MWP

Environmental Impact Assessment Report (EIAR)

Chapter 03 Consideration of Alternatives

Dernacart Wind Farm
110kV Substation and Grid Connection

Statkraft Ireland

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3. Consideration of Alternatives

3.1 Introduction

The consideration of Alternatives is a mandatory part of the EIA process. The legal requirements of the 2014 EIA Directive, relating to the assessment of Alternatives, are set out in Article 5(1)(d) and Annex IV point 2 of the Directive.

Article 5(1) states that the developer shall include at least:

d) *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*;

Annex IV point 2 expands further:

2) *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 project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*

The EU Commission guidance "*Guidance on the preparation of the Environmental Impact Assessment Report"*[1] (2017) defines alternatives as: "*Different ways of carrying out the Project in order to meet the agreed objective'.* That guidance states *'The number of alternatives to be assessed has to be considered together with the type of alternatives, i.e. the 'Reasonable Alternatives' referred to by the Directive. 'Reasonable Alternatives' must be relevant to the proposed Project and its specific characteristics, and resources should only be spent assessing these Alternatives. In addition, the selection of Alternatives is limited in terms of feasibility. On the one hand, an Alternative should not be ruled out simply because it would cause inconvenience or cost to the Developer. At the same time, if an Alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it to be a feasible Alternative.'*

Ultimately, Alternatives have to be able to accomplish the objectives of the Project in a satisfactory manner, and should also be feasible in terms of technical, economic, political and other relevant criteria.

The EPA guidance "Guidelines on the information to be contained in Environmental Impact Assessment Reports" (2022) states:

"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."

1. See: http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

That guidance also states that *analysis of high-level or sectoral strategic alternatives cannot reasonably be expected within a project level EIAR. It should be borne in mind that the amended Directive refers to 'reasonable alternatives… which are relevant to the project and its specific characteristics'.*

This chapter therefore outlines the reasonable alternatives considered during the project inception and design process including a comparison of the environmental effects and the principal reasons for proceeding with the current planning application.

3.2 110kV Substation Site Selection

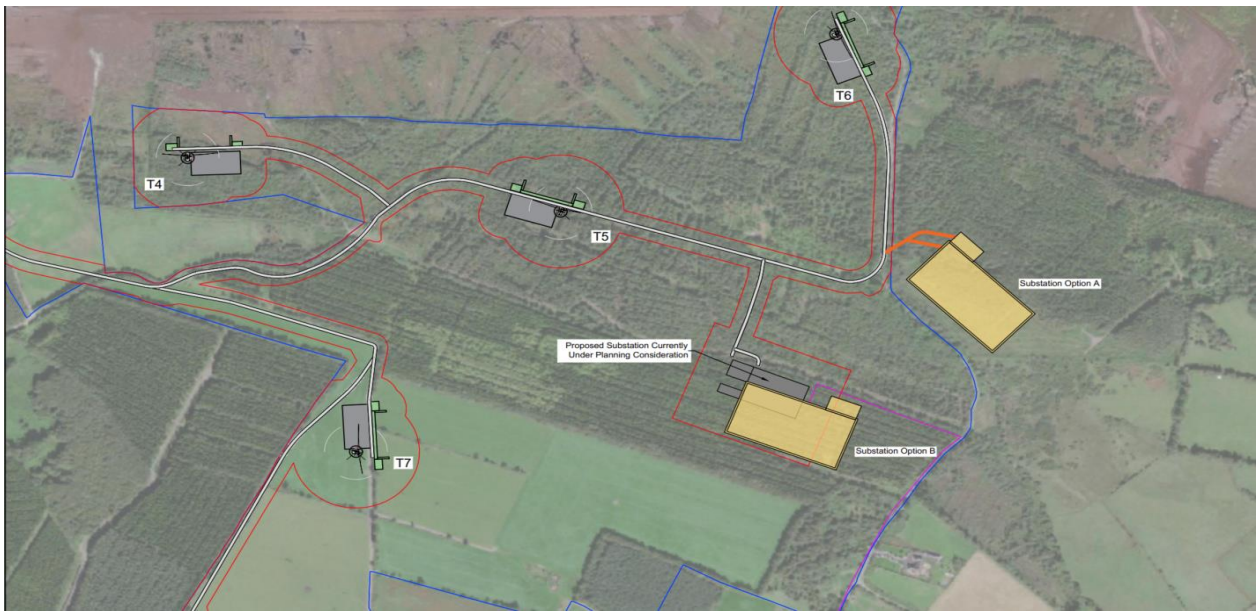
The proposed 110kV substation is to replace the 110kV windfarm substation currently consented as part of the Dernacart Wind Farm (Planning Ref ABP-310312-21).

The need for the replacement of the consented substation is due to changes in EirGrid requirements in the intervening period between the submission of the planning application and the granting of the development. Based on current EirGrid specifications, the sizing of substation compound for which permission had been sought is no longer adequate and necessitates a larger footprint to include additional lands for future expansion if required.

Initially two locations were considered for the relocation of the proposed substation. See Figure 3.1.
Option 1 - increase the development footprint at the site of the original substation location.

Option 2 – new site to the northeast of the original substation location.

Figure 3.1 Alternative Substation Locations Considered



However, owing to the inability, at this current time, to secure landowner consent for the extent of the necessary land take required to accommodate the increased substation footprint at these two potential substation locations, a new alternative substation location was therefore required.

The proposed site is located immediately to the north of the R423 approximately 1.3km west of Garryhinch. The site was initially identified by the Applicant and finally selected based on collaborative appraisals between multi-discipline inputs and considerations including topography, ecology, archaeology, hydrology, flood risk, and access.

3.3 Wind Farm Collector Cable Connection

Owing to the proposed new alterative substation location, a new collector cable connection from the wind farm to the substation is required.

Consideration was given to the installation of the collector cable along the public road network. This would involve road opening works of circa 4.8km (approx. 3.25km within a number of minor local roads (L20978, L20971 and L20972) and 1.55km within the R423).

It was however considered by the Applicant that the preferred option would be to install the cable off-road as this route option would also facilitate a private access between the substation and the wind farm.

The primary objectives when designing the new internal access road was to utilise existing tracks where possible and to locate infrastructure where ground conditions are suitable.

The internal access tracks were designed taking account of topography, ground conditions and using existing tracks where possible. LiDAR data was used to review the topography of the site. It shows the site to be relatively flat with minor elevation difference across the site. Peat depths within the site were found to be relatively shallow. Some short lengths of existing forestry tracks have been identified towards the western side of the scheme and these have been utilised in the design of the road layout. Based on the peat depths and topography, the site is suitable for both “floated” and excavated road types.

3.4 110kV Underground Grid Connection Cable

TLI was engaged to identify and analyse 110kV grid connection route options from the substation to connect to the National Electricity Grid (NEG) at Bracklone in Portarlington. As part of this process, a ranking of the various route options available was completed to assist the decision to pursue an OHL or an UGC option.

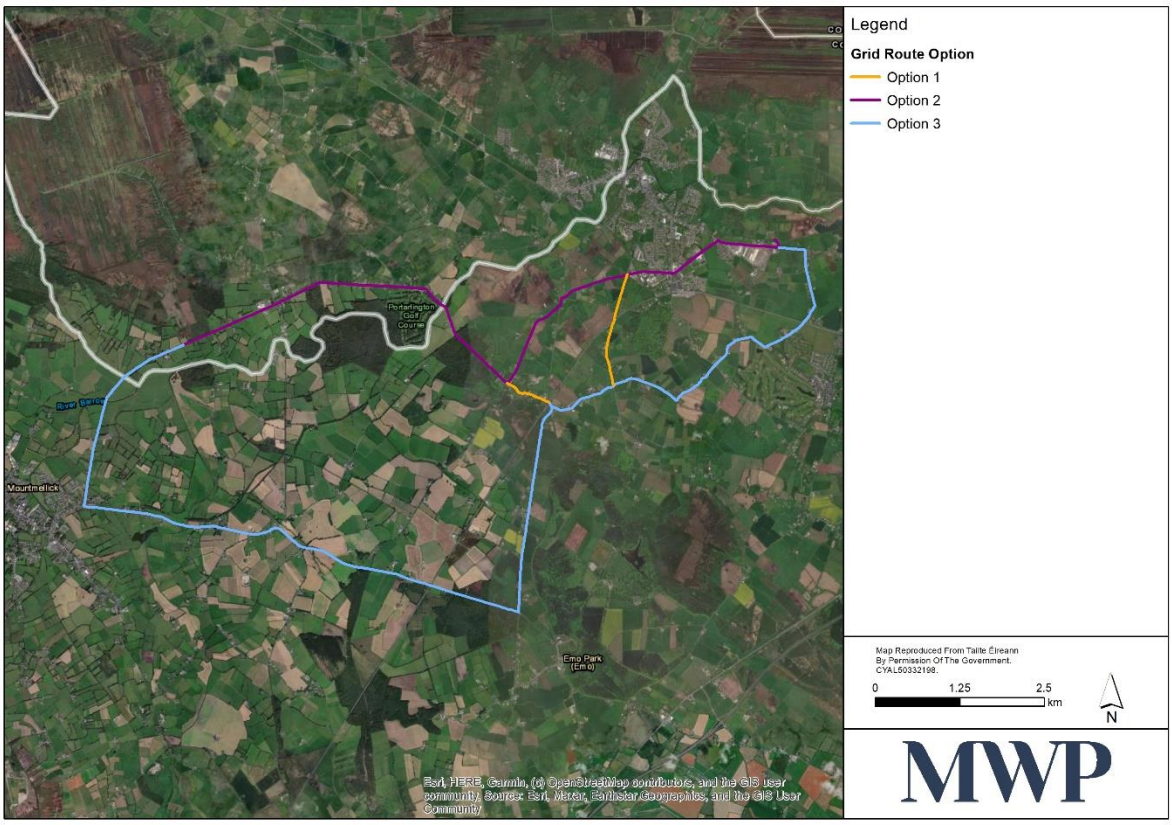
In order to identify potential routes between the windfarm substation and the substation at Bracklone, a detailed study area constraints map was created. The study area map combined data from numerous sources including

OSI mapping, aerial imagery, protected areas (SAC/NHA etc.), river networks, ESB network data, architectural heritage, and monuments data.

From an initial review of the study area, three potential routes were brought forward for an initial desktop assessment. At this stage, primary public road use were assessed in order to identify UGC route options. Roads going through the centre of Portarlington town were avoided in order to minimise traffic congestion and crossing/traversing parallel with existing third-party underground utilities (water distribution, gas, telecoms, etc.), and also to avoid the high number of monuments and architectural heritage structures identified in that area.

Each of the proposed routes was driven in their entirety and survey notes and photographs were taken.

Figure 3.2 UGC Route Options Considered



The main parameters of each of the routes surveyed is summarised in **Table 3.1**. Consideration is given for the route distance in types of public road, the number of watercourse crossings by bridge, the number of crossings with Irish Rail infrastructure by overbridges, intersections with national monument zones of notification and with national architectural heritage, and the number of private land folios required where HDD crossings are not possible from road-to-road.

Table 3.1 Comparison Table of Main Route Options

Assessment Criteria		Underground Cable Options from Bracklone Substation to Dernacart WF Substation		
		Option 1	Option 2	Option 3
Overall Length		14.6km	10.85km	21km
Length of Cable Route within Public Roads		16.6km	10.85km	21km
National Roads		0km	0km	0km
Regional Roads		6.3km	6.2km	11.9km
Local Roads		10.3km	4.65km	9.1km
Water crossings	Bridged crossing	4	4	2
	Culvert	3	3	4
Irish Rail Crossings		2	0	2
Monuments and Heritage		2	2	0

Option 1's major constraints are composed of two Irish Rail overbridges which need to be crossed – typically a technical and bureaucratic challenge, if at all possible. Other constraints include multiple watercourses which need to be crossed (some of which possibly with a bridge construction), crossing/running parallel with third party underground services at the edge of Portarlington and passing next to the River Barrow which is a designated Special Area of Conservation.

Route Option 2 is quite similar to Option 1 with a slight variation in its length that makes Option 2 slightly shorter and allows it to avoid the two Irish Rail overbridges. All other constraints are still present nonetheless.

Route Option 3 takes a different approach from the previous, by leaving the Bracklone Substation going East, in order to avoid passing through Portarlington town. It then goes further South in an attempt to reduce the number of watercourse crossings and to avoid the River Barrow area. Several watercourse crossings and two Irish Rail overbridges are also present nonetheless and constitute major constraints. An additional downside is the longer length of the route (roughly 30% longer)

In summary, Route Options 1 and 2 are quite similar, with Option 2 having the clear advantage of avoiding the crossing of two Irish Rail overbridges and being approx. 3km shorter. Other than that, comparing with Option 3, these Options have more watercourse crossings by bridge.

Route Option 3 uses roughly 30% more route length than Options 1 and 2 with the benefit of reducing the number of bridged water crossings. Still, two Irish Rail overbridges constitute major constraints. There are also longer sections of narrow roads which will likely hinder the joint bay siting and require traffic diversion solutions.

From an engineering and environmental perspective, Route Option 2 is more favourable in terms of construction methodology and because of its shorter overall length, shorter narrow road length, and avoiding to cross Irish Rail infrastructure.