



**MERCURY RENEWABLES
(CARROWLEAGH) LIMITED**

**FIRLOUGH WIND FARM, CO. MAYO
AND
HYDROGEN PLANT, CO. SLIGO**

**RESPONSE TO MAYO COUNTY COUNCIL
SUBMISSION
PLANNING APPLICATION REFERENCE
ABP-317560-23**

March 2024

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Introduction

This report has been produced in response to the Mayo County Council Submission received on the 14th March 2024 for the Firlough Wind Farm and Hydrogen Plant Planning Application Reference Abp-317560-23

The key queries and issues have been extracted from the submission and responses are included in the sections below.

MAYO COUNTY COUNCIL COMMENTS

It is noted that the proposed hydrogen plant is located within County Sligo and the proposed windfarm within County Mayo.

Principle of Proposed Development:

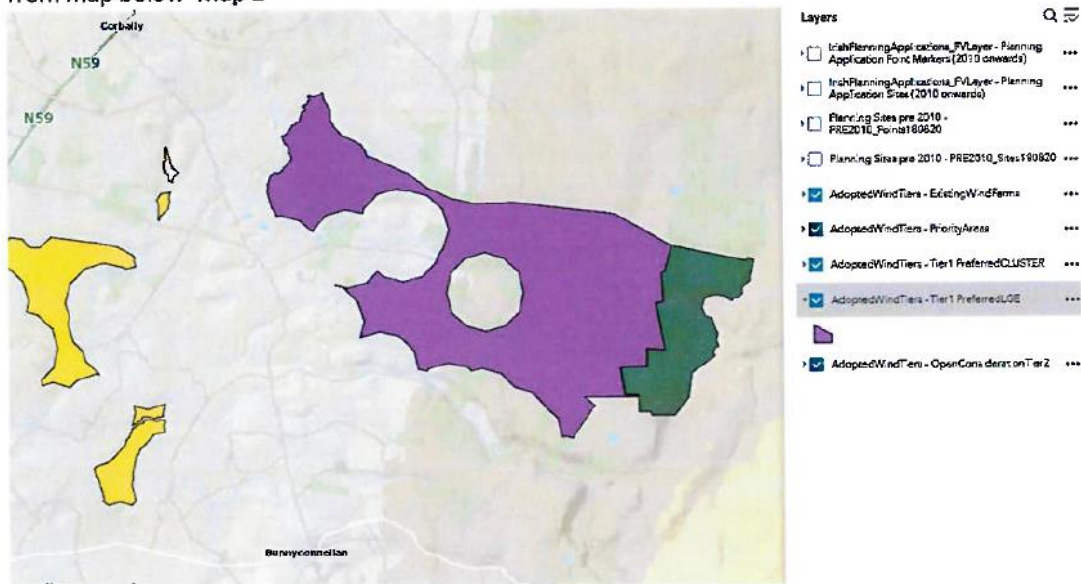
Wind Energy Map

Mayo County Council adopted a Renewable Energy Strategy for County Mayo on the 9th May 2011.

The Strategy sets out a path to allow County Mayo to contribute to meeting the national legally binding renewable energy targets and sets out opportunities for individuals, communities and businesses to harness renewable energy in a sustainable manner and to assist in combating climate.

Map 1 Wind Energy details location in the County where wind farms will be considered. See extract from map below Map 1

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It should be noted that Mayo County Council adopted the renewable energy strategy in 2011 when turbines were considerably smaller in height and less imposing on the landscape compared to modern turbines. Comparing the turbines at this location with the proposed development.

Previously permitted development 11/495

- 21 turbines with hub height of 85 m and rotor blades of 35.5 m in length. (Overall, Height 120.5m)

Adjacent windfarm granted under pl_ref 06/3861 and pl.ref 14/401

- 13 turbines with 64 metre hub height with 35.5 m rotor blade (Overall Height 99.5m)

Current Application

13 turbines with a hub height of between 102.5 m and 110.5 m and rotor blades 74.5 m in length (Overall Height 177 m and 185 m), The Wind Farm aspect of the development will have an installed capacity of 78 MW.

The Hydrogen Plant electrolyser will be scaled up to meet demand for green hydrogen in the Irish market to a maximum 80 MW capacity.

Mayo County Council is in the process of commencing a review of the current renewable energy strategy with the potential visual impact of new technological advances and increased turbine sizes considered in this review, Therefore, the areas identified as preferred locations within the current strategy may change over the course of this review.

Response;

This is noted, the Project has been assessed based on the policy of the County Development Plan relevant to the period in which the application was lodged.

The proposed Firlough Wind Turbines are all contained in a wind deployment zone for Tier 1 - Large Scale Wind Farms within the Mayo Renewable Energy Strategy (2011), which was brought through unchanged into the latest County Development Plan (2022-2028). The Mayo Renewable energy strategy 2011 highlights in section 6.4 – 'Location of Renewable Developments', the extensive sieve mapping exercise of environmental constraints and wind speed opportunity that was used to determine wind energy deployment zones at that time. There is no reason to believe that a similarly robust exercise, undertaken as part of a revision of the Mayo Renewable Energy Strategy, would result in marked variations to the wind deployment zoning in this area. Indeed, it is considered that from a landscape and visual perspective, the broad scale and productive character of the receiving landscape, which already contains wind turbines, can readily absorb the proposed development for many of the same reasons it is currently zoned Tier 1 – large Wind Farms. This is reflected in the findings of the project LVIA in Chapter 12 of the EIAR.

Hydrogen Location

In relation to the proposed Hydrogen plant, Mayo County Council it is of the opinion that the hydrogen plant is not dependent on locating beside a wind farm as energy providers can certify that the energy used to produce the hydrogen is from a renewable energy source.

The proposal is to transport the hydrogen from the plant, but little detail is given as to the end user of the green hydrogen, therefore not providing a locational need for the hydrogen plant.

From a sustainable development perspective, the location of the end user for the produced hydrogen would establish a locational need for such a plant and therefore alternatives have not been adequately considered.

Response

EU Rules for Renewable Hydrogen Production¹

“Hydrogen can be produced through electrolysis using an off-grid or an on-grid setup. The off-grid setup, also referred to as the co-located (island) setup, uses only the electricity generated on-site and has no connection to the grid for sourcing electricity. Provided the renewable energy source satisfies the additionality criteria, the hydrogen produced by an off-grid setup is classified as “green” in accordance with EU directives.

When electricity is sourced from the grid, it becomes more difficult to ensure its renewable nature, because grid electricity is usually generated by a mix of renewable, nuclear and fossil sources. This requires setting criteria according to which electricity used for electrolysis can be counted as renewable. These criteria include additionality, temporal and geographic correlation.

Additionality: The installation producing renewable electricity must not have been in operation for more than 36 months before the electrolyser, and it must not have received support in the form of operating aid or investment aid

Temporal Correlation: Until December 31 2029, green hydrogen must be produced during the same calendar month in which the electricity under the renewables power purchase agreement has been produced. From 1 January 2030, green hydrogen must be produced during the same one-hour period as the renewable electricity produced under the renewables power purchase agreement

¹ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747085/EPRS_BRI\(2023\)747085_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747085/EPRS_BRI(2023)747085_EN.pdf)

Geographic Correlation: requires at least one of the following to be satisfied:

- a) the installation generating renewable electricity under the renewables power purchase agreement is located, or was located at the time when it came into operation, in the same bidding zone as the electrolyser;*
- b) the installation generating renewable electricity is located in an interconnected bidding zone, including in another Member State, and electricity prices in the relevant time period on the day-ahead market referred to in Article 6 in the interconnected bidding zone is equal or higher than in the bidding zone where the renewable liquid and gaseous transport fuel of non-biological origin is produced;*
- c) the installation generating renewable electricity under the renewables power purchase agreement is located in an offshore bidding zone that is interconnected with the bidding zone where the electrolyser is located*

Due to constraints and congestions in the north-west Mayo area, an electrolyser located away from the wind farm may not satisfy the temporal correlation requirements due to the physical limitations of the electricity grid network imposed by EirGrid on the wind farm during periods of high wind. The inability to satisfy one of the above criteria would not allow the hydrogen produced to be considered green and would therefore could not be attributable to climate change, net zero or other relevant emissions targets, goals or objectives.

The National Hydrogen Strategy of Ireland, identifies that transportation of hydrogen will initially be trucked from the point of production. Furthermore, the strategy prioritises electrolysis that operates during periods of high wind and curtailment. Mayo and Sligo are regions with both high levels of wind production potential and high levels of curtailment, making them suitable locations for both wind energy developments and hydrogen electrolyzer developments, supporting the preferred location of the Firlough Wind Farm and Hydrogen Plant.

The Proposed Development as sustainable development was assessed in section 3.3 of the Planning Statement submitted with the EIAR.

Turbine Haul Route

Comments Relating to the Planning Application:

Mayo County Council has concern that elements of the proposed development provides a level of uncertainty as to the overall impact on the environment and surrounding landscape.

In relation to the proposed turbines. The application proposes turbines ranging from a hub height of between 102.5 in to 110.5m with an overall height of between 177m and 185, Whist this may not have significance in terms of visual intrusion on the landscape, it may have environmental considerations in terms of delivery along the proposed haul routes.

In relation to the delivery from the N59 to the site, the detail submitted states that *'Turbine Delivery Route to be a minimum of 4.5m wide. Where the carriageway is less than 4.5m wide,*

local widening with granular material to accept axle loading is necessary'.

The details as to what sections along the haul route that will require widening is not specifically stated, therefore it is not possible to ascertain the level of impact that the delivery of turbines will have on the environment, with particular reference to any potential impacts on local biodiversity. It is also not clear as to the level of road widening that will be required or if such involves lands privately owned or if the relevant landowner would permit such works to be carried out on their lands.

Response;

A swept path analysis was performed and is available in Appendix 15.2. This used the maximum turbine tip height in the parameter envelope and the process identified any areas needed along the Turbine Haul Route. These areas were outlined in the drawings submitted with the Planning Application and were included within the red line. This was assessed as part of the Project in the EIAR.

The Developer has agreed any third party lands required for widening. Areas are shown on the below drawings;

	Turbine Delivery Route			
6129-PL-250	Turbine Delivery Route - Index Map	-	1:12,500 & 1:25,000	A3
6129-PL-251	Turbine Delivery Route - Sheet 1 of 10	-	1:2,500	A3
6129-PL-252	Turbine Delivery Route - Sheet 2 of 10	-	1:2,500	A3
6129-PL-253	Turbine Delivery Route - Sheet 3 of 10	-	1:2,500	A3
6129-PL-254	Turbine Delivery Route - Sheet 4 of 10	-	1:2,500	A3
6129-PL-255	Turbine Delivery Route - Sheet 5 of 10	-	1:2,500	A3
6129-PL-256	Turbine Delivery Route - Sheet 6 of 10	-	1:2,500	A3
6129-PL-257	Turbine Delivery Route - Sheet 7 of 10	-	1:2,500	A3
6129-PL-258	Turbine Delivery Route - Sheet 8 of 10	-	1:2,500	A3
6129-PL-259	Turbine Delivery Route - Sheet 9 of 10	-	1:2,500	A3
6129-PL-260	Turbine Delivery Route - Sheet 10 of 10	-	1:2,500	A3
	Drainage Details			

Visual Assessment:

Mayo County Council is concerned that the substantial increase in turbine heights at this location combined with the existing windfarm at this location would have an overall negative impact on the landscape character and this location by providing disjointed visual cluster effect. The visual analysis provided with the application clearly demonstrates this issue. Of particular concern is the analysis provided at viewpoints 5, 6, 7 and 8 shows the increased height of the turbines breaks the existing skyline, as the Ox mountains has proved an natural backdrop to

the existing windfarm, nestling it into the landscape.

Response

In terms of the size of the proposed turbines; these are consistent with turbine heights being applied for over the past 4-5 years throughout the country and it is noted that two of the most recent planning applications within County Mayo relate to turbine blade tip heights of 200m. These are the Sheskin and Oweninny III developments and the former has just been granted permission. Turbine heights have increased considerably since 2011 when the Mayo Renewable Strategy was published, but it has been a consistent trend across the industry since its inception in Ireland. Indeed, the current Wind Energy Development Guidelines (2006) acknowledge that *“The notion of what constitutes tall, medium and short turbines will change over time with technological advances and thus a shift in turbine height relative to capacity”* (p36). The subsequent 2019 revised draft of the same guidelines no longer includes that statement, but remains substantially unchanged from the original document in terms of landscape and visual guidance. The main change introduced in this regard being the 4 X tip height setback from residential properties, which accounts for increasing turbine heights. The receiving landscape is broad and robust such that it can accommodate the scale of the proposed turbines without a sense of scale conflict with underlying landform and land use patterns or a sense of overbearing on surrounding visual receptors. This is reflected in the findings of the project LVIA in Chapter 12 of the EIAR.

The height of the proposed turbines relative to surrounding existing turbines is also raised as an issue by Mayo County Council. It is an aspect of the visual impact that is addressed in the visual impact assessment and occasionally it results in minor negative effects of scale and distance confusion, but never contributes to a significant impact. More often it contributes to a greater sense of space and distance between the developments because the proposed turbines are more commonly seen by local receptors to the west of the development that are closer to the taller proposed turbines than the smaller existing turbines. In these instances, a strong sense of distance perspective is generated between the nearer, larger turbines and the smaller and more distant existing turbines. Alternatively, the existing turbines are not readily visible above forest plantations in the same context and, therefore, little or no scale conflict occurs.

It is also important to note that as we enter a fourth decade of wind energy development in Ireland and in Mayo, there is an increasing trend in the repowering of dated and inefficient wind energy developments. This involves the replacement of small, older generation turbines with larger, and often fewer, latest generation turbines to achieve much greater power yields. In landscape and visual terms this is seeing a leap-frogging effect of small and medium height turbines being replaced by progressively taller turbines. The key point being that where multigenerational wind energy developments occur within the same landscape setting, there is likely to be an ongoing an inevitable evolution in turbines heights and numbers over time.

Mayo County Council raises two separate points with regard to visual impact, the first being the provision of ‘disjointed visual cluster’ effect when combined with the existing wind farm.

This is not a familiar term in the landscape and visual assessment of wind farms, but it is taken to mean that the proposed turbines appear disjointed from the existing turbines and that they also generate visual clutter when seen to overlap in perspective with them. The relationship with the existing wind farm is addressed throughout the project LVIA (Chapter 12) and particularly when they are seen together in the same context. There is occasionally a sense of visual clutter from overlapping turbines, but this only occurs from a small number of the representative viewpoints. There is also some instances where a minor degree of scale disparity occurs between the existing and proposed turbines, but again this only occurs at a small number of representative viewpoints and significant visual impacts are not considered to occur as a result of these effects.

The second visual impact issue raised by Mayo County Council is that when viewed from VP5, VP6, VP7 and VP8, the skyline of the Ox Mountains is broken by the proposed turbines. To provide context to this scenario, these viewpoints extend from 9.7km away from the proposed wind farm site to 16.6km away. In the LVIA, these were assessed to incur visual effects that ranged between Imperceptible and Slight significance, which is far from a significant impact. The issue of distant turbine blades penetrating fractionally above the further distant skyline was acknowledged in these assessments, but not as a critical factor. Turbine blades appearing above and beyond an intervening ridgeline can be a source of visual confusion and irritation, particularly at close quarters. However, this is not the case for these views where the turbines are seen in a legible manner to the fore of the terrain backdrop. It is also important to note that the proposed turbine blades will continue to rise above the Ox Mountains ridgeline the closer the viewer gets to the turbines. It is not an issue that is particular to this wind farm or a direct function of the height of the turbines – it is simply a matter of the relative scale in relation to distance and not one that generates notable negative visual effects.

Financial Contributions:

Should the Board grant permission for this development, financial contributions relating to development located in County Mayo should be calculated based on the indicated 13. no turbine/78MW (total) capacity of the wind farm, or per turbine capacity as appropriate and shall accord with the Mayo County Council Development Contribution Scheme as adopted on the 30th June 2023. In addition, the provisions of Mayo County Council's policy on Community Benefit Contributions required for certain major developments as adopted on 14/04/2014 shall apply.

Cash deposit:

To ensure the satisfactory completion of the development, the developer will be required to lodge a refundable cash deposit together with an agreement allowing Mayo County Council to apply such security as part of as may be required, for the satisfactory completion of the reinstatement, including necessary demolition and removal as appropriate.

Recommendations and Planning Conditions

The County Mayo submission contains a number of recommendations to the Board on planning conditions. Should the Project receive planning permission then all conditions attached to the grant of planning will be complied with.

