

OBSERVATION/SUBMISSION TO PLANNING APPLICATION

Case Reference: 323761

Anne Gilligan

Dangan

Tuam

Galway

To: An Coimisiún Pleanála

64 Marlborough Street

Dublin 1

D01 V902

Date: 08 November 2025

Re: Observation/Submission to proposed wind energy development at Cooloo Wind Farm

Location: Cloondahamper, Cloonascragh, Elmhill, Cooloo, Lecarrow, Dangan Eighter, Lissavally, Slievegorm
- Co. Galway

Applicant: Neoen Renewables Ireland Limited

Dear Sir/Madam,

I live in the townland of Dangan and done so for 43 years where I have reared my family of 3 with my late Husband Jimmy who lived there all his life and so did the generations before him. We would always have been involved in community activities and hold the Killrerin very close to our hearts

I own farmland which I farm with my son and have a field that is only 365 metres from Turbine 1. It is also only 350 metres from the proposed Substation and Battery Storage. This is part of my place of work and the proposed Cooloo Wind Farm will be impending on how I go about my day to day farming.

I strongly request that An Coimisiún Pleanála to refuse planning for the proposed Cooloo Wind Farm.

I am objecting on the following grounds.

Community Consultation and Engagement

The basis that the community consultation process was carried out by Neoen and MKO for the proposed Cooloo Wind Farm has been fundamentally inadequate and does not meet the standards of meaningful

public engagement required under the Draft Revised Wind Energy Development Guidelines (2019) or An Bord Pleanála's Strategic Infrastructure Development protocols.

The consultation was poorly publicised, using the Irish Examiner, a Cork-based paper with minimal reach in north-east Galway, for statutory notices instead of the Tuam Herald, the area's primary local newspaper. This choice deprived many residents of awareness and opportunity to participate.

Claims of engagement with "local groups, clubs and schools" are inaccurate. Key organisations such as Killarinerin Community Council and Killarinerin GAA received no correspondence or invitations to contribute. Furthermore, no public consultation meeting was held in Moylough, where seven of the nine turbines are proposed, further excluding the most affected residents.

Reported "door-to-door engagement" reached just 55 homes within 1 km of the turbines, yielding only ten written responses which is an unacceptably low level of participation for a project of this scale. Reliance on online materials was ineffective given poor broadband in the area.

Overall, the process was selective, poorly targeted, and misleading in its presentation of local engagement. These failings undermine the project's compliance with public participation standards and should be given significant weight in An Bord Pleanála's assessment.

Planning Framework and Guidelines

The ongoing reliance on the Wind Energy Development Guidelines 2006 is increasingly inappropriate given the advancements in wind energy technology almost twenty years ago. At the time, turbines rarely exceeded 100 metres in height and produced 1–2 MW of power. In contrast, the turbines proposed in this development will reach 180 metres and generate approximately 6 MW, resulting in significantly greater impacts than those envisaged by the 2006 Guidelines.

These guidelines have repeatedly been acknowledged in the Dáil as outdated. In 2013, Deputy Micheál Martin informed then-Taoiseach Enda Kenny that the guidelines did not account for contemporary technology. In 2025, Tánaiste Simon Harris reiterated in the Dáil that the guidelines remain outdated.

Accordingly, it is unreasonable and inconsistent with principles of proper planning and sustainable development for An Coimisiún Pleanála to rely solely on the 2006 Guidelines. Any decision must be informed by current standards and technological realities.

Barnaderg Gortbeg Group Water Scheme

I use the water from Barnaderg Gortbeg Group Water Scheme as my main source of drinking water for my household. The water is of excellent quality and I am very concerned that pollution of various types such as silt, sediment and other contaminants will enter the water source, causing me and my family harm. With the location of two Turbines within the Source Protection Area (SPA) I believe the Cooloo Windfarm should not be granted permission whatsoever, especially in such a highly karsified and hydrologically sensitive area.

Right to Own/Transfer Property

Article 43.1.2 of Bunreacht na hÉireann provides that "the State accordingly guarantees to pass no law attempting to abolish the right of private ownership or the general right to transfer, bequeath, and inherit property." Granting permission for this wind farm development would effectively undermine this constitutional protection. Landowners and farmers within the affected area would face significant restrictions, as land situated near turbines would become unsuitable for residential development. This would prevent families from transferring land for the purpose of building homes for future generations, thereby eroding their practical rights of ownership and inheritance.

Furthermore, Article 43.2.1 acknowledges that the exercise of property rights must be regulated by the

principles of social justice. However, this proposed development cannot be regarded as socially just. It disproportionately burdens local residents while providing little to no direct benefit to the community. Those of us living in the area would experience substantial and lasting impacts — including increased traffic and road closures during construction, ongoing noise pollution, shadow flicker, and significant visual intrusion on our landscape. In addition, there remains insufficient scientific evidence to conclusively demonstrate that large-scale wind farms pose no long-term health risks to nearby residents. In these circumstances, permitting this development would be neither fair nor consistent with the principles of social justice recognised under Article 43.

Property Devaluation

A study from the University of Galway and international research indicates that homes within 1 km of wind turbines experience adverse effects on property value, with reductions of up to 14.7%. My home falls within this range, and I am deeply concerned about the financial and emotional impact this will have on my family and our future prospects. The planning application does not appear to address or mitigate this issue.

<https://www.universityofgalway.ie/media/researchsites/ceris/files/WP-2023-01.pdf>

Noise

Planning permission for the proposed Cooloo Wind Farm should be refused on the basis that it poses a clear and foreseeable risk of substantial interference with the normal use and enjoyment of nearby homes. In *Byrne & Moorhead v ABO Energy* [2025] IEHC 330, the Irish High Court found that wind turbine noise—specifically low-frequency and amplitude-modulated sound—constituted a private nuisance under common law, as it significantly disrupted residents' ordinary domestic life. The Court held that such noise amounted to an unreasonable and continuous intrusion, preventing the quiet occupation of the home and resulting in the permanent shutdown of three turbines in County Wexford.

The Cooloo proposal relies on outdated ETSU-based noise criteria that fail to account for the same low-frequency and modulated noise effects found to cause substantial nuisance in the Wexford case. Given the proposed turbines' greater height and rotor size, the likelihood of these harmful acoustic effects occurring at Cooloo is even higher. Approving this development under obsolete standards would disregard the High Court's findings and expose local residents to predictable and legally recognized interference with their right to the peaceful enjoyment of their homes. Planning permission should therefore be refused in full on these grounds.

Shadow Flicker

Given this proximity and the extraordinary scale of the proposed turbines, I believe the shadow flicker standards outlined in the Wind Energy Development Guidelines (2006) issued by the Department of Housing, Local Government and Heritage are no longer adequate to protect residential amenity or public health.

The proposed turbines represent a dramatic escalation in size compared to those contemplated in 2006:

- Tip Height: 180 meters
- Rotor Diameter: 162 meters
- Hub Height: 105 meters
- Swept Area: Over 20,000 m² per turbine

These dimensions significantly increase the area affected by moving shadows, extending the reach and intensity of shadow flicker events. The 2006 Guidelines do not account for turbines of this magnitude, nor the cumulative impact of multiple units in close proximity to residential receptors.

The Guidelines permit up to 30 hours of shadow flicker per year at any dwelling. This threshold is:

- Arbitrary and unsupported by contemporary health research
- Uniformly applied without regard to turbine scale or proximity
- Silent on cumulative exposure from multiple turbines

No scientific basis is provided for the 30-hour limit, and no differentiation is made between single-turbine exposure and multi-directional flicker from clustered arrays.

Shadow flicker is often dismissed as a minor nuisance, yet growing evidence suggests more serious implications:

- Annoyance and Stress: The U.S. Department of Energy's WINDEXchange notes that even limited flicker can create persistent discomfort, especially during sensitive times of day.
- Sleep Disruption: A 2013 report commissioned by the Scottish Government (University of Salford) found that shadow flicker may contribute to sleep disturbance and reduced sleep quality.
- Photosensitive Epilepsy: Although rare, flicker frequencies between 3–30 Hz can pose risks. Complex interactions between blade movement, sun angle, and window geometry may approach sensitive thresholds.
- Motion Sickness-like Symptoms: The ClimateXChange report noted symptoms such as dizziness and nausea linked to visual stimuli like flicker.
- Mental Health and Quality of Life: A 2023 article by Fritz Energy documented community complaints about anxiety, reduced concentration, and general decline in wellbeing.
- The Guidelines make no distinction between general receptors and vulnerable groups (children, elderly, or those with neurological conditions).
- In ABP Case 318943, shadow flicker was cited as a material concern, particularly where receptors were located within 500m of turbines. The Environmental Impact Assessment recommended turbine-specific control measures.

The 2006 Wind Energy Development Guidelines offer minimal direction on how shadow flicker should be assessed, modelled, or mitigated. This omission is particularly problematic in the context of modern turbine arrays, where cumulative impacts and technological scale far exceed what the original standards contemplated.

The Guidelines do not specify:

- Which modelling tools should be used (e.g. WindPRO, WAsP, or bespoke GIS-based systems)
- What input parameters are required (e.g. rotor dimensions, sun path algorithms, terrain shading)
- Whether modelling should account for worst-case scenarios or realistic exposure windows

This opens the door to inconsistent and potentially misleading assessments. Developers may use optimistic assumptions (e.g. average sunshine hours, limited exposure angles) that understate the true impact on nearby dwellings.

There is no requirement to assess:

- Overlapping flicker events from multiple turbines
- Multi-directional exposure due to turbine layout
- Seasonal variation in sun angle and flicker duration

The Guidelines do not require developers to implement or even consider:

- Automated curtailment systems that shut down turbines during predicted flicker windows
- Physical shielding (e.g. planting, screens) to block flicker paths
- Real-time monitoring or complaint-based response protocols

This leaves residents like us with no enforceable protection. Even if flicker exceeds tolerable levels, there is no mechanism to compel mitigation unless it's voluntarily offered by the developer or imposed by planning conditions.

Other jurisdictions have moved beyond static thresholds:

- Germany requires modelling based on actual sunshine hours and mandates curtailment if flicker exceeds 30 minutes per day.
- Scotland recommends site-specific modelling and mitigation, especially near sensitive receptors.
- The Netherlands uses dynamic modelling and requires flicker-free zones around homes.

Ireland's 2006 Guidelines fail to reflect these advances, leaving communities exposed to outdated standards that do not match the realities of modern turbine design.

The shadow flicker provisions in the 2006 Wind Energy Development Guidelines are outdated and insufficient for assessing the impacts of modern wind farms, particularly in residential settings like mine. The scale and proximity of the turbines proposed near my home significantly increase the risk of adverse effects, yet the current standards offer no meaningful protection.

I respectfully urge the planning authority to:

- Apply a precautionary approach
- Require robust modelling and mitigation
- Consider the lived experience of residents
- Reject applications that fail to demonstrate compliance with updated standards

References

- Wind Energy Development Guidelines (2006) – Department of Housing, Local Government and Heritage
- ABP Case 318943 – Chapter 11: Shadow Flicker
- WINDEXchange – U.S. Department of Energy
- ClimateXChange – Report on Health Impacts of Wind Turbines (2013)
- Fritz Energy – Wind Turbines and Shadow Flicker (2023)
- Clean Power – Wind Turbines and Public Health

National Schools

The presence of wind turbines near schools can have a range of impacts on students, staff, and the overall learning environment. Wind turbines produce both audible noise and low-frequency infrasound, which can be noticeable inside buildings, which can cause a distraction. This constant distraction will interfere with children's attention and overall cognitive performance, making it more difficult for students to focus on learning.

- Cooloo NS is 1.59km away from the nearest wind turbine.
- Brierfield NS is 1.35 km away from the nearest wind turbine.
- Barnaderg NS is located approximately 2.49 km from the nearest wind turbine.

Shadow flicker caused by rotating turbine blades can create intermittent light in classrooms, which can be distracting and, in some cases, uncomfortable or stressful for children. The noise and shadow flicker will also greatly impact on the children in the school who have an additional need. There is a lack of research to state the impact on these children.

In addition to the above, during the construction phase and while laying the cabling, the roads will experience increased traffic and road closures. This will impact children travelling to and from school. While the severity of these impacts depends on distance from the turbines, it is clear that wind turbines in close proximity to schools have the potential to disrupt learning, reduce student wellbeing, and interfere with the overall educational experience.

Farming

I am deeply concerned about the impact this proposed windfarm will have on the farmers in Barnaderg, Cooloo, and the surrounding areas. Many of these are full-time and part-time dairy and dry-stock farmers,

with holdings of varying sizes, and their livelihoods depend directly on the health and productivity of their animals. Farming in this area is not just a way to make a living—it is a way of life, a source of pride and satisfaction. Farmers rely heavily on the local roads for moving cattle and accessing their land every day. These essential activities could be disrupted by construction traffic, turbine maintenance, or other project-related impacts, further jeopardizing livelihoods. Also the presence of shadow flicker, excessive noise, and visual intrusion from turbines would seriously disrupt this, affecting both our work and our well-being.

Biodiversity Impact - Earthworms

I object on the grounds that the Environmental Impact Assessment fails to address the impacts of wind turbine-induced vibrational noise on soil biodiversity and ecosystem function, particularly earthworm populations.

Recent peer-reviewed research by Velilla et al. (2021, *Oikos*, 130(7), 1033–1047) demonstrates that wind turbines generate continuous low-frequency vibrations (< 500 Hz) that travel considerable distances through soil. Key findings include:

- Vibrational noise decreased by only 23 ± 7 dB over 200 metres, meaning measurable vibration extends well beyond turbine bases
- Earthworm abundance declined by approximately 40% near turbines compared to sampling points further away
- Soil compaction and crop type were ruled out, confirming vibrational noise was the primary cause
- The impact is body-size-dependent, especially harmful to earthworms and other large soil invertebrates

Earthworms are critical "ecosystem engineers" essential to soil health and agricultural productivity. A 40% decline in their populations can lead to:

- Reduced soil aeration and water infiltration, increasing flooding and erosion risks
- Disruption of nutrient cycling and carbon sequestration, undermining soil fertility and climate regulation
- Deterioration of soil structure and microbial balance, impacting crop performance and long-term land viability

These impacts are especially concerning in productive agricultural soils. The Cooloo site shares characteristics with the farmland studied by Velilla et al. (2021) — organically managed, rural, and composed of active agricultural soils.

The Environmental Impact Assessment submitted for Cooloo does not address subsurface vibrational noise or its potential to degrade soil ecosystems. This represents a significant omission in the assessment of environmental and agricultural impacts.

I respectfully request that An Coimisiún Pleanála require:

- Comprehensive assessment of soil-borne vibrational noise impacts
- Evaluation of effects on soil macrofauna, especially earthworms
- Protective buffer zones of at least 200–250 metres from turbine bases to high-value agricultural soils
- Vibration-dampening measures in turbine design and foundations
- Soil biodiversity indicators in post-construction monitoring

Reference:

- Velilla, E., Collinson, E., Bellato, L., Berg, M.P., & Halfwerk, W. (2021). Vibrational noise from wind energy turbines negatively impacts earthworm abundance. *Oikos*, 130(7), 1033–1047.
<https://doi.org/10.1111/oik.08166>

Road disruption during construction

I wish to object to the proposed development on the grounds of significant traffic and road safety impacts

during construction, particularly in relation to abnormal load deliveries. The Traffic Management Plan (Appendix 15-2) lacks essential detail, including the number, timing and routing of heavy goods and turbine loads, and commitments to off-peak scheduling. Without clear and enforceable mitigation, there is a risk of damage to narrow rural roads, verges and drainage, along with conflicts between construction vehicles, farm traffic and school transport. No robust plan has been presented for road strengthening, maintenance or reinstatement. The absence of detailed community-specific measures leaves local access, amenity and safety inadequately protected. Until comprehensive information and binding commitments are provided, the proposal represents an unacceptable risk to road infrastructure and rural community wellbeing. Having roads closed for a combined 210 days (at a minimum) is unacceptable. It is also unacceptable for locals to have diversions of up to 13.7km per journey for the duration of this project.

Climate impact

As a local farmer, I am deeply concerned that the Cooloo Wind Farm will lead to further peat drainage and the felling of productive forest land. This will increase national land-use emissions and make it harder for Ireland's agriculture and forestry sectors to stay within their climate ceilings. Under the Climate Action and Low Carbon Development Act 2021, every sector must remain within its own emission limits. Projects that raise LULUCF emissions add to future pressure on rural landowners, who may face restrictions such as mandatory rewetting or livestock reductions to make up the shortfall. This proposal benefits energy targets but harms the land sector and undermines fair burden-sharing under national climate law.

Battery storage and substation safety risks

I object on the grounds of unacceptable risks to public health, fire safety, and water contamination posed by the proposed substation and Battery Energy Storage System (BESS).

The developer's own Appendix 12-3 Battery Storage Noise Assessment (Sept 2025) identifies fifteen CATL EnerC+ battery containers containing lithium-ion (LiFePO₄) systems manufactured by CATL. Predicted operational noise levels reach up to 31 dB LAeq at nearby homes, representing an increase of +11 to +14 dB above background levels. The report itself classifies this as a "significant adverse impact" on residential amenity. Scientific research shows that chronic noise above 30 dB can raise risks of cardiovascular disease and sleep disturbance.

Lithium-ion Battery Energy Storage System (BESS) installations worldwide have experienced fires and explosions that release toxic gases such as hydrogen fluoride and hydrogen cyanide. Research shows that fire-water run-off from lithium-ion battery fires can contain hydrofluoric acid, dissolved metals, and fluorinated organic compounds, which may contaminate nearby soil and waterways if not properly contained.

This proposed Substation and BESS would have a major impact on The Lough Corrib Special Area of Conservation, as a nearby stream eventually flows into Lough Corrib, potentially harming aquatic life and drinking water sources.

Based on the absence of any Fire Safety Management Plan within Appendix 12-3, it appears that nearby fire services are not equipped or trained to respond effectively to large-scale lithium-ion battery fires.

In *Grace & Others v. An Bórd Pleanála* (2017), the Supreme Court ruled that a residence within one kilometer of a proposed development site had standing to argue against consent. This case emphasizes the significance of thoroughly evaluating related infrastructure such as the substation and BESS, which ought to be included in the same consenting procedure as the wind farm itself.

With homes, farmland, and livestock within a few hundred metres of the proposed site, this industrial-scale development poses an unacceptable risk to community health, safety, and environmental integrity. Until independent noise, fire-safety, and hydrological risk audits are completed and verified by competent authorities, I urge An Bord Pleanála to refuse this application in accordance with the Precautionary Principle.

References:

- National Fire Protection Association (NFPA) (2020) Hazard Assessment of Lithium-Ion Battery Energy Storage Systems
- TNEI Ireland (2025) Appendix 12-3 Battery Storage Noise Assessment
- World Health Organization (WHO) (2018) Environmental Noise Guidelines for the European Region
- Irish Legal News (2017) Supreme Court: Challenge to wind farm development referred to CJEU

Bird collision risk

I object to the proposed development on the grounds that the Collision Risk Assessment (Appendix 7-6, MKO 2025) is methodologically and scientifically inadequate to protect legally protected bird species.

The assessment relies on the theoretical Band Model, which assumes fixed avoidance rates and static behaviour, without validation using telemetry or local field data. Survey coverage is temporally and spatially limited, missing key migration and nocturnal flight periods. This approach fails to capture the real-world behaviour of birds in the area.

The use of a 99.5% avoidance rate for Whooper Swans, without local validation, significantly underestimates the risk of collision. Evidence from Irish Wetlands Bird Survey (I-WeBS) and BirdWatch Ireland indicates that Whooper Swans routinely commute between Horseleap Lough and surrounding feeding areas at low altitudes that overlap turbine rotor heights. The conclusion of 'negligible risk' is therefore unsupported and unreliable.

The report fails to consider cumulative impacts with other regional wind farms or infrastructure, contrary to EU Directive 2009/147/EC (Birds Directive) and Article 6(3) of the Habitats Directive. This is a serious omission given the presence of multiple wind energy developments in the region.

Mitigation measures are undefined and untested. Key figures such as flightline maps (e.g., Figure 7-6-1) are omitted, hindering independent review and transparency. Without clear, evidence-based mitigation strategies, there is no guarantee that collision risks can be managed effectively.

Under the Birds Directive (2009/147/EC) and the Habitats Directive, Ireland has a legal obligation to protect migratory and resident bird populations. The assessment as presented does not provide sufficient evidence that these obligations can be met.

I respectfully request that the planning authority reject or defer this application pending an independent, peer-reviewed reassessment. This should include:

- Full telemetry and radar data for local bird populations
- Expanded seasonal coverage including migration and nocturnal periods
- Transparent disclosure of all field survey data and model assumptions
- Cumulative impact assessment with regional wind farms
- Defined, evidence-based mitigation strategies

References:

- MKO (2025). Appendix 7-6 Collision Risk Assessment, Cooloo Wind Farm EIA
- Band, W., Madders, M. & Whitfield, D. (2007). Developing field and analytical methods to assess avian collision risk at wind farms
- Scottish Natural Heritage (2018). Avoidance Rates for the Onshore Wind Farm Collision Risk Model
- NatureScot (2021). Research Report 909: Using a collision risk model to assess bird collision risks onshore wind farms
- Rees, E. (2006). Whooper Swans: Biology and Conservation. T & AD Poyser
- Crowe, O. et al. (2019). Migration and Roosting of Whooper Swans. Irish Birds 43
- BirdWatch Ireland (2024). Whooper Swan Species Profile & Irish Wetlands Bird Survey (I-WeBS)
- European Commission (2021). Wind Energy and Natura 2000

Visual Impact

The proposed turbines would be highly intrusive and visually dominant, overwhelming the existing rural character of the local landscape. Their visibility from multiple vantage points would transform a natural and agricultural setting into an industrial-scale development.

The proposal is out of scale with the surrounding environment. The turbines' extreme height and size would cause visual clutter and a loss of scenic amenity, remaining visible even at long distances and creating continuous visual intrusion.

When combined with existing or approved wind farms in the region, this development would lead to visual saturation and skyline dominance, further eroding the landscape's character and reducing its recreational value.

The developer's visual impact assessment understates the visibility and significance of the turbines. Photomontages appear selective and fail to represent the true extent of visual intrusion likely to be experienced by residents and visitors.

The proposal would diminish the rural amenity, tranquillity, and identity of the local region. It threatens the area's sense of place and the quality of life for residents who value the natural and agricultural landscape.

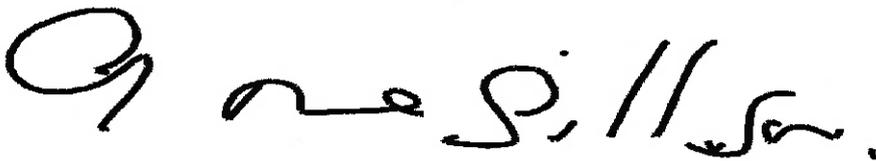
The local wind farm's size and visual impact are excessive and inconsistent with the character of the area. While supporting renewable energy, developments must respect the local landscape — this project does not. The proposal should therefore be refused on the grounds of unacceptable visual and landscape impacts.

Conclusion

In light of the serious concerns outlined above I respectfully urge An Coimisiún Pleanála to refuse permission for this development. The proposal is not compatible with the principles of proper planning or sustainable development and would have lasting negative effects on local residents, farmers, and the wider community. I therefore strongly object to this proposal and ask that it be refused in full.

If permission is not refused outright, I request that an oral hearing be held so that local residents, farmers, and the wider community can have our say on the impacts of this development.

Yours Sincerely,



Name: Anne Gilligan
Date: 08 November 2025