LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 6: Appendix 8A – Chough Survey Report

August 2024

Prepared by: Llŷr Floating Wind Ltd

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Acronyms and abbreviations

Acronym or abbreviation	Definition	Acronym or abbreviation	Definition
HRA	Habitats Regulations Assessment	OnECC	Onshore Export Cable Corridor
IROPI	Imperative Reasons of Overriding Public Interest	SPA	Special Protection Area
NGR	National Grid Reference	SSSI	Site of Special Scientific Interest
NRW	Natural Resources Wales	WWBIC	West Wales Biodiversity Information Centre
OfECC	Offshore Export Cable Corridor	TJB	Transition Joint Bays

Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited.
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located.
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team on behalf of the Welsh Ministers.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application.
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation.

Term	Definition
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.

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EXECUTIVE SUMMARY

1. Chough (*Pyrrhocorax pyrrhocorax*) has been identified as a potential ecological constraint to the installation of the proposed onshore export cable for the Llŷr Floating Offshore Wind Project. The area within which the proposed Project infrastructure will be installed is hereafter referred to as 'the proposed Project' (see **Volume 5: Figures 8A-1** to **8A-4**). Chough is in the crow family (corvidae) and is a Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended) and has been identified as a designated feature of the Castlemartin Coast Special Protection Area (SPA), where the proposed Project is located. The Angle Peninsula Coast Site of Special Scientific Interest (SSSI), approximately 100 m south of the proposed Project, also supports a small breeding population and roosting areas for a significant proportion of the South Pembrokeshire non-breeding population of chough. Records of chough have been identified within 2 km of the proposed Project by the West Wales Biodiversity Information Centre (WWBIC).
2. To support a Habitats Regulations Assessment (HRA) (AECOM (2023) Llyr Floating Offshore Wind Project, Technical Report: *Habitat Regulations Assessment Screening*), four transect surveys with chough as the target species were conducted along the Pembrokeshire coast path between Angle Bay (National Grid Reference (NGR) SM 85314 03026) and Freshwater West Bay (NGR SM 88119 00592) to determine the current distribution of chough nesting and foraging sites in relation to the proposed Project. The surveys were undertaken between April and June 2022.
3. Chough were recorded during all four surveys; within the Angle Peninsula SSSI and within 100 m of the proposed Project. No chough were recorded within the section of the transect located to the southeast that incorporates Castlemartin Coast SPA. The approximate number of individual chough recorded during each survey ranged from between 19 to 50 birds. From all surveys, one instance of possible nesting, 13 instances of foraging and 17 flights of individual or groups of chough were recorded. The possible nest was located within a sea cave at approximately National Grid Reference (NGR) SM 84496 02192. Chough were typically seen flying along the cliffs and foraging on grassland adjacent to the cliffs.
4. Incidental sightings of notable species included kestrel (*Falco tinnunculus*), peregrine (*Falco peregrinus*), and grey seal (*Halichoerus gryphus*) were recorded during the surveys. To avoid impacts to kestrel and peregrine, alongside other birds, works should be timed to avoid the breeding bird season (March to August inclusive). The avoidance of impacts to grey seals is covered in the Marine Mammals report (**Appendix 21A: Marine Mammals Baseline Technical Report**).

8-A CHOUGH SURVEY REPORT

8.1. Introduction

5. Llŷr Floating Wind Limited (hereafter the Applicant) is proposing to develop the Llŷr 1 Floating Offshore Wind Farm (hereafter referred to as the proposed Project), located approximately 35 km off the coast of Pembrokeshire in the Celtic Sea.

6. The proposed Project is a test and demonstration wind farm development, comprising up to 10 wind turbine generators (WTGs). The proposed Project will make landfall at Freshwater West before connecting into Pembroke Dock power station and the national grid network. Please note the surveys reported in this document reflect a wider survey area than the proposed Project presented in the ES, as the proposed Project was refined as the design progressed.

7. AECOM was commissioned by the Applicant to undertake chough (*Pyrrhocorax pyrrhocorax*) surveys to further understand the current distribution of chough nesting and foraging sites in relation to the proposed Project (see **Volume 5: Figures 8A-1 to 8A-4**) to support a Habitats Regulations Assessment (HRA). Surveys are being undertaken as chough is designated within the Castlemartin Coast Special Protection Area (SPA; breeding) and Angle Peninsula Coast Site of Special Scientific Interest (SSSI; roosting and breeding), which lie within, and within 100 m of, the proposed Project respectively (**Volume 5: Figure 1-2**).

8.2. Regulatory and Planning Policy Context

8. The UK is bound by the terms of The Conservation of Habitats and Species Regulations 2017 (as amended) (the "Habitats Regulations"). The need for an assessment of impacts on National Site Network sites (Special Areas of Conservations or SPAs), is set out within Regulation 63 of the Habitat Regulations and is required where a plan or project is likely to have a significant effect upon a National Site Network site, either individually or in combination with other projects. The aims of the Habitats Regulations include requirements to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of community interest. This aim relates to habitats and species, not the National Site Network sites themselves, although the National Site Network sites have a significant role in delivering favourable conservation status.

9. The Habitats Regulations applies the precautionary principle to National Site Network sites. Consent should only be granted for plans and projects once the relevant competent authority has ascertained that there will be no adverse effect on the integrity of the National Site Network site(s) in question. Where an assessment has been carried out and it concludes that there will be an adverse effect on the integrity of the National Site Network site(s), or if uncertainty remains over the significant effect, consent will only be granted if there are no alternative solutions and there are Imperative Reasons of Overriding Public Interest (IROPI) for the development and compensatory measures has been secured.

10. In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question. The competent authority is entitled to request the applicant to produce such information as the competent authority may reasonably require for the purposes of the assessment, or to enable it to determine whether an Appropriate Assessment is required. **Box 1** provides the legislative basis for an Appropriate Assessment.

Box 1. The legislative basis for Appropriate Assessment

Conservation of Habitats and Species Regulations 2017

Regulation 63 states that:

"A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … must make an appropriate assessment of the implications… for that site in view of that site's conservation objectives… The competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site".

11. Over the years, 'Habitats Regulations Assessment' has come into wide currency to describe the overall process set out in the Habitats Regulations, from screening through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of "Appropriate Assessment". Throughout this Report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name. The UK is no longer part of the European Union. However, as a precaution, this HRA assumes that European Court of Justice rulings on the HRA process may continue to be considered useful jurisprudence by the UK courts.

12. Castlemartin Coast SPA lies within the proposed Project (**Volume 5: Figures 8A-1** to **8A-4**) and is where approximately 300 m of the proposed onshore export cable is proposed to be laid. Therefore, adverse impacts to Castlemartin Coast SPA are possible due to the proposed Project. Chough are a feature of the Castlemartin Coast SPA and disturbance to chough from the proposed Project may impair their ability to survive, to breed or reproduce, or to rear or nurture their young. Therefore, a chough survey is required to better understand the impacts to the chough population within Castlemartin Coast SPA to inform an HRA.

13. Chough is a Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended). The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and (partially) the Birds Directive and the Habitats Directive are implemented in the UK. In addition to the protection from killing, injury or taking that all wild birds receive under the Act, Schedule 1 birds and their young must not be disturbed at the nest. If chough are found in areas which will likely be impacted by the proposed Project, mitigation will be required to prevent an offence being committed. Mitigation typically involves avoiding the breeding bird season (March to August inclusive), or a pre-works check for nesting birds by an Ecological Clerk of Works (ECoW) followed by the implementation of a buffer zone if they are found. Continued technical oversight by the ECoW will be required at the proposed Project if nesting birds are found.

8.3. Study Area

14. The Study Area is a coastal transect, approximately 7.1 km in length, which follows the publicly accessible Pembrokeshire coast path between Angle Bay (National Grid Reference (NGR) SM 85314 03026) and Freshwater West Bay (NGR SM 88119 00592) (**Volume 5: Figures 8A-1** to **8A-4**). This section of the coast path lies within the Angle Peninsula Coast/Arfordir Penrhyn Angle SSSI. The south-east section of the transect is located within Castlemartin Coast SPA.

The Study Area includes the habitats adjacent to the Pembrokeshire Coast Path which includes cliffs, maritime grassland, coastal scrub and farmland.

8.4. Baseline

15. In February 2022, a desk study was undertaken by AECOM to obtain records of designated sites, notable habitats and protected and notable species within 2 km of the proposed Project (**Volume 5: Figure 1-2**).

16. In relation to chough, the desk study identified the following:

- The Castlemartin Coast SPA is designated for chough and lies within the proposed Project. Approximately 300 m of the proposed Project passes through this designation;
- Angle Peninsula Coast/Arfordir Penrhyn Angle SSSI supports a small breeding population (usually one to two pairs a year), and roosting areas for a significant proportion of the South Pembrokeshire non-breeding population of chough. The SSSI lies approximately 100 m south of the proposed Project; and,
- Records of chough within 2 km of the proposed Project from the West Wales Biodiversity Information Centre (WWBIC).

17. Between October 2020 and July 2021, three breeding bird and six wintering surveys were undertaken by ITPEnergised (ITPEnergised, 2021a, 2021b) as part of the Environmental Impact Assessment undertaken for a separate project (Project Erebus).

18. In relation to choughs, ITPEnergised's field surveys identified the following:

- During the breeding bird survey, two pairs of breeding chough were recorded; and,
- During the wintering bird survey, chough was recorded, although the peak count was not indicated.

19. For more detail on the baseline information please see **Volume 2, Chapter 8: Ecology and Biodiversity** of this ES.

8.5. Assessment Methodology

20. Four chough surveys were conducted within the Study Area on the following dates: Survey 1) 28th April 2022; Survey 2) 10th May 2022; Survey 3) 24th May 2022; and Survey 4) 22nd June 2022. Each survey started at sunrise and had an average duration of six hours. Each successive survey alternated between starting at either Angle Bay or Freshwater West Bay to reduce bias. The Study Area was surveyed using walkover and vantage point watches to map all nest sites and record flight lines or feeding areas for chough following an adapted Common Bird Census survey method (Gilbert *et al*., 2011). The location of nest sites and foraging areas, alongside the number of chough present and other notable behaviours, were recorded. The surveys were undertaken by an appropriately experience ornithologist using 10x42 binoculars and a 65 mm spotting scope with 20-60x eyepiece.

21. Incidental sightings of Schedule 1 bird species and other notable species relevant to the Study Area were recorded during the surveys.

8.6. Assessment Results

22. Times and weather conditions of the survey are shown below in **Table 8A-1**. A summary of the results of the chough transect surveys are shown below in and on **Volume 5: Figures 8A-1 to 8A-4.**

23. Choughs were recorded south of West Angle Bay (NGR SM 84937 02947), around a rocky outcrop (NGR SM 84267 02470), around Waterfall Welcome Pit (NGR SM 84497 02174) and

spread along the coastline between Whitedole Bay (NGR SM 84876 01832) and East Pickard Bay (NGR SM 86445 00994).

24. During Survey 1, one possible nesting site was recorded at approximately NGR SM 84496 02192 (**Volume 5: Figure 8A-1: d; Annex 8A-B: Photographs 1 and 2**), located within a sea cave, however, no birds were recorded at this location during the subsequent surveys. No further nesting locations were recorded during the remaining surveys.

25. Across all four surveys; 13 instances of foraging, two of calling and four of undetermined behaviour were recorded. Foraging occurred in the maritime grassland adjacent to the cliffs (**Annex 8A-B: Photograph 3**) and within areas of agricultural grassland located further inland. The highest number of birds was recorded during Survey 2; with approximately 50 birds recorded over the length of the transect. The lowest number of birds recorded over the length of the transect was during Survey 4 when 19 birds were recorded. The total number of birds recorded during Survey 1 and Survey 3 was 29 and 31, respectively. However as individual chough could not be distinguished, it is possible that individuals were counted more than once across each survey. The largest group of individual birds was recorded during Survey 3 with a peak count of 25 birds foraging on grassland before taking flight.

26. Across all four surveys, 17 flights of individual or groups of chough were recorded. Chough were typically seen flying along the cliffs or over grassland adjacent to the cliff to foraging areas on the coastline. During Survey 3, the 25 chough mentioned above were recorded mobbing a peregrine falcon in flight (**Table 8A-3 / Volume 5: Figure 8A-3: Survey 3-FLa**).

Table 8A-1. Start and end times, and weather conditions of chough transect surveys

Survey	Date	Start Time	End Time	Temp* (start) (°C)	Temp* (end) (°C)	Windspeed (start)	Windspeed (end)	CC* (start) (okta)	CC* (end) (okta)	PDS*	Visibility*
1	28/04/22	05:58	13:00	5.0	12.0	2-Light Breeze	1 -Light Air	7	7	None	Good (hazy over sea towards end of survey)
2	10/05/22	05:37	11:30	12.0	13.0	2-Light Breeze	2-Light Breeze	8	8	None	Excellent
3	24/05/22	05:16	11:00	9.0	17.0	1 -Light Air	4-Moderate Breeze	7	7	None	Excellent
4	22/06/22	05:00	10:25	12.0	22.0	2-Light Breeze	2-Light Breeze	0	0	None	Excellent

**Temp.=Temperature, CC=Cloud Cover, PDS=Precipitation During Survey, Visibility=Visibility During Survey*

Table 8A-2. Chough transect survey data - points

Survey	Observation	NGR (approximate)	Number of Choughs	Behaviour	Comments
1	A	SM 84356 02470	6	Foraging	Six birds foraging on grassland.
1	B	SM 84460 02226	4	Foraging	Movement of four foraging birds to the rock face to north-west.
1	C	SM 84476 02225	2		Movement of two birds into ravine.
1	D	SM 84496 02192	6	Possible Nesting	Choughs in cave, possibly nesting.
1	E	SM 84522 02094	10	Foraging	Group of 10 chough moving south-east as surveyors flush them. Group continues to forage on grassland.
1	F	SM 84840 01649	10	Not determined	Two chough located on rocks flew south-east over grassland to group of eight chough (10 total) on fence line. Two

Survey	Observation	NGR (approximate)	Number of Choughs	Behaviour	Comments
					flights of chough back and forth between the group and original area on headland (two flights total).
2	A	SM 84270 02453	2	Foraging	Two birds foraging in grassland.
2	B	SM 84709 01826	3	Foraging	Three birds foraging in grassland.
2	C	SM 84918 01600	2	Foraging	Two birds foraging in grassland.
2	D	SM 85457 01253	24	Not determined	24 birds perched on cliff face.
2	E	SM 86178 01252	1	Not determined	Single bird recorded on cliff edge.
2	F	SM 86448 01070	3	Calling	Three birds calling.
2	G	SM 86521 00999	2	Calling	Two birds calling.
3	A	SM 85637 01154	2	Foraging	Two birds foraging in grassland
3	B	SM 86288 01007	2	Foraging	Two birds foraging in grassland
4	A	SM 84504 02218	6	Foraging	On grassland near coastal path.
4	B	SM 84929 01693	2	Foraging	Two birds foraging in field.
4	C	SM 85097 01558	2	Foraging	Two birds foraging on grassland at top of cliff.
4	D	SM 85216 01437	2	Foraging	Two birds foraging in field.
4	E	SM 86438 01007	2	Foraging	Two birds foraging on grassland at the lower section of the cliff.

Table 8A-3. Chough transect survey data – flights

Survey	Flight Line	NGR of Start Point (approximate)	Number of Choughs	Direction	Flight Type	Description
1	FLa	SM 84937 02947	1	South	Flight Over	Flight inland above 30 m height
1	FLb	SM 85248 01368	18	Southeast	Flight Over	Flight of group recorded in Observation A moving south-east. Continued Foraging in grassland.
2	FLa	SM 84270 02452	2	Southeast	Flight In	Flight path along the coast.
2	FLb	SM 86054 01287	1	North	Flight Over	Flight over farmland.
2	FLc	SM 86111 01214	1	Northeast	Flight In	Single bird flight.
2	FLd	SM 86391 01103	1	Southeast	Flight Out	Flight path of second and third chough.
2	FLe	SM 86448 01053	1	South	Flight Over	Single bird flight.
2	FLf	SM 86497 01054	2	South	Flight Over	Two birds in flight.
2	FLg	SM 86544 00916	2	East	Flight Out	Two of birds in flight
3	FLa	SM 84896 01904	25	Circular	Flight Out	Aggressive encounter. Group of 25 Chough mobbing peregrine falcon in flight. Flight from grassland out to Sheep Island then inland and back to original location
3	FLb	SM 84862 01827	0	Southwest/West	Flight Out	Aggressive encounter. Kestrel mobbing group of crows (*Corvus corone*).
3	FLc	SM 84899 01906	19	Southwest/West	Flight Out	Initially foraging before taking flight.
3	FLd	SM 84898 01903	6	South	Flight Out	Initially foraging before taking flight.

Survey	Flight Line	NGR of Start Point (approximate)	Number of Choughs	Direction	Flight Type	Description
3	FLe	SM 85053 01522	22	Southeast	Flight Over	Same group previously recorded to the north heading south, landing and foraging in grassland.
3	FLf	SM 85314 01327	1	North	Flight Out	Single chough feeding on grassland before flight north.
3	FLg	SM 85559 01055	1	South	Flight In	Single bird flight through rocks in a southerly direction.
4	FLa	SM 85237 01378	4	East	Flight Out	Birds feeding in field and flight out. Calling.
4	FLb	SM 85876 01169	1	East	Flight Over	Single bird flight.

27. During the transect survey, there were incidental recordings of kestrel (**Volume 5: Figure 8A-1**: Target Note (TN) 1; **Volume 5: Figure 8A-2**: TN 1). **Table 8A-3** / **Volume 5: Figure 8A-3**: Survey 3-FLb), peregrine (**Table 8A-3** / **Volume 5: Figure 8A-3**: Survey 3-FLa), and grey seal (**Volume 5: Figure 8A-2**: TNs 2,3, and 4)

8.7. Summary and Conclusion

28. Chough are present within the Angle Peninsula SSSI and were recorded during all four surveys with at least 19 individual birds recorded per survey. The highest number of birds recorded during the surveys was a total of 50 during Survey 2. The total number was recorded along the entire length of the transect and therefore, due to birds moving along the coastline to different foraging areas and as individuals could not be distinguished, the actual population of birds is likely to be lower. No chough were recorded within the section of the transect to the southeast that incorporates Castlemartin Coast SPA. One possible nesting location was recorded at approximately SM 84496 02192 during the initial survey within a sea cave. However, during the subsequent surveys, no birds were recorded at this location. Multiple instances of foraging, amongst other behaviours were recorded during the surveys.

29. The proposed Project is not likely to result in impacts to chough if mitigation set out in the Outline Construction Environmental Management Plan and habitat restoration protocols are followed, for example, timing the works to avoid the breeding bird season. This is due to no choughs being recorded within the Castlemartin Coast SPA (nearest chough record being approximately 1.3 km west of the SPA) and the possible nesting record lying approximately 0.5 km southwest of the proposed Project; the proposed Project is unlikely to impact choughs at these distances although there are no agreed guidelines at which disturbance has been shown to not have any impact.

30. Surveys of the coastline to south of landfall should in included, at the next opportunity. Recommend 1 km survey buffer along coastline from redline boundary, as chough typically forage within 500m of nest sites so impacts unlikely beyond 1 km.

31. Mitigation outlined in the Outline Construction Environmental Management Plan will likely involve avoiding the breeding bird season (March to August inclusive). If the breeding bird season cannot be avoided, a pre-works check for nesting birds by an ECoW must be undertaken, followed by the implementation of a suitable buffer zone if they are found. For choughs, the buffer zone should be set at 1 km as a precaution and then works may commence with an experienced ornithologist present to observe behaviour of any chough to determine whether a smaller buffer is appropriate. Where topography etc limits visual and noise disturbance reaching the nesting or foraging location it may be possible to reduce the buffer zone after observations of behaviour have been made.

8.8. References

AECOM (2023) Llyr Floating Offshore Wind Project, Technical Report: Habitat Regulations Assessment Screening

Gilbert, G., Gibbons, D.W., & Evans, J. 2011. *Bird monitoring methods, a manual of techniques for key UK species.* RSPB, Sandy, Bedfordshire UK.

ITPEnergised, 2021a. *Project Erebus Breeding Bird Survey*.

ITPEnergised, 2021b. *Project Erebus Technical Appendix 20.8 Wintering Bird Surv*

8.9. Annex 8A-A: Target Notes for Volume 5: Figures 8A-1 to 8A-4

Survey / Figure	Target Note	Description
1	1	Male kestrel flying around cliff.
2	1	Male Kestrel hunting.
2	2	Grey seal.
2	3	Three grey seals.
2	4	Grey seal.

8.10. Annex 8A-B: Photographs

Photograph 1: Location of nest site (red circle). (**Table 8A-2**: 1d; **Volume 5: Figure 8A-1**: d)

Photograph 2: Location of nest site, viewed through scope (**Table 8A-2**: 1d; **Volume 5: Figure 8A-1**: d)

Photograph 3: Chough foraging on grassland.