

Borrisbeg Grid Connection

Chapter 2: Consideration of Reasonable Alternatives

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2 Consideration of Reasonable Alternatives

The Proposed Grid Connection was comprehensively assessed and its design evolution and proposed alternatives considered in detail within the Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) of the Consented Wind Farm (Planning Reference ABP 318704). The consideration of alternatives for the Proposed Grid Connection was undertaken by a multi-disciplinary technical, environmental and planning project team and concluded with the identification and selection of solutions that provide the best balance between technical, environmental and community / social indicators.

This chapter of the EIAR presents a summary of the main reasonable alternatives considered in the Consented Wind Farm EIAR for the Proposed Grid Connection.

A detailed description of the Proposed Grid Connection can be found in Chapter 3 Development Description.

2.1.1 Statement of Authority

This section of the EIAR, has been prepared by Karen Mulryan and reviewed by Paul Chadwick, of RPS. Karen is a Senior Environmental Scientist with RPS with over 9 years' experience in the consultancy sector. Karen holds a BA in International in Archaeology from NUI Galway and a MSc in Archaeology from the University of Edinburgh. Karen's expertise is in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Karen has experience managing wind farm Environmental Impact Assessment Report applications of various scales including SID applications across Ireland. Karen holds memberships with the Chartered Institute for Archaeologists (ACIfA) and the Institute of Archaeologists of Ireland (IAI).

Paul is a Technical Director with the Energy, Environment and Resources Sector and leads the team responsible for environmental, waste and resource management and assessment of infrastructural and industrial projects for RPS in Ireland. Paul specialises in the fields of air quality and climate. He has considerable experience, both academic and professional, in ambient air quality and a wide range of atmospheric pollutants from waste / wastewater, road traffic, air traffic, industrial and stationary sources. As a result of two years research in atmospheric chemistry, he has an in-depth knowledge of the chemical and physical transformations associated with local and regional air pollution and climate change. Paul is a trained and experienced expert witness and is supported by a team of multidisciplinary environmental experts across RPS in Ireland.

2.2 Legislation, Policy and Guidance

The consideration of alternatives is a mandatory part of the Environmental Impact Assessment (EIA) process in section 31 of the 2014 EIA Directive (2011/92/EU as amended by 2014/52/EU). Article 5(1)(d) of the Directive, for example provides that the information to be provided by the developer shall 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.'

The 2017 Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU) notes that:

'Identifying and considering Alternatives can provide a concrete opportunity to adjust the Project's design in order to minimise environmental impacts and, thus, to minimise the Project's significant effects on the environment. Additionally, the proper identification and consideration of Alternatives

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from the outset can reduce unnecessary delays in the EIA process, the adoption of the EIA decision, or the implementation of the Project.'

Alternatives may be considered at several stages in the EIA process, reflective of initial stages where location and form are most relevant and at later stages where alternative designs may be required to address emerging environmental issues.

2.3 Methodology

The Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022) states the following in respect of alternatives:

'The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with 'an indication of the main reasons for selecting the chosen option'. 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'.

The EPA Guidelines state that while there are various levels of alternatives that can be considered from scale, orientation, technology, arrangement, mitigation etc, in some instances, alternatives are not applicable, e.g. no alternative to a road upgrade location, higher level alternatives may already be considered during strategic environmental assessment of strategies and plans.

Following from the above Guidance, alternatives to the Proposed Grid Connection were considered under the following:

1. Do Nothing Alternative
2. Alternative 110kV Substation Location
3. Alternative National Node Connection Point
4. Alternative Grid Route Connection Design
5. Alternative Mitigation Measures

2.4 Do Nothing Alternative

Annex IV, Part 3 of the EIA Directive 2011/92/EU (amended by 2014/52/EU), states that one of the key requirements of an EIAR is that it includes a description of the reasonable alternative studied by the developer including the 'Do -Nothing' alternative. The purpose of the 'Do-Nothing' alternative is to represent a scenario where the proposed project is not carried out i.e. a description of the evolution of the baseline scenario assuming the current state of the environment continues without major intervention.

Ireland's Climate Action Plan 2025 (CAP 25), published in April 2025, reaffirms the country's ambitious targets for onshore renewable energy to advance the nations climate objectives. Specifically, the plan aims to achieve 9GW of onshore wind capacity by 2030. Current projections indicate that Ireland is not on track to meet its 2030 goal. The Environmental Protection Agency (EPA) projects that Ireland will achieve greenhouse gas emission reductions of up to 23% by 2030

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compared to 2018 levels, which falls short of the national target of 51% reduction¹. To address these challenges, CAP25 emphasises the need for accelerated implementation of actions and strengthening of climate governance structures. This includes streamlining planning processes and enhancing grid infrastructure to support the expansion of renewable energy.

The purpose of the Proposed Grid Connection is to connect the Consented Wind Farm to the national grid. The Consented Wind Farm has the capacity to provide 63MW of renewable energy to the grid, powering 47,403 Irish households annually no. homes and offsetting 1,764,240 tonnes of CO₂ over its operational lifespan. Without the Proposed Grid Connection, an alternative grid connection for the Consented Wind Farm would need to be developed, which would in turn delay the delivery of much needed renewable energy to the national grid. This in turn would further hinder Ireland's chance to meet its mandated 2030 renewable energy and emissions reductions goals. Without the Proposed Grid Connection, the Consented Wind Farm would not aid the country in reaching its mandated targets of 9GW of onshore renewable energy by 2030 nor its CO₂ emission reduction target of 51%. Furthermore, the displacement of CO₂ and powering of homes afforded by the Consented Wind Farm would not be realised.

Without the Proposed Grid Connection, the opportunity to create short-term employment through the construction of both the Consented Wind Farm and the Proposed Grid Connection would be lost as well as the long-term employment through the maintenance of both developments during the operational phase.

In light of the aforementioned points, the 'Do Nothing' alternative is not considered a sustainable option.

2.5 Alternative 110kV Substation Location

Two potential substation locations with associated temporary construction compounds (Option A and Option B), were considered in the iterative design process of the Consented Wind Farm, with the optimal location being brought forward in this application.

The two location options considered comprised an agricultural field within the northwest of the Consented Wind Farm site (Option A) and an agricultural field to the southeast of the Consented Wind Farm, directly north of the L70391 local road (Option B).

Option A would have to be sited approximately 400m from the Consented Wind Farm general construction and operation entrance off the L-3248, and within a 50m buffer zone of a watercourse. The nearest national node connection point, a 110kV overhead line, is approx. 3.4 km to the southeast.

In contrast, Option B is not within a watercourse buffer and is approximately 1.4 km from the existing 110kV line (as the crow flies), which would necessitate a significantly shorter underground cabling route for grid connection. Option B is located within an agricultural field of low ecological value, is close to both the nearest consented turbine and to the existing 110kV OHL while maintaining the necessary turbine fall distance buffer and a setback of over 150m from the nearest residential receptor (the noise emanating part of the substation is over 250m from the nearest residential receptor). Option B requires approx. 900m of underground cabling route through the local road network (of which 5m encompasses crossing the R433), and 1.2km through private agricultural land. While segments of this road will be closed during the cable laying activities, it will not significantly impact on local residences along this road as there is an alternative route for access/egress to their properties.

In summary Option B is therefore being brought forward in this application for the Proposed Grid Connection as it deemed the most suitable location for the proposed 110kV substation due to the following reasons:

¹ EPA 2025. Ireland's Greenhouse Gas Emissions Projections 2024-2055

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- The low ecological value of the Option B substation location,
- The relatively short grid connection cabling route to both the Consented Wind Farm and national grid,
- The short underground grid route requirement through roads,
- The ability to achieve residential and turbine fall distance setbacks.

2.6 Alternative National Node Connection Point

The Consented Wind Farm requires a 110kV substation to transmit its generated energy to national grid system.

The Tipperary Renewable Energy Strategy 2022-2028 recognises that the *‘transport of energy from the turbines to a substation, which connects to the grid, will usually require the establishment of ancillary infrastructure which may create additional visual impact. Generally, however, the connection of the wind turbines to the substation (and sometimes from the substation to the grid) now typically is done via underground cable (where feasible), thus minimising the visual impact of overhead lines.’*

The nearest 110kV substation to the Consented Wind Farm is the Ikerrin 110kV substation located 8.6km to the north of the Consented Wind Farm (as the crow flies). Connecting to the nearest 110kV substation would require over 20km of cabling along the national/regional/local road or via overhead lines across multiple land holdings, bringing with it considerable traffic and ecological disturbance, residential visual amenity impacts, increased noise and dust emissions and potential ornithological collision risk. Consultation with Tipperary County Council on the 13th July 2023 and onsite on the 19th October 2023 indicated that the preferred approach to grid connections is to avoid using the public road network for underground cabling routes if alternative options, such as third-party land, are available. However, landowner agreements to install 110kV underground cabling to the Ikerrin 110kV substation were not feasible. Consequently, underground or overhead grid connection cable routes to the Ikerrin 110kV substation were not pursued further.

The nearest 110kV OHL to the Consented Wind Farm is the 110kV Ikerrin to Thurles OHL which is located approx. 1.9km to the southeast of the nearest turbine (as the crow flies). A connection into this OHL was selected as the Chosen Option for the Proposed Grid Connection as it is considered to be the least environmentally impactful and most economically prudent grid connection.

2.7 Alternative Connection to Existing 110kV Overhead Line

A critical factor in deciding the grid connection method for a wind energy development is whether to use underground cabling or overhead lines. An underground cabling connection will run from the proposed 110kV substation located to the east of the nearest consented turbine through approx. 120m of agricultural land before running through approx. 900m of the local road network (5m of which encompasses crossing the R433), and finally approx. 1km of agricultural land. This underground cabling route will need to cross two watercourses; one within the L-7039, which will be crossed using a Horizontal Directional Drilling method, and the other on private agricultural land, which will be crossed using a clear span culvert, meaning no in-stream work is proposed. Additionally, 3 no. field drains will require culverting. For details on the methodologies for crossing watercourses, refer to Chapter 3 Development Description. To facilitate the connection to the proposed onsite substation via the underground cabling, the existing overhead line will be broken by installing two new end masts (lattice-type towers) located beneath the existing 110kV Ikerrin-Thurles 110kV OHL. Once constructed, electricity from the Ikerrin-Thurles 110kV overhead line will be transmitted through the proposed substation, resulting in a "loop-in/loop-out" configuration.

An alternative to the approx. 2.1km underground cabling route would be to construct an overhead line of approx. 1.4 km from the proposed onsite substation to the existing Ikerrin to Thurles 110kV

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OHL. Overhead lines are generally less costly and easier to maintain than underground cable connection.

However, the chosen design requires approx. 1.2km of excavations through agricultural land of low ecological value, eliminates the operational visual impact and also reduced the potential for bat and bird collision risk. Additionally, while approx. 900m of underground grid route will be placed within the local public road network, an existing alternative road allows for all local residents to access and egress their properties without undue impact. Furthermore, the preference for underground cabling connections between wind farms and the national grid is supported by the 2006 Wind Energy Development Guidelines (WEDGs)², the 2019 draft WEDGs³, and the Tipperary Renewable Energy Strategy 2022-2028⁴. Therefore, the underground grid connecting cable route is the preferred option due to its general compliance with local and national policy and the lower potential for environmental impacts.

2.8 Alternative Mitigation Measures

Mitigation through avoidance has played a crucial role in the development of the Proposed Grid Connection during its selection and design phases. As previously mentioned, the agricultural fields within which the proposed substation, 1.2km of grid route and the end masts are proposed are of low ecological value. Where watercourse crossings are required, instream works are avoided by the use of horizontal directional drilling and the insertion of a clear span culvert. The substation itself has been rotated to cite the noisier elements such as the transformer, furthest away from the nearest residential receptor.

The Consented Wind Farm includes a commitment to replant 5.17 km of hedgerow within the adjacent wind farm site which is above and beyond the required amount needed to be removed to facilitate the construction of both the Consented Wind Farm and the Proposed Grid Connection. Should the Proposed Grid Connection not receive a grant, the Consented Wind Farm will not be constructed and therefore the net gain in hedgerow habitat will not be planted.

Likewise, the Consented Wind Farm includes a commitment to plant approx. 1.8 hectares of natural woodland along a section of the Eastwood River within the adjacent wind farm site. This replanting effort exceeds the area of habitat loss and will be preserved as a Woodland Conservation Area for the duration of the Consented Wind Farm's operation. This initiative is expected to yield a long-term, slight positive impact on biodiversity. Additionally, around 2.42 hectares of felled conifer will be replanted more than 10 kilometres away from the Site and outside the hydrological catchment area. Should the Proposed Grid Connection not receive a grant, the Consented Wind Farm will not be constructed and therefore the net gain in native woodland planting into an established Woodland Conservation Area will not be realised.

In addition to the above, the Consented Wind Farm includes a commitment to restore the pattern, profile, and dimensions of a 340m segment of the Eastwood River, which will also contribute to a long-term, slight improvement in local water quality and aquatic species. Should the Proposed Grid Connection not receive a grant, the Consented Wind Farm will not be constructed and therefore the river restoration project and subsequent improvement to water quality and aquatic ecology will not occur.

The best practice design and mitigation strategies outlined in this EIAR aim to minimise environmental risks and sever the connection between the Site and any identified environmental receptors. The alternatives would be to forgo these measures or to propose less effective, non-best practice solutions, both of which are unsustainable options.

² <https://assets.gov.ie/static/documents/wind-energy-development-guidelines-2006.pdf>, P73.

³ <https://assets.gov.ie/static/documents/draft-revised-wind-energy-development-guidelines-december-2019-385c92c2-16f9-4511-80bf.pdf>, P42.

⁴ [Volume 3 Renewable Energy Strategy.pdf](#), P.A25

2.9 References

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2. Department of Communications, Climate Action and Environment, 2019. Draft Wind Energy Guidelines.
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4. Environmental Protection Agency (EPA), 2025. Ireland's Greenhouse Gas Emissions Projects 2024-2055.
5. Environmental Protection Agency (EPA), 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports.
6. European Commission, 2017. Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)
7. European Parliament and Council, 2014. Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. Official Journal of the European Union, L124, pp. 1-18.
8. Tipperary County Council, 2022. Tipperary's Renewable Energy Strategy 2022-2028.