



Parc Ynni Calon y Gwynt

ENVIRONMENTAL STATEMENT

Volume 1: Non-Technical Summary





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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1. Parc Ynni Calon y Gwynt Cyf (hereafter referred to as 'the Applicant') is seeking planning permission for the construction and operation of Parc Ynni Calon y Gwynt, comprising up to 11 wind turbines each with an anticipated capacity of up to 7.2 megawatts (MW), battery energy storage system (BESS) and associated infrastructure (hereafter the 'Proposed Development'). The Proposed Development is located in the administrative area of Powys County Council.
- 1.1.2. As the installed generating capacity of the Proposed Development would exceed 10 megawatts (MW), it qualifies as a 'Development of National Significance' (DNS) and the application for planning permission will be decided by the Welsh Ministers, with the process administered by Planning and Environment Decisions Wales (PEDW) (or Penderfyniadau Cynllunio ac Amgylchedd Cymru).
- 1.1.3. To accompany the application for planning permission an Environmental Impact Assessment (EIA) has been undertaken. EIA is a process that identifies the environmental effects of a development and identifies ways that these effects can be reduced and/or managed. An EIA is required by law for large developments that have the potential to cause 'significant' environmental effects. The findings of this process are reported in a document called an Environmental Statement (ES).
- 1.1.4. The DNS process requires the Applicant to submit an ES to enable technical stakeholders, such as Natural Resources Wales (NRW), Cadw and the local planning authorities, and the public, to develop an informed view of the likely significant effects of the Proposed Development, and comment on the proposals, prior to the final submission of the application.
- 1.1.5. The ES for the Parc Ynni Calon y Gwynt wind farm is a public document available for anyone to inspect and has been prepared in accordance with *The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the EIA Regulations)*. It presents the likely environmental effects of the Proposed Development.
- 1.1.6. This document sets out a summary of the findings from the ES in non-technical language.

1.2 PURPOSE OF THIS NON-TECHNICAL SUMMARY

- 1.2.1. The aim of the Non-Technical Summary (NTS) is to enable local communities and other stakeholders to understand the likely environmental effects arising as a result of the Proposed Development in a concise manner which is easily understood and accessible by all. Effects are assessed in terms of how 'significant' they would be, and the EIA process is primarily concerned with effects of a significant nature that are considered to be likely to occur (i.e. 'likely significant effects') and not those unlikely to be significant.
- 1.2.2. This NTS includes a description of the Proposed Development, a summary of the consultation process and the results of the EIA work undertaken to date.

2 THE SITE

2.1 SITE LOCATION

- 2.1.1. The Proposed Development site is situated within the administrative area of Powys, in mid Wales (hereafter referred to as the 'Site'). The Site is located on hills to the north of the A470 trunk road, approximately 2.7km north of the village of Clatter, 3.5km northeast of the village of Carno, 3.5km north of the village of Pontdolgoch and 12km northwest of Newtown.
- 2.1.2. The Site encompasses an area of approximately 381 hectares (ha). The existing land use of the Site and surrounding area is largely comprised of agricultural pasture used for livestock grazing, and is interspersed by hedgerows, existing access roads and pockets of woodland throughout. There are a small number of isolated dwellings in proximity to the Site, the closest is located immediately south of the Site boundary, approximately 200m north of Llyn Mawr Nature Reserve.

2.2 THE APPLICANT

- 2.2.1. Parc Ynni Calon y Gwynt is being developed by Parc Ynni Calon y Gwynt Cyf, which is part of a joint venture between Wind2 Limited ('Wind2'), and companies managed by Octopus Energy Generation ('Octopus'). Wind2, headquartered in North Wales, is a specialist renewable energy developer, which is working on the development of a range of renewable energy projects across the UK. Octopus Energy Generation is driving the green agenda as one of Europe's largest specialist renewables investors. It manages £7 billion of green energy generation across 21 countries producing 4.9GW of renewable energy. Octopus Energy Generation operates wind, solar and battery projects across the UK.

3 SITE SELECTION

- 3.1.1. The Site is entirely located within a Pre-Assessed Area (PAA) for Wind Energy as defined in Policy 17 of the National Development Framework (NDF) – Future Wales: The National Plan 2040, where there is a presumption in favour of large-scale wind energy development, subject to the criteria of Policy 18. All turbines are located within PAA 3. The PAAs acted as outline search areas within which the local environment has been deemed capable of accommodating large scale wind energy development. Although revoked in February 2021 following publication of Future Wales: The National Plan 2040, the Site is also located in a Strategic Search Area (SSA) identified in Technical Advice Note (TAN) 8: Planning for Renewable Energy. This is reflected by the pattern of existing onshore wind development in proximity to the Site.
- 3.1.2. Following the identification of potential sites within PAAs, the Applicant commissioned further desk-based assessments to understand potential constraints and opportunities including a high level aviation assessment, physical constraints review and ownership identification.
- 3.1.3. Once the Site had been selected, the design of the Proposed Development was optimised to produce a layout which maximises the use of the land available for wind power generation whilst minimising the overall environmental impact of the development. The layout of the Site is dependent on a range of technical, economic and environmental criteria, including:
- Ground conditions – ground conditions must be suitable for the installation of wind turbines, access tracks and cables;
 - Energy yield – it is important that wind turbines are sited to capture the best available wind resource. This means maximising exposure to the prevailing winds;
 - Site topography – the site topography is computer modelled to establish the wind flow on and around the site to provide guidance on the best locations for the wind turbines;
 - Proximity to occupied dwellings – wind turbines have to be located sufficiently far away from houses to protect local amenity;
 - Environmental constraints – features and areas of local environmental sensitivity (ecology, heritage/archaeology, peat, hydrology etc.) are identified and their implications considered;
 - Landscape and visual design considerations are taken into account and the layout and scale of the project modified accordingly;
 - Existing land use – whilst the wind turbines and their associated infrastructure typically occupy no more than 2% of the site, the existing use of the land (including any public rights of access) is considered in the layout of tracks and turbines. For example, existing tracks are used where practicable;
 - The presence and magnitude of woodland is also important, as these can reduce energy production from wind turbines;
 - Proximity to obstructions – such as tall trees or buildings;
- and
- Proximity to a road network suitable to allow the transport of construction plant, equipment and wind turbine components to the site.

- 3.1.4. The Applicant and its consultants undertook a number of discussions with statutory and non-statutory consultees, the local community, and the landowners, to understand concerns and influence the evolution of the design of the Proposed Development. Feedback from these discussions was taken into consideration when seeking to identify the optimal layout for energy generation whilst minimising any potential environmental effects. This involved the technical and environmental appraisal of nine different turbine layouts, with differing numbers and locations of turbines and other site infrastructure. The preferred layout was then fixed and progressed as the design which was assessed as part of the EIA.

4 THE PROPOSED DEVELOPMENT

4.1.1. The Proposed Development consists of the following elements:

- Up to 11 three bladed horizontal axis wind turbines, with an anticipated rotor diameter of 163m and height to blade tip of 180 – 200m (approximate generating capacity of up to 80 MW);
- BESS infrastructure and compound;
- Crane pads (hardstandings) and laydown areas adjacent to each wind turbine;
- Power cables linking the wind turbines to the onsite substation, laid in trenches underground, including cable markers, health and safety and other signage;
- New and upgrading of existing access tracks, passing places and turning heads;
- Construction of a new access road from an existing junction of the A470 with the B4568 to facilitate access onto the Site;
- Grid connection infrastructure, including an onsite substation compound, consisting of a 33kV/132kV switching station, transformer area and control building.
- The creation of temporary borrow pits for the extraction of stone (the potential locations within the Site are currently being reviewed); and
- Temporary construction compound(s)

4.1.2. The Proposed Development is designed with an operational life of 40 years and permission is sought for this period of operation only. After this period, the turbines can be dismantled and removed and the Site restored. The other options for the Applicant to consider is to apply for an extension to the operating period of the wind turbines or apply to install new turbines on site. Either of these options would require a separate application for planning permission.

4.1.3. In order to ensure the Proposed Development can be connected to the electricity transmission network, the Applicant has been holding on-going discussions with National Grid regarding the Proposed Development's grid connection. The grid connection will be subject to a separate consent and will not form part of the DNS application.

4.1.4. The layout of the Proposed Development is illustrated in **Plate 4-1** and **Plate 4-2** shows the location of the Site in the context of the surrounding area. The principal point of access into the Site will begin at an existing road junction of the A470 with the B4568, and head north via a new access road to be constructed as part of the Proposed Development.

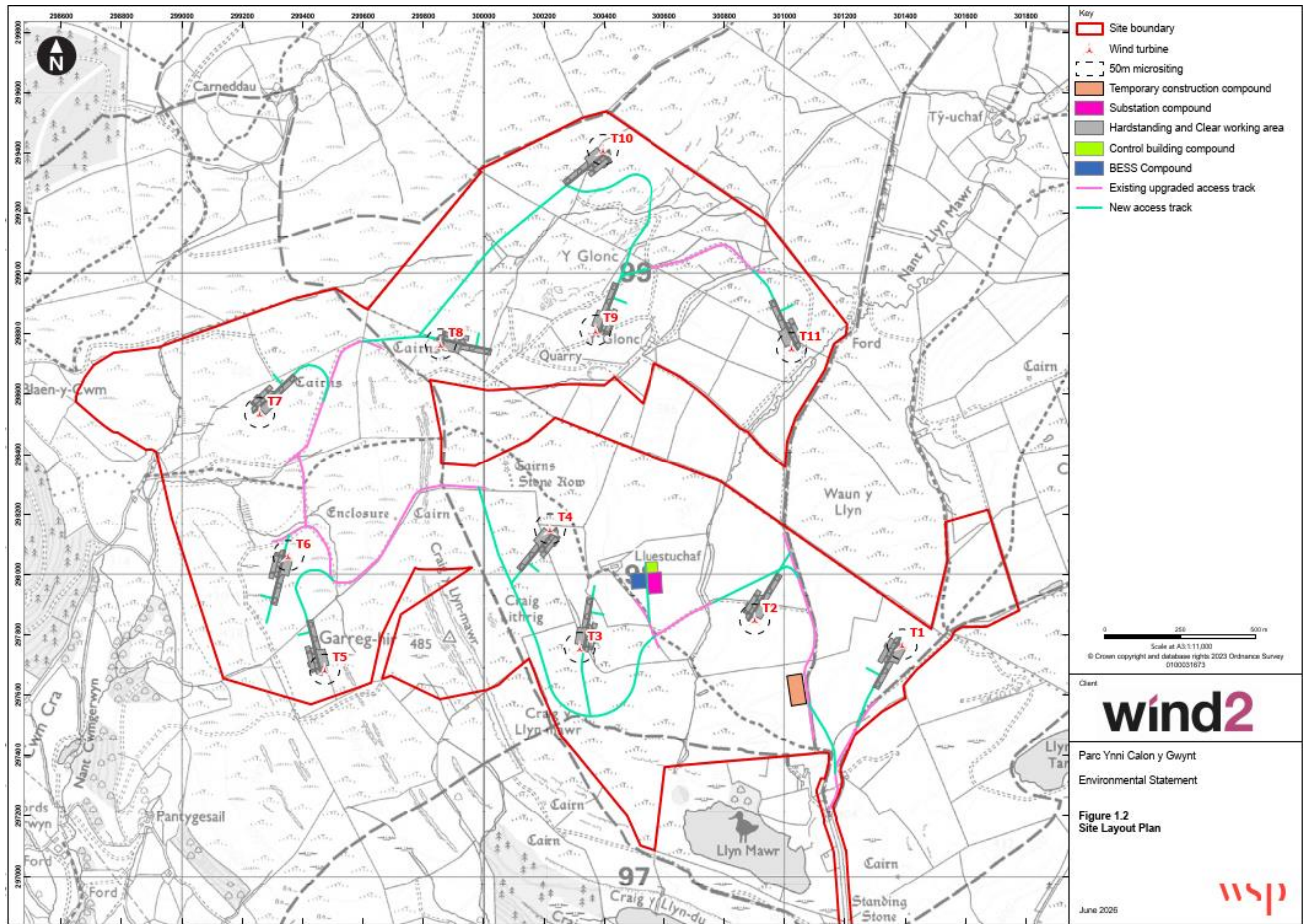


Plate 4-1 - Proposed Development Site Layout

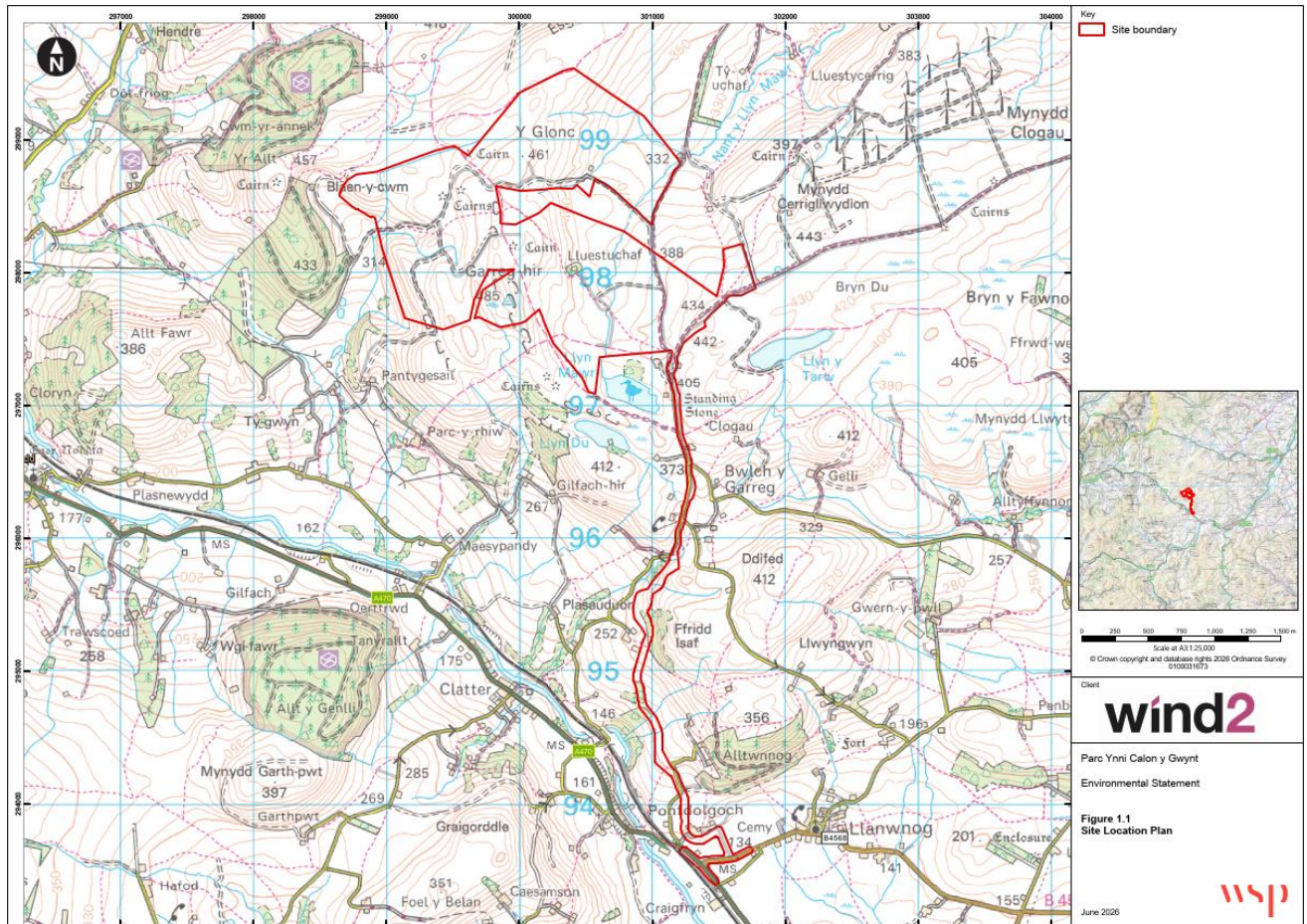


Plate 4-2 - Location of the Proposed Development

- 4.1.5. Illustrations of a typical wind turbine (**Plate 4-3**), the on-site substation compound (**Plate 4-4**) and BESS Compound (**Plate 4-5**) are provided below.

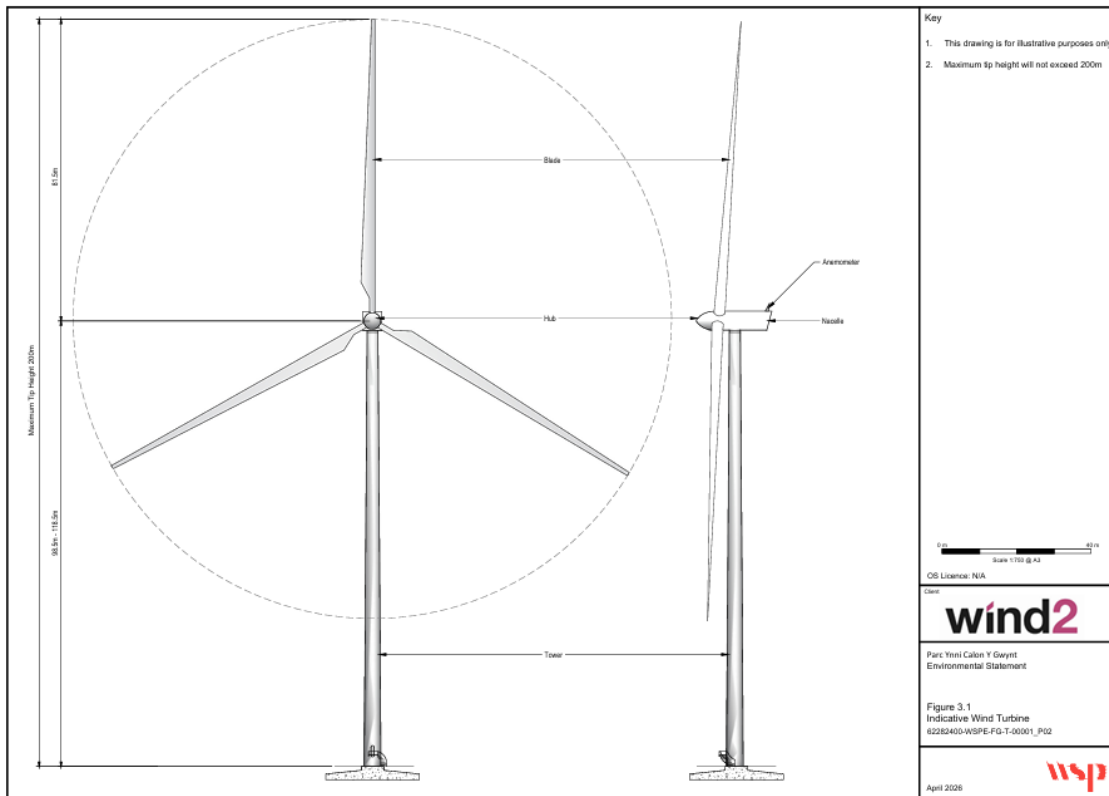


Plate 4-3 - Typical Wind Turbine

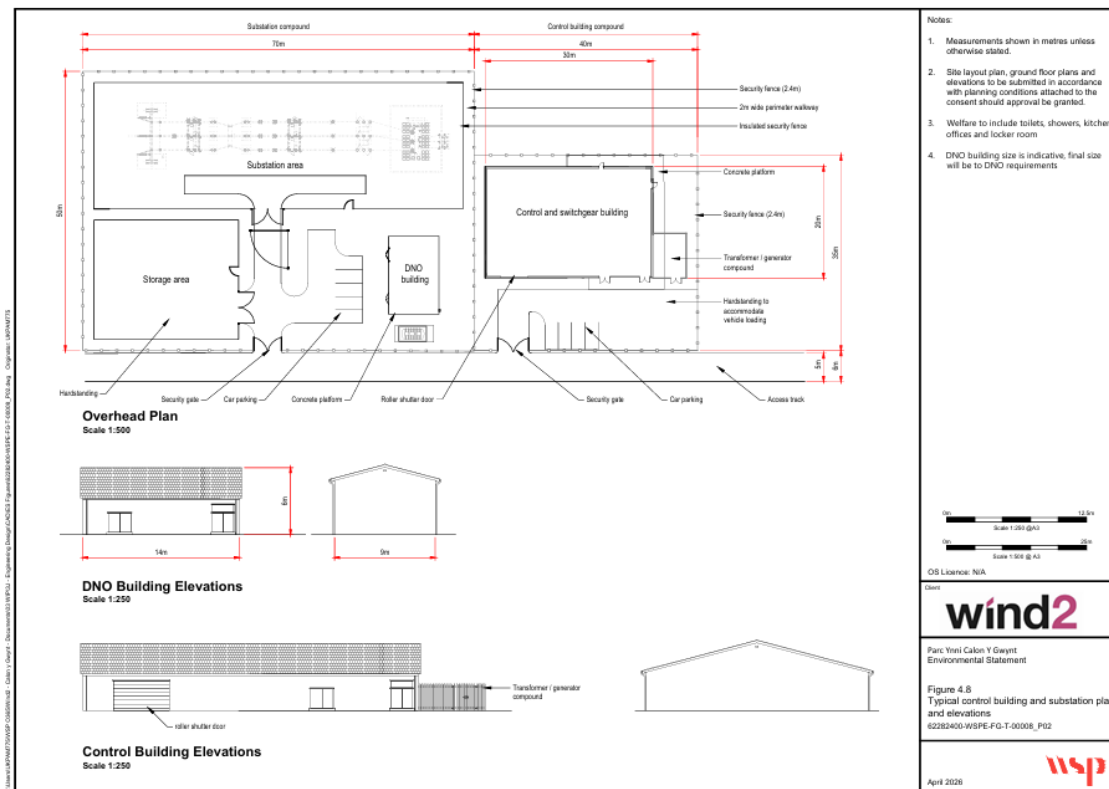


Plate 4-4 - Typical Substation and Control Building Elevation

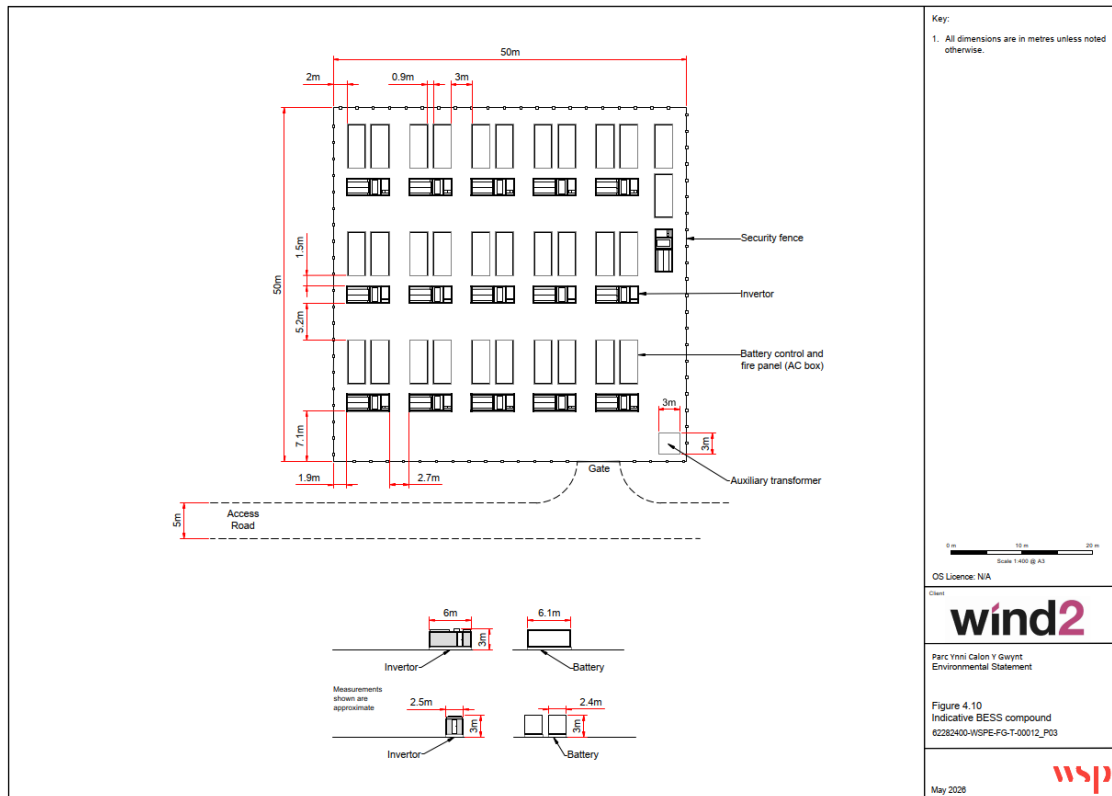


Plate 4-5 - Indicative BESS Compound

- 4.1.6. It is anticipated that the construction period for the Proposed Development would be approximately 24 months in duration. The start date for construction activities is largely dependent upon the date that consent might be granted and grid transmission availability.
- 4.1.7. Where possible, construction activities would be carried out concurrently (thus minimising the overall length of the construction programme). In addition, where feasible development would be phased such that, at different parts of the Site, the civil engineering works would be continuing whilst wind turbines are being erected. Site restoration would be programmed and carried out to allow restoration of disturbed areas as early as possible and in a progressive manner.
- 4.1.8. The final length of the programme would be dependent on seasonal working and weather conditions. Summer months are favoured for construction due to longer periods of daylight allowing longer (and safer) working days.
- 4.1.9. Construction activities have been assumed to take place between 07:00 to 19:00 hours on weekdays and 07:00 to 13:00 on Saturdays. Quiet on-site working activities such as electrical commissioning have been assumed to extend outside the core working times, noted above, where required. No working will be undertaken on Sundays or bank holidays.

4.2 MICROSITING

In carrying out the various surveys that are necessary in advance of construction activities, environmental, geotechnical and health and safety sensitivities, as well as wind-related sensitivities, might be identified that could be avoided if the locations of turbines or tracks are re-sited to a relatively small degree (i.e., 'microsited'). It is therefore proposed that some flexibility for infrastructure micrositing be included with the grant of any planning permission for the Proposed Development. These limits would be up to 50m for turbines and 50m for internal wind farm tracks and other infrastructure such as the substation and site compound.

5 THE NEED FOR ONSHORE WIND POWER

- 5.1.1. Renewable energy produces energy without burning fossil fuels that release carbon dioxide and other greenhouse gases that contribute to climate change. Renewable energy such as wind also provides an alternative energy source to assist with energy security issues. Increased use of renewable energy is therefore a key part of European, UK and Welsh energy strategy.
- 5.1.2. The introduction of the Welsh Government Net Zero Carbon Budget, 2021¹ reports the progress to date which the Welsh Government have set in policy to combat climate change and how they plan to battle climate change over the coming decade:
- 5.1.3. *“In the last six years, we have laid the legislative foundations for a cleaner, fairer, stronger Wales, including through the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016. Wales has consistently followed the science, starting in 2016 with a target for an 80% reduction in our emissions by 2050. In 2019 we accepted the Climate Change Committee’s recommendation to increase our ambition to 95% shortly after the Senedd became the first Parliament in the world to declare a climate emergency in 2019. On accepting the recommendation, we were clear our ambition should be in line with the spirit of the Paris Agreement in which richer, developed nations should set in law a net zero target by the middle of this century”.*
- 5.1.4. The Climate Change (Wales) Regulations 2021² also reiterates as “climate science continues to demonstrate that human activity is warming the planet and that the resulting effect on weather patterns is having increasingly negative consequences for ecosystems, economies, and people. The Welsh Government is proposing to increase Wales’s climate targets in response to the latest climate science and the recommendations of the Climate Change Committee”. This includes the:
- *“Carbon Budget 2 (2021-2025): an average of 37% below the baseline with a credit (‘offset’) limit of 0%;*
 - *Carbon Budget 3 (2026-2030): an average of 58% below the baseline;*
 - *2030 target for an emissions reduction of 63% against the baseline;*
 - *a 2040 target for an emissions reduction of 89% against the baseline; and*
 - *a 2050 target for an emissions reduction of at least 100% against the baseline (‘net zero’)”².*
- 5.1.5. In 2021, Future Wales: The National Plan 2040 (Future Wales) was introduced as a national development framework to combat the *“climate emergency which is actively changing our environment and directly affecting communities”*. Future Wales aims to help plan new development and manage land use through enhancing the economic, social, environmental, and cultural well-being of Wales. Future Wales builds on the well-being goals set out in the Future Generations (Wales) Act 2015 to create a Prosperous, Resilient, Healthier, More Equal, Cohesive, Globally Responsible and Vibrant and Thriving Wales.

¹ Welsh Government (2021). Net Zero Wales Carbon Budget 2 (2021 to 2025). (c. 1), pp. 10. (Online). Available at: <https://gov.wales/sites/default/files/publications/2021-10/net-zero-wales-carbon-budget-2-2021-25.pdf>

² Welsh Government (2021). The Climate Change (Wales) Regulations 2021: integrated impact assessment. (c1), pp. 3. (Online). Available from: <https://gov.wales/sites/default/files/pdf-versions/2021/7/5/1625823413/climate-change-wales-regulations-2021-integrated-impact-assessment.pdf>

- 5.1.6. Future Wales also specifies:
- “It is vital that we reduce our emissions to protect our own well-being and to demonstrate our global responsibility. Future Wales together with Planning Policy Wales will ensure the planning system focuses on delivering a decarbonised and resilient Wales through the places we create the energy we generate, the natural resources and materials we use and how we live and travel”.*³
- 5.1.7. Future Wales also maintains *“Wales can become a world leader in renewable energy technologies. Our wind and tidal resources, our potential for solar generation, our support for both large and community scaled projects and our commitment to ensuring the planning system provides a strong lead for renewable energy development, mean we are well placed to support the renewable sector, attract new investment and reduce carbon emissions”.*
- 5.1.8. The latest version of Planning Policy Wales (Edition 12)⁴ (PPW12) acknowledges Wales has been set a 95% net zero target for 2050 by the Climate Change Committee and how nationally, the intention is to go beyond this to become fully net zero. PPW12 outlines:
- “Climate change is a global challenge, with impacts felt at the local level presenting a significant risk to people, property, infrastructure and natural resources. We need to plan for these impacts, reducing the vulnerability of our natural resources and build an environment which can adapt to climate change. The planning system plays a significant role in managing this risk. Development allowed today will be around for decades to come. The most important decision the planning system makes is to ensure the right developments are built in the right places”.*
- 5.1.9. PPW12 also states that *‘Local authorities should facilitate all forms of renewable and low carbon energy development and should seek cross-department co-operation to achieve this. In doing so, planning authorities should seek to ensure their area’s full potential for renewable and low carbon energy generation is maximised and renewable energy targets are achieved. Planning authorities should seek to maximise the potential of renewable energy by linking the development plan with other local authority strategies, including Local Well-being plans and Economic/Regeneration strategies’.*
- 5.1.10. In September 2024, the Welsh Government announced its commitment to driving progress across four priority areas, including *‘creating green jobs that tackle the climate crisis and restore nature, while making families better off; accelerating planning decisions to grow the Welsh economy.’*⁵
- 5.1.11. Onshore wind power is recognised as being a deliverable, mature technology. Wind power is one of the few energy technologies that is both low in CO₂ emissions, helping to tackle climate change, yet can also be delivered quickly, affordably and is domestically secure thereby addressing the key energy security challenges. It is this critical ability to address both issues that makes wind power a central feature in Welsh Energy policy.
- 5.1.12. The proposed Parc Ynni Calon y Gwynt could make a meaningful contribution to meeting the renewable energy targets set by the Welsh Government.

³ Welsh Government (2021). Future Wales the National Plan 2040. (c. 2), pp. 45. (Online). Available at: <https://gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf> [Accessed July 2026].

⁴ Welsh Government (2024). Planning Policy Wales 12th Ed. (c. 3), pp. 31. (Online). Available at: <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf> [Accessed July 2026].

⁵ Welsh Government (2024). Press Release: First Minister announces Welsh Government priorities. Available at (online): <https://www.gov.wales/we-have-listened-we-have-learned-and-we-will-deliver-fm-announces-welsh-government-priorities#:~:text=Green%20jobs%20and%20growth%20%E2%80%93%20creating,to%20grow%20the%20Welsh%20economy> [Accessed July 2026].

6 ENVIRONMENTAL IMPACT ASSESSMENT

6.1 EIA INTRODUCTION

- 6.1.1. EIA is a process by which information about the environmental effects of a proposed development is collected, evaluated, and taken into account in its design. It considers the people and environmental resources (collectively known as 'receptors') that could be affected by the Proposed Development.
- 6.1.2. If the development is given consent, the EIA process provides a consideration of the most appropriate methods for its construction, operation and future decommissioning.

6.2 SCOPING AND ENGAGEMENT

EARLY ENGAGEMENT

- 6.2.1. Engagement has been undertaken with consultees, stakeholders and other interested organisations.
- 6.2.2. A Scoping Report was submitted to PEDW in February 2025. The Scoping Report set out the proposed scope of each environmental topic's assessment by identifying the potentially significant effects, determining the subject matter of the assessment and setting out the methodologies for undertaking the assessment. PEDW subsequently provided a Scoping Direction, which included comments from a range of stakeholders, on behalf of Welsh Ministers, in March 2025. The Scoping Direction has subsequently informed the assessment work and further design evolution undertaken to date.
- 6.2.3. A website was set up at the start of the project to provide information about the proposals and feedback mechanisms to enable local communities and stakeholders to comment on the emerging proposals: <https://parcynni-calonygwynt.cymru/en>.

INFORMAL CONSULTATION

- 6.2.4. The Applicant has undertaken consultation and engaged with a range of statutory and non-statutory consultees, local communities, organisations and individuals to refine the Proposed Development, as well as to guide the preparation of the EIA and assist in the development of any required mitigation measures to reduce the severity of environmental effects.
- 6.2.5. Early engagement with the local planning authority, local community and interested parties took place from February and March 2025. Public exhibitions were held at Clatter Community Centre on the 4th March 2025 and at Cefn Coch Inn on the 5th March 2025. The exhibition material was hosted on the project website with all the information that was available to those who attended in person. A second round of consultation events updating the public on changes to the layout was held on 17 and 18 June 2026 in Cefn Coch and Caersws.
- 6.2.6. A Public Exhibition Summary Document that summarises the key issues and enables community members to engage easily in the process was produced and was available on the project website from the start of the early engagement process: <https://parcynni-calonygwynt.cymru/en/public-consultation>.

6.3 POTENTIAL ENVIRONMENTAL EFFECTS

- 6.3.1. The following sections provide a brief summary of the main findings of the EIA, split by each environmental topic, as set out in the technical chapters of the full Environmental Statement (ES).

As required by the EIA Regulations⁶, the ES sets out whether effects on these receptors would be 'significant' or not.

- 6.3.2. Effects which are considered 'significant' are deemed important enough to influence the decision to be taken by the competent authority (Welsh Ministers) as to whether planning permission should be granted based on a balance of the effects.

EMBEDDED ENVIRONMENTAL MEASURES

- 6.3.3. The process of undertaking EIA is iterative and opportunities for environmental mitigation, that is, measures aimed at removing or reducing the environmental impact of the development, have been considered throughout the design process. These measures are referred to as 'embedded environmental measures' and have been considered in the assessment undertaken for the ES to identify where likely significant effects remain. Where possible, these measures have been developed with input from key stakeholders together with appropriate technical standards, policies and guidance. These embedded environmental measures include avoidance (of potential sensitive features for example sensitive habitats), best practice and design commitments.

ADDITIONAL MITIGATION MEASURES

- 6.3.4. Additional Mitigation Measures, also referenced as additional mitigation, are measures that have been implemented to avoid, reduce or compensate for a potential significant effect. These measures are identified following the initial completion of the assessment of the Proposed Development and the potential effect, including the consideration of the embedded measures and are implemented specifically to mitigate an identified effect.

TOPICS SCOPED OUT OF THE EIA

- 6.3.5. There are some aspects for which a detailed assessment has not been undertaken because the potential for significant effects from these topics is unlikely. Where appropriate, this has been agreed with PEDW and other technical stakeholders:
- Socio-economics - Such effects are considered as part of the scope of other relevant environmental topics such as Landscape and Visual Impact Assessment and Traffic;
 - Population and human Health - Such effects are considered as part of the scope of other relevant environmental topics such as Landscape and Visual Impact Assessment, Traffic, Noise, and Shadow Flicker;
 - Major Accidents and Disasters - Measures will be incorporated into the design and risk assessments implemented during construction to ensure the likelihood of major accidents and disasters is very low (including an assessment of Fire Risk associated with the BESS)
 - Climate Change - The vulnerability of the Proposed Development to climate change and extreme climate events is considered as part of the scope of other relevant environmental topics, and where relevant has been designed so that it is not vulnerable to the effects of Climate Change;
 - Sustainable Resource Use and Waste Management - The proposed infrastructure has been designed to minimise the amount of soil disturbance. Where soils would be excavated, they would be stored on the Site in accordance with the Construction Environmental Management Plan (CEMP). Potential effects of soil, water, and biodiversity resources are considered as part of the other relevant environmental topic chapters.

⁶ The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017

7 ENVIRONMENTAL ASSESSMENT

7.1 INTRODUCTION

7.1.1. This section provides a summary of the assessment of likely significant effects to resources and receptors including:

- Ecology
- Ornithology
- Landscape and Visual
- Historic Environment
- Hydrology
- Geology and Soils
- Noise;
- Traffic and Transport;
- Shadow Flicker;
- Aviation and Radar, and Telecommunications;
- Cumulative and Combined effects.

7.2 ECOLOGY

- 7.2.1. **Chapter 5** of the ES has considered the likely significant effects of the Proposed Development on biodiversity features (designated wildlife sites, habitats and species) within the area that the Proposed Development could affect. This area, known as the Zone of Influence (Zoi), differs depending on the type of feature considered and the nature of the potential environmental change that may arise.
- 7.2.2. The assessment methodology has been aligned with the standard industry practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM) and informed by consultation with relevant stakeholders.
- 7.2.3. Information on the existing biodiversity features has come from a variety of sources including historical records of flora and fauna, descriptions of wildlife sites gained through desk study, and extensive field surveys.
- 7.2.4. The Site comprises a range of habitats, including grasslands, bracken, scrub, and coniferous woodland. There are several small streams running throughout the Site, including the Nant y Llyn Mawr, a stream that flows northwards through the Site from Llyn Mawr, a reservoir immediately south of the Site. The Site overlies a bedrock of sandstone and mudstone with rocky outcrops in several places.
- 7.2.5. The new access road extends southwards across grazed grassland fields and some arable land, which are separated by lines of trees, hedges and fencelines. Some streams flow westwards throughout the access road within field boundaries. The wider area comprises a similar mosaic of grazed fields and arable land, with broadleaved woodland blocks and lines of trees and hedgerows forming connectivity between these woodland blocks.

- 7.2.6. There is one statutory designated site of European importance located within 10km of the Site: Coedydd Llwr-y-glyn Special Area of Conservation (SAC). There is one statutory designated site of national importance located within 2km of the Site: Llyn Mawr Site of Special Scientific Interest (SSSI).
- 7.2.7. There are four non-statutory nature conservation sites within 2km of the Site, comprising one B-Line (a locally important insect pollinator dispersal pathway, between areas of existing wildflower-rich habitat), one Wildlife Site, one Wildlife Trust Reserve, and one Road Verge Nature Reserve. The B-Line and Llyn Mawr Wildlife Trust Reserve are partially located within the Site. There are discrete areas of woodland and bracken. There are four parcels of designated Ancient Semi Natural Woodland within the Site boundary of the Access Road.
- 7.2.8. The species surveys identified the following:
- A site walkover survey concluded that the Site was considered to have a moderate suitability overall for supporting bats. A number of trees were identified with medium-high bat roost potential.
 - The surveys recorded a low level of bat activity levels within the Site for species that were identified as having a high risk of turbine collision, with the exception being noctule bat that was recorded as having Low/Moderate activity at one detector location.
- 7.2.9. Targeted badger surveys within the Site undertaken in 2024 and 2026 did not identify any confirmed evidence of badger, however a later habitat survey identified an outlier sett within the construction footprint.
- 7.2.10. No records of dormouse were returned from the desk study. However, dormouse are known to be present in Powys, although there are large areas of suitable habitat within Powys have been lacking dormouse presence historically, whilst dormouse records in Wales are declining.
- One record of otter was returned during the desk study, 1 km from the Site, but no evidence of otter presence on Site was identified during the Preliminary Ecological Appraisal surveys.
 - Watercourses within the Site, both within the upland Main Site and the Access Road, were considered to have suitability to support otter.
 - No records of water vole were recorded during the desk study, and no evidence of water vole presence was identified during the Preliminary Ecological Appraisal surveys. However, watercourses within the Site and the surrounding habitats were considered to have potential suitability to support water vole.
 - The surveys found records of brown hare and hedgehog, whilst concluding that there was suitable habitat for pine marten and polecat also.
 - Reptile presence has been assumed within the Site, as two records of common lizard were returned during the desk study, and the surveys concluded that there was suitable habitat for reptiles.
 - Two records each of common frog and common toad were returned during the desk study, and the surveys concluded that there was suitable habitat for amphibians. The survey also indicated presence of Great Crested Newts, and three ponds were subsequently surveyed for Great Crested Newts.
 - Thirteen terrestrial invertebrate species listed as Priority Species were identified within the study area during the desk study

- The aquatic survey identified that watercourses within the Survey Area have limited potential to support protected and/or notable fish species.
- One invasive non-native plant species was returned during the desk study within 1 km of the Site: variegated yellow archangel *Lamiastrum galeobdolon ssp. argentatum*.

- 7.2.11. A range of environmental measures which relate to Biodiversity are embedded as part of the Proposed Development to avoid or reduce significant environmental effects as far as possible. Standard best practice environmental measures would be employed such as the adoption of pollution prevention and dust control techniques, and measures to avoid the spread of invasive species. Good practice measures are detailed in the Outline Construction Environmental Management Plan which accompanies the Environmental Statement. Other environmental measures to be adopted include:
- Habitats which would be subject to temporary loss will be re-vegetated and reinstated as soon as possible after construction;
 - Construction works would be undertaken using all necessary and practical measures to minimise the release of additional sediment-laden run-off into nearby watercourses
 - Site lighting will be controlled to prevent incidental spillage on to features that may be used by nocturnal species.
 - The wind farm infrastructure layout has been designed to avoid the loss of key habitats on-Site (wetland habitats/semi-natural habitats) as far as is practicable, i.e. the infrastructure is generally located within improved grassland, semi-improved grassland and areas of bracken.
 - The installation of culverts will be sympathetic to fish passage. The culverts will be unlit, and there will be a designated dark area within 50 m of the entrance to each culvert.
 - Turbines have been located to maintain a minimum 50m blade-tip stand-off from features that are known to be favoured by bats (e.g. woodland edges and key waterbodies); and
 - Environmental measures required to avoid or reduce biodiversity impacts have been incorporated into an Outline Habitat Management Plan to accompany the planning application. The Outline Habitat Management Plan will set out the objectives for biodiversity protection mitigation, monitoring and habitat enhancement.
- 7.2.12. The assessment of effects of biodiversity concluded there would be two significant effects, associated with the permanent direct loss of priority habitat (0.07 ha of blanket bog) and a loss of 0.43 ha (worst-case) of an areas designated as Ancient Semi Natural Woodland to facilitate the construction of the access road. The Outline Habitat Management Plan includes habitat creation and enhancement of retained habitat which supports blanket bog habitat and lowland deciduous woodland within the Site.
- 7.2.13. With regard to other biodiversity receptors (excluding blanket bog and Ancient Semi Natural Woodland) subject to assessment, providing the measures outlined in the Outline CEMP and Outline Habitat Management Plan are implemented, no significant effects are anticipated.
- 7.2.14. Cumulative effects were assessed in relation to other wind farm developments within 10km of the Proposed Development. This focused on the potential cumulative effects related to the loss of foraging and commuting habitat of bats as a result of direct habitat loss following construction of turbines, in addition to a likely increase in bat fatalities from collision during operation. Where data is available it is apparent the other developments have or will all benefit from bat surveys and subsequent siting of turbines to avoid features used by bats, as well as implementing appropriate measures to minimise collision risk with turbines. As a result, based on the data

available, it was considered that cumulative effects on bats would not be significant. A review of other nearby developments found no significant cumulative effects on ancient semi-natural woodland (ASNW) or blanket bog.

7.3 ORNITHOLOGY

- 7.3.1. **Chapter 6** of the ES reports the findings of an assessment of effects on Ornithology. Considerable data gathering and a range of surveys were undertaken from 2022 to 2024 to assess how the Site is used by birds.
- 7.3.2. There is one statutory site of nature conservation of Ornithological interest within 10km of the Proposed Development – the Llyn Mawr SSSI which is located partially within the southern extent of the Site boundary, but away from all infrastructure. The nearest SPA (Berwyn) is 16 km from the Proposed Development and therefore was considered outside of the identified Study Area for impacts to associated bird species.
- 7.3.3. During the breeding bird surveys, eight target species were recorded in 2022 (red kite, hen harrier, hobby, peregrine, kestrel, mallard, curlew and several passerines). Seven target species were recorded in 2023 (red kite, hen harrier, kestrel, mallard, golden plover, curlew and several passerines). Non-breeding bird surveys recorded the presence of Short-eared owl. Several birds with minimal to no presence were scoped out of the assessment as their level of activity within the Site has been considered to be negligible.
- 7.3.4. A range of environmental measures have been embedded into the Proposed Development. Best practice measures such as the clearance of construction working areas and ‘no working’ buffers around nest sites will be implemented and are set out in the outline CEMP. An Outline Curlew Management and Monitoring Plan, as well as an Outline Habitat Management Plan which presents the objectives and targets of the enhancement plan along with prescriptions for management and monitoring to achieve such aims have also been produced to support the application. An Ecological Clerk of Works (ECoW) will be implemented to oversee that all works are carried out in accordance with environmental legislation and good practice, and with agreed construction phase management plans, such as the CEMP.
- 7.3.5. Ornithological receptors scoped in for further assessment are Llyn Mawr SSSI, Red kite, Kestrel, Golden plover, Curlew and Skylark. All potential effects in the construction phase are considered to be potentially adverse but negligible and not significant. During operation, any effects on displacement of species is likely to be negligible and not significant.
- 7.3.6. A collision risk modelling (CRM) exercise has been undertaken to understand the risk of birds colliding with turbine blades once operational. The modelling indicates that collision mortality for red kite could affect the local population. However, taking account of predicted population trends and the negligible risk of an impact on the wider SPA population, effects on red kite are considered to be not significant. For kestrel, the modelling indicates that collisions are likely over the 40-year operational life of the Proposed Development, with adverse effects considered likely to be significant at the Local level.
- 7.3.7. For curlew, the modelling predicts that the number of birds potentially affected by collision zero and therefore no effect is predicted. For Golden Plover, the modelling identified a collision rate of 3.8 birds per annum, which was considered significant at the Site level.

- 7.3.8. The cumulative assessment considered the potential for increased disturbance, displacement and collision risk as a result of other developments within 10 km of the Proposed Development. Of the identified developments, Esgair Cwmowen, Llanbrynmair Wind Farm 1 and 2 and Llyn Lort Energy Park present ornithological assessment information and/or collision risk modelling results for species identified within this assessment. Modelled collision rates for relevant species, including red kite, curlew, goshawk, hen harrier and snipe, are generally predicted to be low, and it is concluded that a significant cumulative impact with respect to collision risk would not occur. The cumulative assessment also considered potential effects from the Plas Maldwyn residential development and linear infrastructure schemes, including Green GEN Vyrnwy–Frankton, Rhiwlas and SP Mid Wales; however, these were not considered likely to result in cumulative ornithological effects. Information for Mynydd Lluet y Graig Energy Project was limited to scoping stage and, therefore, a detailed cumulative assessment could not be undertaken at this time. Overall, cumulative effects are considered to be negligible, and no additional cumulative effects are identified where they were not already concluded to be significant from the Proposed Development alone.

7.4 LANDSCAPE AND VISUAL

- 7.4.1. Landscape and visual assessment (LVIA) is one of the key components of the EIA for wind farms due to the introduction of tall elements into the landscape. The landscape receptors of the LVIA include designated landscapes, landscape character and key characteristics whilst the visual receptors include views and visual amenity experienced by residents, tourists visitors, recreational and transport users.
- 7.4.2. Embedded measures relevant to the Landscape and Visual Assessment include mainly the extensive design evolution process which saw amendments to the layout of the Proposed Development to reduce potential impacts on receptors and further the reduction of the maximum tip height of Turbine 7 to 180m to reduce adverse effects on nearby residential properties.

LANDSCAPE

- 7.4.3. Landscape effects can occur as a result of changes in fabric, character and values attached to the landscape arising from the construction and operation of the Proposed Development. This may include changes to the landscape elements and patterns within the development site and effects upon landscape character (as defined nationally by the LANDMAP system), landscape designations and the variety of local landscape designations that exist in this part of Mid Wales.
- 7.4.4. Baseline information has been obtained from a desk-based study including review of published landscape character assessments. Computer modelling has generated a Zone of Theoretical Visibility (ZTV) which provides mapping of the areas from where the Proposed Development could theoretically be visible. This has been used as part of the process to select viewpoints which were then checked and refined with a field survey.
- 7.4.5. The Site is located across a series of upland hills and slopes, ranging in height from approximately 460 to 485 metres above sea level. The southern area includes higher ground around Garreg-hir and extends east to the summit of Craig y Llyn-mawr, then northward towards the slopes of Waun Y Llyn. The northern part of the site reaches the slopes of Y Glonc, while the western extent covers hillside areas near Blaen-y-Cwm and Garreg-Hir.
- 7.4.6. The landscape is mainly used for sheep grazing, consisting of open upland pasture. There are also smaller areas of wetter grassland and heath, particularly in the west and north, which create some

variation in the appearance of the land. Scattered conifer tree belts are present in the southern part of the site, along with naturally growing deciduous woodland near Llyn Mawr. A stream (Nant y Llyn Mawr) runs through the eastern area, marked by strips of scrub vegetation.

- 7.4.7. Fields across the site are generally large and regularly shaped, divided by fences and occasional hedgerows, although boundaries are less defined in the west. The site includes several access tracks, a large agricultural building in the north, and farm buildings with a residential property at Llyn Mawr along the southern edge.
- 7.4.8. Existing wind farms are located nearby, with Mynydd Clogau approximately 930 metres to the east and Tirgwynt around 1.3 kilometres to the north.
- 7.4.9. The landscape assessment considered the potential for effects on landscape features and elements, landscape designations and LANDMAP aspect areas within the 27km study area which has been based on the recommended study area for wind turbines of a height of 200m (to blade tip) within published guidance. Of the landscape receptors considered, the assessment concluded that there would be significant landscape effects on the following receptors:

Direct Effects

- Landscape Habitat Aspect Areas (LHAAs) - MNTGMLH052 (unnamed)
- Visual and Sensory Aspect Areas (VSAAs) - MNTGMVS733 Esgair Cwmowen Uplands
- Historic Landscape Aspect Areas (HLAAs) - MNTGMHL559 Allt Fawr
- HLAA - MNTGMHL820 Penbedw
- HLAA - MNTGMHL859 Ffridd Rhyd Ddu
- Cultural Landscape Services Aspect Areas (CLSAAs) - MNTGMCLS108 Esgair Cwmowen Uplands.

Indirect Effects

- VSAA - MNTGMVS235 Carno Mosaic
- VSAA - MNTGMVS694 Carno Uplands
- VSAA - MNTGMVS695 Trannon Uplands Bryn Crugog
- HLAA - MNTGMHL433 Middle Banwy / Upper Rhiw
- 7.4.10. The above significant direct effects on LANDMAP aspect areas would affect a local area predominantly within 5km of the proposed turbines. This level of effect, and geographical extent, is not unusual for wind farm development.
- 7.4.11. An assessment of the Proposed Development on the Special Qualities of the Eryri National Park and Proposed Special Qualities of the Proposed Glyndŵr National Park was completed. In assessing the indirect effects of the Proposed Development, there would be no significant effects on the Eryri National Park and Proposed Glyndŵr National Park
- 7.4.12. The Proposed Development has been designed so as to minimise the effects on these designations. The simple visual composition of the turbines reflects the character of the local landscape and the pattern of other larger operational and consented wind farm development nearby.
- 7.4.13. There would be no significant effects on the Geological Landscape Aspect Area (GLAAs).

VISUAL

- 7.4.14. The assessment has taken a precautionary approach and focused on visual receptors within 10 km of the Proposed Development, in order to assess the likely significant visual effects. The assessment of visual effects is concerned with changes to views available to people and to their visual amenity. The majority of the significant visual effects would be experienced as a result of views of the proposed turbines during the operational period and this forms the main focus of the assessment. However, the visual effects associated with the construction and decommissioning phases of the Proposed Development and the infrastructure components also have the potential to be significant and these have been included in the assessment where there is the potential for a significant visual effect. The assessment considered potential effects on the following visual receptor groups:
- 13 settlements
 - 2 national cycle routes
 - 2 National Trails
 - 3 other notable recreational routes
 - Gregynog Hall
 - Open access land, Public Rights of Way and notable hill summits within 10km of the Proposed Development
 - 5 Roads
- 7.4.15. Of these, the following receptors were assessed as likely to experience some form of significant effect as a result of the construction and/or operation of the Proposed Development:
- Settlements: Clatter, Carno, Pontdolgoch, Adfa, Cefn Coch and Talerddig
 - Long distance recreational routes: National Cycle Route (NCR) 81, Cistercian Way, Severn Way and William Morgan Ride
 - Some areas of Open Access Land, some Public Rights of Way and some Notable Hill Summits within 5 km.
 - The A470
- 7.4.16. A Residential Visual Amenity Assessment (RVAA) for residential properties within 2km of the Proposed Development has been undertaken. The RVAA assesses how the presence of the wind turbines impacts views and visual amenity from nearby properties. The RVAA concluded that whilst there is likely to be significant effects on 11 properties in proximity to the Proposed Development, there would be no instances where the visual amenity threshold, that is, where the visual effects are considered to result in visual effects that are “*overwhelming views in all directions*”; “*unpleasantly encroaching*” or being “*inescapably dominant from the property*” would be reached.
- 7.4.17. A Night-time assessment of the visual effects of the aviation warning lights for the Proposed Development was undertaken. A reduced aviation lighting strategy has been agreed with the Civilian Aviation Authority to minimise potential night-time effects. Three night-time viewpoints were assessed and it was concluded that no significant night-time visual effects would occur as a result of the Proposed Development.

- 7.4.18. A cumulative assessment has also been undertaken as part of the LVIA. This assesses the combined and additional effects that could be generated were Parc Ynni Calon y Gwynt to become operational along with some or all of the other wind farms considered. This includes those that are either already operational, have been consented or are proposed, in the 27km radius cumulative study area. Two scenarios were assessed, Scenario 1 includes only operational wind turbines and those already consented, whilst Scenario 2 included all those within Scenario 1 and those within the planning process but not yet consented.
- 7.4.19. The following receptors have the potential to experience moderate and significant effects detailed in the cumulative assessment:
- Nine VSAs as a result of the Proposed Development and other cumulative schemes (see **Appendix 7F** for full details).
 - Seven HLAs as a result of the Proposed Development and other cumulative schemes (see **Appendix 7G** for full details).
- 7.4.20. CLSAA MNTGMCLS108 Esgair Cwmowen Uplands as a consequence of the operational Mynydd Clogau and Tirgwynt Wind Farms, Esgair Cwmowen and Llyn Lort planning application schemes and the Proposed Development.
- Settlements including: Carno (Scenario 1 and 2), Pontdolgoch (Scenario 1), Adfa (Scenario 1 and 2), Cefn Coch (Scenario 1 and 2), Talerddig (Scenario 1) and Llanwyddelan (Scenario 2).
 - Promoted Recreational Routes including: National Cycle Route 8 (Scenario 1 and 2), National Cycle Route 81 (Scenario 1 and 2), Glyndŵr's Way (Scenario 1 and 2) Cistercian Way (Scenario 1 and 2), Severn Way (Scenario 1 and 2) and William Morgan Ride (Scenario 1 and 2).
 - Open Access Land, PRoWs and Notable Hill Summits within 5 km (Scenario 1 and 2) and Open Access Land, Prows' and Notable Hill Summits within 5-10 km (Scenario 1 and 2).
- 7.4.21. Transport Routes including: A470 (Scenario 1 and 2) and B4389 (Scenario 2).

7.5 HISTORIC ENVIRONMENT

- 7.5.1. The assessment within **Chapter 8** of the ES considered the likely significant effects of the Proposed Development on cultural heritage, which includes archaeological remains, paleoenvironmental deposits, listed buildings and structures, scheduled monuments, landscapes of heritage interest and non-designated heritage assets.
- 7.5.2. Information on the existing historic environment was based on the results of a site walkover survey and a desk-based assessment, which involved the collation of data from Heneb: Environment Record, information on designated historic assets from Cadw and other publicly available data.
- 7.5.3. There are seven designated historic assets located within the Site, including five scheduled monuments (Nant Cwm Gerwyn Cairns, Lluest Uchaf Cairns and Stone Row, Craig y Llyn Mawr Round Cairn, Round Hut 700m NNE of Garreg Hir, and Round Hut 400m NE of Garreg Hir, one grade II listed building (milestone) and the Caersws Basin Registered Historic Landscape which intersects the access road portion of the Site.
- 7.5.4. A total of 48 non-designated historic assets within the Site are recorded in Historic Environment Record data. A further 820 HER entries are located within the 2 km Study Area.

- 7.5.5. The assessment of effects has concluded that there would be no significant effects on the heritage significance of historic assets during the construction phase of the Proposed Development. The assessment of effects concluded there would be a negligible or minor adverse effect on the identified historic assets and as such the significance of effects is deemed to be not significant. The assessment identifies that effects on non-designated assets are predicted to be not significant, and for previously unrecorded archaeological remains, the likelihood high value assets is deemed to be low on the basis of the baseline work completed to date and it is therefore concluded that this effect would be not significant.
- 7.5.6. During operation of the Proposed Development there would be an impact on the setting of three scheduled monuments, the Nant Cwm Gerwyn Carins, Craig y Llyn Mawr Round Cairn, Blaen y Cwm Ring Cairn and the Lluet Uchaf Cairns and Stone Row which would result in a residual significant effect. This is due to changes in the overall setting of the monuments from open rural moorland to more energy infrastructure as a result of the presence of the visible turbines. Compensation in the form of heritage interpretation boards will be installed to provide public benefit through enhancing the public understanding of these monuments and its surrounding landscape. These boards would explain the history and importance of the monuments, their relationship with the wider landscape, and how people have used and valued this area over time, helping visitors to better appreciate and connect with the area's cultural heritage
- 7.5.7. The assessment of effects concluded there would be a negligible or minor adverse effect on the other identified historic assets during operation, and as such the significance of effects is deemed to be not significant.
- 7.5.8. A cumulative assessment has been undertaken to consider potential effects with other consented and proposed developments within 10km of the Proposed Development. Physical effects on historic assets would be on highly localised features within the Site and as such there would be no cumulative construction effects from other developments. As such, physical impacts have been scoped out of the cumulative assessment. However, impacts to setting from operational effects can cause cumulative effects. The cumulative assessment has therefore focused on those assets where the Proposed Development was assessed as giving rise to more than negligible or minor effects, as significant cumulative effects are unlikely to occur for assets experiencing no change, negligible effects or minor effects.
- 7.5.9. The cumulative assessment considered other wind energy and infrastructure projects in the surrounding area, including Carno III, Esgair Cwmowen, Green GEN, Llanbrynmair 1 and 2, Llyn Lort, and Mynydd Lluet y Graig. The review found that some of these projects could add to the effect of the Proposed Development on the setting of certain historic assets, particularly through changes to views and the wider upland landscape. In some cases, these combined effects would be significant, although for most affected assets the Proposed Development alone had already been assessed as significant. Ultimately, although cumulatively the proposed projects would present additional elements seen alongside the Proposed Development, it is considered that they will not lead to a considerable increase in the magnitude of change assessed as a result of the Proposed Development.

7.6 HYDROLOGY

- 7.6.1. The assessment presented in **Chapter 9** of the ES considers the potential effects of the Proposed Development on water features, including rivers, streams, surface water, flood risk and water-dependent designated sites.
- 7.6.2. Information on existing water conditions has been gathered through desk-based studies and site investigations, supported by surveys of water features within and around the Site.
- 7.6.3. Water from the Site drains into the Afon Carno catchment to the west and south and the Afon Rhiw catchment to the east, with several smaller streams also present across the area. The access route crosses additional water features before connecting to the local road network. Watercourses in the area are generally in good condition. Most of the Site lies outside areas at risk of flooding from rivers. Some lower-lying areas close to streams may experience localised surface water flooding during periods of heavy rainfall. Appropriate drainage measures have been incorporated into the design to manage water runoff and minimise flood risk during construction and operation.
- 7.6.4. A range of measures have been incorporated into the design of the Proposed Development to protect water resources. Infrastructure has been positioned, where possible, away from rivers, streams and other sensitive water features. Watercourse crossings have been kept to a minimum and protective buffer zones will be maintained around water features wherever practicable. Surface water drainage will be designed to manage rainfall naturally and reduce runoff, while pollution prevention measures and emergency response procedures will be implemented throughout construction, operation and decommissioning to protect water quality.
- 7.6.5. Standard environmental protection measures will be implemented through a Construction Environmental Management Plan (CEMP). This will set out the procedures and controls that contractors will follow to protect rivers, streams, groundwater and other water features during construction. An outline CEMP is provided alongside the ES.
- 7.6.6. With these measures in place, the assessment concludes that the construction, operation and decommissioning of the Proposed Development would not result in any significant effects on water resources, water quality, flood risk or designated water-dependent sites. This is because the Proposed Development has been designed to avoid impacts on watercourses wherever possible and would incorporate measures to manage surface water runoff, control sediment and pollution, and maintain natural drainage patterns. No significant cumulative effects with other developments are anticipated.

7.7 GEOLOGY AND SOILS

- 7.7.1. The assessment provided in **Chapter 10** of the ES has considered the likely significant effects of the Proposed Development on geology, soils and peat. Information on existing ground conditions has been gathered through desk-based studies and site surveys, including investigations of soil types, soil depth and peat distribution across the Site.
- 7.7.2. The Site is underlain by sedimentary rocks with generally shallow soils above them. Most of the Site comprises poor-quality upland soils used for sheep grazing, with areas of wetter ground and localised pockets of peat. Surveys identified that peat is present in some parts of the Site, although it is generally limited in extent and depth.

- 7.7.3. The potential for effects on the peat, geology and soils environment is greatest during the construction phase due to the high level of activities, relating to construction, that may impact the existing environment. There are four potential receptors groups that are initially considered to be impacted by the Proposed Development:
- Potential impacts to geology;
 - Potential impacts to soil and peat (disturbance, compaction and loss);
 - Potential impacts from peat instability; and
 - Potential impacts from contaminated land.
- 7.7.4. A range of measures have been incorporated into the Proposed Development to reduce potential effects on geology and soils wherever possible. The layout has been carefully designed to avoid areas of peat and other sensitive soils, with infrastructure positioned to minimise disturbance where complete avoidance is not achievable. In locations where tracks cross peat, techniques such as floated track construction would be used to avoid excavation and maintain peat stability. Good construction practices, including careful handling, storage and reuse of soils, have also been embedded into the design to reduce compaction and support effective restoration following works.
- 7.7.5. Standard good practice mitigation measures to be delivered during the construction of the Proposed Development will be delivered through the approval and implementation of the CEMP. The CEMP will be secured by way of planning condition and will provide further detail on the specific techniques and measures to be put in place to manage local activities to prevent or minimise impacts during construction. An outline CEMP is provided alongside the ES.
- 7.7.6. A Peat Landslide Hazard Risk Assessment (PLHRA) has been completed to evaluate areas that are of higher risk of landslide and. It also provides mitigation measures to be used in risk areas. An Outline Soils and Peat Management Plan (OSPMP) has been developed to assess, minimise and manage soil disturbance during the project. The OSPMP sets out good practice soil handling procedures to ensure the sustainable management of soils.
- 7.7.7. The assessment found that, with the proposed mitigation and good practice measures in place, the construction, operation and decommissioning of the Proposed Development would result in only minor or negligible effects on geology, soils, peat and land contamination receptors. No significant effects are predicted. No significant cumulative effects with other developments are anticipated.

7.8 NOISE

- 7.8.1. A detailed noise survey has been undertaken to support the noise assessment within **Chapter 11** of the ES. Background noise monitoring was undertaken at six dwellings neighbouring the Proposed Development:
- Llyn Mawr Residency
 - Lakeside View
 - Ty Hir
 - Blaen y Cwm
 - Pantygesail
 - Fir Tree Lodge

- 7.8.2. Each measurement system was installed in a location selected to be representative of the external living spaces of each property but also away from any local sources of noise such as road traffic or watercourses. Information on wind conditions at the Site was collected alongside the noise monitoring. This information was used to understand how existing background noise levels vary under different weather conditions and to inform the assessment.
- 7.8.3. Vibration has been scoped out of the operational and construction assessments, as levels of vibration will not be significant. Infrasound has been scoped out of the assessments as the levels of infrasound from a wind farm are significantly below accepted thresholds of perception. Low frequency noise has been scoped out of the assessments as current evidence suggests that it is not necessary to carry out specific assessments of low frequency noise.
- 7.8.4. An assessment of construction noise for the Proposed Development has been undertaken. The predicted noise levels are above the daytime 65 dB noise limit for six assessment locations. However, whilst noise levels during the construction phase would exceed the assumed 65 dB limit this would only be expected to occur for a maximum of two days based on an estimation of construction of each section of access track, and this is not considered to be significant. Nonetheless, mitigation would be employed to minimise impacts at any property within 150 m of areas where track construction will be taking place.
- 7.8.5. In relation to construction traffic the predicted noise levels are below the daytime 65 dB noise criterion for all assessment locations.
- 7.8.6. Noise from the proposed Battery Energy Storage System (BESS) and associated electrical infrastructure has also been assessed. Predicted noise levels would remain below the relevant assessment criteria at nearby properties and would not give rise to significant effects.
- 7.8.7. An assessment of operational noise effects has been undertaken in accordance with the ETSU-R-97 Guidance 'The Assessment and Rating of Noise from Windfarms' and 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' by the Institute of Acoustics.
- 7.8.8. The results show that predicted turbine noise levels are below the lowest daytime and nighttime fixed noise limits at all of the assessed receptors and there will be no exceedances of the noise limits. Measures incorporated into the design and operation of the wind farm, including turbine operating controls where required, would ensure compliance with these limits. As a result, no significant operational noise effects are predicted.
- 7.8.9. The cumulative assessment considered other wind energy and infrastructure projects in the surrounding area. Noise predictions were undertaken for the various wind developments. The predictions consider the contribution of the Proposed Development operating alongside the other wind turbine developments. The predicted total cumulative wind farm noise level is then compared with the upper noise limits using recognised national guidance. The noise predictions indicate that at all receptor locations, cumulative wind farm noise levels will meet the Daytime and Nighttime Hours noise limits. No significant cumulative noise effects are therefore predicted.

7.9 TRAFFIC AND TRANSPORT

- 7.9.1. The assessment presented in **Chapter 12** of the ES considers the potential effects of the Proposed Development on the local transport network, road users, Public Rights of Way (PRoW) and other people travelling within the area. The assessment has been informed by traffic surveys and publicly available traffic data.
- 7.9.2. The Site would be accessed from the A470 via the B4568 and a new access road connecting to the existing local road network. The assessment considered the routes that construction traffic would use to travel to and from the Site, including sections of the A470, the B4568 and local roads close to the Proposed Development
- 7.9.3. An assessment has been completed of the likely effects of construction traffic on the local transport network and road users. This has included a calculation of the likely number of movements of Heavy Goods Vehicles (HGVs) in and out of the development site over the anticipated maximum 24-month construction period. This has been compared to the forecast background traffic numbers for the anticipated year of construction of 2029 when development-related traffic movements would be greatest, based on traffic growth models designed by the Department for Transport.
- 7.9.4. Access to the Proposed Development will route from the A470 (part of the trunk road network) onto the B4568 and then onto the proposed new access road between the B4568 and existing unnamed road to the north leading to the entry point to the Energy Park Site. A number of Public Rights of Way cross or pass through the Site and have been considered as part of the assessment.
- 7.9.5. The majority of traffic associated with the Proposed Development would occur during the construction phase. During the busiest period of construction, traffic levels are expected to increase temporarily as construction materials, equipment and workforce vehicles travel to and from the Site. Traffic associated with operation of the wind farm would be limited to occasional maintenance visits and is expected to be very low.
- 7.9.6. A range of measures have been incorporated into the design of the Proposed Development to minimise effects on the transport network. These include improvements to sections of the access route, careful management of construction traffic, and preparation of a Construction Traffic Management Plan (CTMP). Abnormal load deliveries, such as wind turbine components, would be carefully planned and managed in consultation with the relevant highway authorities.
- 7.9.7. Temporary effects on Public Rights of Way during construction may include short delays or changes to the experience of users where routes pass close to construction activities and are not expected to be significant. During operation, no significant permanent closures or diversions of Public Rights of Way are proposed and effects on users are expected to be minor. A minor diversion may be required for PRoW 244/73/2 due to potential oversail from Turbine 4, however, the extent to this will be dependent on detailed design and micro siting, this will be detailed within the final Public Right of Way Management Plan (PRoWMP) and agreed with the PRoW Officer post-consent. Measures to protect and manage Public Rights of Way during construction would be set out in a Public Rights of Way Management Plan. These measures may include temporary management arrangements, signage and other controls to maintain access and ensure public safety where construction activities occur close to existing routes.
- 7.9.8. The assessment found that temporary increases in construction traffic would generally not result in significant effects on road users, nearby communities, pedestrians, cyclists or equestrians. One section of the A470 north of the B4568 was identified as having the potential for a significant road

safety effect before mitigation due to its sensitivity and increased construction traffic. However, with the implementation of the CTMP and associated traffic management measures, this effect is expected to be reduced and would not be significant

- 7.9.9. No significant cumulative effects are anticipated as a result of the Proposed Development in combination with other developments in the area.
- 7.9.10. Overall, the assessment concludes that, with the proposed mitigation and management measures in place, the construction and operation of the Proposed Development would not result in any significant traffic and transport effects.

7.10 SHADOW FLICKER

- 7.10.1. Shadow flicker is the flickering effect caused when rotating wind turbine blades periodically cast shadows through constrained openings such as the windows of properties.
- 7.10.2. A study has been undertaken utilising specialist software to identify whether shadow flicker is likely to occur at residential properties in the vicinity of the Proposed Development. Modelling has been carried out to predict the duration of potential shadow flicker effects and the times of day and year when it could occur.
- 7.10.3. Up to 30 properties have been identified which have the potential to experience some level of shadow flicker as a result of the operation of the wind farm. Three of the receptors (occupied properties) were identified as having potentially moderate significance impacts from shadow flicker.
- 7.10.4. The effect of shadow flicker can be resolved using standard mitigation measures such as a turbine control module which consists of bespoke software, a clock, a timer, a switch, a wind direction sensor and a light sensor. The module can control a specific turbine (or turbines) which would be programmed to shut down on specific dates at specific times when the sun is bright enough, there is sufficient wind to rotate the blades and the wind direction is such that nuisance shadow flicker could occur.
- 7.10.5. The Applicant will commit to installing a shadow flicker impact module, prior to operation, to fully mitigate any unacceptable shadow flicker on nearby properties. With this measure in place there will be no residual significant effects arising from the Proposed Development.
- 7.10.6. The cumulative assessment considered the potential for shadow flicker effects as a result of other wind farm developments in the vicinity of the Proposed Development. No receptors fall within both 10 rotor diameters of both the Proposed Development and the identified cumulative wind farms; therefore no cumulative effects are expected in combination with other operational wind farm developments.

7.11 AVIATION AND RADAR, AND TELECOMMUNICATIONS

- 7.11.1. Aviation radar, microwave and other electromagnetic signals are transmitted throughout the country by a wide range of operators. There is potential for interference to affect the transmission of these signals from any large structure, including wind turbines. A desk-based assessment, and consultation with authorities and companies working in this field in Wales, has been undertaken to identify any telecommunications or aviation interests that may be affected by the Proposed Development.

- 7.11.2. No microwave links have been identified in the study area or the wider area near to the Proposed Development.

AVIATION

- 7.11.3. There are no radar equipped CAA licensed aerodromes, non-radar equipped CAA licensed aerodromes, and unlicensed aerodromes, gliding and micro-light sites within the specified consultation distance of the Proposed Development. As a result, further consultation is not required as the nearest of each of these receptors will be unaffected by the Proposed Development.
- 7.11.4. There are two receptors that have the potential to experience significant effects in this location, Military low flying and NATS Clee Hill radar. NATS have confirmed that the Proposed Development will be visible to the radar. DIO have confirmed their concerns on effects low flying in the area as a result of the Proposed Development. The impacts on these receptors will require technical mitigation for impacts on Clee Hill Radar this is subject to ongoing consultation with NATS and for the DIO an agreed lighting scheme will be implemented.
- 7.11.5. A cumulative effects assessment has been undertaken for the Proposed Development which considers the combined impacts with other developments on the same single receptor or resource (inter-project effects). With mitigation agreed on the NATS Clee Hill radar, and an acceptable lighting scheme agreed with the MoD, then the Proposed Development should not result in any technical or operational effects and cannot, therefore, contribute to any cumulative aviation or radar effects.

TELECOMMUNICATIONS

- 7.11.6. The effects on Telecommunications receptors include electronic interference or disruption to services. Technical solutions to any infrastructural constraint will be sought during this consultation and assessment process to minimise effects upon it. A consultation has been undertaken and to date nothing has been identified.

7.12 COMBINED EFFECTS

- 7.12.1. Combined effects, also known as inter-related cumulative effects, consider whether any of the individual environmental topic effects resulting from the Proposed Development could combine to create effects that are significant.
- 7.12.2. The most likely types of receptors where topic effects are likely to combine are those pertaining to the amenity of the local population, for example noise, visual, shadow flicker and traffic. Consideration has also been given to the potential for cumulative effects on other environmental receptors.
- 7.12.3. The assessment focused on those receptors where potential significant effects have been predicted in at least two or more topics and/or where the technical assessments have shown that potential individual effects are nearing the thresholds of established national criteria. No receptors were identified as resulting in significant combined effects.

8 LOOKING FORWARD

WHAT HAPPENS NEXT?

- 8.1.1. Following the end of the Statutory Consultation period (21 September 2026), the Applicant will consider all comments that have been received as part of the consultation process. Where appropriate, these consultation responses will inform further design refinements and proposals for environmental measures to reduce impacts from the Proposed Development.
- 8.1.2. Based on consultation responses, any design refinements and additional information that becomes available from site visits and surveys, the environmental impact assessment will be reviewed and updated. It is expected that the ES to accompany the DNS application will be submitted in late 2026.

WHAT IF I WOULD LIKE FURTHER INFORMATION?

- 8.1.3. This document is a non-technical summary of the ES for the proposed Parc Ynni Calon y Gwynt. The full Environmental Statement, which provides more detailed and technical information, is available to view on the following link:

<https://parcynni-calonygwynt.cymru/en/pre-application-consultation-pac>

HOW CAN I HAVE MY SAY?

- 8.1.4. We want to hear your views on the Proposed Development. You can get in touch in the following ways:
- Post: Parc Ynni Calon y Gwynt, Linden House, Mold Business Park, Wrexham Road, Mold, CH7 1XP
 - Email: calonygwynt@wind2.co.uk
- 8.1.5. Consultation responses received via any other method than those listed above, such as through social media, will not be formally recorded as part of the consultation.
- 8.1.6. All responses must be received by 23:59 on 21 September 2026. Feedback submissions sent via post will be accepted for up-to five working days after this date.



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