



Parc Ynni Calon y Gwynt

ENVIRONMENTAL STATEMENT

Appendix 4B High-level Appraisal of Grid Connection





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1 GRID CONNECTION APPRAISAL

- 1.1.1. As detailed in the Scoping Report and reaffirmed in **Chapter 4: Description of the Proposed Development**, the grid connection between the on-site substation at Parc Ynni Calon y Gwynt and the national grid network will be delivered as part of a separate application for consent and does not form part of the DNS application.
- 1.1.2. At this stage the Applicant does not have a confirmed grid connection route to connect the Proposed Development to the wider electricity transmission network, and discussions are ongoing with the Distribution Network Operator (DNO) and the National Energy System Operator (NESO). The on-site substation will connect the Proposed Development into the electricity network, at a voltage yet to be determined. This means the Applicant cannot be specific about the receiving environment of a future grid connection. The grid connection proposal will be subject to a separate application.
- 1.1.3. To achieve the UK government's Clean Power 2030 ambition, reforms have introduced significant changes to methodologies that govern how projects enter and progress through the grid connection process. The intention of these reforms is to ensure that only projects meeting specific readiness and strategic alignment criteria are progressed. All generation projects in the UK are being re-assessed by NESO, and in December 2025 NESO confirmed that Parc Ynni Calon Y Gwynt had met the strategic alignment requirements and therefore will be offered a connection agreement. The Applicant has received no further details from NESO at the time of writing.
- 1.1.4. For the purposes of this appraisal, the Applicant has considered the high-level potential impacts and possible mitigation measures associated with the construction, operation and decommissioning of a 132kV energy network, comprising of a combination of underground cable (UGC) and overhead line (OHL) on a trident wood pole and line system, which will connect into the National Grid Network.
- 1.1.5. This Grid Connection Appraisal identifies the main environmental constraints associated with the proposed grid connection, confirming that the connection is unlikely to result in unacceptable environmental impacts. Where environmental impacts are identified, likely mitigation measures are detailed. It should be noted that some impacts identified below may not occur and have been included to provide a detailed review of potential impacts. On this basis, there is no Environmental Impact Assessment (EIA) impediment to the delivery of the grid connection which is necessary for the operation of the Proposed Development.
- 1.1.6. **Table 4B-1** below presents the potential impacts and mitigation measures associated with a typical 132 kV grid connection route. The following topics have been scoped out of the assessment, as it is deemed that no potential effects could occur:
- Socio-Economics
 - Telecoms and Aviation
 - Shadow Flicker

Table 4B-1 - Potential Impacts and Mitigation Measures Associated with a 132 kV OHL and UGC Grid Connection

Technical Topic	Potential Impacts	Potential Mitigation
Construction and decommissioning		
Cultural Heritage and Archaeology	Direct physical impacts to non-designated historic assets which are within the grid connection route, substation, laydown areas and along the length of the access tracks. This applies to known historic assets, those identified through LiDAR and unrecorded assets. Impacts to changes within the setting of designated historic assets through construction activities will be temporary and therefore would likely be scoped out of the assessment.	LiDAR analysis of the preferred route would identify any potential surface features. A walkover survey of the preferred route should be undertaken as part of the archaeological assessment in support of the application to identify the presence of any as yet unrecorded historic assets so that their location may be mapped; and to ground-truth those identified through LiDAR analysis. Significant effects through physical disturbance to recorded historic assets and those identified through LiDAR and walkover surveys can be mitigated through avoidance and demarcation or micro siting of the poles or cables. Where avoidance is not possible, preservation by record of historic assets could be undertaken.
Landscape and Visual	Direct (physical) effects on landscape elements and landscape character (as defined by LANDMAP) from construction operations along the grid connection route and at the substation location. Indirect (temporary) landscape effects relating to the visual or perceptual qualities of landscape character from construction operations along the grid connection route and at the substation location. Temporary effects on the views and visual amenity of residential, recreational and vehicular visual receptors (people) as a consequence of construction operations along the grid connection route and at the substation location.	Temporary earth bunding or solid hoarding to screen construction works at the substation compound and any other construction compounds. Route temporary access tracks through existing field gates and gaps in hedgerows/tree cover to minimise vegetation loss. There is also the potential for trenchless crossings utilising horizontal direction drilling to minimise vegetation loss. Reinstatement of temporary construction sites, compounds and access tracks.

Technical Topic	Potential Impacts	Potential Mitigation
Ecology	Impacts to designated sites of international importance which may be within 10 km of the grid connection route. Impacts to designated sites of national importance which may be within 2 km of the grid connection route. Impacts to non-statutory designated sites and other habitats of conservation importance within 2 km of the grid connection route. Potential impacts to any of the broad habitat types that are within the local area. These include, but are not limited to: ■ Broad-leaved semi-natural woodland; ■ Scrub – dense/continuous; ■ Scrub – scattered; ■ Broad-leaved parkland/scattered trees; ■ Improved grassland; ■ Moorland/marshy grassland; ■ Standing water; ■ Running water; ■ Hardstanding; ■ Arable; ■ Hedge (intact, defunct, and/or with trees); ■ Buildings; and ■ Bare ground. Based on the broad habitat types present and the geographic location, the grid connection route could provide suitable habitat to support a range of protected and/or notable species, including:	In line with the Step-Wise Approach avoiding impacts to Habitats of high conservation value will be sought as far as possible. There is the potential for trenchless crossings utilising horizontal direction drilling to minimise habitat loss, especially within areas of high conservation value. Given at this time it is not known what habitats would be potentially affected and if there would be habitat loss associated with the connection, appropriate mitigation will be sought in accordance with Planning Policy Wales ed. 12 (2024)¹. If habitat loss is anticipated that it will be sought that any habitat lost will be replaced with that commensurate at a minimum ratio of 1:1 where required. Any Priority Habitat to be lost should be replaced at a minimum ratio of 2:1. Any trees to be lost should be replaced at a minimum ratio of 3:1. It is expected that no loss of priority habitats or trees would likely be required and any loss would be mitigated as per the requirements of PPW. Surveys will be undertaken where necessary and required, depending on the outcome of these surveys, mitigation could include measures such as: ■ Works being carried out as per environmental best practice. ■ Works to be carried out under a Precautionary Method of Works (PMoW) under the supervision of an Ecological Clerk of Works (ECoW).

¹ Welsh Government (2024) Planning Policy Wales (Edition 12). Available at: <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf> (Accessed: June 2026).

Technical Topic	Potential Impacts	Potential Mitigation
	- Badger <i>Meles meles</i>; - Otter <i>Lutra lutra</i>; - Hazel dormouse <i>Muscardinus avellanarius</i>; - Pine marten <i>Martes martes</i>; - Other small mammals; - Bats; - Nesting birds; - Common and widespread reptiles; - Amphibians, including great crested newt <i>Triturus cristatus</i>; - Fish; - Invertebrates; and - Invasive non-native plant species	- Inclusion of bat boxes on the sides of trees. - Enhancement of connectivity through the planting of shrubs and trees into existing gaps in treelines and hedgerows. - Inclusion of invertebrate hotels and habitat piles. Following the implementation of the above mitigation measures, it is anticipated that there would be no residual significant effects.
Traffic and Transport	The following may arise during the construction and decommissioning phases: - Receptors located alongside and/or using the construction/decommissioning traffic routes could experience traffic and transport related effects - severance, driver delay, non-motorised user amenity, non-motorised user delay, fear and intimidation and road safety as a result of the generation of Heavy Goods Vehicles (HGV) and Light Vehicle (LV) traffic. - Temporary traffic management requirements to accommodate Abnormal Indivisible Load (AIL) movements on the road network. - Temporary traffic management requirements for new or amended access points for construction/decommissioning. - Road closures (full or partial) with associated diversions, for example relating to UGC installation, traffic management or highway improvement works. - Temporary increases in traffic flows.	To mitigate the potential impacts of construction and decommissioning a Construction Traffic Management Plan (CTMP) would be required to outline how construction will be managed, and equivalent for decommissioning. A CTMP focuses on ensuring the safe and efficient movement of vehicles, materials, and people to and from the Site. The Outline CTMP would indicate if any traffic regulation orders were likely to be needed and state that they would be applied for as part of the full CTMP once details known and in consultation with the relevant highway authority. At this point in time exact details on traffic flows or routing are not yet known, however, the CTMP would mitigate and manage these effects to a reasonably practicable level. If needed, a separate AIL route and access study would be produced based on vehicle tracking and site visits and would

Technical Topic	Potential Impacts	Potential Mitigation
	Public Right of Way (PRoW) closures (likely temporary) or other impacts with associated diversions or realignments where necessary.	identify temporary traffic management and mitigation requirements. This would need to be agreed with the relevant highway authority and police. Additionally, a PRoW Management Plan may be required to outline how impacts on PRoWs, and other key non-motorised user routes, would be managed.
Hydrology	The potential impacts on hydrology, would be greatest during the construction phase. There is the potential for a degradation in surface and groundwater quality and an increase in flood risk due to the potential for sediment mobilisation, chemical spills and pollution, dewatering of excavations, increases in surface water runoff and other effects to the water environment. The impact to hydrology receptor which could include: - Impacts on designated sites such as SSSI, Ramsar, etc; - Impacts on surface waters and groundwater bodies including those identified under the Water Framework Directive; - Impacts on Groundwater Dependent Terrestrial Ecosystems (GWDTEs); - Impacts that could result in an increase in river or surface water flood risk; - Impacts on water abstractions including Public and Private Water supplies;	The avoidance of sensitive receptors should be integrated into the design in the first instance and should be informed by site surveys. An Outline CEMP should be prepared and provide details on construction control measures that will be used to minimise impacts on hydrology and soils receptors. The Outline CEMP should include a Pollution Prevention Plan, Water Management Plan and Groundwater Management Plan. A Private Water Supply Monitoring and Method Statement may also be required in the event that abstractions are at risk during construction. Depending on the outcome of a Flood Consequences Assessment (FCA), mitigation to safeguard the development from flooding (and also to demonstrate no increase in flood risk) could also be presented. The Outline CEMP should be used to inform the final CEMP prepared post-consent prior to construction
Geology and Soils	The potential impacts on soils receptors will be greatest during the construction phase and could include: - Impacts on designated sites such as SSSI, Ramsar, etc; - The disturbance or loss of peat, peatland, as well as best and most versatile land (BMV); - Impacts associated with the disturbance of contaminated land.	The avoidance of sensitive receptors should be integrated into the design in the first instance and should be informed by site surveys. It is expected that soil disturbance would be minor, however depending on the extent and grade of BMV land a soil management plan may also be required. The Outline CEMP should be used to inform the final CEMP prepared post-consent prior to construction.

Technical Topic	Potential Impacts	Potential Mitigation
Ornithology	Installation / removal of poles, pylons, underground cabling and access tracks may result in the loss of breeding habitat and short-term disturbance of nesting birds during construction / line stringing.	Bundle infrastructure where possible, routing proposed grid connection development along existing roads / rail. Design routes with a buffer around known nests of protected species. Limit the numbers of temporary construction compounds, laydown areas and the extent of working areas. Avoid having construction compounds and refuelling areas near to known nest locations. Avoid installation / removal during the nesting bird period. If it cannot be avoided, complete nesting bird checks immediately prior to works / leave an appropriate buffer around active nests. If a pole / pylon is being used by breeding birds, retain the pole until breeding is completed / consider retention post decommissioning.
Noise	Potential for construction activities including through the construction and installation of OHL and UGC infrastructure (including potential for horizontal directional drilling (HDD) techniques) and construction traffic noise to be audible, and/or above BS 5228 ² construction noise criteria	A CEMP would be implemented to agree, manage, and regulate the noise levels from construction and decommissioning activities. This, alongside a detailed assessment when details are better known, should ensure noise levels can meet the noise criteria detailed in BS 5228. For noise sensitive receptors near the grid connection route, there will be temporary noise effects which will depend on: the method of construction, plant used, and distance to receptor. However such details are not known at this stage. Given that construction works are likely to be short duration in each instance (e.g. 1-2 days for the erection of each pole), it is likely that the noise effects will be acceptable. However the

² BS 5228-1:2009+A1:2014. "Code of practice for noise and vibration control on construction and open sites – Part 1: Noise"

Technical Topic	Potential Impacts	Potential Mitigation
		residents should be notified of the construction works in advance, and consideration given to whether any specific additional mitigation is required in practice. Any additional mitigation required will be set out in a CEMP that will be produced prior to the commencement of construction/decommissioning. Where trenchless crossing techniques such as HDD are required, specific noise implications will be assessed and managed through the CEMP. HDD activities can generate continuous plant noise over longer durations compared to typical open trench works; therefore, additional mitigation measures will be considered where necessary. These may include the use of acoustic barriers or enclosures, appropriate siting of drilling rigs to maximise distance from sensitive receptors, selection of low-noise plant, and restriction of working hours where practicable. A BS 5228-compliant assessment will be undertaken to confirm predicted noise levels and identify any requirement for further site-specific controls.
Operation		
Cultural Heritage and Archaeology	Operational impacts may lead to significant effects on designated historic assets through change to setting. This would be dependent on the location and reason for designation.	The grid connection route would seek to avoid key views of and from designated heritage assets.
Landscape and Visual	Direct (physical) effects on landscape elements and landscape character (as defined by LANDMAP) from the introduction of the OHL infrastructure and associated infrastructure into the existing landscape. Operational effects associated with sections of UGC are likely to be minimal following reinstatement of landcover, vegetation and boundary treatments.	OHL: Avoid siting within nationally designated landscapes (i.e. National Parks and National Landscapes). OHL: Choose tree and hill backgrounds in preference to sky backgrounds wherever possible. If the OHL has to cross a ridge, secure an opaque background as long as possible and cross obliquely when a dip in the ridge provides an

Technical Topic	Potential Impacts	Potential Mitigation
	Indirect landscape effects relating to the visual or perceptual qualities of landscape character or local landscape designations from views of the OHL infrastructure and new substation compound and associated infrastructure within the existing landscape. Effects on the views and visual amenity of residential, recreational and vehicular visual receptors (people) as a consequence of the OHL infrastructure and new substation compound and associated infrastructure.	opportunity. Where it does not, cross directly, preferably between belts of trees. OHL: Regular spacing of OHL poles to form a coherent appearance. OHL: Minimise number of angles and turns along OHL route as far as possible.
Ecology	The operational phase of the OHL may lead to detrimental impacts on the following species: ■ Bats. There are no operational impacts associated with the UGC, as the route would be undergrounded and habitats would be reinstated.	Specific mitigation measures for the OHL may include measures such as: ■ Retention of vegetation including trees as far as possible in the first instance. ■ A stand-off distance between key foraging features and linear commuting features and the OHL. ■ Enhancement of foraging features away from the OHL. This could include, for example, creation of a pond or swales. ■ Landscaping to comprise native species of local origin, and to include berry bearing shrubs. ■ Incorporation of invertebrate hotels and habitat piles to provide food sources for bats.
Traffic and Transport	Operational traffic generation is assumed to consist of infrequent maintenance and repair visits carried out by a small number of vehicles. Therefore, there would not be any anticipated significant traffic and transport effects during the operational phase due to negligible operational traffic generation.	No specific mitigation required.

Technical Topic	Potential Impacts	Potential Mitigation
Hydrology	During the operation phase it is expected that potential impacts would be considerably lower and would be associated with any permanent changes to hydrology receptors such as flood risk or private water supplies. It is not expected that any adverse impacts would be significant, given the anticipated minor nature of the development and the avoidance of sensitive receptors detailed in the construction mitigation section.	
Geology and Soils	During the operation phase it is expected that potential impacts would be considerably lower and would be associated with any permanent changes to soil receptors. Routine access of vehicles along the development could lead to the compaction of soils and reduction in functionality. It is not expected that any adverse impacts would be significant.	Any unplanned works would be subject to good practice mitigation associated with soil and peat management (as well as the management of other constraints) and are assumed to be implemented successfully. The Outline CEMP would be followed during the construction phase and will include details associated with soil re-use and aftercare to ensure that soils are managed sustainably so there are no effects during the operational phase.
Ornithology	- Long term management of vegetation to allow maintenance could cause destruction of nests and disturbance (if not appropriately timed) of nesting birds. - There is potential for bird collision with overhead lines. Species susceptible to wire impacts include waterfowl, waders, raptors and game birds. - There is potential for bird electrocution associated with live overhead lines.	Avoid vegetation removal and management during the nesting bird period. If it cannot be avoided, complete nesting bird checks immediately prior to works / leave an appropriate buffer around active nests. If ornithological desk study and/or survey identifies a risk of regular flight activity / presence of migratory routes for species susceptible to wire impacts, consider alternative route options, undergrounding the cable, and using visual deterrents (which may be effective for some target species). Potential for electrocution can be reduced by using poles with suspended insulators / capping upright insulators on poles / insulation wires with tubing and installing perch rejectors on cross arms.

Technical Topic	Potential Impacts	Potential Mitigation
Noise	- Operational stage: potential for noise levels to be above the relevant noise thresholds - During the operational stage, noise from the OHL may arise from: wind passing over the conductors (or other line components), or through corona discharge at the conductors or fittings (albeit unlikely).	National Grid has a policy³ that sets out noise criteria and assessment methods, principally for 275 and 400 kV overhead lines. A detailed assessment may not be proportionate for the assessment of this 132 kV overhead line, but the tiered noise criteria set out by the document, may provide indicative reference levels for acceptable levels of audible noise. Wind-induced noise from the overhead line conductors and fittings would only occur under higher wind speed and specific direction conditions, and would coincide with elevated local wind-induced background noise. Any localised noise associated with damaged, contaminated or otherwise defective fittings would be expected to be addressed through routine inspection and maintenance.

³ National Grid (2021). "Operational Audible Noise Policy for Overhead Lines". PS(T)134 – Issue 2 – June 2021.

1.2 CONCLUSION

- 1.2.1. The assessment detailed above in **Table 4B-1** has been based on reasonable worst case assumptions for the proposed grid connection. It has been concluded by each environmental topic that through the implementation of mitigation and best practice measures that the effects associated with the grid connection route could be reduced to an acceptable level.
- 1.2.2. Therefore, there is not expected to be any environmental impediment to the grid connection for the Proposed Development.



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