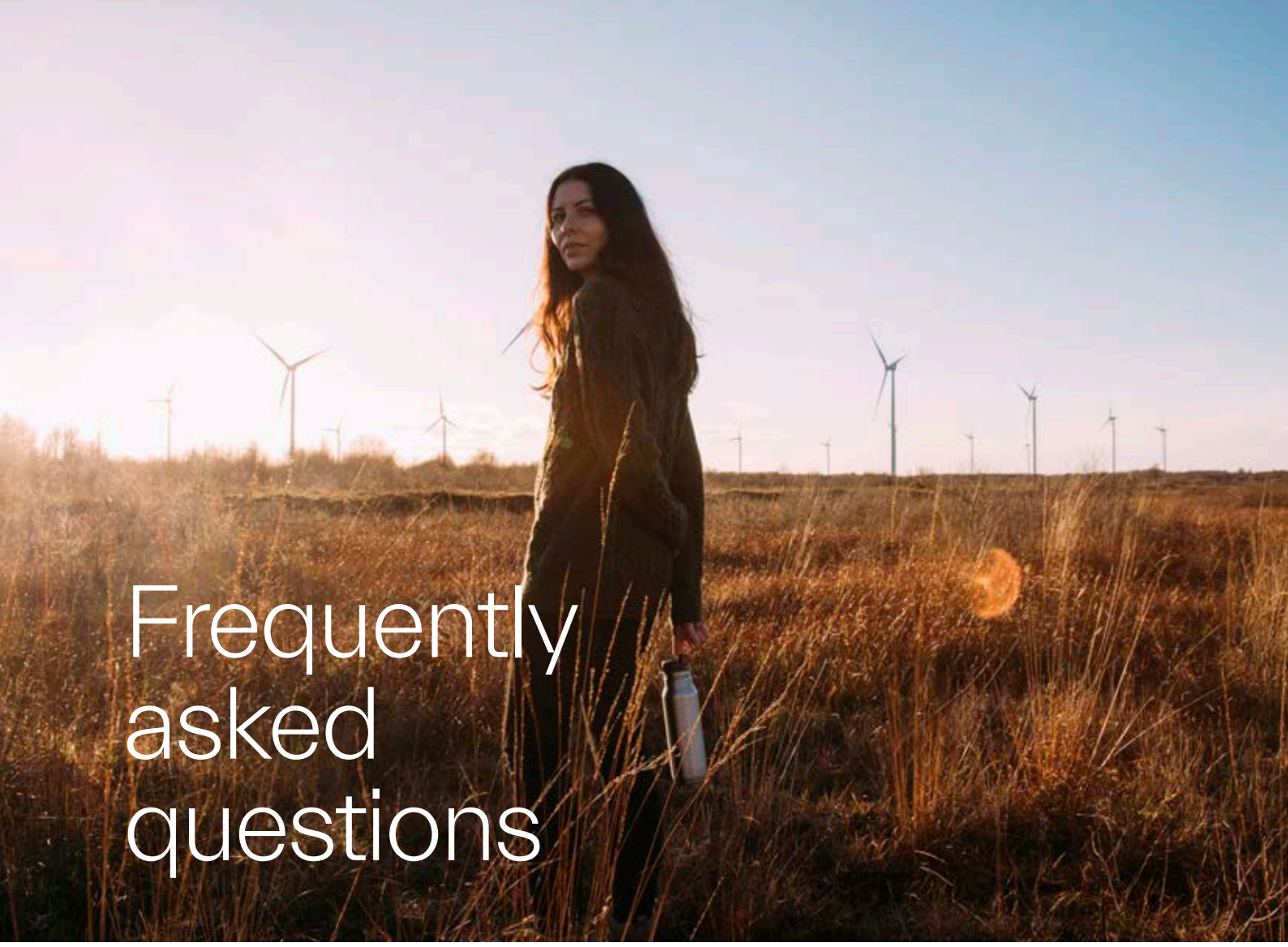
Proposed Garryhinch Wind Farm

Winter 2022

Bord na Móna



Frequently asked questions

1. **How many turbines are proposed for the development?**
   Resulting from the development of the draft wind turbine layout, there are 12 turbines proposed for the Garryhinch Wind Farm project. For further information, please see page 12.

2. **What height are the proposed turbines?**
   The proposed turbines will have an overall blade tip height ranging from 200 - 220 metres. For further information, please see page 12.

3. **What setback distance has been applied from houses?**
   The turbine layout has been designed with a minimum setback distance of 4 times the tip height - 880 metres to the nearest house. For further information, please see page 12.

4. **When will a planning application be lodged?**
   It is envisaged that a planning application will be lodged in mid 2023 for the proposed development. It is intended to submit the planning permission application directly to An Bord Pleanála, under the provisions of the Planning and Development (Strategic Infrastructure) Act 2006. An initial approach is therefore being made to An Bord Pleanála seeking a determination in relation to the Strategic Infrastructure Development (SID) status, or otherwise, of the proposed wind farm development. For further information, please see page 12.

5. **What land area will the proposed wind farm occupy?**
   Only approximately 4% of this area will be used for turbine bases, crane hard-standings and access tracks, so much of the land area will not be required by the development. This means that it can be utilised for other purposes, such as biodiversity and amenity.

6. **Where will the power from the proposed wind farm go?**
   The electricity generated by the turbines will be transmitted directly onto Ireland's National Grid which is managed by EirGrid for distribution around the country. The proposed development will make a significant contribution to Irelands Climate Action Plan 2021, which has set a target of 8GW of onshore wind capacity by 2030.

7. **What stage is the project at now?**
   The project team is conducting a number of onsite surveys, including ecology surveys and ornithology surveys. Further ecological surveys, aquatic surveys, heritage surveys and site investigation works will be undertaken over the course of the next few months. In addition to these ongoing site works, we are also looking to consult with the community on the draft wind turbine layout.

8. **How can I provide feedback on the proposed development to Bord na Móna?**
   We encourage feedback through a number of channels including:
   - Through the Community Liaison Officer, Niall (see page 18 for further details).
   - Submission of a Feedback Questionnaire (please see page 13 for further details).
   - Via the project's dedicated email address: **garryhinchwindfarm@bnm.ie**

Introduction

Bord na Móna is an Irish, semi-state climate solutions company helping lead Ireland towards a climate neutral future.

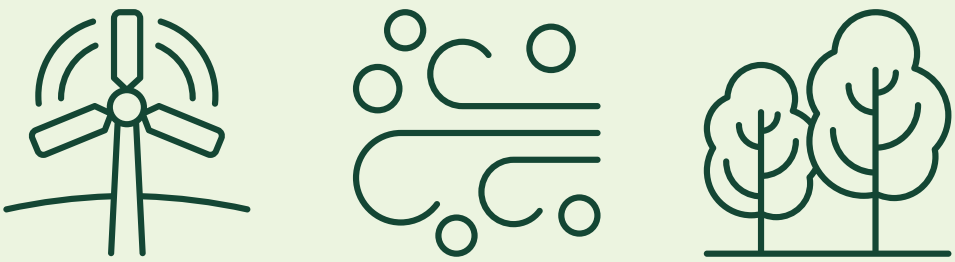
Bord na Móna has been serving communities for over 90 years, always rising to meet the needs of the day. It was founded in 1934 as The Turf Development Board to enhance national energy security through peat harvesting and became Bord na Móna in 1946.

Today, we have radically changed our approach to face an even greater challenge: climate change. We have ended peat harvesting and now our focus is developing climate solutions in renewable energy, sustainable waste management, carbon storage and biodiversity conservation.

Ireland has committed to ambitious climate goals and Bord na Móna's climate solutions are helping to achieve them. Our vision is to help Ireland reach net zero greenhouse gas emissions by 2050. This means helping to remove the same amount of greenhouse gases from the atmosphere that are released.

To power a net zero future, we are expanding our renewable energy infrastructure. We have been constructing and maintaining large-scale infrastructure for decades. Today, we are using that experience to build renewable energy developments across the country. These developments are transforming the way we generate and consume energy.

Ireland has committed to generating 80% of electricity from renewable sources by 2030. We are working across wind, solar, biomass and biogas to help achieve this target and to provide energy security for future generations.



Irish Government Policy on Renewable Energy

Successive Governments have been developing policy to chart a course towards ambitious decarbonisation targets for Electricity, Transport, Built Environment, Industry and Agriculture. The National Development Plan 2021 – 2030 includes commitments to increase the share of renewable electricity up to 80% by 2030. It is acknowledged that wind energy will provide the main component of Ireland's renewable electricity at that time. It is envisaged that the proposed development would be operational by 2030 and would therefore contribute to this 2030 target.

The Programme for Government 2020 details how energy will play a central role in the creation of a strong and sustainable economy over the next decade. The reliable supply of safe, secure, and clean energy is essential to deliver a phase-out of fossil fuels. To reduce emissions and decarbonise both Heat and Transport, electrification will play an important role in ensuring Ireland meets emission targets. This will create rapid growth in demand for electricity which must be planned and delivered in a cost-effective way.

The Irish Government supports the use of Ireland's wind resources to meet our renewable energy targets. Outlined below is some of the most recent relevant Irish Government Policy:

- Energy White Paper entitled Ireland's Transition to a Low Carbon Energy Future 2015–2030.
- Climate Action and Low Carbon Development Act 2015 as a landmark national milestone in the evolution of climate change policy in Ireland. The purpose of the Act is pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy.
- The Climate Action Plan 2021: 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 outlines that Ireland will move to 80% renewable electricity by 2030.
- Project 2040: National Development Plan 2018 – 2027 which outlines an additional 4,500MW of renewable energy as an investment priority as part of strategic pillar No. 8 - Transition to a Low Carbon and Climate Resilient Society.
- Renewable Electricity Support Scheme to contribute to Ireland's 2020 renewable electricity targets and to deliver Ireland's renewable energy ambitions out to 2030.
- Department of Housing, Planning and Local Government is currently preparing an update to the 2006 Wind Energy Development Guidelines and in December 2019 published revised draft Wind Energy Development Guidelines for consultation.
- Department of Environment, Climate and Communications is preparing a Renewable Electricity Policy and Development Framework to guide the development of renewable electricity projects in line with the objectives of Irish energy policy.
- Climate Action and Low Carbon Development (Amendment) Act 2021. Legislation designed to put Ireland on a path to net zero emissions, no later than 2050 and a 51% reduction in emissions by the end of the decade.
- Government Policy Statement on Security of Electricity Supply. Policy statement which is premised on renewables such as wind and solar providing the majority of electricity by 2030 and includes objectives for conventional plants to support it.

Need for Wind Energy

Wind farms produce renewable electricity and assist in the offset of carbon emissions including those arising from other sectors, such as agriculture. The proposed project will contribute to both Ireland's and the European Union's renewable energy targets. It will also contribute to increasing the security of Ireland's energy supply and will facilitate a higher level of energy generation and self-sufficiency.

The Climate Action Plan 2021 (CAP) was published on the 4th November 2021 by the Department of the Environment, Climate and Communications. The CAP sets out an ambitious course of action over the coming years to address the impacts which climate may have on Ireland's environment, society, economic and natural resources. This Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The CAP identifies a need for 8GW of onshore wind generation. The CAP presents clear and unequivocal support for the provision of additional renewable energy generation and presents yet further policy support for increased wind energy.

In July 2022 Ireland's Sectoral Emissions Ceilings were agreed by the Government. Sectoral Emissions Ceilings refer to the total amount of permitted greenhouse gas emissions that each sector of the economy can produce during a specific time period. These limits are legally binding under the Climate Action and Low Carbon Development Act 2015 (as amended). To limit emissions, renewable energy projects, like wind, are needed to displace conventional generation and to decarbonise sectors such as heating and transport.

Draft Revised Wind Energy Development Guidelines in Ireland

In 2019, Revised Wind Energy Development Draft Guidelines were issued for public consultation. Key aspects of these Draft Guidelines included:

1. **Noise Limits**
   Noise restriction limits consistent with World Health Organisation standards are proposed. The noise limits will apply to outdoor locations at any residential or noise sensitive properties.

2. **Visual Amenity Setback**
   A visual amenity setback distance, of 4 times the tip height, between a wind turbine and the nearest residential property is proposed, subject to a mandatory minimum setback of 500 metres.

3. **Shadow Flicker**
   It is proposed that technology and appropriate modelling at design stage is adopted to eradicate the occurrence of shadow flicker and must be confirmed in all planning applications for wind energy development.

4. **Consultation Obligations**
   Planning applications must contain a 'Community Report' prepared by the applicant which will specify how the final proposal reflects community consultation and the steps taken to ensure that the proposed development will be of enduring economic benefit to the communities concerned and demonstrate adherence to community engagement codes of practice.

5. **Grid Connection**
   From a visual amenity aspect, undergrounding of cable connections from wind farms to the transmission and distribution system is the most appropriate solution, except where specific ground conditions or technical considerations make this impractical.

6. **Community Dividend**
   Wind farm developers will also be required to take steps to ensure that the proposed development will be of enduring economic benefit to the communities concerned.

The Proposed Location

The location for the proposed wind farm is shown in Figure 1 below. The proposed Garryhinch Wind Farm will be developed on Garryhinch Bog - located in Counties Laois and Offaly. Garryhinch bog is adjacent to the communities of Clonygowan and Mountmellick.

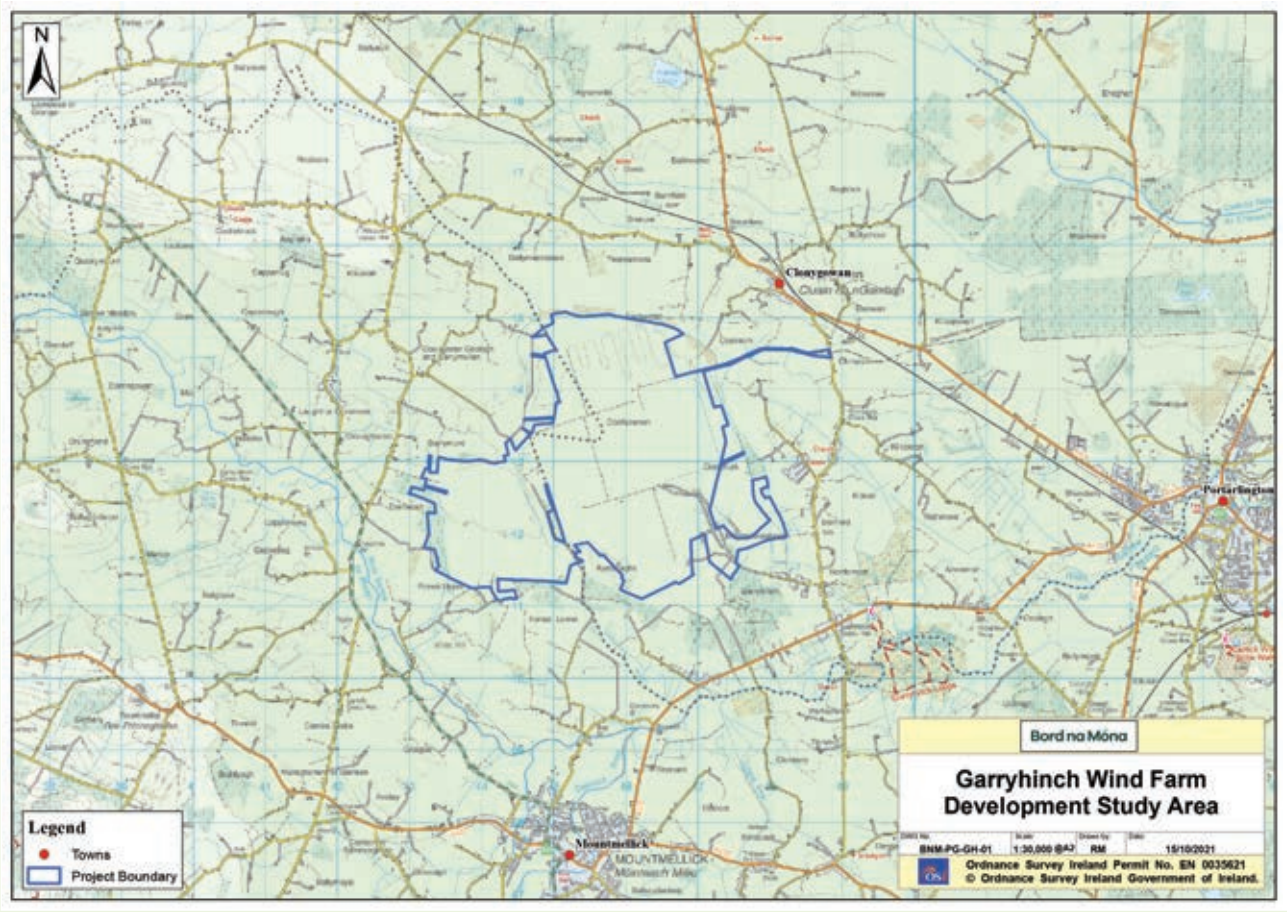


Figure 1: Site Location Map

A draft layout, consisting of 12 turbines has been developed for the proposed wind farm (to view draft layout map, please refer to pages 10 and 11).

The development of a wind farm on these bogs would continue the long tradition of energy production in a new increasingly sustainable form and underpin Bord na Móna's move away from its traditional 'brown' generation to a more sustainable 'green' future. The electricity generated by the turbines would be transmitted directly onto Ireland's National Grid which is managed by EirGrid for distribution around the country.

Bord na Móna's peatlands offer a number of advantages for the development of onshore wind farms, which include:

- Significant scale, and are present in large blocks.
- Industrial, brown-field sites, suitable for redevelopment.
- Open, unenclosed landscapes with good wind characteristics.
- Linked by rail or road passageways, suitable for cable connection.
- Generally flat and well drained, with minimal dangers of land slippage.
- Proven delivery of this type of development, as demonstrated by Bruckana, Mountlucas, Oweninny and Cloncreen Wind Farms.

Site Selection

In selecting a site for a wind farm development there are a number of criteria that must be considered. Based on these criteria some site are more suitable for wind farms than others. The main criteria that we consider include:

- Aviation
- Grid Access
- Flooding Risk
- Proximity to Dwellings
- Cumulative Visual Impact
- Supporting Infrastructure
- County Development Plan
- Telecommunications Links
- Environmental and Ecological Sensitivities

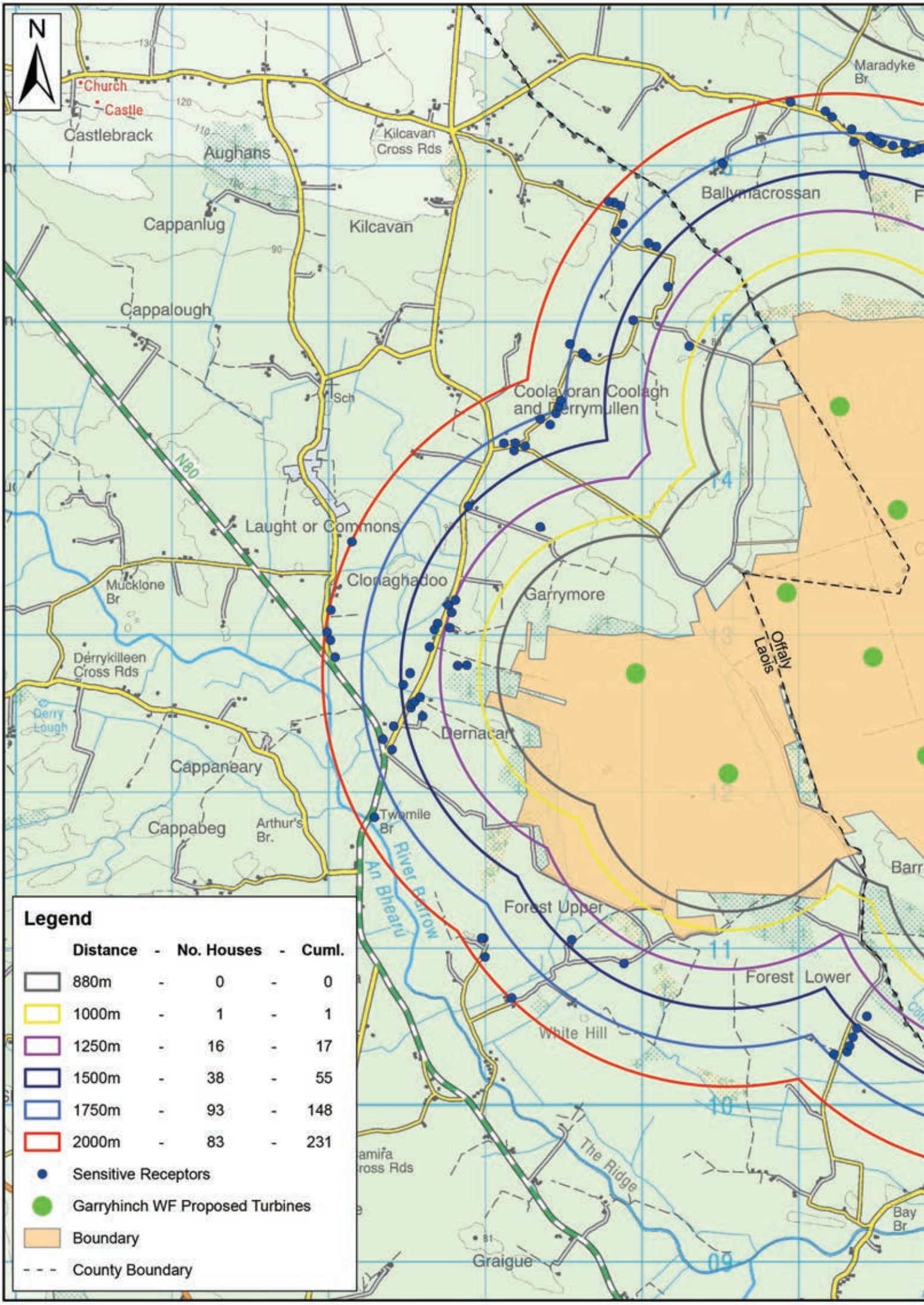
Archaeology

Peatlands have been a very important source of archaeological material in Ireland. Artefacts found both under and within peatland deposits have provided detailed information about communities who lived in the early periods of our history as well as about the food, clothes and tools which were used from the Stone Age to recent times. This Bog Group and the surrounding areas have a rich archaeological history which will be taken into account during all stages of the project. It's hoped that this archaeological history could be incorporated into amenity proposals for the project.

The heritage of these bogs and the surrounding areas will be addressed in the Environmental Impact Assessment Report (EIAR) that will accompany the planning application for the proposed development, in particular the following chapters: Archaeological, Architectural and Cultural Heritage; and Landscape and Visual.

Biodiversity

Extensive surveys are ongoing to determine the habitats and species that occur within the site and the wider hinterland area. Features that are sensitive from a biodiversity perspective are constrained out at design stage. The surveys include breeding and wintering bird surveys, habitat surveys, bat, mammal and aquatic surveys, amongst others. A full description of the biodiversity of these bogs and the surrounding area will be addressed in the EIAR that will accompany the planning application for the proposed development, in particular the following chapters: Biodiversity; and Ornithology (birds).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Clonaghadoo
Garrymore
Mucklone Br
Derrykilleen Cross Rds
Derry Lough
Offaly
Laois
Dernacart
Cappaneary
Cappabeg
Arthur's Br.
Twomile Br
An Bhearú
River Barrow
Forest Upper
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White Hill
The Ridge
Graigue
Bay Br
Legend
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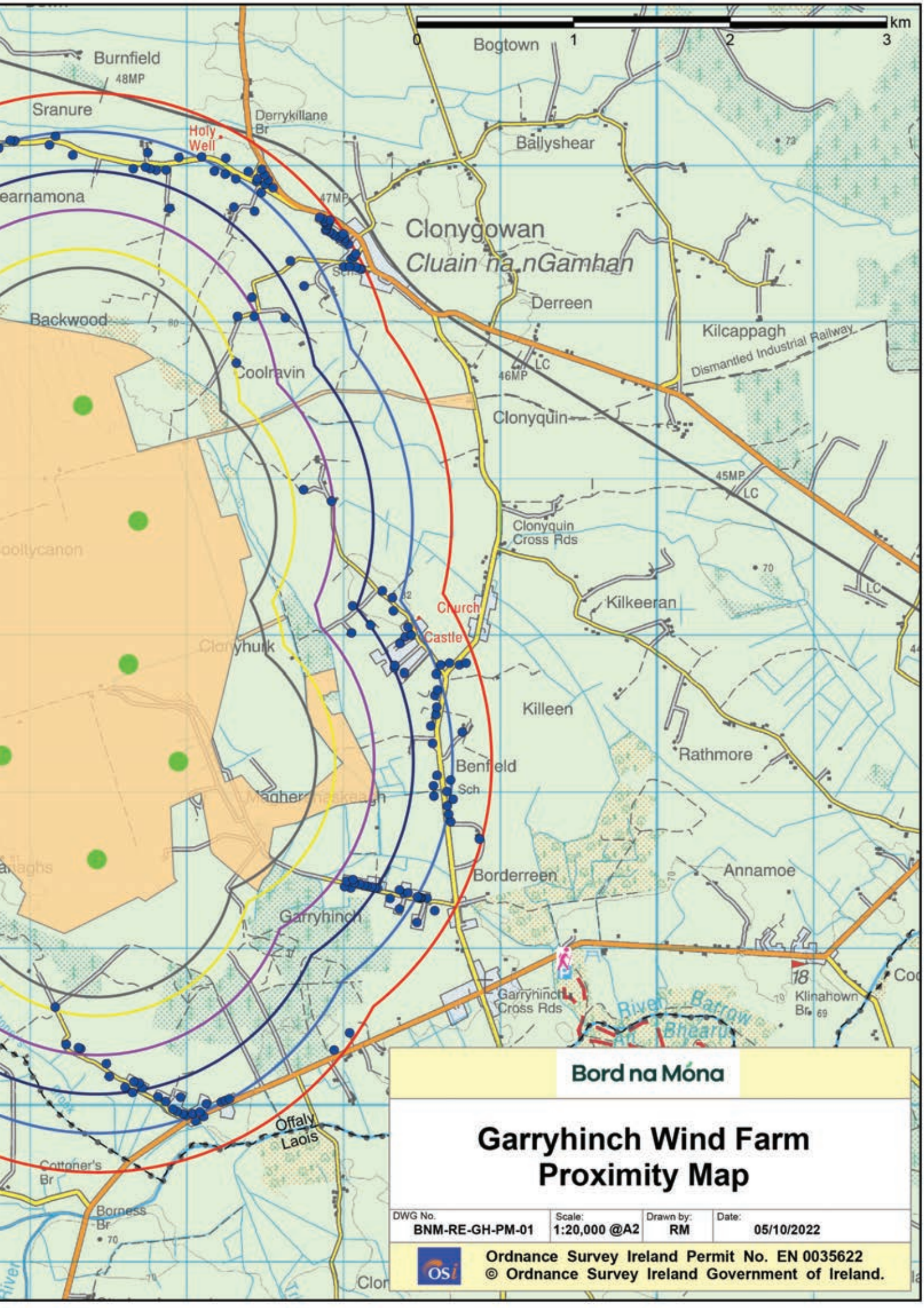
1000m - 1 - 1
1250m - 16 - 17
1500m - 38 - 55
1750m - 93 - 148
2000m - 83 - 231
Sensitive Receptors
Garryhinch WF Proposed Turbines
Boundary
County Boundary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Garryhinch Wind Farm
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The Proposed Wind Farm

Number of Turbines: 12
The draft layout comprises 12 wind turbines. Apart from the turbines themselves, the other principal components of the wind farm are the foundations to support the turbine towers, access, crane hard standings, underground cables between the turbines, an electricity substation and an electrical connection to the appropriate node on the National Grid. Please see pages 10 and 11 for Draft Layout Map.

Height of Turbines: 200–220m
The proposed turbines will have an overall blade tip height ranging from 200–220 metres. Within this size envelope, various configurations of hub height and rotor diameter may be used. The exact make and model of the turbine will be dictated by a competitive tender process, post planning and it will not exceed the maximum tip height of 220 metres.

Setback Distance: 880m
The turbine layout has been designed with a minimum setback distance of 880m to the nearest house from a turbine. This complies with the Draft Wind Energy Development Guidelines (2019), which proposes a setback distance of 4 times the tip height.
Table 1 depicts the number of houses within a range of setback distance bands from the proposed turbine layout (refer to the Draft Layout Map on pages 10 and 11).

Wind Farm Output: 60–80MW
Early studies of the site have indicated that it may be capable of accommodating approximately 60–80 Megawatts (MW) of installed generating capacity. When operational, the proposed Garryhinch Wind Farm will generate a volume of electricity equivalent to the average annual electrical demand of circa 45,000 Irish homes*.

Planning Timeline
It is intended to submit a planning application in mid 2023 for the proposed development. It is envisaged that the planning permission application will be submitted directly to An Bord Pleanála, under the provisions of the Planning and Development (Strategic Infrastructure) Act 2006.

Final Layout Publication:
Spring 2023

Submission of Planning Application:
Mid 2023

*Based on Annual Capacity Factor across Ireland in 2020 of 30.3% and average household electricity consumption of 4,200kwH

Distance	No. of Houses	Cumulative
800m	0	0
1000m	1	1
1250m	16	17
1500m	38	55
1750m	93	148
2000m	83	231

Community Engagement

Bord na Móna understands the importance of community engagement at every stage of the proposed Garryhinch Wind Farm development process. The proposed development will benefit from participation by all interested parties during each stage of the development.
We are constantly updating and adapting our communications channels to ensure the public are informed about the proposed development. This means continuing to use our traditional methods of communication in addition to a number of interactive online tools to ensure we engage on an ongoing basis through the following:

Community Liaison Officer
Bord na Móna has appointed a dedicated Community Liaison Officer (CLO) – Niall Donlon - for the proposed Garryhinch Wind Farm project. The role of the CLO is a very important one as it is an effective and efficient process for maintaining a continuous channel of communication, consultation and engagement between Bord na Móna, stakeholders and the community at large. Niall can be contacted during office hours on 087 9951174 or via **garryhinchwindfarm@bnm.ie**

A Feedback Questionnaire
Should you wish to submit any comments/ suggestions on the proposed development, a feedback questionnaire can also be completed on the project website. For your convenience, we have included a paper-based copy of the questionnaire and a freepost envelope within the project information pack Niall will be delivering to homes within the vicinity of the proposed development over the coming weeks.

Benefits of the Development

The proposed development will give rise to a range of benefits at different levels. **At a Local Level,** benefits arising from the construction and operation of the proposed wind farm will include:

- Employment.
- Upgrading of the road infrastructure in the vicinity of the wind farm (as required).
- Amenity and Recreational Facilities.
- The provision of a Community Benefit Fund.
- Payment of taxes from the project, and dividends from Bord na Móna to the State.
- Substantial rates paid to the relevant Local Authority.

Employment

A large wind farm development of this scale would typically support up to 100 jobs at peak construction. There will also be indirect employment created through the sub-supply of a wide range of products and services including: gravel and graded stone for roads and hard stands, concrete and steel for turbine bases, building materials for sub stations, haulage of components from the ports to the site, accommodation, legal and financial services. Once complete the project will also support a number of long term, high quality technical jobs in operations and maintenance.

Amenity and Recreational Facilities

A high-level amenity plan will accompany the planning application and we would welcome any feedback or proposals the community may have with respect to amenity. A good example of one of our existing wind farm amenity facilities is Mountlucas Wind Farm in North Offaly. The site consists of a 10km walkway / cycleway around the wind farm in addition to interpretative signage, outdoor exercise equipment and a learning hub which is utilised by various school and college groups for educational purposes and day trips. In 2021, the wind farm welcomed over 50,000 visits to its amenity facilities.

Community Benefit Fund

Similar to our existing wind farms, it is envisaged that an annual Community Benefit Fund will be set up for the proposed Garryhinch Wind Farm once the project is operational. As the project is at an early stage of its development, the exact nature and structure of a proposed Community Benefit Fund is not known at this time, albeit we would envisage it being similar in type to our existing Community Benefit Funds which include:

- A Community Gain Scheme – providing funding to local community and not-for-profit organisations
- A Near Neighbour Fund – providing an annual electricity contribution and once off support to carry out energy efficiency measures and/or education support to residents within a prescribed distance of a turbine.

At a Regional Level, the new development will help to supply the rising demand for electricity, resulting from renewed economic growth in the Midlands region. During construction, additional employment will be created in the region through the supply of services and materials to the wind farm.

At a National Level, the new development will play a significant role in contributing to the country's national renewable electricity production and carbon emissions reduction targets by 2030, while also supporting a growing economy and population. During operation, the wind farm will eliminate the need to generate the equivalent amount of electricity from fossil fuels, and it will therefore help to reduce total national greenhouse gas emissions. In doing so, it will reduce our dependence on external energy sources, help improve our energy security of supply and make a major contribution to Ireland's Climate Action Plan, which has set a target of 8GW of onshore wind capacity by 2030.

Sample of projects supported under Bord na Móna's Community Gain Schemes

Crosspatrick Sports, Fitness and Well Being Group - Exercise Bicycles for Community Spinning Classes with instructor Susan Fogarty.

Crosspatrick Community Hall - This organisation is currently undertaking a large extension to the Community Hall.

Crosspatrick Church recently refurbished the Church railings.

Moyne Tidy Village Association who have recieved funding for various projects in the local community.

How Wind Turbines Operate

Almost all wind turbines producing electricity consist of vertical blades which rotate around a horizontal axis. Most modern wind turbines have three blades which face into the wind when extracting the energy needed to generate electricity. The blades are attached to a hub which in turn is connected to a generator by means of a gearbox or direct drive mechanism, which is located inside a protective container called a nacelle. This is where the electricity is made. As the blades are turning, they spin the generator to create electricity. A generator is a machine that produces electrical energy from mechanical energy, whereas an electric motor does the reverse.

The nacelle is the large box at the top of the tower where all the main electrical components are located. Figure 2 shows an image which depicts the main elements of a modern wind turbine. Many of the key working parts of a wind turbine are located in the nacelle at the top of the tower and their enclosure within the nacelle reduces noise from the turbine. A schematic of a wind turbine nacelle is shown in Figure 3, with the key components labelled for easy reference.

Tubular towers, which support the nacelle and rotor, are usually made of steel and taper from their base to the top. The entire nacelle and rotor are designed to swing around, or 'yaw', in order to face the prevailing wind and extract the maximum amount of energy.

A modern wind turbine is designed to produce high quality electricity whenever enough wind is available. Wind turbines can operate continuously, unattended, and with low maintenance, with a design life of over 20 years. They are highly reliable, with operating availabilities (the proportion of the time in which they could generate if wind conditions were suitable) of up to 98%. Few other electricity generating technologies offer a higher availability.

Landscape and Visual Impact Assessment

A typical tool utilised in the assessment of the visual impact of a wind farm is a Photomontage. Photomontages are visualisations that superimpose an image of a proposed development upon a photograph or series of photographs and are used to illustrate the potential impact of a development on the existing landscape. A number of photomontages will be created as part of the Landscape and Visual Impact Assessment (LVIA) for the proposed wind farm. Samples of the photomontages which will form part of the LVIA for this proposed development can be viewed in the accompanying booklet "LVIA Photomontage Booklet".

Figure 2: Image of a typical Wind Turbine.

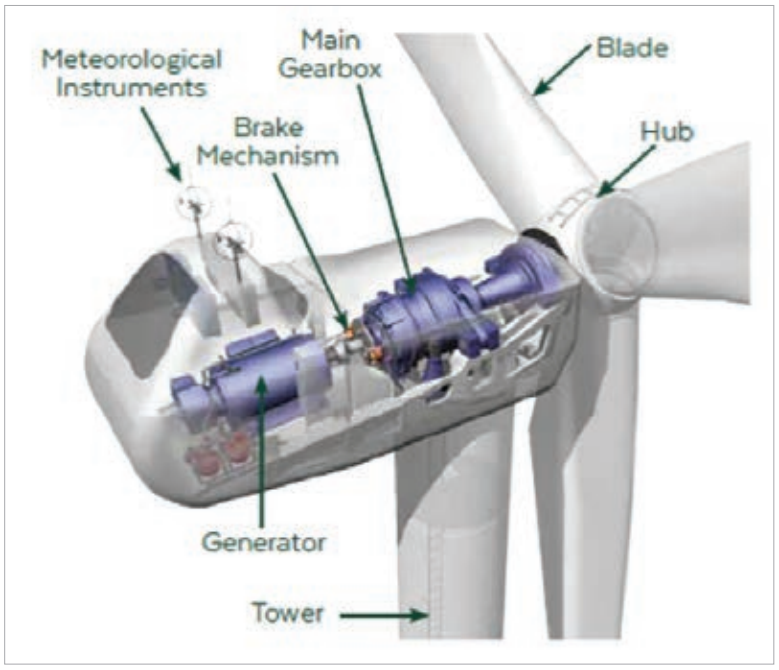

Figure 3: Schematic of a typical Wind Turbine nacelle.

Strategic Infrastructure Planning Process Explained

For most large projects, a key issue is whether a development is Strategic Infrastructure Development (SID) or not?

Energy infrastructure which is considered SID* includes:
"An installation for the harnessing of wind power for energy production (a wind farm) with more than 25 turbines or having a total output greater than 50 megawatts".
*(as outlined in the Seventh Schedule, Section 1 of the Planning and Development (Strategic Infrastructure) Act 2006).

SID Projects	Non-SID Projects
Planning Application to An Bord Pleanála	Planning Application to Local County Council
Environmental Impact Assessment Mandatory	Environmental Impact Assessment Mandatory in some cases

At this stage of the project, Bord na Móna estimate that the output of the proposed Garryhinch Wind Farm will be approximately 60–80MW. Consequently, Bord na Móna will need to go through a pre-planning consultation process with An Bord Pleanála to determine with certainty who the consenting authority will be. Irrespective of the Consenting Authority it is our view that an Environmental Impact Assessment Report will be required as supporting documentation to the planning application.

What is included in an Environmental Impact Assessment Report (EIAR)?
Due to the nature and scale of the proposed development an Environmental Impact Assessment (EIA) will need to be carried out. As part of this process, an environmental baseline for the proposed development site will be established through fieldwork and other baseline surveys.

All of this information will be described and documented in an Environmental Impact Assessment Report (EIAR) which will accompany the planning application documentation submitted to the appropriate Consenting Authority for consideration. The EIAR will comprise the following chapters as a minimum:

1. Introduction (Incl, Need for the Project)
2. Reasonable Alternatives Considered
3. Planning and Policy Context
4. Project Description
5. Draft Construction and Environmental Management Plan
6. Biodiversity
7. Archaeological, Architectural and Cultural Heritage
8. Hydrology and Hydrogeology
9. Soils, Geology, Geotechnics and Ground Stability
10. Air Quality and Climate
11. Noise and Vibration
12. Landscape and Visual
13. Shadow Flicker
14. Aviation, Telecommunications and Electromagnetic Interference
15. Traffic and Transportation
16. Population and Human Health

How you can get in touch

The Garryhinch Wind Farm will benefit from participation by all interested parties during each stage of the development. There are a few ways you can get in touch with us:

Call us

If you wish to make a comment or require further information about the proposed wind farm please call the project's **Community Liaison Officer, Niall (087) 9951174***

Email us

Email us any comments or queries via: **garryhinchwindfarm@bnm.ie**

Write to us

Garryhinch Wind Farm Communications Team,
Bord na Móna,
Main Street,
Newbridge,
Co. Kildare

Join our mailing list

Keep informed of all project updates by signing up to our project mailing list. Please visit the project website to complete the sign-up form: **www.garryhinchwindfarm.ie**

*9am to 5pm Monday to Friday excluding bank holidays.

Bord na Móna

Bord na Móna