years, including trials of small amounts of biomass in the station. The technical and economic challenges have proven far greater than set out in the 2016 report. The existing Moneypoint plant cannot use biomass as a fuel. To allow for combustion of biomass, a full redesign and rebuild of much of the station would be required. This is expensive, hundreds of millions more expensive than is being suggested. The matter was recently concluded by way of a decision by An Bord Pleanála to give consent to the ESB to convert the power station from coal 'Heavy Fuel Oil', up until 2029.

Biomass is best used to generate heat because it is possible to get twice the energy from the same amount of biomass rather than just turning it into electricity. Ireland has a target for renewable heat as well as a target for renewable electricity. If we divert all our potential heat resources into electricity it will simply make meeting our other targets harder, if not impossible.

2.3.1.2 Offshore Wind

Another form of renewable energy development includes off-shore wind farms. Offshore wind developments are far larger in terms of the funding required to develop these projects, as well as the resources required and the length of the construction programme.

Recent policy in Ireland is opening up more possibilities for offshore wind but does not create a substitute for onshore wind. This is evidenced by the latest Climate Action Plan 2025 which sets targets for both onshore and offshore wind, with an onshore wind target of 9 GW by 2030, a target we are currently far short of.

While offshore wind will certainly provide an important portion of our future renewable electricity, it cannot be compared on a like-for-like basis with onshore wind projects, and cannot be considered as a viable alternative technology to the Proposed Development.

2.3.1.3 Solar Energy

There has been a recent surge of interest in solar energy in Ireland due to it rapidly becoming more cost competitive and improvements in solar technology. Solar energy technology provides a vital support to wind energy in the renewable energy landscape: the windy weather suitable for generating wind energy can be unsuitable for solar energy; whereas clear, still weather with typically low wind speeds tends to be more suitable for solar. Therefore, there is a synergy between these technologies: where the weather is unsuitable for one, it is likely/can be suitable for the other. It is clear that wind energy and solar energy compliment each other, and one technology cannot replace the other. Again, this is evident in the latest Climate Action Plan 2025 which sets targets for both onshore wind energy and solar energy.

In terms of the site selected for the Proposed Development, wind energy would be considered a more appropriate technology than solar energy as wind energy has less of an impact on the existing land uses. That is, wind energy demands relatively small portions of land to be impacted by the turbines, and allows for the forestry and agricultural land uses to continue operating. Solar energy on the other hand, to achieve a comparable power capacity, would require significantly more agricultural land to be covered by solar panels,

and require that the forestry is felled so that sunlight would not be intercepted by the trees. Therefore, in the context of the selected site, wind energy is considered to be the optimal solution.

2.3.1.4 Tidal and Wave Energies

Ireland possesses one of the richest wave energy climates globally. The tidal resource is more limited compared to wave energy, but there are areas along the east coast which may be suitable for tidal energy development. However, these technologies are still in their infancy and are generally not understood to be commercially viable to date by comparison with the well-developed wind energy technology which is tried and tested throughout Ireland and Europe. Research and development continues in the field of tidal and wave technology and will likely provide a source of renewable energy into the future but does not represent a viable alternative to the wind energy project which is the Proposed Development.

2.3.2 Do-Nothing Alternative

As set out in section 2.2.2, Ireland has binding targets set by the EU. Ireland is obliged to ensure that 80% of its electricity is generated from renewable resources by 2030 and to reduce its greenhouse gas emissions by 42% relative to 2005 levels, with an overall objective of carbon neutrality by 2050. This is in order to help reduce the nation's CO_2 emissions and to promote the use of indigenous renewable sources of energy. These targets have been incorporated into national policy in the Climate Action Plan (2025) which sets out a target of 9 GW of onshore wind capacity in Ireland by the year 2030.

Under the "Do-Nothing" scenario, the Proposed Development would not go ahead, the development of a renewable energy project is not pursued, and the site remains in use as agriculture and forestry.

In the "Do-Nothing" scenario, the prospect of creating sustainable energy through County Kildare's wind energy resource would be lost at this site.

The nation's ability to produce sustainable energy and reduce greenhouse gas emissions to meet EU targets and National targets, as set out above, would be stifled. This may result in the nation incurring significant financial penalties from the EU if targets are not achieved, and result in continued global warming and impact upon the intention to "pursue efforts" to limit warming as agreed to in the Paris Agreement (2015). This will result in continued negative impacts to air quality and climate.

According to EirGrid Group's All-island Generation Capacity Statement 2020 – 2029 (Eirgrid, 2020), the growth in energy demand for the next ten years on the Island of Ireland will be between 17% and 41%. In the 'Do-nothing' scenario, importation of fossil fuels to maintain growing energy supply will continue and Ireland's energy security will remain vulnerable. A "Do-nothing" scenario would contribute to strain on existing energy infrastructure and may impact on economic growth if energy demand cannot be met.

Under the "Do-Nothing" scenario, the socio-economic benefits associated with the Proposed Development will be lost. These benefits include 160 no. jobs during the construction phase of the project, and between 16 and 21 long-term jobs once operational (as calculated in Chapter 11 of this EIAR). Furthermore, under the "Do-Nothing" scenario the local community will not benefit economically from the community benefit fund associated with the project which could be used to improve physical and social infrastructure in the area of the wind farm site.

Section 2.3.2 sets out the potential impacts of the 'do-nothing scenario' compared to the residual impacts associated with the Proposed Development in relation to the various environmental topics covered in the individual chapters of this EIAR. Refer to each respective chapter for full details of residual impacts:

Table 2-1: Comparison of Potential Residual Environmental Effects - Project vs. 'Do-Nothing'

Environmental Consideration	Residual Impact of the Proposed Development	'Do-nothing' Alternative
Air & Climate	Slight to moderate temporary localised residual impacts arising from fugitive dust emissions during construction activities involving excavations, vegetation clearance or earthmoving. Impacts related to vehicle emissions will reduce significantly following construction and no significant impacts are anticipated. There will be a low level of maintenance traffic during the operational period, which will have an imperceptible impact on air quality. Potential impacts during the decommissioning phase will be temporary in nature and result in slight to moderate residual impacts. There will be no permanent residual impacts due to the decommissioning phase. During operations, the Proposed Development will result in the avoidance of emissions from fossil fuel generators which is a positive effect on air quality. The Proposed Development will result in a positive impact on climate by removing the GHG emissions that would have otherwise been part of the output of traditional energy generation (i.e. gas, coal, biomass, peat, etc).	Fossil fuel power stations will likely be the primary alternative to provide the required quantities of electricity resulting in greenhouse gas emissions, missing national targets set out in the policy chapter, and continued air pollution from fossil fuel plants impacting on human health and the environment.
Noise & Vibration	Non-significant to slight temporary noise impacts associated with construction activities. Long-term, non-significant negative impact on the dwellings closest to the project as a result of the operational phase.	Neutral
Biodiversity	It is envisaged that there will be no significant, negative effects as a result of the Proposed Development following the implementation of appropriate mitigation measures.	Neutral

Environmental Consideration	Residual Impact of the Proposed Development	'Do-nothing' Alternative
Land, Soils, Geology	No significant, negative effects are envisaged.	Neutral
Hydrology & Water Quality	The residual and cumulative impacts of the Proposed Development are overall Not significant. This will be achieved with the proposed mitigation measures.	Neutral
Population, Human Health and Material Assets	Impact to the population in the area of the Wind Farm Site in terms of changes to population trends will be imperceptible. There will be a slight positive effect with respect to employment, with temporary slight positive economic effect from income spent by construction workers in the local area. There will be a long-term slight to significant positive socio-economic benefit to local area due to job creation and community benefit fund will provide a significant long-term, positive impact. The Proposed Development will result in a long-term slight positive residual impact on non-renewable resources by offsetting the use of fossil fuels in electricity generation over the lifetime of the project. The Proposed Substation will provide a long-term slight positive residual impact on electricity infrastructure in the area. Residual waste will be disposed of in a licensed waste facility. This will result in a permanent slight negative impact to capacity of licensed waste facilities in the area of the Proposed Development.	In terms of Population and Human Health: no economic benefit for the local area due to no provision of community benefit fund. No employment opportunities as a result of the construction operation and decommissioning of the project. No positive benefit to recreation facilities. In terms of Material Assets: no offset to fossil fuel use. No provision of additional electricity infrastructure in the local area. No slight negative impact to capacity of licenced waste facilities.
Traffic & Transport	No significant residual impacts envisaged	Neutral
Archaeology & Cultural Heritage	No residual impacts are envisaged as all/any archaeological and cultural heritage issues will be resolved at the pre-construction and construction	Neutral

Environmental Consideration	Residual Impact of the Proposed Development	'Do-nothing' Alternative
	stages of the development. It must be acknowledged however, the indirect effects on the setting of some heritage assets will remain for the lifetime of the wind farm. It is considered however that setting impacts are of no more than a slight magnitude on the relevant cultural heritage assets.	
Landscape & Visual	No significant residual impacts envisaged	Neutral
Telecoms & Aviation	No significant residual impacts envisaged	Neutral

2.3.3 Project Background

The Drehid Wind Farm was originally identified as part of the Greenwire Wind Energy Export Project which aimed to install up to 3 gigawatts of renewable energy within Ireland for export. Approximately 40 wind farm clusters were identified across the five counties of Kildare, Laois, Meath, Offaly and Westmeath. Whilst the Greenwire Project did not proceed, 5 no. clusters from the Greenwire project within Counties Kildare and Meath were chosen for the previously proposed Maighne Wind Farm, a refined version of the Greenwire project. This previous application was made directly to An Bord Pleanála in 2015 under Section 37E of the Planning and Development Act 2000 (as amended) and the Planning and Development (Strategic Infrastructure) Act 2006 (Reg Ref: 09.PA0041/PL09.300746). The Maighne Wind Farm application was made by Element Power Ireland Ltd. (who were subsequently acquired by Statkraft Ireland Ltd) to erect 47 no. wind turbines with an overall tip height of 169 m, and a combined output of 125 MW. The majority of the proposed turbines were located within County Kildare, with just two proposed within County Meath. It was proposed to connect the cluster of wind farms to the national grid via a number of substations to include Maynooth and Woodland substations and Dunfirth 110 kV substation in Co. Kildare. This project was Refused Planning Consent by An Bord Pleanála in 2018.

A revised proposal which sought to address the Refusal reasons associated with the Maighne Wind Farm project was developed in 2018 (hereinafter called the Drehid Wind Farm Project 2018). Dunfierth Substation, at a strategic high level was identified within the immediate vicinity of the former Maighne Clusters as having capacity for the connection of wind energy to the grid. It was for this reason that Dunfierth Substation was originally strategically selected to accommodate a wind energy project and formed the central basis of the site selection and alternatives assessment in 2018 for the previous Drehid Wind Farm project 2018 which was, granted by An Bord Pleanála in 2020 pursuant to ABP Ref. PL09.306500 but subsequently quashed by High Court Order in 2023.

Since the lodgement of the original Drehid Wind Farm Project 2018, it was subsequently determined that the existing Dunfierth 110 kV substation is not suitable for a new generator connection in its current format and would require a significant rebuild and additional network interruption to facilitate connection at this existing node. The project also received a grid connection offer through the Enduring Connection Policy for a new loop-in substation on the Harristown - Dunfierth(Tee) - Rinawade line, which was agreed as the preferred connection method. The Proposed Development therefore now intends to connect to the national grid via a new on-site 110 kV loop-in/loop-out substation within the project lands at the northern end of the site.

The process of identifying a suitable wind farm site is influenced by a number of factors. At a macro scale: national and regional planning policy together with distance from designated sites; available grid capacity; cumulative impacts with existing and permitted wind farms, as well as other permitted and proposed developments, and; available wind speeds in an area are all integral factors. Interrelated to this the wind farm must, in non-environmental terms, be commercially viable to ensure it will attract the necessary project finance to progress to the construction phase and ultimately to deliver renewable electricity to the national grid which is an objective of National Energy policy as set out in Chapter 3.

It is also important to note that the overriding reason for selecting the site proposed is that it has already been subject to the EIA process with Kildare County Council and An Bord Pleanála where the Competent Authority previously considered that the project was in accordance with the proper planning and sustainable development of the area. In addition, based on the information submitted with the Drehid Wind Farm Project 2018 planning application and the assessment at the time carried out by An Bord Pleanála, the Drehid Wind Farm Project 2018 was acceptable to the Competent Authority on environmental grounds.

2.3.4 Site Selection

2.3.4.1 Drehid Wind Farm – Macro Level Search

Initially a macro level nationwide review of areas suitable for wind farm development was undertaken by Element Power (who were subsequently acquired by Statkraft Ireland Ltd) as part of the Greenwire Project and the subsequent Maighne Project.

The site selection process at a macro level took account of relevant International, National and Regional policies, as well as the principle environmental, planning and technical criteria that determine the feasibility and suitability of the existing environment to absorb wind farm developments. This macro level search has been an ongoing process since the initial project inception.

The primary macro level considerations in the identification of a broad area for wind energy development included the following:

1. Identification of environmental designations on a National Scale (Figure 2.1);
2. Identification of areas of built Wind Farms in Ireland (Figure 2.2);
3. Identification of Grid Capacity and Electricity Infrastructure (Figure 2.3);
4. Assessment of National Transmission Loss Adjustment Factor and Generator Transmission Uses or System Change (Figure 2.4 and Figure 2.5);
5. Population Density (Figure 2.6); and
6. Relevant International, National and Regional Policies.

An assessment of environmental designations (SACs, SPAs, NHAs, pNHAs) identified the west and the eastern seaboard of the Country as having dense levels of European and National environmental designations (Figure 2.1).

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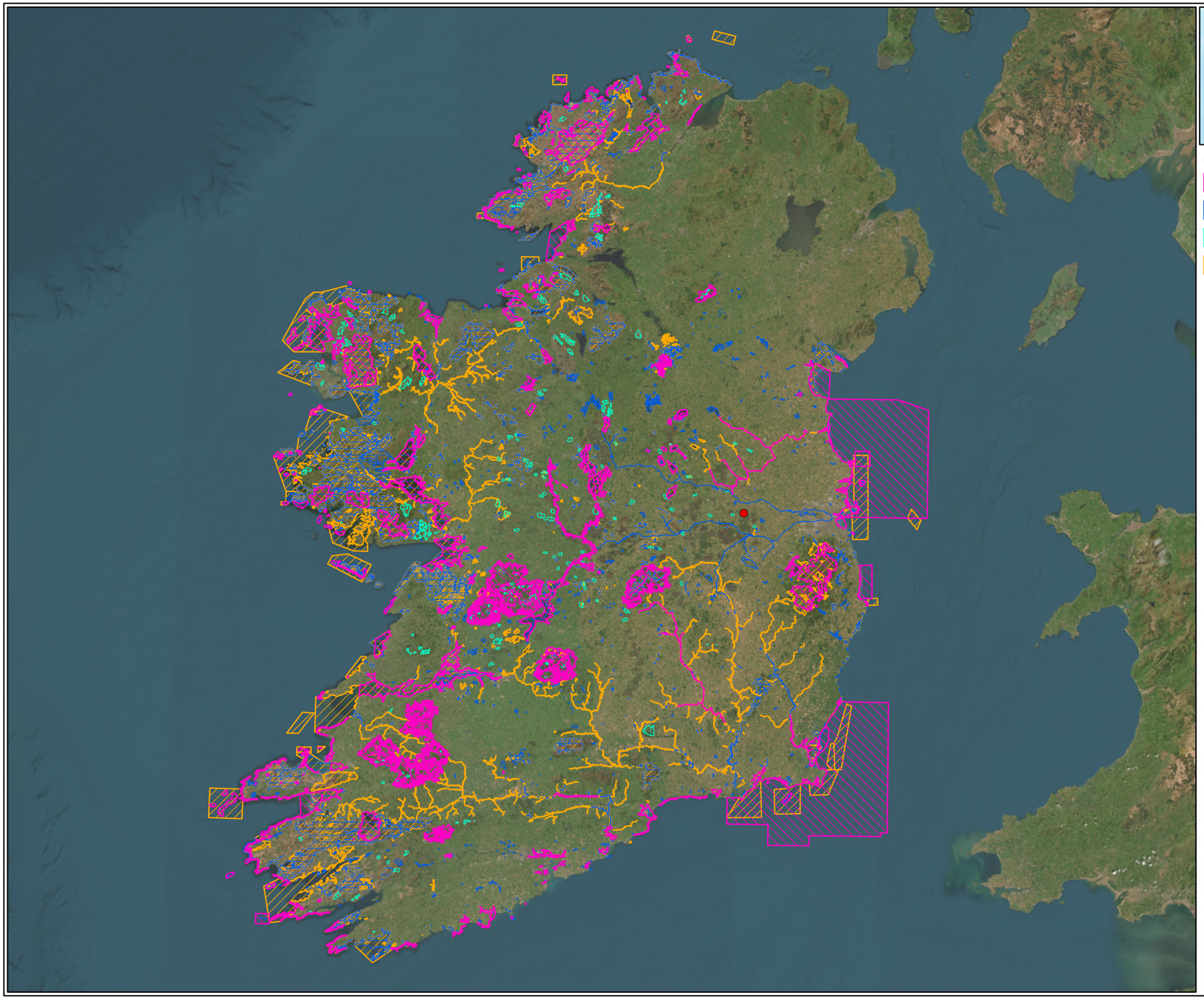

Legend

- Special Protection Areas
- Proposed Natural Heritage Areas
- Natural Heritage Areas
- Special Area of Conservation
- Proposed Development Location

TITLE:	Environmental Designations in Ireland		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	2.1		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:1,800,000	**REVISION:**	0
DATE:	28/04/2025	**PAGE SIZE:**	A3

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At the time of site selection, the spatial distribution of wind energy projects was assessed at a National scale to determine at a regional scale, areas suitable for wind energy development due to a low density of existing Wind Farms. Parts of the Greater Dublin area and the Midlands Region were identified as having potential for wind energy development (Figure 2.2).

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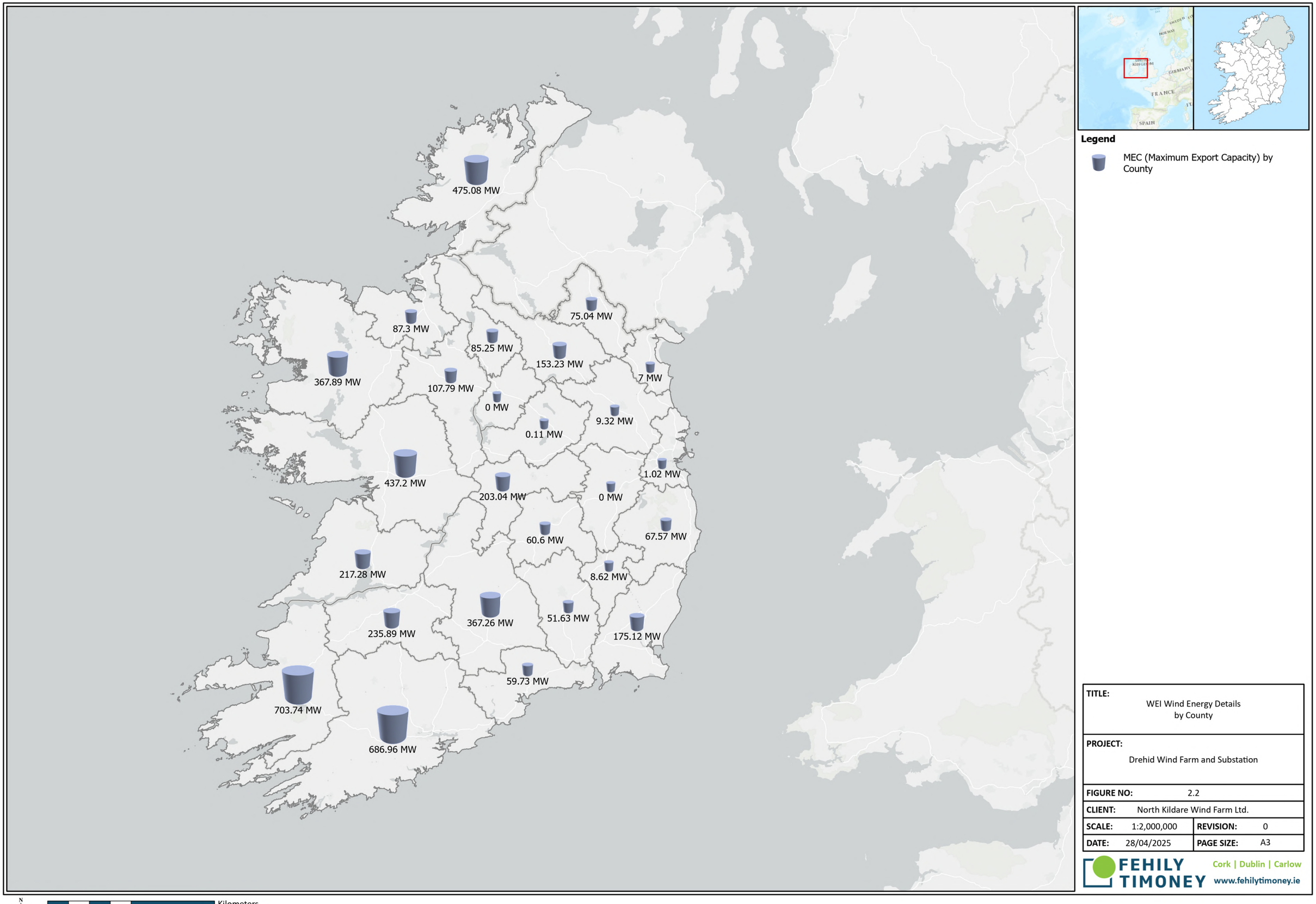

Legend

MEC (Maximum Export Capacity) by County

TITLE:	WEI Wind Energy Details by County
PROJECT:	Drehid Wind Farm and Substation
FIGURE NO:	2.2
CLIENT:	North Kildare Wind Farm Ltd.
SCALE:	1:2,000,000
REVISION:	0
DATE:	28/04/2025
PAGE SIZE:	A3

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The Firm Access 2024 Review Report: Final Technical Report (Eir Grid 2024) examined proposed energy developments around the country, and assigned a "firmness outcome" which describes the degree of access to the grid for each of the proposed developments examined. Firm access is designed to reward generators that have developed in good locations. Good locations are defined as parts of the network that have capacity for new generation or have planned reinforcements that will deliver additional capacity in the area.

Each proposed development was assigned one of three firmness outcomes:

- Full/Partial firm access available immediately upon completion of connection works.
- Full/Partial firm access available following completion of a committed project(s) from the list in Network Delivery Portfolio (NDP)[4] .
- No firm access available, project will remain non-firm and will be re-assessed in subsequent firm access runs.

In the case of the Propsosed Development, 'Drehid Wind Farm' as referenced within the report, has been assigned 60 MW full firm access from the year 2029.

As firm access is designed to reward generators that have developed in good locations, and the Proposed Development has been assigned full firm access, it is clear that the site selection is optimal from the perspective of access to the national grid.

2.3.4.2 Drehid Wind Farm – Micro Level Search

A strategic search area of 25 km was chosen focusing on the Greater Dublin Area and Midlands area, away from centres of population and with high grid capacity and in proximity to substations.

The micro level search criteria reflects the broad range of issues which can arise in wind farm development and allows for direct comparison across the study area to determine the relative suitability of potential wind energy development sites

These criteria included the following:

- County Development Plan Policies and Designations;
- Natura 2000 sites;
- Areas in proximity to motorways;
- Population Density;
- Cultural Heritage Sites; and
- Proximity to the National Electricity Grid.

Micro level search was highly influenced by previous energy proposals undertaken by Element Power, namely the Greenwire Project, Maighne Wind Farm and, Drehid Wind Farm Project 2018 and the site selection process associated with these projects are summarised below.

[4] https://www.eirgrid.ie/grid/grid-reports-and-planning/network-delivery-portfolio

2.3.4.2.1 Greenwire

Initially a macro level nationwide review for areas suitable for wind farm development was undertaken by the previous developers Element Power as part of the Greenwire Wind Energy Export Project. This process included identifying environmental designations, cumulative impacts, grid access and visually protected areas. The results identified significant constraints in many areas of the west, southwest and northwest of Ireland. The strong grid network and road network as well as more limited environmental sensitivities and less visually protected areas resulted in the initial broad site selection across the midlands region. Due to a delay in policy for the export of wind energy from Ireland to UK, the Greenwire project did not proceed. Therefore, the previous developers Element Power chose to refine the project and provide renewable energy for the Irish electricity network.

2.3.4.2.2 Maighne Wind Farm Site Selection

The macro level search on the above criteria identified the area of North Kildare, Southwest Meath and East Offaly as being suitable for wind energy development as part of the previous Greenwire Export Project. At the outset of the micro level site selection process for the Maighne Wind Farm (2015), the County Development Plans of Kildare, Meath and Offaly? were examined in order to determine local level wind energy policy and landscape policy which would assist in identifying a suitable site. The policies of each of the three counties were in support of renewable energy development and identified medium to low landscape sensitivities in the general area which indicated that the location was suitable for consideration for wind farm development.

A scoping report was then produced which identified 13 no. potential turbine clusters within this policy area with the intention of providing up to 55 turbines. This process was then screened and refined further to produce the subsequent 47 turbine planning submission for the Maighne Wind Farm. The project was arranged in 5 clusters with overall tip heights of turbines being 169 m. The clusters were to be connected by means of underground medium voltage cables and would have a combined output of up to 125 MW. The majority of the proposed turbines were to be located within Co. Kildare with two turbines located within Co. Meath. The project was ultimately refused by An Bord Pleanála pursuant to ABP Ref. (PL09.300746) for the following reasons;

> *1. The Board considered that the widely dispersed cluster-based layout adopted in the present proposal would have inevitable adverse effects including a disproportionately large visual envelope, the need for extensive underground cabling in poor quality minor roads and undue proximity to areas of sensitivity from a heritage or residential point of view. The Board considered that in a situation where such adverse effects were absent the energy output from the proposed development might be realised in a more efficient and less intrusive manner by a more spatially concentrated development. The Board determined that the proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.*
>
> *2. Having regard to the nature, structure and condition of the existing public road network serving the development, which includes substantial sections of substandard legacy roads and to the extensive cable trenching works proposed it is considered that the proposed development could have significant adverse effects on the long term structural integrity of significant elements of the local road network, is thereby likely to give rise to the creation of traffic hazards and to potentially increased maintenance costs to the local authority. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.*

The process associated with the iterative process of defining a site layout in respect to the previous Drehid Wind Farm Project 2018 , can be defined broadly as a refinement process of part of one of the clusters previously associated with Maighne Wind Farm located in North County Kildare..

The Drehid cluster was chosen from the original five alternative clusters due to a number of factors including access and infrastructure, environmental considerations, constructability, landscape type and proximity to electricity substation. The progression towards a more compact development was also indicated within the Boards decision as mentioned above:

> *The Board considered that in a situation where such adverse effects were absent the energy output from the proposed development might be realised in a more efficient and less intrusive manner by a more spatially concentrated development.*

2.3.4.2.3 Drehid Wind Farm Project 2018

The wind speed at the proposed Drehid Wind Farm is of moderate to good quality. The positioning of the Proposed Development is separated from designated national and European sites and does not directly impact upon NIAH designations. A small number of entries to the RMP are located in proximity to the site but impact is kept to a minimum. These factors contributed to the selection of the Drehid site in 2018.

The applicant sought to address the issues associated with the Maighne Wind Farm by significantly reducing the overall footprint of the wind farm, refining the development to be contained within one of the clusters previously associated with Maighne Wind Farm, located in North County Kildare.

The below were some of the main features of the refined Drehid Wind Farm Project 2018:

2.3.4.2.3.1 Grid Connection

The Kildare area has a strong existing grid network which has capacity to connect wind farms. Following the refusal reasons for the Maighne Wind Farm as set out by An Bord Pleanála which included impacts on poor quality public roads, a more viable option was sought to connect the Wind Farm to the national grid. The Dunfierth Substation in close proximity to the Drehid cluster was identified as a potential alternative to the Maynooth and Woodland substations which were proposed as part of the Maighne planning submission. The proximity of the Dunfierth Substation and the lack of water and canal crossings were contributing factors for site selection during the refinement process of the Proposed Development.

2.3.4.2.3.2 Access, Infrastructure and Constructability

The site would be accessed from the M4 motorway at Enfield and then along the R402 for 7.7 km before entering the local road L5025 where the site entrance would be located. The location of the site in close proximity to the M4 motorway would contribute to less potential disturbance and congestion on local roads. A detailed study of the turbine delivery route was carried out and haul routes for the construction phase were set out. Existing internal site access tracks would be used where possible as an alternative to constructing new tracks. The convenient access to the site and lack of challenging terrain contributed to the selection of the Drehid cluster over the alternatives considered. The Drehid cluster was the most proximate of the alternative clusters to the M4 junction at Enfield and therefore required less traffic management coordination.

2.3.4.2.3.3 Environmental Considerations

Environmental factors including biodiversity, geology, hydrology, archaeology and human health were considered during the site selection process. Each of the five clusters of the original Maighne submission were considered in terms of potential impacts. Although other clusters were considered appropriate for the development of a wind farm, the Drehid cluster was perceived to have the least impact on sensitive receptors. Habitat within the Drehid site was found to be of lower quality. Sensitive peatlands were avoided through the design process. Water crossings for the proposed grid route connection were avoided and reduced impacts on poor quality public roads was also an environmental consideration during the selection process. This was a contributing factor to the site selection decision and refinement process.

2.3.4.2.3.4 Landscape Type

The receiving environment of the refined Drehid Wind Farm would be relatively low-lying, gently undulating land, with the majority of proposed turbines located beneath the 80 m? contour line. The landcover consists of pasture, coniferous forest and transitional woodland scrub, and is adjacent to a cutover bog.

The landscape is classified as being of low sensitivity from a landscape perspective. The lands were therefore open to consideration to wind energy development and would produce slightly less landscape impact than the alternatives considered, with respect to proximity to residential receptors and when viewed from the road network, the nearby Grand and Royal Canal Way amenity areas and when considered in-combination with other wind farms.

While the Inspector's recommendations for refusal of the Maighne Wind Farm stated that the development would have an intrusive and pervasive nature in the landscape, The Board decided not to accept the Inspector's recommendation to refuse permission on grounds relating to visual impact and it is therefore considered that the Landscape Type is suitable for wind farm development:

> *The Board considered that notwithstanding the various landscape designations set out in Chapter 14 and Appendix 3 of the Kildare County Development Plan 2011-2017, the local landscape is one of considerable robustness wherein extensive cross-country views, while possible given the basin-like nature of the current and former bogland, are rarely achieved due to the extent and depth of barrier and boundary vegetation. This limits, in the Board's view, any adverse visual impact of the proposed development to a number of key localised areas of particular sensitivity, specifically the canal corridors (and associated human settlements) and the setting of the historical sites at Carbury and Lullymore. In other circumstances these concerns could have been addressed by the omission of selected turbines and/or clusters.*

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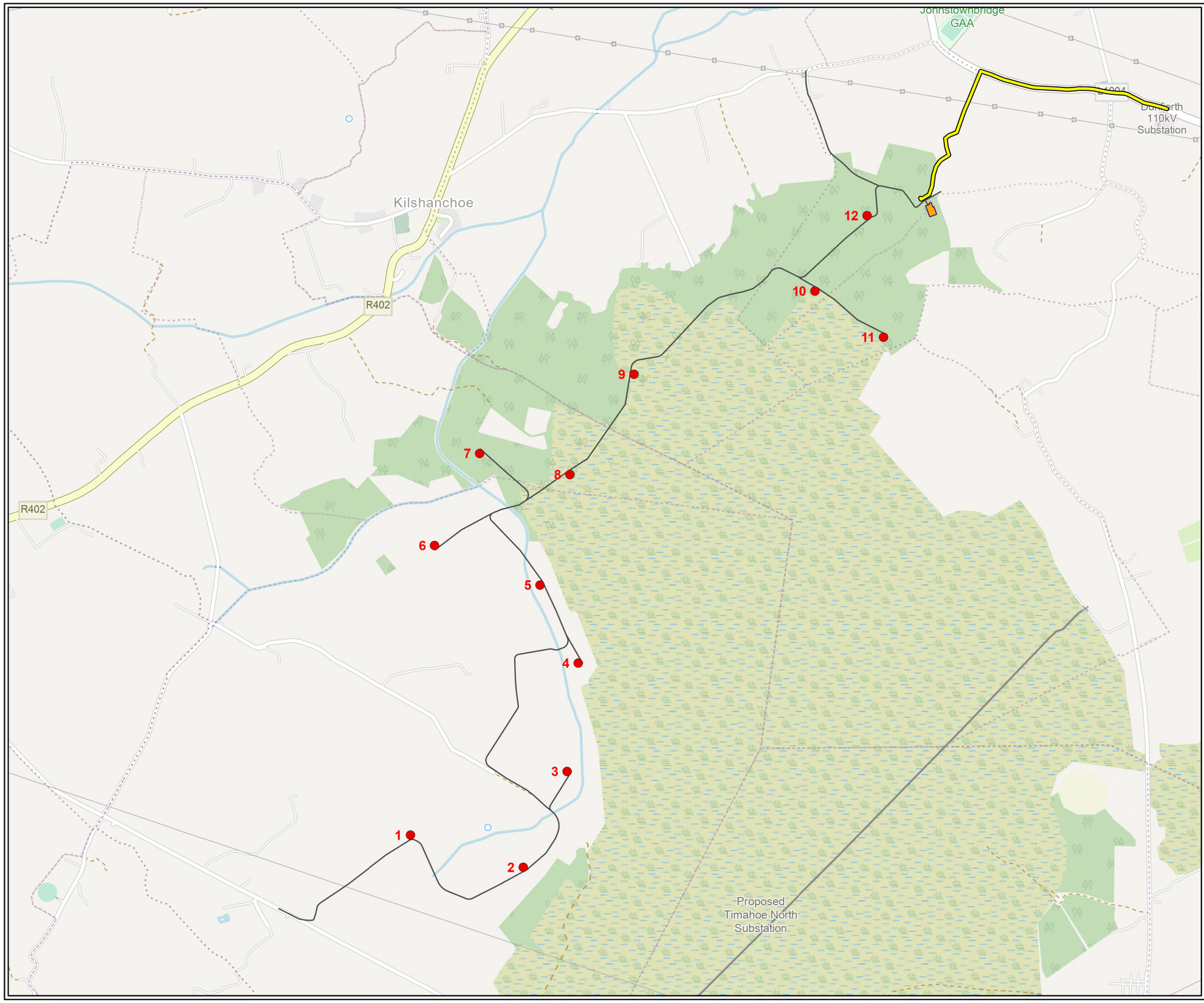

Legend

- 2018 Substation Location
- 2018 Turbine Locations
- Access Track
- Cable Route

TITLE:	Drehid Wind Farm - 2018 Site Layout		
PROJECT:	Drehid Wind Farm SID		
FIGURE NO:	INFO		
CLIENT:	Statkraft		
SCALE:	1:20,000	**REVISION:**	0
DATE:	5/14/2024	**PAGE SIZE:**	A3

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2.3.4.2.4 Planning Policy

Planning Policy was and is a key consideration in the site selection process for the Drehid Wind Farm Project 2018 and since the making of the 2018 application the policy for wind energy development on the site has remained positive. The Department of Housing, Planning and Local Government's Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Environmental Protection Agency document 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, 2022) state that it is important to acknowledge the existence of difficulties and limitations when considering alternatives.

Section 2.4.1 '*Anticipating, Avoiding And Mitigating Significant Effects'* within the EPA Guidelines state:

> *"Alternatives may be identified at many levels and stages during the evolution of a project, from project concepts and site locations, through site layouts, technologies or operational plans and on to mitigation and monitoring measures. The alternatives that are typically available for consideration at the earlier stages in the evolution of a project generally represent the greatest potential for avoidance of adverse effects."*

Section 3.4 of the EPA Guidelines is concerned with the Consideration of Alternatives, where Section 3.4.1 states:

> *"Higher level alternative may already have been addressed during the strategic environmental assessment of strategies or plans. Assessment at that level is likely to have taken account of environmental considerations associated for example with the cumulative impact of the area zoned for industry on a sensitive landscape. Note also that plan-level/higher-level assessments may have set out project level objective or other mitigation that the project and its EIAR should be cognisant of. So, at EIA level this prior assessment of strategic alternatives informs the EIAR"*

Development Plans and Regional Plans provide a strategic framework and policy context for all planning decisions. The Planning and Development Act 2000, as amended, reinforces the role of the Development Plan as the primary strategic statement on land-use planning at city, town and county levels, and provides a clear defined context for the formulation and content of planning applications.

Key Policy Objectives of the Kildare County Development Plan (2023-2029), related to the Proposed Development, include the following:

Objective REP12
Ensure that economic and enterprise related development is provided in a manner which facilitates a reduction in greenhouse gas emissions and accelerates the transition towards a sustainable, low carbon and circular economy. The following measures shall be supported:

- An increase in employment densities within walkable distances of communities and on public transport routes.
- Promotion of walking and cycling and use of public transport through increased permeability and mobility management within and outside employment areas.
- The sourcing of power from district heating and renewables including wind and solar. Additional native tree planting and landscaping on existing and proposed enterprise zones and development sites to aid with carbon sequestration, contributing to the green infrastructure network of the County and promoting quality placemaking.

Objective ECA1
Prepare, within 1 year of the adoption of the County Development Plan a Sustainable Energy Climate Action

Plan (SECAP) for County Kildare to identify the target which County Kildare can contribute in delivering its share of overall Government targets on renewable energy and climate change mitigation over the plan period, and in particular wind energy production and the potential wind energy resource (in megawatts), and commence a variation to the County Development Plan, as appropriate.

Objective EC011
Encourage wind energy developments in suitable locations in an environmentally sustainable manner whilst having regard to Government policy and the County Wind Energy Strategy, while being sensitive to the EU and national target of 30% of land for biodiversity. Subject to AA screening and where applicable, Stage 2 AA so as to ensure and protect the favourable status of European sites and their hydrological connections. Such developments will have regard for protected species and provide mitigation and monitoring where applicable.

Objective EC065
Support the target in the Climate Action Plan 2021 for a doubling of existing on-shore wind energy from circa 4GW (today) to 8GW by 2030. (It is important to note that the CDP was written at a time when 8 GW was the target for 2030 according to the CAP at that time. This target has recently been increased to 9 GW by 2030, as is detailed in Chapter 4 – Policy).

With respect to County Development Plan designations, the subject site was considered feasible for wind energy development.

As set out in Section 4.6 of this EIAR, the current Kildare County Development Plan 2023-2029 is appended with the Kildare Wind Energy Strategy report. This report supports the development of Wind Energy projects in appropriate areas. Kildare County Council took a constraints-based approach to rule out areas which were not suitable for wind energy development. Such areas were ruled out due to, for example, ecological constraints, cultural heritage constraints, and areas of aviation significance. The approach also considered positive features like wind resource and proximity to the national grid. The suitability of areas across the county for wind development was assigned based on these criteria of constraints, wind resource and proximity to the national grid. The County Development Plan has been subject to the SEA and AA process.

The subject site was found to be in an area designated as '*Open to Consideration'* for wind energy development. Furthermore, the County Development Plan Wind Energy Strategy refers to Drehid Wind Farm (i.e. a previous iteration of the Proposed Wind Farm) as one of "two permitted wind energy projects in County Kildare".

2.3.4.2.5 Conclusion on Site Selection

A planning application was lodged with Kildare County Council (KCC) in December 2018 for the Drehid Wind Farm Project 2018 as described above, which was significantly reduced in scale from the previous "Maighne Wind Farm". The Drehid Wind Farm Project 2018 comprised a 12-turbine layout, with an on-site 38 kV tail-fed substation, and a grid connection route through the public road network, to connect into the existing Dunfierth 110 kV substation.

Below is a brief history of this 2018 application, through a process of decisions and appeals before being ultimately quashed in the High Court.

- The application for planning permission was lodged with KCC in December 2018.
- A request for further information was received by the applicant from KCC in February 2019.
- This requested information was submitted in October 2019 for review by the planning authority, but permission was ultimately refused by KCC in December 2019.
- The applicant appealed this decision in January 2020 to An Bord Pleanála. An opposition group concurrently appealed the decision of an Bord Pleanála.

- The Board decided to grant permission in October 2020 with 16 conditions attached.
- An opposition group then started the legal process of undertaking a judicial review of the Board's decision to grant consent.
- The Board consented to an order quashing their decision to grant consent in June 2022.
- The applicant requested that the plans be remitted back to an Board Pleanála for reconsideration.
- In December 2022 the High Court ordered that the request for remittal back to An Bord Pleanála be refused, and that the permission be quashed.

Notwithstanding the An Bord Pleanála decision being quashed, it was considered that the site represents an excellent opportunity for wind energy development and therefore the Proposed Development project is being developed further as part of this EIAR process.

2.3.5 Alternative Layouts

Alternative layouts for the Proposed Wind Farm were developed in an iterative design process which aimed to avoid environmental sensitivities, minimise potential environmental impacts both on and off site and to maximise the wind potential on site. The design has been carried out in accordance with industry guidelines and best practice, namely the Department of Environment, Heritage and Local Government's (DoEHLG) Wind Energy Development Guidelines (2006) (WEDG 2006), The Department of Housing, Planning and Local Government's (DoHPLG), and the Irish Wind Energy Association Best Practice Guidelines (2012). The design process of the Proposed Development has had regard to the *Draft Revised Wind Energy Development Guidelines* (2019) (DWEDG 2019) in relation to the siting and design of the wind farm.

The layout and design was an iterative process which took account of such criteria as:

- Set back from houses;
- Set back from designated sites;
- Set back from other constraints such as watercourses, public roads and power lines;
- Suitable wind speeds;
- Landscape and visual sensitivity;
- Ecology;
- Ornithology;
- Soils and Geology;
- Hydrology;
- Noise; and
- Cultural Heritage.

Suitable areas within the site were identified by applying industry standard, best practice buffers to each of the constraints. The environmental sensitivities of the site included an analysis of the above listed topics. The analysis of these led to the production of the constraints mapping. The analysis of the constraints highlighted areas of potential environmental concern associated with the site. Buffers and set backs were then used to identify suitable areas within the site. These buffers and set backs are included in Table 2-2 hereunder.

Table 2-2: Buffers and Set Backs Applied

Environmental Consideration	Required Setback/Constraint
Impacts on amenity	A minimum 500 m set back from any inhabited dwelling was originally sought but was subsequently increased for the Drehid Wind Farm, and has been further increased to four times the tip height which is 668 m for turbines T2 to T11. The tip height of T1 has been reduced to mitigate potential impacts on amenity and therefore has a setback of 641 m which exceeds both the criteria (i.e. 640 m setback agreed through public consultation and minimum 4-times tip height [4 x 147.9 m = 591.6 m]).
Impacts on flora and fauna	Avoidance of designated sites. 30 km from the nearest SPA & 9.5km (direct distance) from the nearest cSAC. No new overhead cables as part of the Proposed Development.
Ornithology	Avoidance of designated sites. No new overhead cables as part of the Proposed Development.
Soils & geology	Avoid where possible areas of deep peat.
Hydrology	Minimum 50 m set back of infrastructure from rivers and streams, except where the watercourse has to be crossed for example by an access track, in which case the watercourse is crossed as close as possible to perpendicular, thereby minimising the length of access track within the 50 m setback
Water Quality	Minimum 50 m set back of key infrastructure from significant rivers and streams, except where the watercourse has to be crossed for example by an access track, in which case the watercourse is crossed as close as possible to perpendicular, thereby minimising the length of access track within the 50 m setback
Noise & Vibration	The Wind Energy Development Guidelines (Section 5.6) state in general, noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 m. A minimum 668 m setback from nearby dwellings has been achieved for turbines T2 to T11; and a 641 m setback has been achieved for T1.
Environmental Consideration	**Required Setback/Constraint**
Shadow flicker	The Wind Energy Development Guidelines (Section 7.14) state a condition requiring the non-operation of turbines at times when predicted shadow flicker might adversely impact on any inhabited dwelling within 500 m of a turbine may be appropriate. A 668 m setback from nearby dwellings has been achieved for turbines T2 to T11; and a 641 m setback has been achieved for T1. and zero shadow flicker policy on residential receptors has been committed to.
Cultural heritage	Avoid direct impacts on designated site of cultural heritage and archaeological sites.

Environmental Consideration	Required Setback/Constraint
Material Assets	The impact of the development on roads has been minimised through construction management and the identification of optimum haul routes to the site for the delivery of materials and turbines.

Constraints and environmental sensitivities were first identified, and buffers applied in order to determine appropriate areas within the site to accommodate development. Consideration of the environmental sensitivities of the site included an analysis of the criteria listed above. This constraints exercise resulted in a developable area being defined. A comparison of environmental effects of following this design approach and not following it, i.e. applying mitigation by design versus a design which does not consider the various environmental factors of the receiving environment is presented in Table 2-3 below.

Table 2-3: Comparison of Potential Residual Environmental Effects - Mitigation by Design and Potential Impacts

Environmental Consideration	Mitigation by Design Utilised in the Proposed Development	Potential Impact if Mitigation by Design is not Included
Residential Amenity	The Draft Revised Guidelines outlines a minimum 500 m or 4 times tip height set back. Following completion of layout optimisation, a separation distance of 4 times tip height was achieved from the closest dwelling to a turbine tower.	Potential for impact to residential amenity due to noise, vibration and dust during the construction stage. Further potential impact to residential amenity during operations due to visual impact and noise if an appropriate setback distance is not applied.
Flora and Fauna	Avoidance of designated sites and mitigation designed to avoid potential impacts on species and habitats.	Potential for impact on designated sites hydrologically connected to the subject site. Potential for habitat loss and disruption due to impacts on water quality.
Ornithology	Avoidance of designated sites. Any hedgerow trimming or removal to be completed outside of the bird breeding season.	Potential impact to avifauna associated with the construction phase including possible deterioration of habitats and disturbance or displacement of birds.
Soils & Geology	Avoid infrastructure at steep gradients and at areas of unsuitable ground conditions.	Potential for landslide or subsidence if design does not consider gradient and ground conditions at proposed infrastructure locations.
Hydrology	Minimum 50 m set back of infrastructure from rivers and streams where reasonably possible. Adaptation of design to existing hydrological regime (streams and drainage channels).	Potential impact to the existing hydrological regime if streams are diverted. Potential for runoff to directly discharge to streams.

Environmental Consideration	Mitigation by Design Utilised in the Proposed Development	Potential Impact if Mitigation by Design is not Included
Water Quality	Minimum 50 m set back from significant rivers and streams and appropriate mitigation designed to avoid siltation during construction. Clear-span bridges to be used at stream crossings to avoid in-stream works.	Potential migration of silt or petrochemicals to watercourses. Potential impact on water quality and aquatic biodiversity. Potential impact on designated sites downstream.
Noise & Vibration	Due to residential setback, operational noise levels from the Proposed Wind Farm meet the daytime and night-time noise limit derived using the Wind Energy Development Guidelines 2006 which is not considered to be a significant impact.	Potential for impact to residential amenity at nearby dwellings due to noise nuisance if appropriate setback between turbines and dwellings is not applied.
Shadow Flicker	Shadow Flicker mitigation measures could be implemented using turbine control software to cease turbine operation during periods when shadow flicker is predicted. If this mitigation strategy is adopted, then "zero shadow flicker" would occur (as defined in chapter 12 – Shadow Flicker) within 10 rotor diameters of the wind farm.	Potential impact on residential amenity due to shadow flicker at nearby dwellings if control measures are not applied.
Cultural Heritage	Design takes cognisance of nearby recorded monuments and avoids them and their zone of influence where possible.	Potential impact on cultural heritage assets if infrastructure is placed in proximity.
Material Assets	Design takes cognisance of nearby material assets such as utilities and services, as well as forestry and other renewable assets. The location of the site avoids these material assets where possible to reduce the potential for impacts on same.	Potential impact on material assets if infrastructure is placed in proximity to same.
Landscape & Visual	Buffering of residential receptors in order to maintain setback distance. Design consideration of sensitive visual receptors in the greater area.	Potential negative visual impact on sensitive visual receptors and potential impact on residential amenity if not considered in the design of the wind farm.

There were 2 no. main alternatives which relate to the original Maighne Project: the Drehid Wind Farm Project 2018 and the current Drehid Wind Farm proposal, the Proposed Development. A description of these alternative layouts are illustrated in Table 2-4 below. ?

Table 2-4: Alternative Wind Farm Design Options

Layout No.	No. of Wind Turbines	Tip Height (m)	Rotor Diameter (m)	Total Approx. Installed Capacity (MW)
Maighne Wind Farm	47	169	120	125
Drehid Wind Farm 2018	12	169	142	48
Drehid Wind Farm 2024	11	T1 = 147.9 m T2 to T11 = 167 m	133	52.8

2.3.5.1 Chosen Option

Following the High Court decision in December 2022, the applicant engaged Fehily Timoney and Company (FT) to commence work for the purpose of re-submitting the Drehid Wind Farm Project 2018. It was originally intended that the Proposed Development would be the same as the Drehid Wind Farm Project 2018. However an alternative grid connection was proposed due to the limitations of the Dunferth substation. It is now proposed to connect to the national grid by way of a proposed on-site 110 kV substation, with a loop-in/loop-out connection to the existing Kinnegad-Rinawade 110 kV overhead line. As a result of recent improvements in turbine technology, the 12 turbines would have a maximum export capacity in excess of 50 MW and therefore constitutes Strategic Infrastructure Development (SID). The 110 kV substation also constitutes SID pursuant to Section 182 of the Act.

Turbine Layout

Originally set out to comprise 12 turbines, the layout of the Wind Farm was reduced to an 11-turbine layout. Each turbine location was carefully selected, in accordance with the Mitigation by Design approach set out in Table 2-3 above.

A comparison of potential environmental impacts of the wind farm site layout iterations is detailed in Table 2-5. The proposed option was developed to present the least potential environmental impact through the project philosophy of mitigation by design.

Table 2-5: Comparison of Potential Residual Environmental Effects of the Wind Farm Design Iterations

Environmental Consideration	Maighne Wind Farm	Drehid Wind Farm Project 2018	Drehid Wind Farm 2024 (Proposed Development)
Air & Climate	Greater impact during construction due to greater CO2 emissions due to greater number of turbines. Greater potential for dust emissions due to larger area of excavation. Long-term positive impact on air quality due to production of clean renewable electricity.	Reduced impact during construction stage due to less CO2 and dust emissions as a result of fewer turbines and smaller site footprint. Reduced long-term positive impacts on air quality and climate due to reduced power output. Long-term positive impact on air quality and climate	Slightly further reduced impact during construction stage due to less CO2 and dust emissions as a result of fewer turbines. Increased long-term positive impacts on air quality and climate due to increased power output using the selected 4.8 MW turbine model.

Environmental Consideration	Maighne Wind Farm	Drehid Wind Farm Project 2018	Drehid Wind Farm 2024 (Proposed Development)
		due to production of clean renewable electricity.	
Noise & Vibration	Potential for noise to impact on greater number of receptors due to the number of receptors in proximity to the large site footprint.	Reduced potential for noise impact on nearby sensitive receptors due to reduced number of turbines. Reduced potential for noise impact on nearby receptors due to commitment to separation distances of 4 times tip height.	Slightly reduced potential for noise impact due to reduced number of turbines. Continued commitment to minimum separation distance of 4 times tip height.
Biodiversity	Potential greater habitat loss due to greater number of hardstandings and access tracks. Greater potential of collision risk due to greater number of turbine blades.	Significantly reduced habitat loss due to reduced number of hardstandings. Significantly reduced potential of collision risk due to smaller number of turbines.	Similar but reduced habitat loss due to the reduced no. of hardstandings with the 11 turbine layout. Slightly further reduced potential of collision risk due to smaller number of turbines.
Land, Soils, Geology	Larger area of excavation and soil disturbance required due to greater number of turbines.	Significantly reduced impact due to reduced number of turbines, reduced overall site footprint. No significant residual impact following implementation of mitigation measures.	No significant residual impact following implementation of mitigation measures.
Hydrology & Water Quality	Larger area of soil disturbance required due to greater number of turbines, which might have potential impacts on water quality. Larger footprint comprising areas of less permeable surfaces with the potential to impact existing flood regimes.	Significantly reduced potential impact to water quality due to reduced soil disturbance. Significantly reduced potential flooding impacts due to reduced impermeable surfaces. No significant residual impact following implementation of mitigation measures.	No significant residual impact following implementation of mitigation measures.

Environmental Consideration	Maighne Wind Farm	Drehid Wind Farm Project 2018	Drehid Wind Farm 2024 (Proposed Development)
Population & Human Health	Greater potential for impact on residential amenity due to greater visual envelope and potential heightened noise as a result of the greater number of turbines.	Reduced potential for impact on residential amenity due to reduced visual envelope and reduced noise as a result of the smaller number of turbines. Design achieves appropriate setback distances. 4x tip height setback achieved.	Further slightly reduced impact on amenity (visual and noise) value due to removal of one turbine. Design achieves appropriate setback distances. 4x tip height setback achieved. No significant impacts envisaged.
Material Assets	Potential negative impacts on services trenched into the public road network due to extensive cabling associated with the 47-tubrine layout.	Significantly reduced potential for impacts on services due to reduced cabling in public roads.	Further reduced potential for impacts on services as trenching in public roads required is now on a smaller less traffic road with less potential to contain services.
Traffic & Transport	Negative impacts to roads and traffic due to extensive cable network being trenched into public roads.	Significantly reduced potential for impacts on roads and traffic due to reduced cabling in public roads.	Further reduced potential for impacts on roads and traffic as trenching in public roads required is now on a smaller road with lesser traffic volumes.
Archaeology & Cultural Heritage	Potential for impacts on archaeology and cultural heritage due to extensive excavations required. Large visual envelope of the 47-turbine layout has the potential to negatively impact on views of Archaeological or Cultural Heritage value.	No expected impact to existing cultural heritage feature within the site through avoidance.	No expected impact to existing cultural heritage feature within the site through avoidance.
Landscape & Visual	Greater potential visual impact associated with greater number of turbines.	Reduced potential for impact on landscape and visual elements due to reduced visual envelope as a result of the smaller number of turbines. Design achieves appropriate setback distances. 4x tip height setback achieved.	Further slightly reduced impact on landscape and visual elements due to removal of one turbine. Design achieves appropriate setback distances. 4x tip height setback achieved.
Telecoms & Aviation	No expected significant impact.	No expected significant impact.	No expected significant impact.

2.3.5.2 Substation and Grid Connection

At a strategic high level Dunfierth was originally identified within close proximity to the preferred single cluster development site as having capacity for the connection of wind energy to the grid. It was for this reason that Dunfierth Substation was originally strategically selected to accommodate a wind energy project. North Kildare Wind Farm Limited therefore originally intended to connect the Drehid Wind Farm Project 2018 to the Irish National Grid via the existing Dunfierth 110 kV substation as part of the 2018 planning proposal. However, as described in Section 2.3.3, since the lodgement of the 2018 application, it was subsequently determined that the existing Dunfierth 110 kV substation is not suitable for a new generator connection in its current format and would require a significant rebuild and additional network interruption to facilitate connection at this existing node. The project also received a grid connection offer through the Enduring Connection Policy for a new loop-in substation on the Harristown - Dunfierth(Tee) - Rinawade line, which was agreed as the preferred connection method. The Proposed Development therefore now intends to connect to the national grid via a new on-site 110 kV loop-in/loop-out substation within the project lands at the northern end of the site.

Given the evolution of the project the below is a summary of the grid connections options considered.

Grid Conection Options

The previously proposed grid connections to the Maynooth and Woodland 220 kV substations which were set out in the Maighne Wind Farm submission were considered for the current proposal. These options were considered to be less optimal due to the lack of proximity to the Drehid site. In considering the Board's decision regarding the Maighne Wind Farm, (the Board cited the adverse effects caused by the need for extensive underground cabling in poor quality minor roads as a reason for refusal) an alternative approach was considered which minimised the effect on public roads.

Therefore, the Drehid 2018 project considered that the Dunfierth substation option addressed one of the previous refusal reasons. This alternative was considered to have less adverse effects on local roads and receptors and will require less resources and associated works.

Three options were considered for the proposed grid connection route to the Dunfierth Substation as part of the Drehid Wind Farm Project 2018. The first option, option A, set out a route which connects the development to the Dunfierth substation via the public road corridor. The second option, option B, was a greenfield option where the cable traverses private lands with partial entry to the public road. The third option, option C, was a combination of options A and B, partly traversing private fields and partly entering the public road corridor.

However, as mentioned above, since the lodgement of the 2018 application, it was subsequently determined that the existing Dunfierth 110 kV substation is not suitable for a new generator connection. In addition, the project received a grid connection offer for a new loop-in substation.

Alternative substation and connection options were considered for the current project as follows:

Substation and Connection Option A

Given that a grid connection to Dunferth is no longer viable, an alternative grid connection was studied. It was found that the Kinnegad-Rinawade 110kV overhead line has capacity for Drehid Wind Farm and therefore a number of alternative layouts were considered for the substation and the loop-in / loop-out connection to the overhead line was considered.

The substation was first located in the northeastern portion of the site, centred on ITM coordinates 676612, 737395. FT Geotechnical Engineers attended site and conducted peat probing at this location in February 2023. The peat probing revealed an average peat depth in the area of 1.6 m. Therefore, groundworks for the

construction of the Substation would involve excavating a substantial volume of peat . Therefore, the proposed location of the substation was deemed inappropriate, and the design team began searching for a new location for the substation.

Substation and Connection Option B

Given that Cable Route Option A would require significant excavation and deposition of peat due to the location of the substation, an alternative substation location was studied. A new location for the substation was proposed, centred on ITM coordinates 676460, 737889. A peat probing exercise was conducted in this proposed location in October 2023 and it was determined that peat depths in this area were on average approximately 0.5 m. Therefore, groundworks for the construction of the Substation would involve excavating down to an average depth in excess of 0.5 m, generating significantly lesser volumes of excess peat compared when compared with Substation and Connection Option A.). It was concluded that losing such a volume of peat across/on the site would be feasible and not result in significant negative impact on soils and hydrology. Therefore, the proposed location of the substation was deemed appropriate and selected as the preferred option.

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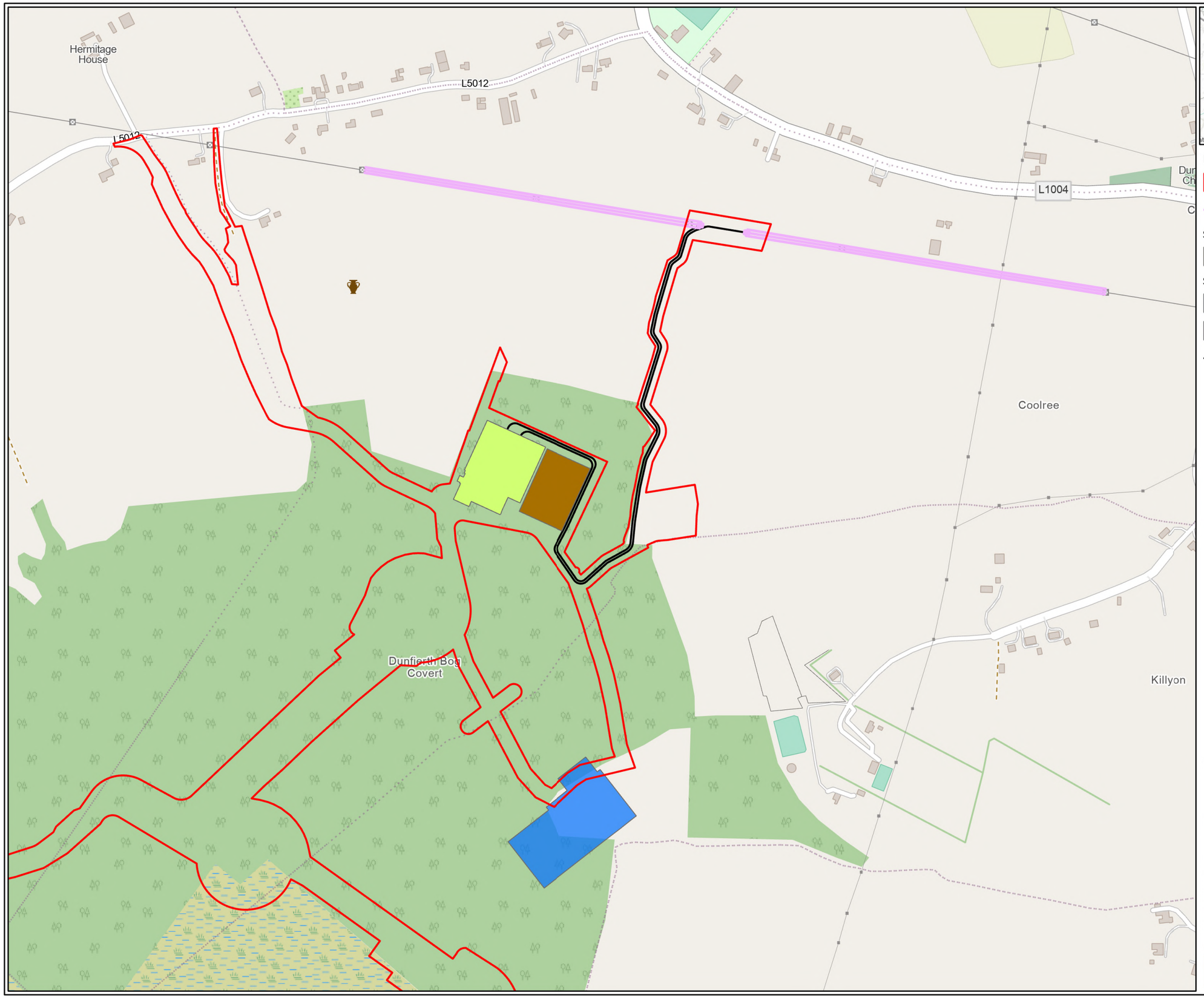

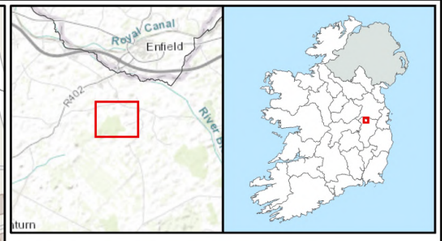

Legend

- Proposed Development Boundary
- Existing 110kV Overhead Line

Susbstation & Connection Option A

- Susbstation A

Substation & Connection Option B

- Peat Deposition Area
- Substation
- Grid Connection Route

N W E S

0 50 100 200 Meters

TITLE:	Substation and Connection Option A vs. Option B		
PROJECT:	Drehid Wind Farm and Substation		
FIGURE NO:	2.3		
CLIENT:	North Kildare Wind Farm Ltd.		
SCALE:	1:6,000	**REVISION:**	0
DATE:	13/05/2025	**PAGE SIZE:**	A3

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2.3.6 Operational Life

Both a 30-year and 35-year operational life was considered for the Proposed Development. A comparison of potential residual effects for either scenario is presented in Table 2-6 below.

Permission is being sought for a 35-year operational period from the date of full operational commissioning of the Proposed Wind Farm, with permission for the Proposed Substation sought in perpetuity given that the substation would form part of the national electricity network. Therefore, the substation will be retained as a permanent structure and will not be removed.

35 years is the anticipated minimum useful lifespan of wind turbines which are being produced for the market today. The lifespan of wind turbines has been increasing steadily in recent years and allowing this duration will improve the overall carbon balance of the development, therefore maximising the amount of fossil fuel usage that will be offset by the wind farm. Leaving the wind turbines in-situ until the end of their useful lifespan would be optimum from an environmental viewpoint, particularly in relation to carbon savings.

Furthermore, it should be noted that section 7.2 of the Wind Energy Development Guidelines 2006 states for the following:

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

Assuming the Proposed Development has an installed capacity of 52.8 MW, the proposed wind farm has the potential to produce approximately 161,885 MWh (megawatt hours) of electricity per year.

A 35-year operational life will also have a positive impact on material assets by extending the offsetting of the use of fossil fuels for electricity production and increasing the amount of renewable electricity being supplied to the national grid, as required by EU and national renewable energy targets. This will also benefit Ireland's energy security for a longer period.

2.4 Conclusion

This chapter of the EIAR has described the need for the Proposed Development and the reasonable alternatives considered throughout the development process for the Proposed Development. The need for the Proposed Development is established in Section 2.2 and it centres on providing renewable electricity to the Irish national grid, in line with European and national policy objectives, and the need to meet EU Renewable Energy targets and national targets as set out in the Climate Action Plan (2025).

A description of the reasonable alternatives in terms of project design philosophies, technology, size and scale for the development of the Proposed Development is detailed in Section 2.3. This section sets out the evolution of the Proposed Development and the alternatives considered. The section details the strategic site screening process i.e., the high-level considerations in finding a suitable site for a renewable energy project.

The assessment of the suitability of the candidate site then considers the proposed site in terms of policy and other environmental constraints. A variety of wind farm layouts (Maighne Wind Farm, Drehid Wind Farm Project 2018) were considered and a comparison of potential environmental effects of the alternatives was provided.

The alternative layouts (for example the Maighne Wind Farm layout and the layout proposed in 2018) of the Proposed Development were established through the project philosophy of mitigation by design. Alternative density and scales were considered, and the potential environmental impacts of various alternative turbine

numbers were compared. The alternative grid connection options were examined, and the optimal option was chosen as a result of environmental assessment.

The site layout was considered in this chapter which detailed its evolution from a 14 no. turbine cluster to a 12 no. turbine cluster. The 12-turbine layout was considered due to feedback from the public consultation process in order to increase setback distances to reduce potential impacts on nearby receptors, such as noise and shadow flicker. The layout was subsequently further reduced to an 11-turbine layout.

Project design alternatives were considered and ultimately finalised through the environmental assessment process. This included implementing 50m buffers from streams, a minimum of 4 times tip height between turbines and dwellings and a commitment to a "zero shadow flicker" mitigation on dwellings, which is explained in Chapter 12.

Alternatives were also considered for other individual elements of the project including the Proposed Substation and the proposed operational life of the Proposed Wind Farm. These elements were arrived at through the avoidance of potential environmental impacts as detailed in the comparisons provided throughout section 2.3.

The process design was also set out in this chapter. Here, alternative technologies were considered, and it was concluded that onshore wind energy is currently the most viable renewable energy both economically and sustainably. Furthermore, the mitigation measures that are proposed throughout the EIAR will contribute to minimising the overall potential impacts of the project.

The final Proposed Development, comprising the Proposed Wind Farm, and Proposed Substation, and the Turbine Delivery Route as assessed throughout this EIAR is thought to be the optimal design which minimises impacts on the receiving environment, while providing significant renewable electricity to the national grid, in line with national energy and climate policy.

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