Foel Fach Wind Farm Limited.

Foel Fach Wind Farm – Environmental Statement Volume III

Appendix 5.5: Habitats Regulations Assessment - Ecology

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Energy for generations

Coriolis Energy

RSK

Foel Fach Wind Farm

on behalf of Foel Fach Wind Farm Limited

Environmental Statement
Appendix 5.5:
Habitats Regulations Assessment - Ecology

avian ecology

CONTENTS

EXECUTIVE SUMMARY

This Appendix provides information to inform a Habitats Regulations Appraisal (HRA) with regards to likely significant effects (LSEs) on the River Dee and Bala Lake SAC. A screening for LSEs is provided, looking at qualifying features of the SAC. Following the screening process, an appropriate assessment (AA) was considered a requirement with respect to the Site. A shadow AA is thus provided as the final part of the Appendix which concludes that the Proposed Development (alone and in-combination with other wind farm developments) would have no adverse effects on the site integrity of the River Dee and Bala Lake SAC.

1 INTRODUCTION

1.1.1 This Appendix has been prepared to accompany **Environmental Statement (ES) Volume II, Chapter 5: Terrestrial Ecology**, for the Proposed Development.

1.1.2 Under the Conservation of Habitats and Species Regulations 2017, as amended (the Habitats Regulations), any development that may have a likely significant effect (LSE) on a European site (Special Protection Area (SPA) or Special Area of Conservation (SAC) (and candidate sites), as well as Ramsar sites, which have been given the same protection) require an Appropriate Assessment (AA) to be carried out by the relevant competent authority, to determine whether or not the development would have an adverse impact on the integrity of the designated area either alone or in combination with other projects.

1.1.3 Before an AA is initiated, a screening process is undertaken to determine whether any of the predicted impacts of the Proposed Development would result in a LSE. This Screening Assessment ('Stage 1') is presented, to provide information to the competent authority that allows them to reach a decision on whether or not the development would have a LSE on a European site and, therefore, whether an AA ('Stage 2') is required. Where a LSE cannot be ruled out, a shadow AA is provided within this document.

1.1.4 The two-stage process is referred to as a Habitats Regulations Assessment (HRA). Only the competent authority can undertake HRA, but 'information to inform the HRA' is provided within this Technical Appendix.

1.1.5 This Appendix only covers relevant internationally designated sites with ecological qualifying features that may potentially be impacted by the Proposed Development.

1.1.6 For an assessment of designated sites with ornithological features pertinent to the Proposed Development see **ES Volume II, Chapter 6: Ornithology**.

2 IDENTIFICATION OF DESIGNATED SITES & QUALIFYING INTERESTS

2.1.1 One statutory site of international importance with ecological qualifying features has been identified for screening; River Dee and Bala Lake SAC (adjacent to the Site to the west). No other internationally designated areas with ecological interests are located within 10 km of the Site (the area in which the Proposed Development will be located) or are otherwise found within potential connectivity distance of the Proposed Development.

2.1.2 The SAC is offsite and is adjacent to the western Site boundary, located to the west of the B4501 (watercourse called Afon Mynach).

2.1.3 The River Dee and Bala Lake SAC is designated for:

- Atlantic salmon
- floating water-plantain
- sea lamprey
- brook lamprey
- river lamprey
- bullhead
- otter, and
- water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.

3 STAGE 1: SCREENING FOR LSE

3.1.1 Stage 1: Screening for LSE considers three important aspects of the proposal and the qualifying features of the designated site:

- connectivity between the Proposed Development and the designated site;
- route to impact between the Proposed Development and the designated site; and
- numbers of qualifying features available for impact (consequential or inconsequential).

3.1.2 This section summarises information relating to the potential for likely significant effects upon ecological qualifying features of the River Dee and Bala Lake SAC as a result of the construction, operational and decommissioning of the Proposed Development.

3.1.3 All other European designated sites with ecological interests (**ES Volume II, Chapter 5: Terrestrial Ecology, Table 5.9**) are appropriately spatially separated from the Site, with ecological interests for the other sites largely static and with notable features between the Site and the designated sites (like road network, forestry and watercourses) likely to have buffering effects, and therefore no pathways of LSEs are considered to warrant further assessment in this section.

3.1.4 The Conservation Objectives for the features of the River Dee and Bala Lake SAC are as follows.

Conservation Objective for Feature 1: Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (EU Habitat Code: 3260)

3.1.5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The conservation objective for the watercourse as defined above must be met.
- The extent of this feature within its potential range in this SAC should be stable or increasing.
- The extent of the sub-communities that are represented within this feature should be stable or increasing.
- The conservation status of the feature's typical species should be favourable.
- All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control).

Conservation Objective for Feature 2: Atlantic salmon Salmo salar (EU Species Code: 1106)

3.1.6 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The parameters defined in the vision for the watercourse as defined above must be met.
- The SAC feature populations will be stable or increasing over the long term.
- The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.
- There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis.
- All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control).

Conservation Objective for Feature 3: *Luronium natans* / Floating water-plantain

3.1.7 The conservation objective for the lake water body as defined in the conservation objective for features 9 and 10 must be met. The vision for this feature is for it be in favourable conservation status, where all of the following conditions are satisfied:

- There will be no contraction of the current *L. natans* extent and distribution, and the populations will be viable throughout their current distribution & will be able to maintain themselves on a long-term basis. Each *L. natans* population must be able to complete sexual and/or vegetative reproduction successfully.
- The lake will have sufficient habitat to support existing *L. natans* populations within their current distribution and for future expansion.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Features 4, 5 and 6: Sea lamprey *Petromyzon marinus* (EU Species Code: 1095), Brook lamprey *Lampetra planeri* (EU Species Code: 1096), River lamprey *Lampetra fluviatilis* (EU Species Code: 1099)

3.1.8 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The parameters defined in the vision for the watercourse as defined above must be met.
- The SAC feature populations will be stable or increasing over the long term.
- The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.
- There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 7: Bullhead *Cottus gobio* (EU Species Code: 1163)

3.1.9 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The parameters defined in the vision for the watercourse as defined above must be met.
- The SAC feature populations will be stable or increasing over the long term.
- The natural range of the features in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.
- There will be no reduction in the area or quality of habitat for the feature populations in the SAC on a long-term basis.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 8: European otter *Lutra lutra* (EU Species Code: 1355)

3.1.10 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The parameters defined in the vision for the watercourse as defined above must be met.
- The SAC otter population is stable or increasing over the long term, both within the SAC and within its catchment.
- There will be no loss of otter breeding or resting sites other than by natural means (such as naturally occurring river processes) within the SAC or its catchment.
- The number of potential resting sites within the SAC will not be a factor limiting that limits the otter population's size or extent.
- There should be no reduction of fish biomass within the SAC or its tributaries except for that attributable to natural fluctuations.
- There should be no loss of amphibian habitat likely to provide a source of prey for members of the SAC otter population.
- The potential range of otters within the SAC or its catchment is neither being reduced nor is likely to be reduced for the foreseeable future.
- All known or potential access or dispersal routes within the catchment for otters that might be considered part of the SAC population should be maintained such that their function is not impaired including the incorporation of measures or features required to avoid disturbance.
- Offsite habitats likely to function as 'stepping stones' within the catchment for members of the SAC otter population will be maintained for migration, dispersal, foraging and genetic exchange purposes.
- All man-made structures within or likely to be used by otters from the SAC population must incorporate effective measures to facilitate the safe movement and dispersal of otters.
- All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control).

Conservation Objectives for lake and marginal wetland SAC & Ramsar features 9 and 10: The lake and aquatic /emergent vegetation, Lake fen/swamp inc. wet woodland

- The total extent of the lake area, including lake fen and swamp shall be maintained. This includes some 10 hectares (ha) of swamp/fen in total; of which at least 6 ha is attributable to NVC S11 *Carex vesicaria* swamp community.

- The abundance and distribution of rare aquatic and emergent species will be maintained or increased and continue to be self-sustaining.

- The abundance and distribution of typical species of aquatic /emergent species will be common and continue to be self-sustaining.

- The fen and swamp layers comprises locally native species, see table below for the relevant species for each vegetation community. The abundance of typical species of each fen and swamp type will be common.

- The abundance and distribution of uncommon / rare plants occurring within each fen and swamp vegetation community will be maintained or increased and continue to be self-sustaining.

- Invasive non-native species such as rhododendron, Japanese knotweed, Canadian pondweed and Himalayan balsam will not be present. This condition is considered under “factors”.

- Water quality targets for the lake should be of a standard that will ensure it reaches Good Ecological Status or better as defined by the Water Framework Directive.

- Eutrophication of the lake from diffuse and point source pollution will be under control and incidences of blue/green algal blooms will have stopped. The nutrient levels in the lake will be similar to the levels inferred from the diatom assemblages for the lake prior to 1925.

- All factors affecting the achievement of these conditions are under control.

3.1.11 Note, although not listed as qualifying species for the River Dee and Bala Lake SAC, there are two additional Conservation Objectives for whitefish and glutinous snail. These are as follows:

Conservation Objective for Features 11: Gwyniad *Coregonus lavaretus*

3.1.12 There are fewer than 10 recorded populations of whitefish in the British Isles and the Llyn Tegid population is the only one in Wales. Dwelling mainly in the deeper and cooler offshore waters this carnivorous fish feeds on microscopic animals floating in the water. Each year, between January and February, it moves into the shallower waters of the lake to spawn in clean gravel beds. Between 2004 and 2007 an attempt was made to establish a ‘refuge’ population at Llyn Arenig Fawr, an upland oligotrophic lake in Migneint-Arenig-Dduallt SAC (Refer to Migneint-Arenig-Dduallt SAC plan).

3.1.13 The conservation objective for the lake water body as defined in conservation objectives for features 9 &10 must be met. The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The population of the feature in the SAC is stable or increasing over the long term.

- The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future.

- Suitable habitat is defined in terms of near-natural hydrological regime, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply.

- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Features 12: Glutinous snail *Myxas glutinosa*

3.1.14 The conservation objective for the lake water body as defined in conservation objective for features 9 &10 must be met. The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- This population will continue to thrive and colonise all suitable areas of habitat in the marginal zone. The species will have been extensively studied and its ecology, especially its response to fluctuating water levels, will be better understood so that its niche requirements can continue to be met. In addition, we will fully understand whether the apparently different mean growth rates in snail populations at different locations around the lake is due to minor habitat variance or to isolated sub-population differences.

- Maintenance of the quality and extent of suitable habitat.

- All factors affecting the achievement of these conditions are under control.

3.2 Overview of Effects

3.2.1 The SAC will not be directly impacted by the Proposed Development given it lies on the other side a road network (B4501) from the Site. It is considered that during the construction phase, there would be, in the short term, heavier levels of traffic with works vehicles using the A4212 and entering the Site from the west from the B4501. The SAC flows under the A4212 north-west of Bala and flows parallel to the A-road to the west, before it splits and again passes under the road network at the junction of the A4212 and the B4501. The Afon Mynach is the stretch of the SAC which flows in a north to south direction, west of the B4501. The largely tree-lined Afon Mynach is typically at *c*. 60 m from the B4501 with pastoral grassland between the river and the B4501. There is therefore a degree of spatial separation between the Afon Mynach and the B4501, meaning that any short-term increase in road traffic using the B4501 having impacts on the river are unlikely. Similarly, the Afon Tryweryn which is the part of the SAC which flows closest to the A4212 is typically at least *c*. 100 m from the A4212 with pastoral grassland between the river and the A4212. The spatial separation is considerable, and this makes any increase in road traffic using the A4212 unlikely to impact on the Afon Tryweryn. Furthermore, no upgrading to the B4501 or A4212 would be required, and the SAC will already be subject to a considerable level of nearby traffic (and resulting noise), particularly the major road, the A4212. Any short-term increase in vehicular traffic using the A4212 and B4501 is therefore not anticipated to have any LSEs on the SAC, and such impacts are not considered further in this Appendix.

3.2.2 However, a number of watercourses flow through the Site (See **ES Volume IV, Figure 7.6: Hydrological Catchments and Watercourses**) and tribute into the River Dee and Bala Lake SAC including the Nant Cefn-coch in the east of the Site which tributes into the SAC downstream near Sarnau, and a minor brook which flows west parallel to the access track near Wern Fawr. As such, there is hydrological connectivity between the Site and the SAC, with the prospect of hydrological flow from the Site into the SAC. None of the onsite watercourses are considered suitable for any of the qualifying features with the exception of otter. Although no potentially suitable locations for holt sites (or couches) were recorded, two of the watercourses onsite (**ES Volume IV, Figure 5.6: Terrestrial Mammal Survey Results**) were considered potentially suitable for commuting otter (including the Nant Cefn-coch).

3.2.3 During construction works, in the absence of any mitigation measures there is the potential for pollution and silt run-off to enter watercourses and flow into the River Dee and Bala Lake SAC. This may adversely affect the integrity of the SAC both in terms of its habitats and its qualifying features, with regard to the above listed Conservation Objectives.

3.2.4 Operational activities, including maintenance, are likely to result in irregular/occasional vehicular movements during the operational phase of the Proposed Development; however, this would be constrained to the access track and infrastructure. No disturbance to watercourses and surrounding habitats is anticipated. As no effects on watercourses are predicted, LSEs at the operation phase are ruled out.

3.2.5 However, LSEs from the construction (and decommission) of the Proposed Development cannot be ruled out for River Dee and Bala Lake SAC in the absence of mitigation.

3.2.6 Accordingly, information to inform an AA has been provided below.

4 INFORMATION TO INFORM APPROPRIATE ASSESSMENT

4.1.1 In the absence of mitigation, the potential for LSEs is identified for all qualifying species of the River Dee and Bala Lake SAC as a result of the Proposed Development. This section therefore considers the potential for adverse effects upon the integrity of all qualifying species, in view of the SAC's Conservation Objectives and on the basis of mitigation measures.

4.1.2 It is predicted that although the SAC's qualifying species (with the exception of potentially otter) are unlikely to use watercourses onsite itself, at least some features are likely to be using watercourse stretches downstream in Afon Mynach (to the west of the Site), and Nant Cefn-coch to the south-east of the Site, with both rivers part of the SAC. Two watercourses that flow through the Site tribute into these rivers and thus are hydrologically connected. Furthermore, the three watercourse crossings that are required for the Proposed Development are in the upper reaches of the Nant Cefn-coch, which although are not part of the SAC, the lower reaches of the Nant Cefn-coch (offsite) are part of the SAC.

4.1.3 The Proposed Development design and evolution have minimised the number of new watercourse crossings (with three required), and all three new crossings being sensitively designed to allow the continued flow of water and wildlife therein. Furthermore, a 50 m buffer around all mapped watercourses for turbine hard-standings and substation compounds has been applied. Works within 50 m of watercourses are limited to the localised creation of new track and the small number of localised works for the three new watercourse crossings.

4.1.4 The Nant Cefn-coch between T08, T09 and T10 (**ES Volume III, Figure 5.6**) was identified during the terrestrial mammal surveys as offering otter commuting potential. No evidence of, or potential for, otter holts (or couches) were recorded onsite. The Proposed Development has been largely offset from the Nant Cefn-coch although two essential watercourse crossings are proposed over it (or over a minor tributary of the Nant Cefn-coch). Although the Nant Cefn-coch has some potential for commuting otters, it is considered unlikely given it heads upstream into an expanse of high altitude remote, exposed and open moorland. It is considered that otter associated with the River Dee and Bala Lake SAC are likely to be most readily using watercourses within the SAC (as was recorded during field surveys along the Afon Mynach west of the Site, which is part of the SAC and is tree lined and was appraised as optimal otter habitat/ high otter potential) and adjoining optimal tributaries. However, as per the Conservation Objectives relevant to the Proposed Development, with regards to otter, it is important the fish biomass within the SAC or its tributaries is not reduced, that there is no loss of amphibian habitat (which is likely a key prey source for otter), that the range of otters within the SAC catchment is not reduced, that all potential access/dispersal routes in the SAC catchment for otters are maintained, that offsite habitats that may function as stepping stones within the catchment are maintained to allow movement of otters and all man-made structures that may be used by otter from the SAC must have measures to allow the safe passage and movement of otters.

4.1.5 With respect to the Proposed Development, this has been offset from the watercourses onsite with only three watercourse crossings required. The watercourse crossings will be sensitively designed to allow the free movement of water, and to allow any otter that may be using the watercourse as a commuting corridor (albeit this is considered unlikely, see above) free passage. Given no adverse impacts are predicted on watercourses and waterbodies as a result of the Proposed Development, the potential for fish biomass and/or amphibian habitat to be reduced is precluded. Furthermore, because the Proposed Development has been largely offset from the watercourses onsite and because watercourse crossings will allow the continued movement of wildlife like any otter, movement routes through the Site would be maintained.

4.2 Construction Environmental Management Plan (CEMP)

4.2.1 A CEMP will be prepared for the Proposed Development, to be approved by Gwynedd Council and NRW. The CEMP would be finalised and implemented by way of a suitably worded planning condition.

4.2.2 The CEMP, once finalised, would include all standard measures to ensure the Proposed Development is constructed in accordance with industry good practice applicable at the time of commencement. The CEMP would also include habitat reinstatement measures following the cessation of construction works.

4.2.3 With specific reference to the protection of the SAC and its qualifying features during the construction of the Proposed Development, the CEMP would include all good practice construction measures including sensitive construction techniques for works in and adjacent to watercourses, sediment management and pollution prevention controls and monitoring to be implemented over the course of the construction phase, particularly regarding working in and immediately adjacent to watercourses, in line with current industry and statutory guidance.

4.3 Pre-, during and post- Construction Monitoring Surveys

4.3.1 A programme of monitoring will be undertaken to ensure watercourses are not in any way being adversely impacted by the works. Furthermore, embedded mitigation measures and standard good practice protocols will be adhered to as part of any consent, and this would include pollution prevention controls.

4.3.2 As part of the CEMP, monitoring would include pre-construction otter surveys to check for evidence of otter along watercourses onsite to ensure works can proceed in a legally compliant manner and in the (albeit unlikely) event that an otter holt or couch is identified appropriate mitigation measures can be applied.

4.3.3 Also to be detailed in a CEMP (and considered as precautionary additional mitigation, given no LSEs on otter from the River Dee and Bala Lake SAC are anticipated) is water quality monitoring pre-, during and post-construction. This would include surveying at sample points downstream of the works in/around the works (including at the watercourse crossings) and upstream of works. The monitoring would be undertaken under the supervision of an appointed ECoW who would ensure that works are proceeding in a legally compliant manner. The purpose of the water quality monitoring would be to ascertain any changes in baseline conditions within, and particularly downstream (where the watercourses offer much better-quality habitat for qualifying species) of the Site to identify any requirement for additional mitigation. Works to the watercourse crossings would be done under the supervision of the ECoW to ensure that unnecessary impacts (such as increased siltation runoff) on the watercourse are not occurring.

4.3.4 Note, the above mitigation would be extended to include works during the decommissioning phase of the Proposed Development (delivered through a DEMP, which will be secured by planning condition).

4.3.5 With the adoption of these mitigation measures, the risk of any impacts from the Proposed Development on the River Dee and Bala Lake SAC or its qualifying species are not anticipated to result in LSEs on the integrity of the SAC.

4.4 In-Combination Impacts

4.4.1 LSEs from the construction of the Proposed Development cannot be ruled out for River Dee and Bala Lake SAC in the absence of mitigation. However, with the implementation of the above mitigation measures (CEMP, including water quality monitoring), any impacts upon the River Dee and Bala Lake SAC as a result of pollution and/or silt run-off into watercourses onsite which are hydrologically linked to the SAC are predicted to be avoided or minimised to a negligible level such that there would be no adverse effects on the integrity of the SAC.

4.4.2 The developments closest to the Site are the in planning Gaerwen wind farm (Environmental Statement submitted to PEDW) and the consented Tyfos, Pen Y Geulan Solar Array. The Gaerwen wind farm application reports the adoption of embedded mitigation including measures to be detailed in a CEMP, like pollution prevention which are comparable with the measures that would be implemented for the Proposed Development. Publicly available information with regards to the Tyfos, Pen Y Geulan Solar Array is limited, but it is considered that mitigation will have been applied to this solar scheme also, with the development appropriately offset from watercourses (and any essential watercourse crossings sensitively designed to allow the continued free movement of water and wildlife that may use the watercourse), and works to be undertaken in accordance with a CEMP which will prevent the potential for impacts on watercourses. It is considered that other developments would also have implemented standard good practice measures including pollution control measures, offsetting the development from watercourses and where any essential watercourses are required, these would be sensitively designed to allow the continued free movement of water and wildlife that uses the watercourse. The potential for cumulative adverse construction effects on the River Dee and Bala Lake SAC through pollution and/or silt run-off are considered to be highly unlikely. As such, no in-combination impacts are anticipated upon the River Dee and Bala Lake SAC.

4.4.3 As LSEs on the River Dee and Bala Lake SAC and its qualifying features from the Proposed Development can be avoided/minimised to a negligible level through mitigation, it can be concluded that there would be no measurable adverse effects from the Proposed Development which would contribute cumulatively to those associated with other developments in the nearby and wider surrounding area which, when considered in combination, could result in adverse effects on the integrity of this designated site.

5 SUMMARY

5.1.1 In the absence of mitigation, the potential for likely significant effects is identified for the River Dee and Bala Lake SAC as a result of construction of the Proposed Development.

5.1.2 Following screening it was concluded that, for the River Dee and Bala Lake SAC, LSEs could not be ruled out in relation to potential pollution and siltation, and through potential disturbance of breeding otter, and/or displacement of foraging/commuting otter as a result of the Proposed Development.

5.1.3 Therefore, an AA is required and information to inform the AA (shadow AA) has been provided. This has concluded that with the adoption of the above mitigation measures, the Proposed Development would have no adverse effect on site integrity of the River Dee and Bala Lake SAC, either on its own, or in combination, with other considered projects.