

Report to Inspector (Technical appendix to main report) ABP- 314602-22

DevelopmentGortyrahilly wind farm near
Ballyvourney Co. CorkType of ApplicationStrategic Infrastructure DevelopmentTopic:Adequateness of information for
purpose of Environmental impact
assessment: OrnithologyEcologistMaeve Flynn BSc. PhD. MCIEEMSenior Planning InspectorKaren Hamilton

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1.0 Introduction

1.1. Scope of 'Report

- 1.1.1. This report relates to ABP 314602-22 Gortyrahilly wind farm near Ballyvourney in County Cork which would comprise of 14 turbines, one meteorological mast, on-site substation and all ancillary infrastructure (including turbine foundations, site access roads, turbine hardstand, drainage infrastructure, turbine delivery route). The grid connection will be at Ballyvouskill substation with an underground cable of approximately 27.8km following windfarm and forestry tracks, public roads and ESB access track into the substation. The site comprises an area of 667 Ha, of which a significant proportion is commercial forest owned by Coillte with the remainder comprised of agricultural land and open mountain heathland habitat.
- 1.1.2. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) were submitted as part of the Strategic Infrastructure Development application. Detailed submissions were received from the Department of Housing, Local Government and Heritage (DHLGH) and from and the Ecology Section of Cork County Council in relation to nature conservation aspects of the proposed development. The Board sought Further Information (FI) from the Applicant in relation to a number of issues, including biodiversity and ornithology.
- 1.1.3. I was requested by the Planning Inspector to review information received as part of further information for ornithological aspects of the proposed windfarm development.
- 1.1.4. This report to the Inspector and available to the Board is a written record of my review and examination of the submitted information as it relates to Ornithology only. In my capacity as Inspectorate Ecologist, I have the relevant expertise to provide a professional opinion as to the adequacy of the information for the Inspector and the Board to undertake Environmental Impact Assessment (EIA) of the consent sought for Gortyrahilly wind farm, County Cork.
- 1.1.5. I have also considered the scientific observations on nature conservation (ornithology) submitted by DHLGH and by the Ecology Section of Cork County Council.

2.0 Likely effects on the Environment: EIAR Chapter 7 Ornithology

2.1. Expertise and technical content

- 2.1.1. I note that EIAR Chapter 7 and further Information submitted in respect of avian species was prepared by Dr Brain Madden (BioSphere Environmental Services) a suitably qualified and experienced Ecologist with demonstrated experience in ornithology assessment for wind farm developments. The scope, structure and content of EIAR Chapter 7 has been prepared in accordance with good practice, including industry specific guidance such as that produced by Scottish Natural Heritage (now Nature Scott) for windfarms and birds.
- 2.1.2. I consider the scientific information presented on ecological surveys, nature conservation sites, bird species, and habitats is adequate and up to date (at the time of submission) and included desk study, habitat surveys and specific multi annual surveys for birds including the following:
 - Flight Activity (Vantage Point) Surveys
 - Breeding Moorland Survey
 - Breeding & Winter Bird Transect Survey
 - Hinterland Survey
 - Merlin Survey
 - Red grouse Survey
- 2.1.3. I am satisfied that all bird surveys were undertaken in line with standard good practice methods and at the optimum seasonal periods over multiple years providing a robust baseline for the impact appraisal.

2.2. Overview of assessment

2.2.1. EIAR Sections 7.3.10 and 7.311 provide an overview of the conservation importance of the proposed windfarm site and grid connection route for birds. The site is rated as of County Importance for birds (following NRA 2009 evaluation of sites) based on the occurrence of various bird species and the presence of breeding and foraging habitat for several species listed on Annex I of the Birds Directive and Red-list species of conservation concern. Key species include, Red

Grouse, White-tailed Eagle, Hen Harrier, Sparrowhawk, Kestrel, Melin, Peregrine Falcon, Snipe, and Golden Plover.

- 2.2.2. Potential impacts identified for the construction phase include habitat loss including loss of breeding habitat, disturbance to breeding birds and nest damage or destruction. Potential impacts identified for bird species during the operational phase of the windfarm include collision and direct mortality, displacement, and barrier effects.
- 2.2.3. Collision risk modelling was carried out for eight species in line with current best practice (Scottish Natural Heritage Band Model). Key species considered for collision risk include Kestrel, Sparrowhawk, Hen Harrier, Merlin, Peregrin, Golden Plover, Chough and White-tailed Eagle.
- 2.2.4. Ground nesting birds including Red Grouse, Snipe, Meadow Pipit and Merlin are also considered in terms of potential habitat loss and disturbance during the breeding season.
- 2.2.5. Mitigation measures designed to avoid and reduce likely impacts include the implementation of a habitat enhancement plan, measures to prevent disturbance to breeding Hen Harrier (along grid connection route only), and measures to minimise disturbance of ground nesting birds with working restrictions within 500m of recorded breeding locations.
- 2.2.6. Measures are proposed to reduce the attractiveness of the site for White-tailed Eagle by the implementation of a programme to remove any fallen animals (sheep carcasses) on a weekly basis.
- 2.2.7. Monitoring measures to ensure effectiveness of implementation of measures include standard construction phase monitoring and post construction monitoring including collision searches.

2.3. Summary of Impacts

2.3.1. With the full implementation of mitigation measures which includes construction phase mitigation for breeding birds on peatland habitats, and measures detailed for White-tailed Eagle and Kestrel during operation phase, the significance of predicted effects on birds as a result of the proposed development will range from Imperceptible to Moderate adverse effects.

- 2.3.2. The loss of peatland habitat will reduce the area of suitable breeding habitat available for Red Grouse, Snipe and Meadow Pipit and Merlin. 28ha of wet heath habitat from a total of 404ha will be lost resulting in a predicted slight adverse effect of long term duration. This loss is not considered significant as it is a relatively small amount of the available wet heath habitat on site and in the surrounding area.
- 2.3.3. A habitat enhancement plan will mitigate to some extent the loss of peatland habitat. Similarly, the relatively small amount of habitat loss as a result of the development is not expected to have any significant negative impact on species which use the site for feeding and/or roosting, including Hen Harrier and Kestrel.
- 2.3.4. The construction phase of the proposed development may result in disturbance to breeding birds within a distance of up to 500 m of the works area. This could have significant effects in the short term on species such as Red Grouse, Snipe and Hen Harrier (the latter along grid connection route only). Mitigation measures, comprising restricted work zones around identified nest areas and seasonal restrictions on work for hen harrier, will reduce impacts to non-significant levels for these species.
- 2.3.5. During the operational phase, birds may avoid areas of suitable habitat due to the presence of turbines. Breeding Snipe is cited as being of most concern as the avoidance zone could be up to 400m from the turbines and a slight adverse impact of potentially long-term duration is identified for this species.
- 2.3.6. As for all windfarm development, bird collision with turbines is a risk during the operational phase of the project. With mitigation in place and taking account of potential cumulative impacts with other windfarms, the significance of those effects is predicted to range from Slight adverse (for White-tailed Eagle, Kestrel, Merlin, Chough) to Moderate adverse (Golden Plover).
- 2.3.7. Surveys did not identify any regular migration routes or local movements of wetland bird species through the site. The project is therefore not expected to have an impact on migrating species or local wetland bird populations

3.0 **Ornithology issues raised in submissions and Further Information**

- **3.1.** As outlined, DHLGH and Cork County Council submitted detailed observations and recommended further information be sought on a number of biodiversity impacts including ornithology. Observations on ornithology include the following (summary):
 - Impacts on Raptors:
 - Impacts to the recently re-introduced White-tailed sea eagle population and management of carrion (dead sheep) at the windfarm site.
 - Impacts on Merlin: disturbance and displacement from hunting habitat
 - Barn Owl records for the area
 - Impacts on wintering birds (barrier effects and cumulative impacts) including Golden Plover and Whooper Swan
 - Impacts on breeding Red Grouse from increased accessibility to the site

3.2. Further Information

- 3.2.1. In considering these issues (amongst others) the Board made a request to the Applicant for further information.
- 3.2.2. The further information response related to ecology and ornithology was prepared by Dr Brain Madden who also prepared Chapters 5 Terrestrial Ecology and 7 Ornithology of the EIAR.
- 3.2.3. In considering the adequacy of the Applicants response to ornithological issues I provide summary Tables 1 (DHLGH) and 2 (Cork County Council) which set out the key points of the submissions, the Applicants response and my evaluation of the adequacy of the response based on the evidence provided and professional opinion for the purpose of the EIA to be undertaken by the Board.

Table 1. Summary of DHLGH Submission and Further information requests,Applicants response and consideration of adequacy of response for purposeof EIA.

DHLG submission and	Applicant response to	Adequacy of
Further information	further information	response
request	request	
Impacts on breeding Merli	n (meirliúin)	
Lowest height of turbine	Lowest rotor sweep of	Addresses request and
blades at Smøla windfarm	28.8m above ground	considers scientific
in Norway (where 4 Merlin	level- within range of	evidence.
collisions reported)	Turbines proposed at	
(from Watson <i>et al</i> 2018) ¹	Gortyrahilly.	Accept the significance
	Evidence from other	effect from collision to
	studies indicate that	be Slight, Negative,
	Merlin is not in high-risk	Long-term Effect.
	collision category and	
	that estimate in EIAR	
	reflects this (0.025	
	collisions/year).	
Estimate of disturbance	Recent NatureScott	Addresses request and
displacement from hunting	(2022) ² reference on	considers scientific
habitat	disturbance distances	evidence.
	examined: Merlin rates	
	as medium sensitivity	
	to disturbance with	Breeding merlin: with
	buffer of 300-500m	500m and mitigation-
	recommended from	disturbance from

¹ Watson, R.T et al (2018) Demographic and potential biological removal models identify raptor spcies sensitive to current and future wind energy. *Ecosphere* 12: 3531

² Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species" (NatureScot Research Report 1283)

	construction works for	construction not
	breeding birds. 500m	significant.
	buffer applied to	
	Gortyrahilly for	
	breeding Merli.n	Low sensitivity to
		disturbance and
	Madders and Whifield	displacement from
	study referenced in	hunting habitat based
	relation to low	on cited literature from
	sensitivity of raptors to	standard references.
	displacement from wind	
	turbines.	
Estimate loss of hunting	Localised drying effect	Addresses request and
habitat due to drying out of	likely along	considers scientific
wetland soils resulting	infrastructure and	evidence.
from windfarm	draining system which	
construction and drainage	may extend over sever	Consider that any
	hundred meters in	localised drying effect
	peatland soils.	would not significantly
		change hunting habitat
	Examples from	for Merlin.
	published surveys and	
	habitat associations	
	provide evidence that	
	the species is wide	
	ranging over both wet	
	and dry peatland	
	habitats.	
Data on previous burning	Some evidence of	Addresses request.
of vegetation on windfarm	recent burning between	
site	T8 and T9 but no data	Overall positive effect
		for ground nesting

	on extensive burning	breeding birds and
	between 2017-2022.	Kerry Slug due to
	Buring to be prohibited	absence of burning.
	by windfarm operator.	
Impacts on wintering		
Golden Plover (Feadog		
Shlèibhe)		
In-combination estimate	Review showed few	Addresses request.
and assessment of	other windfarms in the	
mortality due to turbine	area considered	Extrapolation is valid if
collision with other	Golden Plover in CRM-	accepted crude
windfarms in the area	therefore extrapolation	approach to estimate in
	made from Gortyrahilly	combination effects
	estimate.	given lack of other
		CRM for Golden
	250 turbines within	Plover. It has its
	20km extrapolated to	drawbacks as the
	251 birds/year –	species is unlikely to be
	equivalent to 0.27% of	evenly widespread in
	all Ireland wintering	the area.
	bird population-	
		Using the all-Ireland
	Long term moderate	population estimate
	negative	may underestimate the
		cumulative local or
		regional effects on
		wintering Golden
		Plover.
		Long-term moderate
		negative is reasonable
		estimate .

Impacts on White-tailed		
Sea Eagle (iolar mora)		
Detail on procedure for	Outline programme	Addresses request and
removal of sheep	referenced in EIAR	provides some
carcasses	7.5.2.1. Further	additional detail on the
	information provided on	procedure for
	site patrol. Programme	managing fallen/
	in operation at	injured sheep on the
	Grousemount windfarm	site to reduce attraction
	since 2019 referenced.	to White tailed eagles.
		Of note that the
		programme is not novel
		and in use currently at
		Grousemount
		windfarm.
Use of drones to assist in	Proposed method	Applicant considered
detection of injured or	utilises internal tracks	suggestion and has
dead sheep	on windfarm site	committed to consider
	however, drone	the use of drones.
	technology will be	
	considered during	
	operational phase as	
	part of monitoring if	
	found practical.	
Confirmation that the	Searches will be	Confirmed
search will be undertaken	carried out on a weekly	
every week- rather than	basis.	
would be -		
Providing clear		
responsibility if condition		
applied		

Turbines T1, T2, T7 and T12 appear to be located on top of steep ridges. Assess if models designed to determine orographic lift are applicable at this windfarm (Hanssen *et al* 2020)³ Consider that the model is appropriate where high breeding density of eagles (as in Norwegian study referenced). The Norwegian study monitored up to 17 white tailed eagles fitted with GPS tracking devices.

Scarcity of While-tailed Eagles in the area combined with lack of suitable breeding habitat and significantly differing habitats and landscape scale features used to justify the unsuitability of the model to Gortyrahilly site. Applicant assessed applicability of suggested model and found that it wasn't suitable in this local context.

Applicant examined the referenced scientific study and I consider it reasonable to accept the justification for it not being suitable in the Gortyrahilly context.

The scarce and infrequent nature of White-tailed eagle in the area combined with the wide ranging, highly mobile and opportunistic foraging characteristics means that there will be some degree of uncertainty regarding this species as its range expands as part of the reintroduction programme.

³ Hanssen F., May. R and Nygard, T (2020) High resolution modelling of uplift landscapes can inform micro siting of wind turbines for soaring raptors. Environmental Management 66: 319-332 (

		Based on the
		information provided I
		consider it reasonable
		to accept the that
		proposed windfarm will
		not result in significant
		effects on this
		infrequently occurring,
		highly mobile species.
Impact on Barn Owl		
(scréachóg reilige)		
Clarification on why barn	While there are records	Addresses request and
owl not referenced as	for the species within	considers scientific
receptor in Chapter 7	the 10km square the	evidence.
EIAR	habitats present at the	
	site are not considered	Scientific justification
	those regularly used by	for lack of habitat
	Barn Owl.	suitability for the
	No evidence of the	species and no
	species recorded	evidence of the species
	during surveys which	recorded at the
	included periods where	windfarm site or from
	the species would be	buildings in the vicinity.
	active.	
		Acceptable to exclude
	No signs of barn owl at	Barn Owl as a sensitive
	local buildings during	receptor for the
	bat surveys.	development.
	1	

Impact on Red Grouse		
(cearc fhraoigh)		
Consideration of the		Addresses request and
potential for access tracks		provides professional
cause:		opinion based on
		knowledge of the site.
Greater fox predation	Not considered a	Consider that the
	significant additional	applicant has provided
	mortality factor for the	reasonable response
	species	on these issues.
Disturbance from	These human	
increased human access	disturbance factors not	
for shooting	considered significant	
Disturbance due to greater	to the species present	
human access for off road	at the site.	
vehicles		

Table 2. Summary of Cork County Council Submission, Applicantsresponse and consideration of adequacy of response for purpose of EIA.

Cork County Council submission	Applicant response	Adequacy of response
Impacts on Golden Plover	and Whooper Swan	
Habitat available to	GP is a rare breeding	Accept that GP at the
Golden Plover (GP) is	species with confined	windfarm site is
decreasing in landscape-	distribution. GP at the	confined to
focus is on wintering	site are entirely winter	overwintering
season. Cumulative	occurrence.	populations and that
displacement effects to GP		the levels of

	Study referred to	displacement are not
	regarding displacement	applicable to this site.
	is for breeding GP and	
	not appliable to	Cumulative impacts to
	wintering population.	Golden Plover for
		collision are addressed
		by the applicant (see
		table 1).
Barrier effect of turbines	Migrating birds flying at	Applicant provides
on GP and Whooper	heights greater than	response based on
Swan- nighttime	turbine height. No	available baseline
movements of these	wetland sites that	information and known
species	regularly support these	migration patterns of
	species within radius of	migratory birds in
	at least 10km.	Ireland.
	Consider it unlikely that	Accord that it is
	consider it unlikely that	
	migrating birds would	
	pass at low altitude	barrier effect of
	over the site at night.	turbines at this site
		based on applicants'
		evidence.

Cumulative impacts of birds redirecting towards proposed windfarm due to other windfarm locations

Proliferation of windfarms	Response regarding	As for previous
in the wider area raise	absence of evidence	observation, the
potential that birds may be	for migrating routes	Applicant provides a
pushed towards	and unlikely barrier	response based on
Gortyrahilly site due to	effect.	available baseline
barrier effects which could		information and known
result in increased energy		migration patterns of

expenditure and reduced		migratory birds in
foraging and roosting time		Ireland.
which may impact birds		
overall survival.		Accept that there is no
		evidence of local
		movements of birds
		such as migrating
		wetland species during
		baseline surveys over a
		period of 4 years to
		justify the concern
		expressed.
		Accept that the based
		on the above combined
		with the distribution of
		windfarms in the area
		significant cumulative
		impacts are not likely.
The additional impact on the second	he iolar mara (White-Sea E	agle) population having
regard to avian flu		
While the collision risk for	The RAPTOR	Address submission
the species is low	(Recording and	and provides
(estimated as 1	Addressing	professional opinion
bird/20years), risks can be	Persecution and	based on knowledge of
considered significant in	Threats to Our	the site and best
context of national	Raptors) Programme	available scientific
population.	coordinated by NPWS	information.
	is referenced.	
The risk posed by	Direct poisoning is the	The issue raised is
windfarm should be	causative factor for the	challenging to address,
considered in combination		however I consider that

with emerging incidence of	highest number of	the applicant provides
bird flu. Cork report that 2	fatalities.	a reasonable
eagles died from the virus		justification for the
in the past year adding to	A minor risk of collision	conclusion of this not
the stress on the	has been determined	being a significant
population.	for the operational	issue in the context of
	windfarm with the	the likely effects of the
	caveat that the species	windfarm on the
	is rare in the area and	species overall (slight
	only one sighting of the	adverse effect).
	species was recorded	
	in 24 months of	
	surveys.	
	The applicant	
	considers that the	
	windfarm site is only of	
	opportunistic value for	
	foraging eagles where	
	carrion or dying	
	animals are present on	
	the site. A programme	
	of management for this	
	is detailed (see	
	response to DHLGH	
	submission).	

4.0 **Conclusion**

4.1. Ornithology

- 4.1.1. I consider that the Applicant has adequately addressed all submissions raised related to ornithology based on knowledge of the site collected over multiple years of bird survey and based on best available scientific information.
- 4.1.2. The further information response report is comprehensive and endeavours to fully engage with all requests made in relation to ornithology. I consider that the information provided adds to the robust assessment provided the Chapter 7 Ornithology of the EIAR and overall impact significance is not changed for any aspect of the assessment.

Signed:

Maere Hu

Maeve Flynn BSc. PhD, MCIEEM Inspectorate Ecologist

29th July 2024