S. 37

File With _____

SECTION 131 FORM

Appeal NO:_ABP-321867-25 **Defer Re O/H** ☐

Having considered the contents of the submission ~~dated~~/(received) 11/03/2025.

from

Dr. Brigitte Christoph recommend that section 131 of the Planning and Development Act, 2000

be/(not be invoked) at this stage for the following reason(s):. no new material planning issues

E.O.: Karen Byrne **Date:** 7/04/2025.

For further consideration by SEO/SAO

Section 131 not to be invoked at this stage. ☐

Section 131 to be invoked – allow 2/4 weeks for reply. ☐

S.E.O.:_____ **Date:**_____

S.A.O:_____ **Date:**_____

M _____

Please prepare BP _____ **- Section 131 notice enclosing a copy of the attached submission**

to: _____ **Task No:** _____

Allow 2/3/4weeks – BP_____

EO: _____ **Date:** _____

AA: _____ **Date:** _____

S. 37

File With _____

CORRESPONDENCE FORM

Appeal No: ABP 321867-25 (Remitted case)

M _____

Please treat correspondence received on 11/3/25 - email **as follows:**

1. Update database with new agent for Applicant/Appellant _____	
2. Acknowledge with BP 23	**1. RETURN TO SENDER with BP** _____
3. Keep copy of Board's Letter ☐	2. Keep Envelope: ☐
	3. Keep Copy of Board's letter ☐

Amendments/Comments
Brigitte Cheistoph Response to S131

4. Attach to file	**RETURN TO EO** ☑
(a) R/S ☐ (d) Screening ☐	Karen Bynne
(b) GIS Processing ☐ (e) Inspectorate ☐	
(c) Processing ☐	

	Plans Date Stamped ☐
	Date Stamped Filled in ☐
EO: Lisa Q	**AA:**
Date: 12/3/25	**Date:** 12/03/25

H Byrne

Dáire Littleton Caden

From: 64hillside@gmail.com
Sent: Dé Máirt 11 Márta 2025 12:59
To: Appeals2
Subject: ABP-321867-25
Attachments: Brigitte 10.3.2025 submission ABPxxx.pdf

Caution: This is an **External Email** and may have malicious content. Please take care when clicking links or opening attachments. When in doubt, contact the ICT Helpdesk.

To whom it may concern,

in response to your letter from the 19th of February 2025, please find attached my submission. A confirmation email would be appreciated. Thank you.

Kind regards

Brigitte Christoph

Dr. Brigitte Christoph
Beagh
[illegible]omahair
Co. Leitrim

The Secretary,

An Bord Pleanála,

64 Marlborough Street, Dublin 1 D01 V902

Case Number: ABP-321867-25

Planning Authority Reference Number: 20120

10/03/2025

Re: Construction of 8 Wind turbines, electrical substation, partial demolition and alteration of two agricultural buildings and all associated site development works. An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement have been prepared. Bargowla, Boleymaguire, Braudphark, Derreens, Derrybofin, Derrycullinan, Derrycullinan Beg, Drummanacappul, Garvagh, Garvagh Glebe, Glassalt, Lisfuiltaghan, Seltan, Sheena and Tinnybeg, County Leitrim.

Dear An Bord Pleanála,

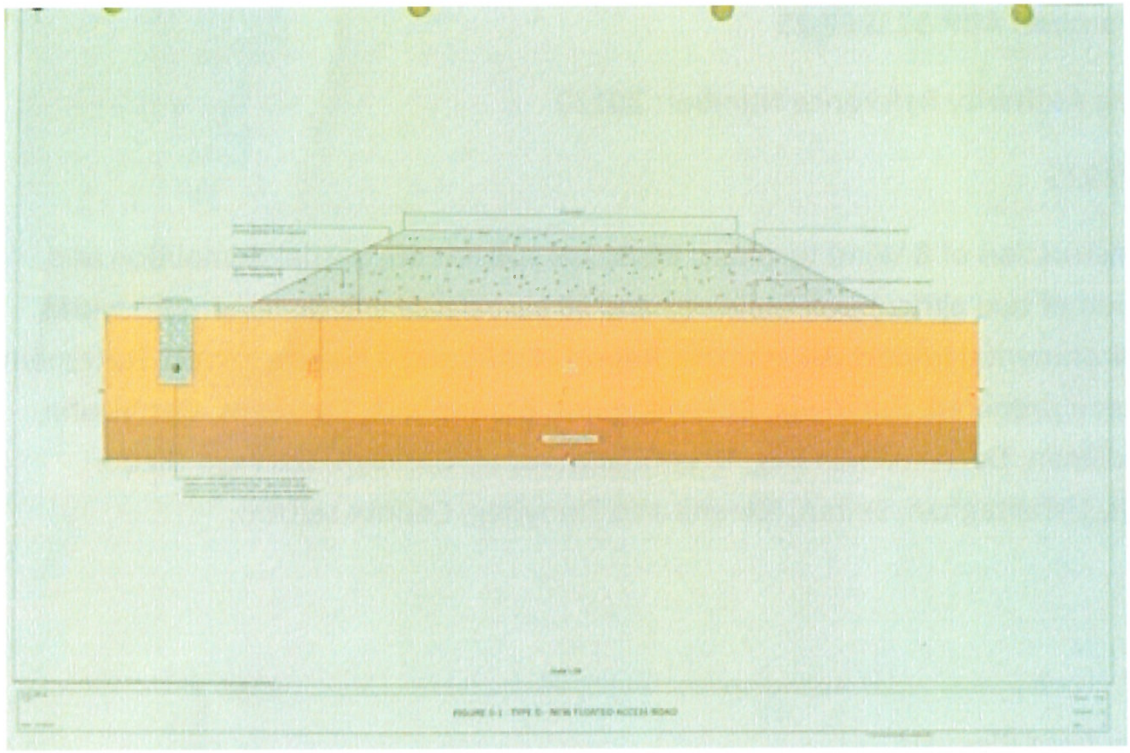
This is my submission in relation to information supplied by MKO on behalf of the Applicant to the Board on 8th December, 2022.

Peat stability

The assessment of the peat stability was done while forestry still covers most of the site. The felling of trees along access roads and on all infrastructure locations will result in the soil in the newly uncovered areas being exposed. The excavations for the roads and infrastructure will disrupt the natural mechanical and hydrological continuity of the peat and reduce the lateral support for the peat layer. The construction of floating roads, see Fig. 5-1, will put extra pressure on the peat

blocks. The chances of shear failure are further enhanced by the weakening of the peat rock interface after heavy rainfall. The subsequent digging out of peat down to the rock at the foundation/hardstand locations, the perimeter berms and 93% of t access tracks will result in trenches and basins where water can gather, seeping into the interface of peat and the underlying stratum and weakening the separated peat sections above. Furthermore, extraction of rock by means of rock breaking and blasting will be carried out at the borrow pit and certain turbine and hardstand locations. All these activities will have a knock-on effect on the peat stability.

Fig. 5-1



In the northern half of the site, several "areas which have an elevated or higher construction risk (areas with deep, weak, and occasionally quaking peat; area with mechanically cut peat)" were recorded and marked clearly on Fig. 4-3 of EIAR Appendix 8-1; no construction works should be considered. Nevertheless, two turbines (T01 and T05), the northern repository and the substation are proposed within a few meters of them, with access roads running through two of them. A landslide has already occurred beside the weak area of T05 in 2016.

Fig. 4-3



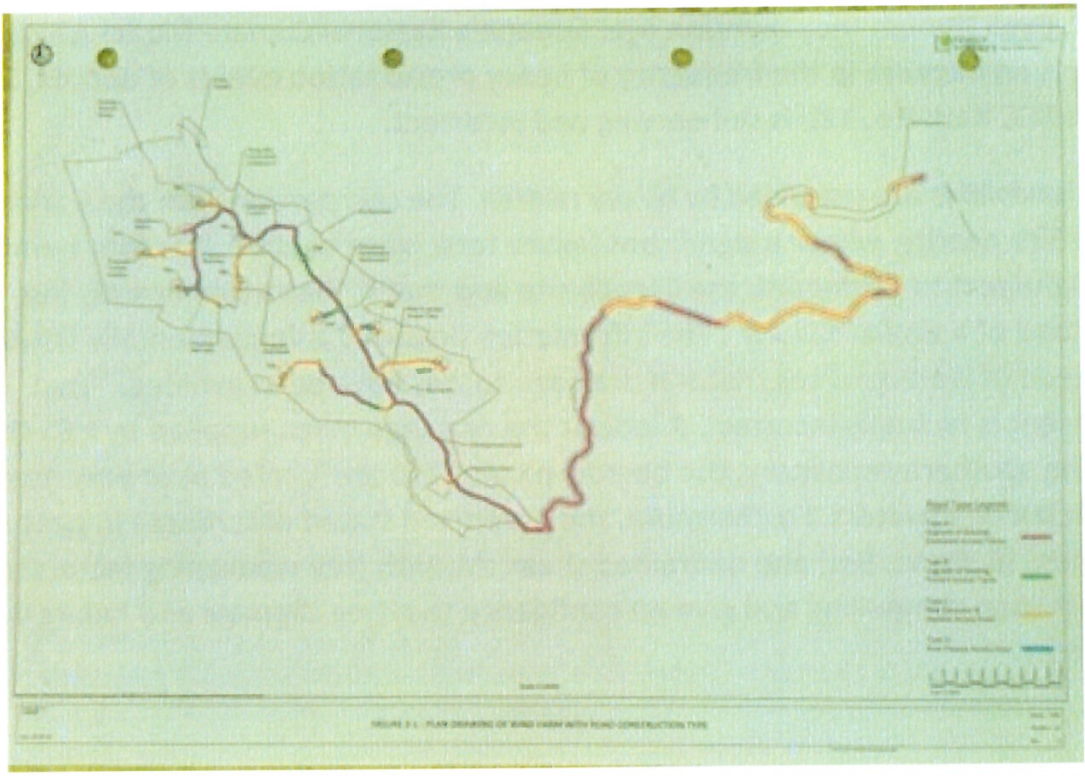
The applicant's optimistic remark "that the long-term effects of climate change on rainfall patterns will not be observed during the lifetime of the proposed wind farm", even though they mention Met Eireann's Regional Climate Model which projects an increase in the frequency of heavy precipitation events of approx. 20% (FIR to LCC Item No. 12), is self-serving and incorrect.

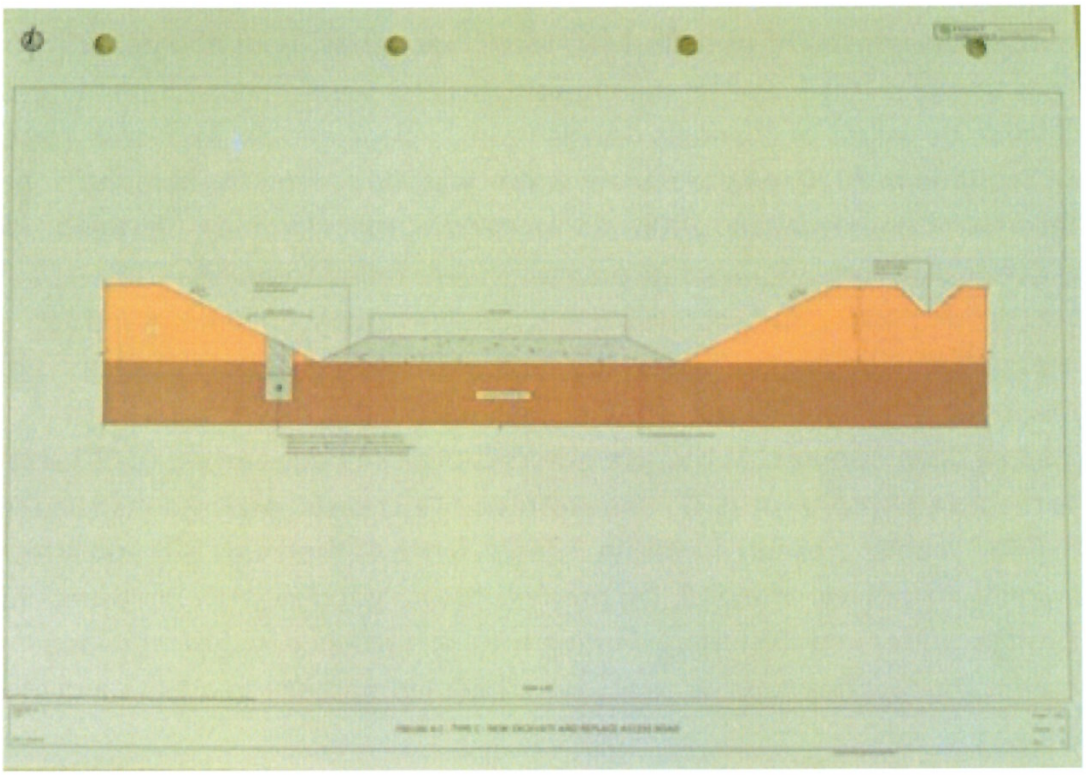
Most landslides are preceded by heavy rainfall. The comparison with the Garvagh Glebe Site nearby, where a significant failure took place in 2008, lists four points which purport to distinguish the Croagh site and that it "has a significantly less likelihood of a similar failure". The information provided is fundamentally flawed. "(1) Head of watercourses /natural drainage routes have been avoided." That statement is factually incorrect. A look at the drainage maps supplied by HES shows that the southern repository, the borrow pit and T10 are located at or very near to significant headwaters. Furthermore, the purported stated differences in peat thickness (6.3m vs. 6m) and undrained shear strength (see weakening factors above) are less than compelling and give no confidence that bog slippage and failure will not occur.

Considering the above, the board cannot be satisfied that the results of the peat stability risk assessments would be still valid during and after construction works, nor can they be satisfied that there is not the slightest doubt that no adverse effect on the ecology will stem from the activities on site. Even small bog slides can deliver big quantities of polluting peat particles to watercourses.

Submission on safe storage of peat and spoil

During the upgrade of existing roads, the construction of new ones, and the laying open of the perimeter berms, peat and spoil will be dug out. It is proposed "that peat and soft clay will be removed from below the footprint of the berms, temporarily stored locally, and eventually placed either in the repository or the borrow pit". The access road to the 1st repository is approximately 9 km long: it is, in parts, a Type C road (New Excavated Road), where "excavation to the competent stratum beneath the peat" will be necessary; "the acrotelm shall be stripped and temporarily stockpiled for reuse...", the catotelm "transported immediately after excavation to the borrow pit or pear repository." That is plainly impossible, because the road needed for the building of the repository will not be finished.





No detail is given as to where the material dug up along the roads is going, where these temporary storage spaces are located and whether there is any risk of runoff into a nearby watercourse. It is proposed in Appendix III Process Flow Diagrams FIR to LCC, to "surround stockpiles with silt fences" and "weather off/seal stockpiles", but no further detail has been given. There is no further information to be gained by the supplementation of the 3D graphics by Tantek4 in the applicant's response.

The developer proposes to surround the rivers with a self-imposed 50m buffer zone, however, drainage from peat can extend up to 400m, as stated in Richard Lindsay"s book, Peatbogs and Carbon, 2010. The repository areas and the borrow pit are nevertheless very close to this 50m zone, and access roads are crossing these rivers in many places. Furthermore, numerous settlement pond/level spreader arrangements are situated within the 50m zone so it is likely that heavy rainfall will cause over spilling. The perimeter berms are intended to hold back the silt effectively; however, it is the case that peaty water will undoubtedly pass through the permeable berms as the stockpiling will cause the lower layers of peat to be pressed down by their own weight. Furthermore, due to sequestration of the peat by the infrastructure, the remaining areas of more or less intact peat can become super-saturated, and burst in a bog-flow. While there is a low pH in these streams naturally, this further lowering will be fatal for invertebrate communities and other

aquatic fauna. This is borne out in the first aquatic and fishery assessment of the development, in which Triturus (for MKO) concluded that "peat escapement and afforestation pressures from the upland Croagh catchment may be impacting the overall fisheries values of channels downstream" (NIS Appendix 4). A study was done in Scotland in 2020, where stream water was monitored for 31months (the wind farm went operational in 2006, similar terrain, main land use has been Sitka-spruce dominated forestry, large forest tracts were felled for wind farm construction..) They found," increasing macronutrient concentrations and exports were associated with wind farm development, particularly forest-felling and borrow pits. Low/poor water quality occurred in small headwater catchments most disturbed by development. At the site exit, dissolved organic carbon (DOC) and soluble reactive phosphorus (SRP) concentrations increased during construction, though [SRP] recovery occurred within 2 years. Since Carbon was lost and stream water quality negatively affected, we propose future good practice measures for wind farm development, including limiting total disturbance within individual catchments and locating borrow pits, where deemed necessary, off site avoiding peatlands."

There is no safe storage for the amounts of peat and spoil on site, and the risk of deterioration of streams with all its consequences is real.

Carbon calculation

In their approach to calculating the expected losses and gains from this project MKO used the Scottish Government online calculator: the figures fed into it are attached in Appendix 10-1. They give no indication of where they were derived from, they don't make sense at all. Furthermore, the figures "are based on the assumption that the hydrology of the site and habitats within the site are restored on decommissioning...". In their short chapter about decommissioning they note "upon decommissioning of the proposed development...turbine foundations would remain in place underground... underground cables will be removed and the ducting left in place." That shows that the hydrology of that area will be changed forever. Restoration of peat bogs need high stable water table conditions within the peat. Sphagnum moss will regrow and reorganise in favourable conditions, but building a layer of catotelm of the thickness encountered there now (up to 8m) will take thousands of years. So that assumption is flawed. Furthermore, their assumption that if "good practice is employed in relation to avoiding the risk of peat landslides, then this potential large carbon loss pathway [can be] omitted from the calculations." As shown above, there is no way carbon doesn't leach; its best left

where it is, undisturbed forever in the catotelm. A calculation of the effects of decommissioning is completely missing. Their estimated "losses due to turbine life (e.g. due to production, transportation, erection, operation and dismantling the windfarm)" in Table 10-10 of 41945 t CO2eq. appear a bit low. After taking a closer look, and doing a few equations, they look outright laughable. It is not clear exactly which model of turbine they want to use, and what requirement for their foundation size is, so I just took their dimensions on the plans. For the tower calculation I used the Nordex SE 4.8MW as a model. The CO2 calculations I took from the internet. I got the conversions from t to m3 (tonne to cubic meter), and what load a lorry can take, from two people working in the industry. The distance between the closest quarry and the site was provided by Google Maps.

230kg of steel going into turbine foundation
1m3 reinforced concrete = 2.5t CO2eq
1t steel = 1t CO2eq
1t coarse gravel = 8.484kg CO2eq
9m3 of concrete = 20t
9m3 of coarse gravel = 20t
20t being the max a lorry can take
A lorry needs 8mpg, which translates to 35.5l/100km
The distance between Kerrigan's quarry and Drumkeeran is 8.3km

Working with these figures, you arrive at the following CO2eq emissions

<u>Turbine foundation</u>
Diameter 19m, depth on average 4.21m (3-4.5m, Table B1)
3215t CO2eq per foundation

<u>Turbine tower</u>
Diameter at base 7.5m, at the top 4.9m, height 100m, wall thickness 50cm
I didn't include transport as I can't even guess that figure
2227.5t CO2eq per tower

<u>Hardstand</u>
35x55m, depth on average 3m (0.8-4.7m, Table B1)
2x 3x13m secondary hardstands beside it, depth on average 3.39m (1.1-4.2m, Table B1)
Coarse gravel
123.69t CO2eq per assembly

I could go on, but so far we stand at 5566.19t CO2eq for one, so there is no need to calculate further infrastructure such as roads, the substation, the nacelle and blade s with all their intricate materials, the transport from outside Ireland into the count r, the dismantling...
It just doesn't add up at all.
There is no extended product responsibility for wind turbine blades like there is for solar panels and batteries in the EU, so we are left to look after them as well. There are start-ups who recycle them, but not in Ireland as yet. And, of coarse, shredding for reusing comes at a high energy cost.

Table 10-10

The main CO_2 losses due to the proposed wind farmdevelopment are summarised in Table 10-10.

Table 10-10 CO_2 Losses from the Proposed Development

Origin of Losses	CO_2 Losses (tonnes CO_2 equivalent)	
	Expected	Maximum
Losses due to turbine life (e.g. due to production, transportation, erection, operation and dismantling of the wind farm)	41,945	41,945
Losses due to backup (i.e. electricity obtained from fossil fuel source to stabilise electricity supply to the national grid)	28,382	28,382
Losses due to reduced carbon fixing potential	1,401	2,624
Losses due to leaching of dissolved and particulate organic carbon	0	0
Losses from soil organic matter (CO_2 loss from removed and drained peat)	29,232	74,910
Losses due to felling forestry	21,463	24,095
Total	122,074	171,606

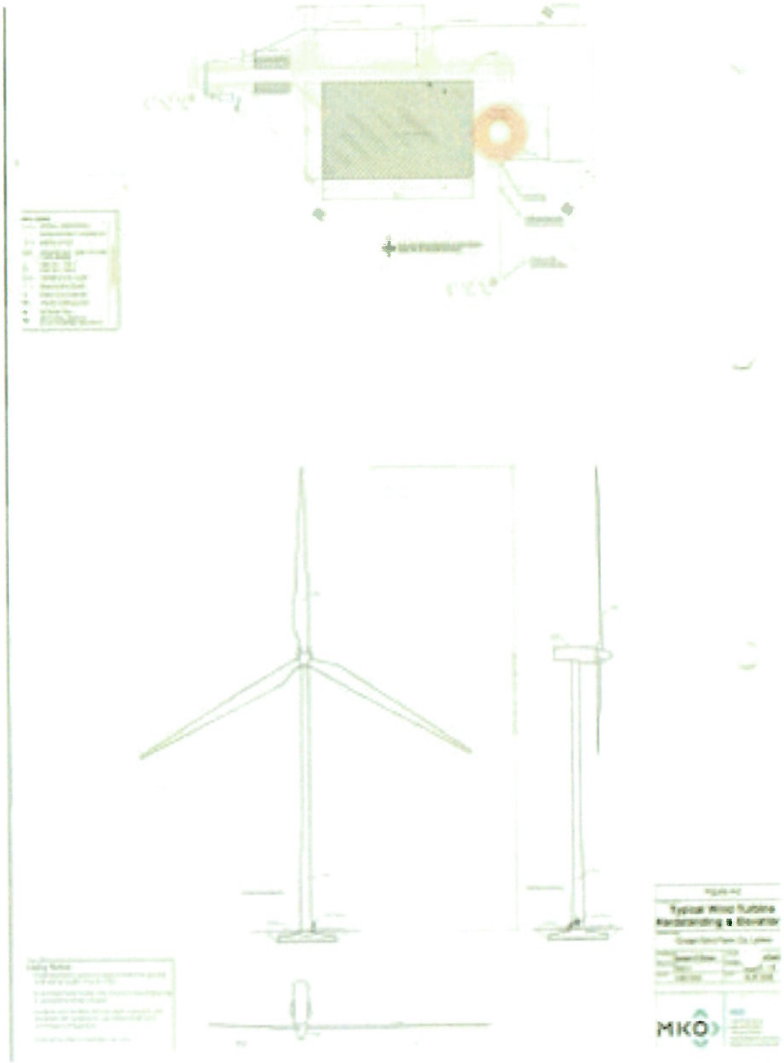


Table 8.1: Summary of the dig depths at the main infrastructure locations

Turbine	Easting	Northing	Average Peat Depth for Turbines (m)	Dig depth for Turbine Foundation (m) (1) (2)	Average Peat Depth for Crane Hardstands (m)	Max Dig depth for Associated Crane Hardstand (m) (2)
T1	583322	823639	2.8	3.0	2.1	2.4
T2	583831	824112	2.4	3.4	2.4	2.7
T3	583648	823314	2.2	3.2	1.2	1.5
T4	584223	823820	0.8	3.0	0.8	1.1
T5	584259	823347	0.8	3.0	1.1	1.4
T6	584841	823816	2.0	3.0	3.3	3.6
T7	584968	823032	2.4	3.4	3.0	3.3
T8	585523	822935	3.5	4.5	4.7	5.0
T9	586144	822595	3.2	4.2	3.9	4.2
T10	584676	822493	0.9	3.0	1.6	1.9

Infrastructure Element	Easting	Northing	Average Peat Depth (m)	Max Dig depth for Infrastructure Element (m) (2) & (4)
Substation	584584	823867	1.2	1.5
Temporary Construction Compound 1	584170	823980	1.2	1.5
Temporary Construction Compound 2	585150	823232	1.6	1.9
Met Mast	584059	823136	1.2	2.2
Borrow Pit	585697	822869	0.5	Varies

Notes
(1) Based on ground investigation information, founding depths for the turbines were assumed to be the average peat depth + 1m to a competent stratum. A minimum dig depth of 3m is assumed for each turbine foundation. For the

More of the same?



A look at the map shows the density of wind turbines operating in the vicinity of the site; there are already grid capacity issues, so that turbines have to be stalled in favourable conditions, which makes each of them less efficient. Wind is a notoriously fluctuating energy source. Every time there is a reduction in wind speed, fossil fuels have to take over. So the more wind turbines you install, the more fossil fuels you need. Renewables are needed to curb our need for fossil fuels and so reduce carbon emissions. But most of the electricity produced by renewables is going to data centres. It is time to rethink that growing demand. And it is time to diversify the renewable energy production.

There is loads of potential not only to meet our target of 175MW until 2030, but actually to exceed it, in solar energy production. The Leitrim County Development Plan 2023-2029 (LDP) recognises that potential. Appendix X, Part A p.46: "The total available capacity for solar energy development for Leitrim is therefore estimated as 61,588 MW using a Solar Capacity Intensity factor of 50MW per 100ha. If 1% of this capacity was availed of, that would equate to 616MW. These figures are very large.

A recent study by the Energy Association of Ireland suggests that up to 3,300 MW of solar capacity will be installed by 2030, playing a significant role in meeting our 70% renewable electricity target. In reality, the number of solar farms will be constrained by external factors such as grid capacity availability and the competitive RESS Auction process". To compare with other sources, in the same appendix

Table 1-4: Available Capacity of Renewable Energy Resources within County Leitrim
Renewable Energy Resource Total Available Capacity Capacity Available at Assumed Delivery Rate of 10%
Onshore Wind 594MW -59 MW
Solar Photovoltaic 61,588 MW -6,159 MW
Hydroelectric 1.178 MW -0.12 MW
The target for 2030 is adding 83MW of renewable energy until 2030.

In the same chapter, Table 6-7, "Objective S1: To promote commercial scale solar energy developments in appropriate locations." In Appendix XI, Regional Policies Objectives RPO 9.4 – Create resilient places and low-carbon infrastructure by:
...c) Diversifying Energy Resources by promoting and facilitating the development of the wider North West region as a Centre of Excellence for renewable energy and innovation and the development of a diverse energy portfolio...", and in "RPO 4.17 – To position the region to avail of the emerging global market in renewable energy by stimulating the development and deployment of the most advantageous renewable energy systems...."
They note that the Corry Mountain Range, where this development is to be located "is considered to have some limited capacity to accommodate wind turbines. The rolling topography and simple landcover of blanket bog and heath are characteristics which indicate that some potential to accommodate wind turbines may exist subject to detailed design and assessment. Views across and from Lough Allen are an important consideration together with the setting of the town of Drumkeeran and recreational walking routes such as the Miner's Way. Some limited areas to the north west of Corry Mountain where commercial forestry is present may be considered subject to detailed design, having regard for landscape and visual constraints. In these areas, there is potential for adverse cumulative effects with the nearby wind farms and that associated with Carrane Hill in Sligo".

Nevertheless, the above information makes clear, that the grid capacity problem needs to be addressed first. And that it makes no sense to erect further wind turbines in that location.
Solar panels placed intelligently between existing wind turbines would tick all the boxes. Because we not only should strive to reduce carbon emissions by replacing

fossil fuel consumption- we also need to look after our carbon sinks. Peatland is long recognised as the best; so the best use for that site would be to restore it- it is possible. The trees would be felled in stages in a sensible way, the peat gradually rewetted by closing forest drains. It is a real asset in reducing GHG emissions; it shouldn't be destroyed.
In addition, the recently passed Nature Restoration Law requires us to be- "improving and re-establishing biodiverse habitats on a large scale, and bringing back species populations by improving and enlarging their habitats" [It]will bring unprecedented action and investment to this challenge, and not a minute too soon. Then Minister for Nature, Heritage and Electoral Reform, Malcolm Noonan, said: "Today's vote is extremely positive news. Not just for nature and wildlife across Europe, but for all of us as well. The future of human civilisation depends entirely on healthy, functioning ecosystems, but these life support systems are declining dangerously. We are in a biodiversity emergency".

It would also give many plants and animals, a lot of them threatened, a safe place to establish themselves. After all, the EU's biodiversity strategy for 2030 asks us to protect nature and reverse the degradation of ecosystems.

The ESB publication "Emerging Technology Insights 2024" doesn't mention onshore wind at all. There are promising results in replacing the Li-ion batteries to increase badly needed storage capacity in an affordable way.

To conclude this chapter, I think there is not one good reason to invest in wind turbines at that location, and many reasons against it. We have only 6.65% of raised, and 20% blanket bog left in Leitrim. Let's take that chance to reserve that place for nature, us, and the climate.

Ecosystems on site

<u>Flora</u>
Their so-called "detailed botanical survey of the entire turbine infrastructure footprint" was conducted by four people, one of them a bat specialist(!), in just four days in 2019; 24th and 25th of April, 5th of July and 14th of August. They found 40 different plants, no protected species. It is an enormous, not to say impossible task, to map that area in such a short time. And you need to know exactly what you are looking for, because some of the plants they found could have been easily mistaken for another variety, which is on some list or endangered, even critically so (eg. Erica tetrix-E. vagans, Carex echinata- C.divisa, etc). An impressive find was Luzula

multiflora and Rumex acetosa; Ireland is holding more than 25% of the European population. Furthermore, they identified 9 moss species, 3 of them Sphagnum. It is quite difficult to distinguish them, but 3 species classified vulnerable (S. affine, S. flexuosum, S. warnstorffi) could have easily been overlooked. The European Habitats Directive V protects all Sphagnum species. They also found Devil's bit scabious.

Fauna

Their search for the Marsh Fritillary, Ireland's only insect protected by the Habitat's Directive, took place in only 2 days in 2017. "Following the identification of suitable habitat for marsh fritillary within the site during habitat's survey, targeted surveys for the species were undertaken on 14th of June and 22nd of September 2017." Elsewhere, "During dedicated larval web surveys of the study area in 2017 and 2018, no marsh fritillary larval webs were recorded." No mentioning of anybody looking in 2018, though they say themselves "IN addition, best practice suggests that two consecutive years of survey being undertaken within suitable habitat.." According to the National Park and Wildlife Service (NPWS), the best time to look for them is September and October, the National Biodiversity Data Centre (NBDC) says late August and September. They state: "The closest NBDC records for marsh fritillary were located outside the North of the site, in the townland of Corglancy. The most recent record was from 26/06/2019."
The site is also an ideal habitat for several species of non marine molluscs, on land and in water. Ireland's Red List No.2 states that Ireland's non-marine molluscan fauna is of international importance.

To conclude, it is my opinion that not enough time and effort was given to discover the rich flora and fauna of this site.

The task of preparing an Aquatic and Fisheries assessment fell to Tritaurus, an Irish environmental company. They electro-fished 21 sites on 3 consecutive days, 19th -21st of August 2019.
No fish was found in 12 sites, 112 (5 different species) in the other 9.
Of the forementioned 12 sites, "some did offer some low suitability for Europaen Eel..which are known from the wider Bonet catchment, to which he Killenummery [stream] adjoins." To quote from the discussion: "The lower reaches of the Killenummery stream, Arigna River and, to a lesser extent the Owengar River, provided the best potential eel habitat overall, despite their apparent absence at the time of survey. A further look at the results reveal that one site has good, eight moderate and one low to moderate value. They state "However, given the life

history of the European Eel, even sub-optimal sites may be utilised by the species as seasonal migration routes (i.e., adult migration seawards, usually from September/ October onwards)."
There could be several reasons why they found suitable conditions but no eels, including:
- eels are difficult to sample
- at least two, up to four consecutive runs should be done
- wrong time; observations should be carried out from September onwards, other experts say from October to December.

This fish is important; the need for action to save it has been recognised internationally for a number of years. It remains on the International Union for the Conservation of Nature (IUCN)'s red list as critically endangered. It is also included in Appendix II of the convention on the Conservation of Migratory Species of Wild Animals (CMS) 2014.

To conclude, finding favourable conditions on 10 of the 12 sites surveyed should be an encouragement to keep it that way or even improve them.

Spacing

There are too many turbines on too small a site. The rotor diameter of the planned turbine model is 170m. There are 450m between T1 and T3, 495m between T2 and T4, 563m between T7 and T8, as can be measured on any map supplied. They state under the heading Turbine Locations, "The proposed wind turbine layout has been optimised using industry standard wind farm design software to maximise the energy yield from the site, while maintaining sufficient distances between the proposed turbines to ensure turbulence and wake effects do not compromise turbine performance."

Let me quote from the most current advice I could find, by Dillon Clayton 03/02/2025:
"Optimum wind turbine spacing ensures the landowner maximizes their space. It also helps to minimize any noise from the turbines. This will only work if they are correctly spaced and are subject to changing wind conditions. The ideal distance between turbines varies, not only between countries, but states, cities, and even small towns. Each wind farm responds to its defining factors, which include wind speed ratios and direction, size and type of the turbine, and land costs.

It has long been believed that distances between 6 and 10 times the diameter of the rotor are optimal, with most wind farmers and directors settling on 7 times the distance.
Therefore, if the rotor diameter of a wind turbine is 275 feet, multiplying that by 7 results in the distance apart the wind turbines should be.
275ft. x 7 = 1925ft.
This configuration has proved successful, when wind flow has been favourable, for very many years.

Modern-Day Analysis of Wind Turbine Spacing

When Charles Meneveau, a respected Professor of Mechanics, dug deeper into the efficiency of large wind farms, he found that many were underperforming, particularly those in the largest wind farms containing hundreds, if not thousands of turbines.
He felt that all initial site testing, and that of the turbines themselves, was done individually, and wasn't subject to how they interacted with or were disrupted by a series of others.
He, and a team of Belgian experts, designed a new formula based on these, and multiple other factors, to find the optimal spacing between wind turbines.
Turbulence is sometimes thought of as the enemy of the wind turbine. Each revolution of the blades harnesses more kinetic energy if the rotation occurs smoothly and unhindered. However, Meneveau and his team discovered that maximum energy generation happened not from the horizontal winds, but the strong winds and turbulence created by the tall turbines.
He found that when turbines were spaced further apart, the landscape altered to create more turbulence at higher altitudes. This air is 'whipped up', creating stronger gusts for the blades to capture and pull downwards.
More enhanced kinetic energy increases electricity production levels.
Testing on these large capacity wind farms revealed that the ideal distance is now double that of previous beliefs. That is, the suggested recommended separation of each turbine being 15 times the rotor diameter away from its nearest neighbours.

Greater Spacing Brings Increased Costs
The issue with increased spacing is that you need twice the space around a wind turbine. Meaning, you are only going to fit half as many onto the land....
Turbine manufacturers need sales, and in order to maximize sales they will always recommend minimum spacing (6-10 rotor diameters). Some governments pay subsidies to wind farmers if power production is exceeding demand. These payments are made per turbine, the more you own, the greater the payment.

The Benefits of Improved Wind Turbine Spacing
Close turbines that are in line with prevailing winds still allow the turbulent air leaving their blades to pass on significant amounts of turbulence when entering the next turbine.
This creates noise issues as it is too difficult to contain large amounts of sound.
The additional vibration created by the turbulence also shortens the life of many internal components. Bearings, brakes, and rotational parts all become more prone to breakage, catastrophic failure, and in some cases, fire.
Overall, turbines separated by less than 15 times their rotational diameter will have a shorter useful life than those spaced further apart."

That statement concludes my submission. I strongly disagree with the planned development. It is not only utterly damaging to the environment, it will not help to further reduce greenhouse gas emissions. More than that, it would grossly add to them. Not only now, but for years to come.

Kind regards

B. Christoph

Dr Brigitte Christoph