Pennant Walters Ltd

Mynydd Llanhilleth Wind Farm

Volume 1: Non-Technical Summary

July 2023

Report for

Pennant Walters

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Document revisions

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1	First Draft	27/10/22
2	Final Draft	21/11/22
3	Final ES Update	29/06/23

1. Introduction

1.1 Overview

1.1.1 Pennant Walters Ltd ('the Applicant') is seeking planning permission for the construction and operation of a wind farm of up to eight turbines ('the Proposed Development') on land at Mynydd Llanhilleth ('the Site'). 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).

1.1.2 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).

1.1.3 The ES follows on from the Draft ES which was submitted in November 2022 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 submission of the application.

1.1.4 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 from 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 EIA is primarily concerned with '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 wind farm site

2.1.1 The Site lies within the Torfaen County Borough Council (TCBC), with the western part lying within Blaenau Gwent County Borough Council (BGCBC) administrative area and its boundary is located approximately 300m from the eastern edge of Llanhilleth.

2.1.2 The Site encompasses an area approximately 267 hectares (ha) and comprises a former quarry and associated area of coniferous woodland across its southern extents and intensively managed species-poor grassland, located within the high ground between the Afon Valley to the east and the Ebbw Fach Valley to the west. A number of public rights of way cross the Site, with much of the Site designated as Common Land and an area of Open Access Land is located immediately to the west. The northern slopes of the site are characterised by coniferous and non-coniferous woodland

2.2 The applicant

2.2.1 Pennant Walters Ltd is a Walters Group company with a focus on renewable energy having obtained consent for and/or developed a wide variety of schemes including onshore wind, solar, small-scale hydro and battery storage. The company now operates six onshore wind farms within South Wales.

3. Site selection

3.1.1 In 2019, the Applicant undertook an exercise to identify sites in South Wales potentially suitable for the development of a wind farm. This exercise was guided by the emerging draft of the National Development Framework document *Future Wales: The National Plan 2040* which outlined Pre-Assessed Areas (PAAs) for onshore wind development, which identify areas with a presumption in favour of large-scale wind energy development.

3.1.2 South Wales was chosen because it has some of the highest wind speeds within Europe and within the UK. The Applicant's existing presence within South Wales was also a determining factor in this selection process as it has developed and now operates six onshore wind farms within South Wales.

3.1.3 The Site identification process picked out broad areas of interest and was followed by a more detailed review to identify specific potential sites within or close to PAAs, and areas that did not have a mean annual average wind speed above 7 metres per second (considered by the Applicant to be the minimum required for a commercially viable scheme). Areas within the Brecon Beacon National Park and any other national landscape designations were also excluded.

3.1.4 There are several areas of South Wales with an average wind speed well above 7m/s. Those areas with wind speeds above 7m/s within the Bannau Brycheiniog National Park (BBNP), and any other national landscape designations were excluded from the search exercise. Those areas within TAN 8 Area F that have already been developed were also excluded. The eastern limb of PAA 10 (Future Wales 2021) resulted in three sites coming forward, Mynydd Carn y Cefn, Mynydd Llanhilleth and Trecelyn.

3.1.5 Discussions with the land agents of relevant land holders in this region indicated that land at Mynydd Llanhilleth was available to wind farm developers.

3.1.6 The original process of choosing possible sites also included a review of technical factors and a high-level assessment of the landscape impact of each development.

3.1.7 The Proposed Development site was considered to offer a good combination of the assessment factors:

- Excellent wind resource;
- Partially within Future Wales PAA 10 and as such subject to Policy 17 and 18;
- Large usable area;
- Low vulnerability to major accidents and disasters arising from, for example, flooding or sea level rise, due to location on high ground plus an absence of existing infrastructure;
- Good potential highway access;
- Nearby wind farm developments where cumulative visual effects could likely be accommodated;
- Available existing electrical infrastructure; and
- Likely low impact on ecology, archaeology (including the Site being suitably south of the Blaenavon Industrial World Heritage Site to avoid impacts), geology etc. given the baseline conditions, both from the Proposed Development and from potential major accidents and disasters.

3.1.8 In relation to the Site being partly within but largely outside of the PAA, the Applicant considers that the spatial approach to onshore wind set out in Future Wales has significant limitations because of the high-level approach to constraints mapping, an issue consistently set out by the sector / RenewableUK Cymru. RenewableUK Cymru undertook detailed analysis of the PAAs in Wales and concluded that only ~5% is suitable for onshore wind and are theoretically deliverable once suitable constraints are applied and operational wind farms have been excluded. Therefore, the PAAs are only a starting point for projects greater than 10MW, which is what Policies 17 and 18 of Future Wales articulate.

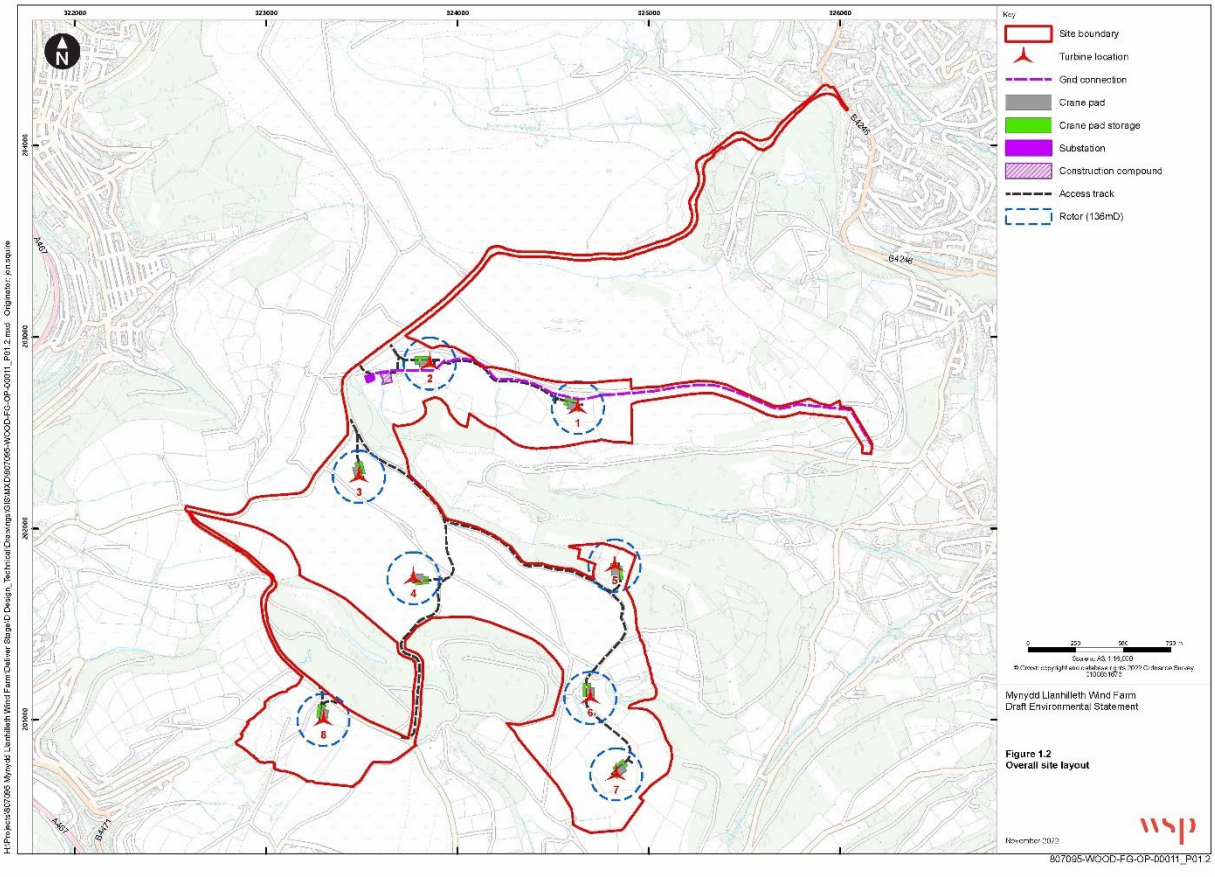
4. The Proposed Development

4.1.1 The Mynydd Llanhilleth Wind Farm ('the Proposed Development') consists of the following elements:

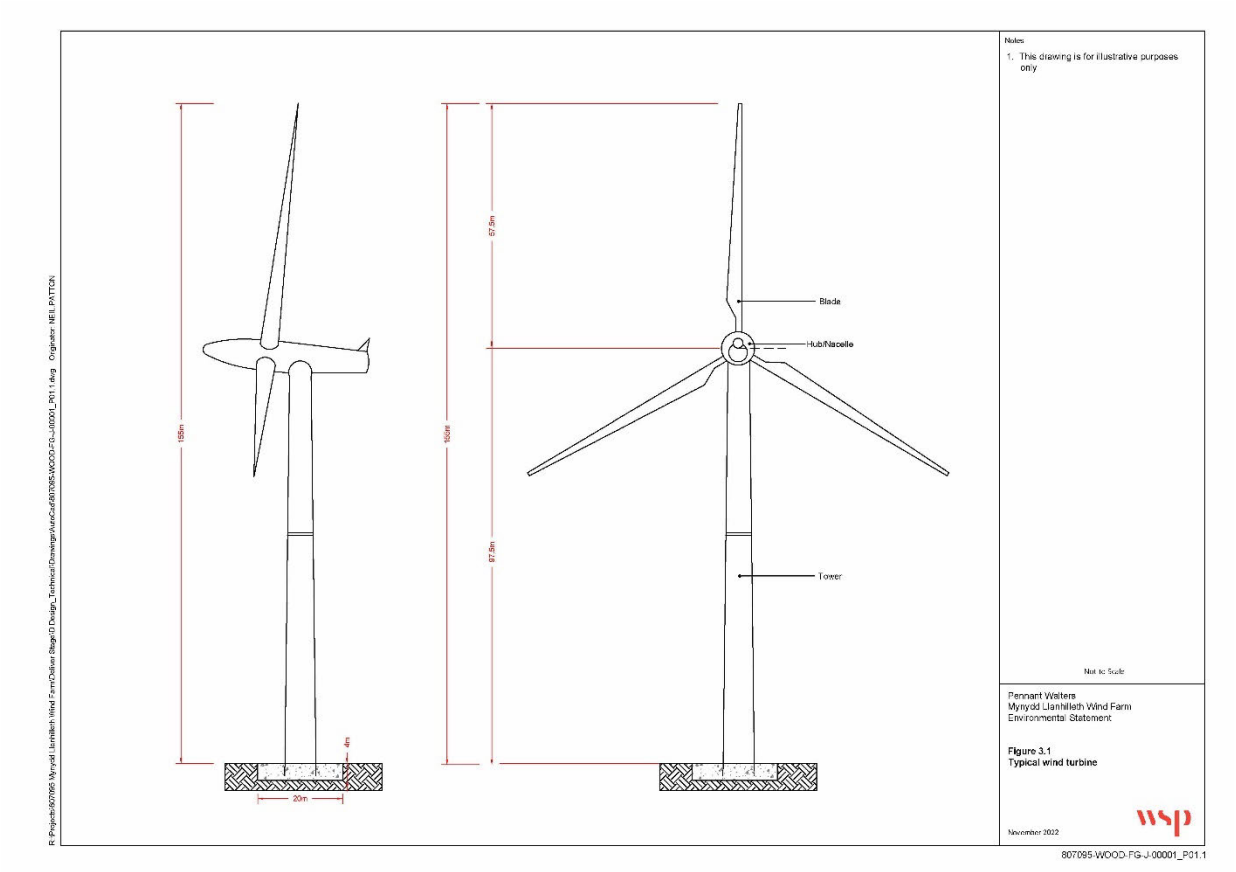
- up to eight wind turbines;
- substation and transformer housing;
- temporary contractor's compound
- underground grid connection infrastructure;
- crane pads and cabling; and
- improvements to existing access, together with improvements to the internal access road and new and improved access tracks to the turbines.

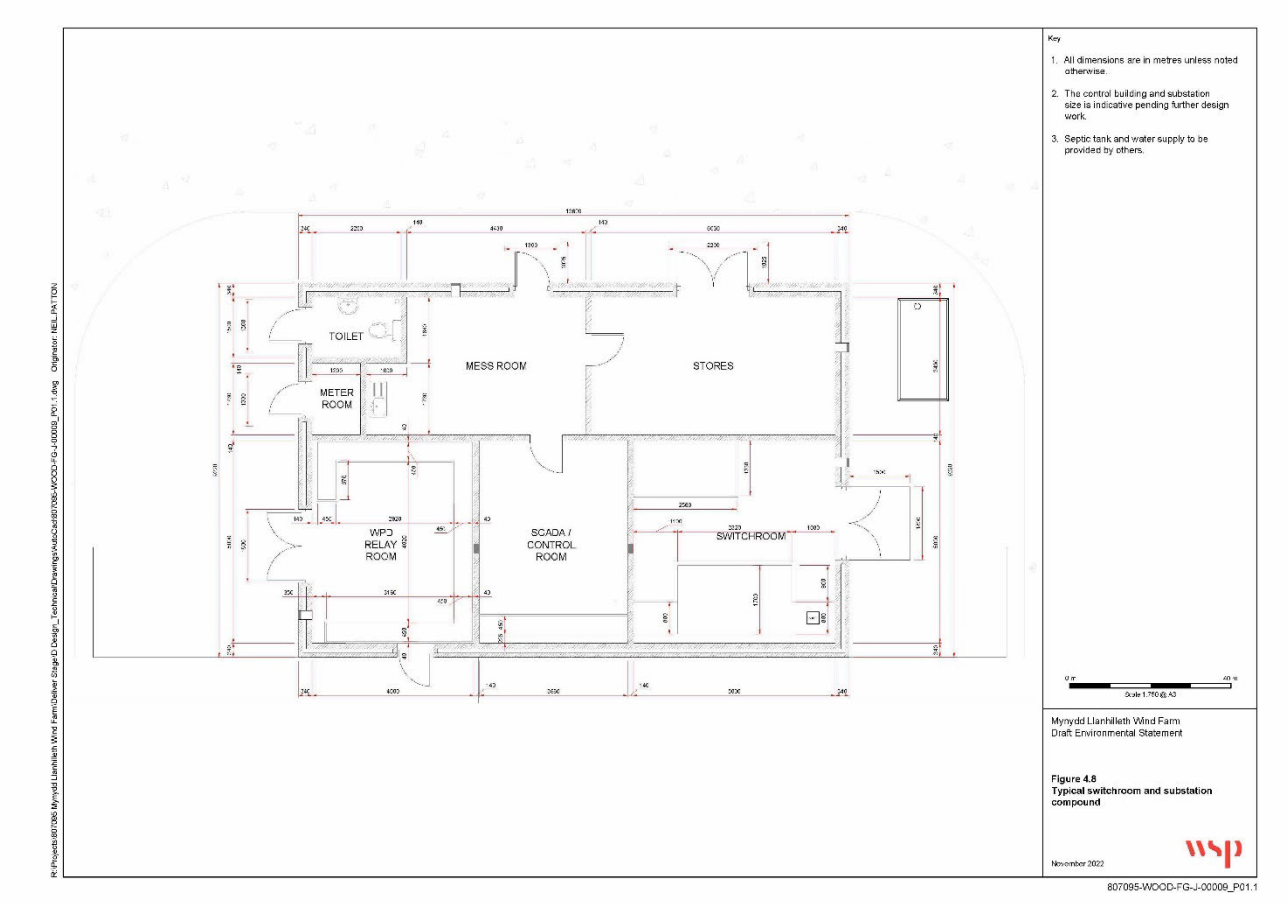
4.1.2 The proposed wind farm is designed with an operational life of 30 years and permission is sought for this period of operation only. After this period the Site can be fully restored or future generations can decide how they want to secure their energy needs.

4.1.3 The proposed layout of the wind farm is illustrated below. The access point into the Site is from the B4246 to the east of the Site.

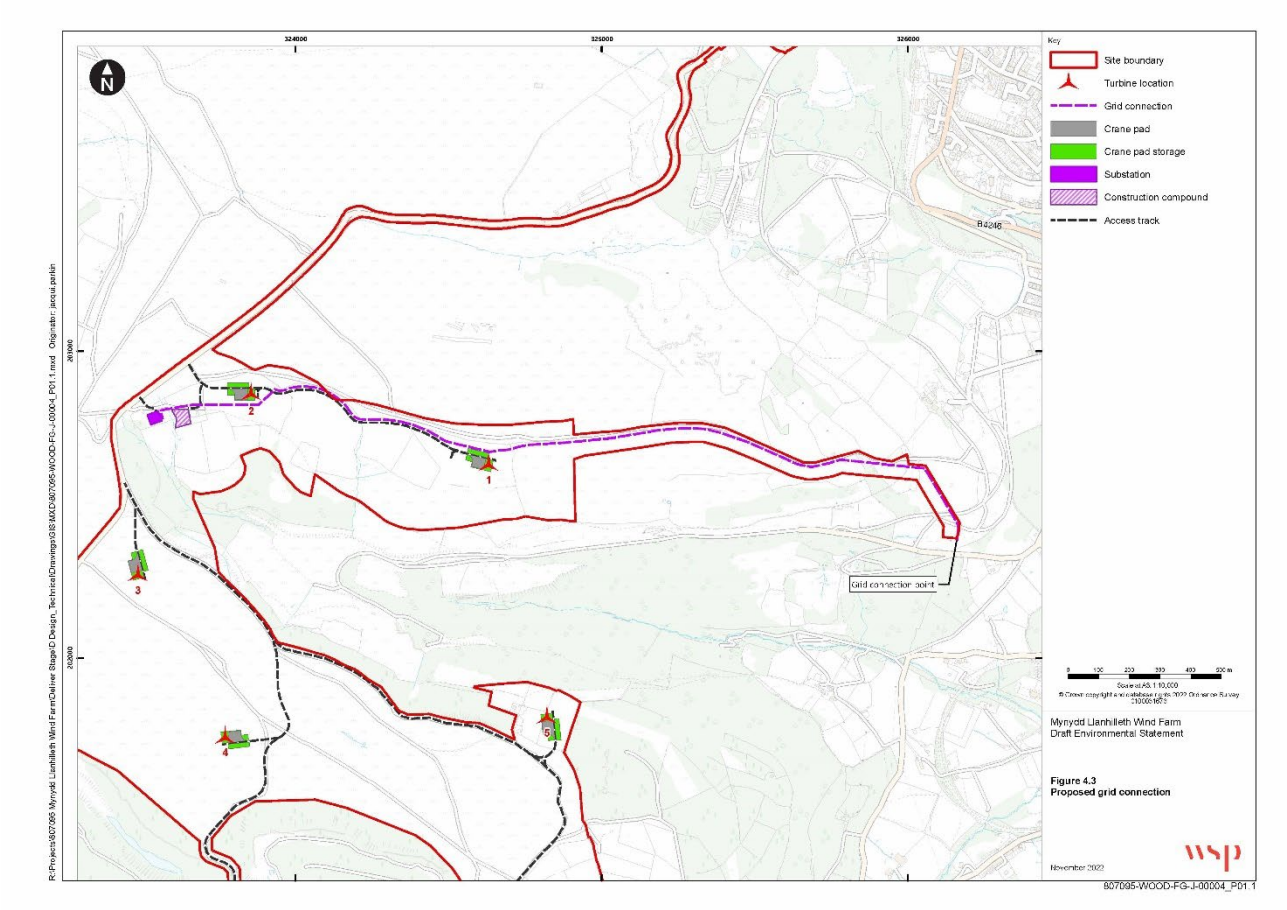


4.1.4 Illustrations of a typical wind turbine, and switchroom and substation compound layout are provided below.





4.1.5 The proposed grid connection corridor is illustrated below. The grid connection is comprised of two components, the first of which is an underground cable (2km) from the onsite substation to the connection point at Aberyschan, subsequently the line will be go above ground onto a Tee off structure H Pole which will connect the underground line to the existing overhead network. The connection is assessed as part of this ES, however, it will be delivered by the Distribution Network Operator (DNO), Western Power Distribution (WPD).



4.1.6 It is anticipated that the construction period for the Proposed Development would be approximately 22 months in duration. It is anticipated that the Abnormal Indivisible Loads (AILs) [transporting turbine equipment] would travel by road from the Port of Swansea, which is the closest port in the region capable of handling wind turbine equipment. The Port of Swansea has been frequently used for the delivery of wind turbine components in this region.

4.1.7 It is anticipated that stone would need to be imported from existing quarries and would be sourced from one or more of the local established sources, such as Tarmac Hendy Quarry.

4.1.8 Construction activities would 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 where required. No working would be undertaken on Sundays.

Micrositing

4.1.9 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 such as turbulence, 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 retained and that appropriate limits of deviation would be up to 50m for turbines and 100m for internal wind farm tracks and other infrastructure such as the substation and site compound. This mitigation may be restricted further in terms of specific locational hard constraints, for example not micrositing closer to a watercourse if within 50m of a watercourse. Distances will be agreed and secured via DNS planning condition.

5. The need for onshore wind power and the policy context

5.1.1 Renewable energy produces energy without burning fossil fuels that release carbon dioxide and contribute to climate change. Renewable energy also provides a new and alternative energy source to tackle 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, 2021[1] 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:

"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 CCC'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".

5.1.3 The Climate Change (Wales) Regulations 2021[2] 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 (CCC)*". 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].

5.1.4 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,

[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 [Accessed June 2023].
[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 [Accessed June 2023].

Resilient, Healthier, More Equal, Cohesive, Globally Responsible and Vibrant and Thriving Wales.

5.1.5 Future Wales 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]

5.1.6 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*".

5.1.7 The latest version of Planning Policy Wales (Edition 11) [4] (PPW11) acknowledges Wales has been set a 95% net zero target for 2050 by the CCC and how nationally, the intention is to go beyond this to become fully net zero. PPW11 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".

5.1.8 There is therefore a demonstrable need to tackle climate change, with renewable energy developments seen as a key element in this.

5.1.9 PPW11[4] 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 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 CO_2 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.

5.1.11 The proposed Mynydd Llanhilleth Wind Farm 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 June 2023].
[4] Welsh Government (2021). Planning Policy Wales 11th Ed. (c. 3), pp. 31. [Online]. Available at: https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf [Accessed June 2023].

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 decommission.

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 the PEDW in May 2021. The Scoping Report identifies the potentially significant effects requiring assessment, determines the subject matter of the assessment and the methodologies for undertaking the assessment. PEDW subsequently provided a Scoping Direction, which included comments from a range of stakeholders, on behalf of the Welsh Ministers, in August 2021. The Scoping Direction and the statutory consultee responses have subsequently informed the assessment work and further design evolution undertaken to date.

Early consultation and engagement

6.2.3 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, the EIA and assist in the development of any required mitigation. Early engagement with the local planning authorities, local community and interested parties took place from 1 July to 6 August 2021 through a series of meetings. Public exhibitions were held at Llanhilleth Miners Institute on 15 July 2021, and Garndiffaith Community Centre (Millenium Centre) on 17 July 2021. A virtual exhibition was hosted on the project website with all the information that was available to those who attended in person from 1 July 2021.

6.2.4 In addition, consultation workshop events were undertaken at Hafodyrynys Rugby Club on 6 July and 8 July with members of the Llanhilleth Commoners Association or those with an interest in Common Land.

Draft ES Statutory Consultation

6.2.5 In accordance with Article 9 of the DNS Order, statutory pre-application consultation took place between 05 December 2022 and 19 January 2023, information about the Proposed Development was made publicly available on the project website (www.mynydd-llanhilleth.co.uk) and public consultation events were held on 08 and 09 December 2022 in Llanhilleth and Abersychan respectively. Further information on the consultation events

is provided in Section 2.4 of **Chapter 2: Approach to Environmental Impact Assessment** of the Environmental Statement.

6.3 Potential environmental effects

6.3.1 The following sections provide a brief summary of the main findings of the EIA as set out in the technical chapters of the ES. As required by *The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017*, 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 EIA is an iterative process and opportunities for environmental mitigation, referred to as 'embedded environmental measures' have been considered throughout the design development of the Proposed Development and in the assessment undertaken for the ES where likely significant effects have been identified. 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, best practice and design commitments.

Topics scoped out of the EIA

6.3.4 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:

- Climate: 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;
- 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. The main accident risk relates to the potential for land subsidence from historic coal mining. A Coal Mining Risk Assessment has been completed and is appended to the ES (as **Annex B** to **Appendix 11A**); and
- 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, Shadow Flicker and Socio-economics.

7. Environmental Assessment

7.1 Introduction

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

- Landscape and Visual;
- Historic Environment;
- Biodiversity;
- Ornithology;
- Water Environment;
- Ground Conditions;
- Traffic and Transport;
- Noise;
- Aviation and Telecommunications;
- Shadow Flicker;
- People and Business (Socio-economics); and
- Inter-project cumulative effects.

7.2 Landscape and Visual

Landscape

7.2.1 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 such as the Bannau Brycheiniog National Park (BBNP) and the variety of local landscape designations that exist in this part of South Wales.

7.2.2 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.

7.2.3 The Site lies in the centre of a large, north-south trending ridge of high land between the Cwm Afon valley (Abersychan, Pontypool etc.) to the east, and the Ebbw Fach valley (Abertillery) to the west. This ridge comprises a series of plateau typically between 400m and 550m aOD and is characterised by unenclosed grazed land.

7.2.4 There is much evidence of historic industrial activity on the slopes of the ridge, particularly in the Cwm Afon valley. Areas of plantation forestry are common elsewhere on the slopes

of the ridge and drystone walls augmented with post and wire fencing demarcate the edge of the unenclosed area from the surrounding enclosed pastures.

7.2.5 There is a limited public rights of way (PRoW) network within and close to the Site. However, much of the Site is designated as Mynydd Llanhilleth Common Land.

7.2.6 The landscape assessment considered the potential for effects on landscape features and elements, landscape designations and LANDMAP areas within the 26km study area which has been based on the recommended study area for wind turbines of a height of 180m (to blade tip) within published guidance[5]. Of the landscape receptors considered, the assessment concluded that there would be significant landscape effects on the following receptors:

Direct Effects

- Visual and Sensory Aspect Areas (VSAA) - BLNGWVS226 St Illtyd;
- VSAA - BLNGWVS688 – Mynydd Bedwellte;
- VSAA - TRFNVS022;
- VSAA - TRFNVS024;
- Historical Landscape Aspect Area (HLAA) - BLNGWHL025 HAA 25 Mynydd Coety;
- HLAA - BLNGWHL044 HAA 44 St Illtyd Fieldscape;
- HLAA - TRFNHL017 HL017 Waun-wen and Mynydd Llanhilleth;
- HLAA - TRFNHL019 HL019 Waun-wen and Mynydd Llanhilleth;
- Cultural Landscape Aspect Area (CLAA) - BLNGWCLS004 - St. Illtyd;
- Local Landscape Designation: Eastern Ridge and Mynydd James SLA;
- Local Landscape Designation: St Illtyd Plateau and Ebbw Eastern Sides SLA; and
- Local Landscape Designation: Western Uplands SLA.

Indirect Effects

- VSAA - TRFNVS019;
- VSAA – Seven VSAA within 5km of the Site;
- VSAA – Eleven VSAA within 5-10km of the Site;
- HLAA – Seventeen HLAA within 5km of the Site;
- HLAA - Twelve HLAA within 5-10km of the Site;
- LCA15: Blorenge Hills and Slopes;
- Local Landscape Designation: Mynydd Carn y Cefn and Cefn yr Arail SLA;
- Local Landscape Designation: Eastern Uplands SLA; and

[5] Natural Resources Wales. (2021). *Using LANDMAP in Landscape and Visual Impact Assessments GN46*. [online]. Available at: https://naturalresourceswales.gov.uk/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/using-landmap-in-landscape-and-visual-impact-assessments-gn46/?lang=en

- Local Landscape Designation: Abercarn SLA.

7.2.7 The Proposed Development has been designed so as to minimise the effects on these designations through the use of non-reflective pale grey on the rotor blades and upper towers.

7.2.8 There would be no significant effects upon the Blaenavon Industrial Landscape World Heritage Site or any other national landscape designation, including the Wye Valley Area of Outstanding Natural Beauty (AONB). However, significant landscape effects have been identified on the BBNP for LCA15: Blorenge Hills and Slopes, this is a result of the sensitivity of the BBNP with the magnitude of change predicted to be low.

Visual

7.2.9 The assessment of visual effects is concerned with changes to views available to people and to their visual amenity. The assessment considered potential effects on 119 visual group receptors:

- 43 Settlements;
- 6 Long Distance Footpaths;
- 10 Sustran cycle routes;
- 4 Outdoor Recreational Facilities;
- 13 Country Parks and Historic Parks and Gardens;
- 30 prominent elevated locations and viewpoints; and
- 13 Transport Routes.

7.2.10 Of these, the following receptors were assessed as likely to experience some form of significant effect as a result of the Proposed Development:

- Settlements: Abersychan, Pontypool, Crumlin, Pen-tywn/Trinant, Swffryd and Abertillery;l
- Outdoor Recreation Receptors: Public Rights of Way (PRoW) and Open Access Land (OAL) on Site, within 5km, within 10km and within 15km;
- Photoviewpoints: ML common footpath, Tipentwys Cut, Public Footpath, Public footpath at Llanerch Memorial, Blaen-y-cwm Road, Public Foot[path in Pantygasseg, Public Footpath to the east of Abertillery, Public footpath to the west of Six Bells, Llanerch Lane, Torfaen Trail, Coety Mountain, Lasgarn Lane, Blaenavon WHS, Twmbarlwn Summit, Blorenge Summit, Cefn y Brithdir, Sugar Loaf trig point, Mynydd Llangynidr and Cefn yr Ystrad summit; and
- Transport Routes: B-Roads and access tracks on Site.

7.2.11 The majority of the above are related to views from the edge or elevated parts of settlement, or certain sections of recreational routes.

7.2.12 With regards to the grid connection, the underground line and single H-pole tee off structure would be too small in scale to give rise to any significant effects on landscape or visual receptors.

7.2.13 A Cumulative LVIA (CLVIA) has been undertaken as part of the LVIA, considering two scenarios, the Proposed Development and those schemes which are operational and consented (Scenario A) and Scenario B, considering the Proposed Development, operational and consented schemes alongside those schemes in planning and scoping.

7.2.14 For Scenario A it was identified that significant cumulative landscape effects would occur for three Special Landscape Areas (SLAs), whilst significant cumulative effects on the BBNP are identified by LCA15: Blorenge Hills and Slopes and LCA7: Central Beacons. Under Scenario B the Proposed Development would partially fill gaps between other schemes and although Mynydd Llanhilleth itself would result in a minor alteration to the baseline scenario, 10 SLAs were found to have Significant effects under Scenario B. With respect to the BBNP LCAs, in addition to other wind farms, the indirect cumulative effect of ML would be low overall and the Proposed Development was not found to be the main scheme or lead contributing factor to the cumulative effects that would arise when all other schemes are seen in combination with the Proposed Development.

7.2.15 Cumulative visual effects were assessed under Scenario A, it is concluded that this scenario is similar to that of the baseline and of the 11 PVPs assessed, there would be no significant effects as a result of the addition of the Proposed Development in views where consented and operations schemes may be visible. Under Scenario B of the 11 PVPs assessed 6 would have significant visual effects, however it should be noted that in all cases, the other wind farms considered in Scenario B would already lead to significant cumulative effects with or without ML's contribution.

7.3 Historic Environment

7.3.1 The assessment within **Chapter 7** of the ES considered the likely significant effects of the Proposed Development on the historic environment, which includes archaeological remains, historic buildings and historic landscapes.

7.3.2 Information on the existing historic environment was based on the results of a site walkover and a desk study, which involved the collation of data from Glamorgan Gwent Archaeological Trust Historic Environment Record and information on designated historic assets from Cadw.

7.3.3 There are no designated historic assets located within the Site boundary. There is one WHS, 14 Scheduled Monuments, 266 listed buildings, two Historic Parks and Gardens, five Conservation Areas and two Historic Landscapes within the ZTV.

7.3.4 There are five records of non-designated historic assets located within the Site boundary. These non-designated assets include Mynydd Llanhilleth possible Roman Road (GGAT08667g), Air Shaft and other mining remains at Cwm Cnyw (GGAT06416g: EA 135), Building at Pen Tranch and sheep pens (GGAT06902g: NMRW 421322), Cefn Crib Common, Ridgeway (GGAT07034g: NMRW 535594) and Bridge abutments on the route of the former Talywain Railway (GGAT03276.1).

7.3.5 The assessment of effects has concluded that there would be no impacts on the heritage significance of designated heritage assets during the construction phase for the wind farm or grid connection and no effects would arise.

7.3.6 There would be no impact or a negligible magnitude of impact to the identified historic assets and as such the significance of effects is deemed to be non-significant.

7.3.7 A detailed survey was also undertaken of the Replacement Common Land and the potential impact of this on the non-designated historic assets within this area. It is concluded that the replacement land does contain a number of archaeological remains which relate to industrial coal mining, however, these are of a very low heritage value and are robust in nature. It is therefore concluded that the increased footfall and grazing would not result in adverse effects to these assets.

7.3.8 A cumulative assessment has been undertaken to consider potential effects with other consented and proposed wind farms within 5km of the Proposed Development. For those

assets where it was determined that there was no change, or that the effect of the Proposed Development would be negligible, these have not been considered within the cumulative assessment, as significant cumulative effects are unlikely to occur.

7.4 Biodiversity

7.4.1 **Chapter 8** 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 Mynydd Llanhilleth Wind Farm and proposed grid connection 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.

7.4.2 The assessment methodology has been aligned with the standard industry guidance provided by the Chartered Institute of Ecology and Environmental Management.

7.4.3 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.

7.4.4 Four statutory designated biodiversity sites of international importance are located within 10km of the Site boundary: Aberbargoed Grasslands Special Area of Conservation (SAC), Usk Bat Sites SAC, Cwm Clydach Woodlands SAC and River Usk SAC. One statutory designated biodiversity sites of national importance were identified within 2km: Ty'r Hen Forwyn Site of Special Scientific Interest (SSSI).

7.4.5 There are fourteen non-statutory nature conservation sites within the study area, all of which are located within the Site boundary.

7.4.6 Other than the coniferous plantation and former quarry dominating the southern extents of the Study Area, habitats supported by the wider Common area typically comprise five distinct plant communities: heather-dominated dry dwarf shrub heath on the areas of highest elevation; a crowberry-dominated community on elevations slightly below the heather-dominated areas; a bilberry-dominated community below that; a small area dominated by bracken in the east; and relatively species-poor acidic grassland and species-poor rush pasture across the remainder. In addition, there is an area in the north-east of the Study Area where bracken overlies areas of both crowberry-dominated and bilberry-dominated communities.

7.4.7 The species surveys identified the following:

- At least 22 trees onsite with high potential to support roosting bats, with a total of nine bat species/species group confirmed to be using the bat survey area, with one confirmed roost;
- No evidence of badger activity or their setts were recorded during the initial survey nor during subsequent survey visits;
- Dormouse surveys conducted between May and November 2020 and between April and November 2021 found no evidence of dormice;
- Otter surveys conducted in April 2020 and April 2022 of the main Site (which does not include the grid connection corridor and access track) confirmed all aquatic features present to be of negligible value to support otter. With respect to the main access route however, an otter spraint was recorded in April 2022 upon a large boulder located alongside the stream Cwmsychan Brook;

- With respect to water vole, surveys conducted in April 2020 and April 2022 of the main Site confirmed all waterbodies to be of negligible importance to support this species;
- eDNA surveys (sampling technique which determines whether there is environmental DNA within a pond) for GCN returned no evidence of this species at the Site;
- During the course of the ecological surveys undertaken across the Site between 2020 and 2022, only occasional incidental sightings of common lizard were recorded, an incidental sighting of slow-worm; and
- The invertebrate population supported by the Site is considered to be County Level importance.

7.4.8 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 such as Japanese knotweed. Good practice measures are detailed in the Outline Construction Environmental Management Plan (CEMP) which accompanies the ES. 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;
- Site lighting will be controlled to prevent incidental spillage on to features that may be used by nocturnal species;
- Removal of habitat or features that could support reptiles (e.g. scrub, dense tussocky grassland, rocks) will be kept to a minimum, and excavations in these areas will take place outside the hibernation period;
- Any trees with moderate or high bat roosting potential which require felling will be subject to appropriate updated roost surveys to ensure that roosting bats will not be affected;
- 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), where this is not possible curtailment is proposed; and
- Feathering of blades during idling; and
- Curtailment during bat sensitive periods (e.g., at certain times of year and during good weather conditions when bats are active). Post construction monitoring would be undertaken to assess the effectiveness of feathering and curtailment in accordance with a Collision Mitigation Monitoring Scheme (CMMS) which will be secured via condition.

7.4.9 Additionally, a tree survey was undertaken in March 2023 in accordance with best practice to ensure that appropriate distances between blade tips and vegetation including trees and hedgerows to identify locations where this was not possible so appropriate mitigatory measures (e.g., curtailment) can be implemented.

7.4.10 Although areas of habitat designated as a Site of Importance for Nature Conservation (SINC) would be lost to project infrastructure, an Landscape and Ecology Management Plan (LEMP) will be secured by way of a suitably worded condition, which will include measures that compensate and enhance the SINC impacted by proposals and produce a net gain in nature conservation across the Site by designing in wildlife, and ensuring any avoidable impacts are appropriately mitigated.

7.5 Ornithology

7.5.1 **Chapter 9** of the ES reports the findings of a assessment of effects on Ornithology.

7.5.2 Considerable data gathering and a range of surveys were undertaken from 2020 to 2022 to assess how the proposed Mynydd Llanhilleth Wind Farm site is used by birds.

7.5.3 No part of the Study Area is covered by any statutory designations. However, there are several such designations within the Survey Boundary's potential ZoI that include bird species in their citations. These include several SSSIs and the Severn Estuary Special Protection Area (SPA) and Ramsar site.

7.5.4 During the 2020 and 2021 breeding survey seasons, a total of 59 species were recorded, including 15 target species (which are species identified as being potentially sensitive to the development). Of these 15, four were confirmed as breeding within the Survey Boundary and/or within the Study Area (goshawk, red kite, long-eared owl and peregrine), four as probably breeding (red grouse, kestrel, snipe and nightjar), and one possibly breeding (cuckoo). These species were all recorded in low numbers and generally with limited distribution.

7.5.5 Five Schedule 1 species were identified on Site, a number of red list passerine species were also recorded within the Survey Boundary.

7.5.6 During the migratory and winter 2020-2021 and 2021-2022 survey seasons, a total of 53 species were recorded, including 14 target species. All of these species were recorded relatively infrequently and in low numbers. A number of red list passerines were recorded and Schedule 1 listed crossbill were also identified.

7.5.7 In light of the temporary nature of anticipated construction activities, the delivery of embedded measures via a CEMP to minimise the potential for visual and noise disturbance during the nesting season, and the relatively low sensitivity of the wider breeding bird assemblage, no such significant adverse effects are anticipated to arise during construction.

7.5.8 Permanent and temporary land-take to facilitate the construction of turbines and associated infrastructure has the potential to reduce the availability of nesting, foraging or resting habitats for the moorland breeding bird assemblage. In addition, embedded measures delivered via a Landscape and Environmental Management Plan (LEMP), secured by condition, will include measures to mitigate for habitat losses by enhancing retained habitats and potentially increasing their potential to support nesting (and wintering) birds.

7.5.9 A collision risk modelling (CRM) exercise has been undertaken to understand the risk of birds colliding with turbine blades once operational. Analysis using CRM suggests that the number of birds that would collide with operational turbines represents a very small increase of annual mortality rates for lesser black-backed gull, herring gull, goshawk, peregrine, red kite and kestrel.

7.5.10 The scoping response from NRW and PEDW recommended that further consideration be given to the potential for likely significant effects upon Severn Estuary SPA/Ramsar and constituent Flat Holm and Steep Holm SSSI with respect to lesser black-backed gull and herring gull populations. In light of the low anticipated mortality rates in the context of the designated site and local population sizes and limited potential for displacement impacts, the Proposed Development would not result in any likely significant adverse effects on the integrity of the lesser black-backed gull population supported by the Severn Estuary Ramsar/SPA or Flat Holm and Steep Holm SSSI.

7.5.11 The disturbance and displacement of hen harrier, snipe and the wider breeding bird assemblage is of low magnitude and will further be mitigated where necessary through the LEMP.

7.6 Water Environment

7.6.1 The assessment provided in **Chapter 10** of the ES has considered the likely significant effects of the Proposed Development on the Water Environment, including the aquatic environment, surface water resources and flood risk. The effects on water quality, river flows, physical changes to rivers, lakes and other water features have been considered. The assessment is accompanied by a Flood Consequences Assessment (FCA) within **Appendix 10A**.

7.6.2 Information on the existing Water Environment is based on a site walkover and a desk study, which involved the collation of data from a range of sources including NRW, the Sustainable Drainage (SuDS) Approval Body (SAB) at Caerphilly County Borough Council.

7.6.3 The Proposed Development sits on a watershed between the Afon Ebwy Fach/Afon Ebwy catchment to the west, and the Afon Lwyd catchment to the east, both of which are classified as Main Rivers by NRW. There are a total of 16 ponds within the Wind Farm development area and considering a 500m buffer. Further review of OS mapping and aerial imagery has identified a further 12 ponds within the water environment study area for this assessment, considering a 1500m buffer. The grid connection runs across a ridge of high ground on the northern valley face of the Nant Ddu watercourse and extends east of the Proposed Development area near to Pistyll-gwyn. Owing to the location on a topographic ridge, the grid connection corridor has no interaction with any watercourses.

7.6.4 The Site and grid connection (both overhead and underground) overlay a ‘Secondary A’ aquifer – defined as permeable layers of rock capable of supporting water supplies at a local rather than strategic scale.

7.6.5 According to the NRW Licensed Water Abstractions dataset, there are no licensed groundwater and surface water abstractions within the Proposed Development area. Within the wider study area there are four abstraction licences. An assessment of the Proposed Development on Private water supplies was undertaken in accordance with the consultation response from NRW at Draft Submission, this assessment concluded that there would be no significant effects on supplies throughout the lifetime of the development.

7.6.6 A range of environmental measures which relate to the Water Environment are embedded as part of the design of the Proposed Development to avoid or reduce significant environmental effects as far as possible. Examples of these measures include the following:

- Adherence to Pollution Prevention Guidance Notes (PPGs) and Guidance for Pollution Prevention Notes (GPPs) to ensure that the risk of accidental release of pollutants into the water environment is minimised;
- Implementation of a Water Management Plan to minimise runoff from the Site. Discharges would be minimised to ‘greenfield’ rates such as those from the current undeveloped site;
- Excavated materials during construction works will be segregated and stored or re-used on-Site;
- No works would be undertaken within 20m of any watercourse; and

- Areas of construction compounds that are used for fuel storage, plant maintenance and refuelling will be surfaced with fully impermeable materials to prevent any infiltration of contaminated runoff and contain bunding.

7.6.7 The construction, operation and decommissioning of the Proposed Development is not expected to result in any significant effects on the water environment, provided that all recommended mitigation measures are put in place. No cumulative effects with other developments are anticipated.

7.6.8 All potential sources of flooding have been considered, with surface water runoff originating from the Proposed Development, due to increased areas of hardstanding, posing the greatest potential flood risk.

7.6.9 The Flood Consequence Assessment (FCA) concludes that the Proposed Development, together with the proposed flood risk management measures above, would not be subject to an unacceptable level of risk, nor would there be potential increased flood risk elsewhere.

7.6.10 The Water Framework Directive (WFD) Assessment concludes that the significance of effects on the WFD status of watercourses would not be significant.

7.6.11 Consultation with the SAB, Caerphilly County Borough Council and the Lead Local Flood Authority (LLFA), Torfaen County Borough Council, was undertaken to discuss and agree the proposed drainage strategy and proposed watercourse crossing methodologies, details of these discussions are provided in **Appendix 10A**.

7.7 Ground Conditions

7.7.1 The assessment within **Chapter** 11 of the ES has considered the likely significant effects of the Proposed Development on the Ground Conditions, including agricultural land, soils, land contamination and ground instability receptors (for example human health). This assessment is based on risk assessments that consider whether the construction, operation or decommissioning of the Proposed Development could disturb areas of old contaminated ground, introduce new soil contamination, or cause gas to move out of the ground and affect human health.

7.7.2 The study area for Ground Conditions for contaminated land receptors includes the Site and a 250m buffer area beyond the boundary. This is based upon the potential for contaminants to migrate from the site to offsite receptors through the soil or in groundwater, or to migrate onto the site through soil or in groundwater from offsite sources.

7.7.3 Baseline conditions were identified through site visits and a desk study, informed by a number of sources which include:

- Information on previous land uses has been obtained from historical mapping. Information on geological and soil conditions has been obtained from maps and other data sets provided by the British Geological Survey (BGS) and Natural Soil Resources Institute (in electronic format);
- Mapping data related to peat and agricultural land classification has been obtained from NRW and the Welsh Government; and
- Information of historic coal mining workings, and coal outcrops and fissures has been obtained from the Coal Authority.

7.7.4 The agricultural classification for the Site, including the Wind Farm development site and the Grid Connection is assumed, for the purposes of the assessment, to be Grade 4, and

the agricultural land sensitivity is Low, through the use of the Predictive Agricultural Land Classification Map.

7.7.5 A Phase 1 peat depth survey was conducted during September 2021. The survey indicated that the Site is generally not underlain by peat, as peat of ≥0.4m in thickness was only found at two survey locations in the east of the Site. A further peat survey of a small area was undertaken at the southern end of the central track through the former Llanhilleth Quarry was completed in June 2023, this found no peat in this area.

7.7.6 In accordance with the consultation response received from NRW at draft submission an assessment of the proposed development on the Llanhilleth Quarry Regionally Important Geological Site (RIGS) was undertaken. A site walkover by a geotechnical specialist was completed in 2023 to assess the areas of the track which required widening and potential slope stability issues, no potential slope stability issues were identified. Furthermore, the assessment of the Proposed Developments impact on the RIGS set out that none of the rock exposures for which the RIGs is designated are located within or immediately adjacent to the central track, therefore, the effect on the RIGs would not be significant.

7.7.7 The coal seam outcrops are shown around the margin of the topographic high which forms the plateau within the Proposed Development Site. Several mine entries are shown on the flanks of the plateau, comprising both shafts and adits, where they are associated with the Mynyddislwyn seam in the west and the Cefn Glas and Brithdir seams in the east.

7.7.8 The Phase 1 Geo-environmental desk study (WSP, 2022) has identified potential sources of land contamination on the Proposed Development Site to include localised residual mine waste from onsite surface workings, contaminants (such as fuels, oils and wastes) from opencast mining operations, made ground (opencast backfill), historical farm operations including use of fuels/oils, agricultural chemicals such as pesticides, dilapidated buildings with possible asbestos content which may release asbestos fibres to ground, and mine gas from former deep workings on the Site.

7.7.9 A range of environmental measures which relate to the Ground Conditions are embedded as part of the design of the Proposed Development to remove or reduce significant environmental effects as far as possible. Examples of these measures include the following:

- Adoption of industry standard methods for the handling and storage of soils; based on Defra's current good practice guidelines which describe standard working methods and techniques to protect soil resources;
- Measures to avoid soil compaction to avoid damage to soil, and the reuse of permanently displaced soil within the Proposed Development boundary;
- Any temporary onsite storage of excavated materials suspected or confirmed to be contaminated will be placed on impermeable sheeting, covered over and with adequate leachate / runoff drainage to prevent migration of contaminants from the stockpile; and
- Intrusive geo-environmental ground investigation will be completed during the pre-construction phase, including soil sampling and chemical testing, to confirm the ground conditions. Deeper soil testing will be carried out as needed to inform the detailed (post consent) design of the Proposed Development.

7.7.10 The construction, operation and decommissioning of the Proposed Development is not expected to result in any significant effects on the Ground Conditions, provided that all recommended mitigation measures identified in the ES and detailed further in the Outline CEMP are put in place. No cumulative effects with other developments are anticipated.

7.8 Traffic and Transport

7.8.1 An assessment has been completed of the likely effects of construction traffic on the local transport network and on road users. This has included a calculation of the likely number of movements of Heavy Goods Vehicles (HGVs) and Abnormal Indivisible Loads (AILs) in and out of the development site over the anticipated 24-month construction period. This has been compared to the forecast background traffic numbers for the anticipated year of construction of 2025 when development-related traffic movements would be greatest, based on traffic growth models designed by the Department for Transport.

7.8.2 Access to the Proposed Development would be taken from an existing tarmacked road called British Road / Farm Road off the B4246 to the east of the Site. Four new access points to the turbine locations are proposed to be provide off the unnamed adopted highway which routes between Farm Road and Blaen-y-Cwm Road. The proposed route for Abnormal Indivisible Loads (AILs) - a type of load that cannot be divided into two or more loads for transportation by road - carrying the wind turbine components is as follows:

- M4 - A4051 - A4042 - A4042 Turnpike Road - A472 - A4043 – B4246 –Farm Road – Unnamed Adopted Road - Site.

7.8.3 Based on the construction program this construction traffic results in an approximate peak of 77 HGV movements per 24 hours two-way. This peak is predicted to occur during month 2 (April 2025) of the total 22-month construction programme because there are considerable stone deliveries during this time.

7.8.4 Taking account of the environmental considerations of severance, driver and pedestrian delay, pedestrian amenity and intimidation, this increase in traffic during construction would not result in a significant effect. However, it is appropriate to consider some additional management in the form of a Construction Traffic Management Plan (CTMP) to reduce the potential for effects as far as reasonably possible. An Outline CTMP has therefore been provided as part of the submission documents and will be considered by Torfaen County Borough Council (TCBC).

7.8.5 During operation of the wind farm, maintenance traffic will be minor and will be carried out using a 4x4 van. Turbines would be typically maintained at 6 monthly internals, with each service requiring on average two technicians over two days per turbine. If unscheduled repairs are required there may be the need for an HGV / crane however, this is not anticipated and if it occurred it would be very infrequent.

7.9 Noise

7.9.1 An initial baseline noise survey, using a 10m anemometer mast to measure wind speed data at the site, was undertaken to provide an understanding of the existing noise environment in the absence of the Proposed Development. A second baseline noise survey, using a full-size mast, has been undertaken to support the Final ES.

7.9.2 The Proposed Development is located in a rural area southeast of Abertillery and Six Bells and east of Aberbeeg. In the vicinity of the nearest NSRs the local acoustic environment consists primarily of distant road noise from the A467 and A472, local vehicle movements, aircraft flying overhead, farming activities and naturogenic sounds of flora and fauna.

7.9.3 Background noise monitoring was undertaken at four locations surrounding the Proposed Development:

- Blaencuffin Barn Farm;
- Maescynew Farm;

- Cefn-y-Crib Farm; and
- Pistyll Gwyn

7.9.4 An assessment of the construction noise and vibration was undertaken, it is predicted that due to the separation distances from receptor that the potential for significant effects due to vibration is negligible. Construction traffic noise impacts were assessed, a single dwelling is predicted to experience an adverse impact, however the duration of this impact is limited and the character of the sound is in keeping with the setting of the receptor such that this effect is not significant.

7.9.5 Furthermore, the implementation of general good-practice noise control measures, such as the use of silencers, mufflers and/or acoustic hoods on machinery during construction and decommissioning will ensure no significant effects on receptors. Although it is not yet confirmed whether it will be required, potential noise effects from foundation piling have been assessed.

7.9.6 An assessment of 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.

7.9.7 The results show that predicted turbine noise levels are below the lowest daytime fixed noise limits at some of the receptors during the daytime, the following receptors are predicted to exceed the noise limits:

- R6 – Incline Cottages;
- R10 – Cefn-y-Crib Farm;
- R11 – The Old School House;
- R12 – Bush Terrace;
- R13 – Mountain View House;
- R14 – Ty-Bwmpyn Road;
- R15 – Blaenant y Caws;

7.9.8 And all but four receptors during the night time:

- R11 – The Old School House;
- R12 – Bush Terrace;
- R13 – Mountain View House; and
- R15 – Blaenant y Caws.

7.9.9 Exceedances of the daytime limits of up to 4.5 dB are indicated at receptors R6 and R10 to R15 resulting in a potential significant effect. During the night-time, compliance is predicted at the majority of receptors, resulting in a not significant effect. Exceedances of the night-time limits of up to 1.5 dB are indicated at receptors R11 to R13 and R15 resulting in a potential significant effect.

7.9.10 It should be noted that directivity effects due to wind direction may have a significant influence at R10 to R13, due south of the proposed Mynydd Llanhilleth turbines, where the highest daytime exceedances are predicted. The cumulative noise at these receptors is predicted to be dominated by sound from the proposed Mynydd Maen turbines 1 and 9 to 13, and to a lesser extent, proposed Mynydd Llanhilleth turbine 7.

7.9.11 Based on the above, it is considered that the identified exceedances may be reduced, when accounting for directivity and site-specific wind shear, and through the application of a scheme of mitigation to reduce cumulative turbine noise levels such that they do not exceed the ETSU-R-975 derived noise limits.

7.10 Aviation and Telecoms

7.10.1 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.

7.10.2 The desk study and consultation exercise identified a number of microwave links in the wider area, including two links operated by Ofcom and links operated by Arqiva. The National Air Traffic Service (NATS) / Cardiff Airport indicated that the Proposed Development would be visible to the Cardiff Airports radar.

Aviation

7.10.3 The Site is located in an area identified by the Ministry of Defence as being within a zone that is deemed to be *"Low priority military low flying areas less likely to raise concerns".* There may be a requirement to install aviation safety lighting on turbines to ensure visibility to aircraft.

7.10.4 An Airport Technical and Operational Assessment was undertaken by NATS to ascertain potential impacts from the Proposed Development. The assessment concluded potential technical impacts on radar at Cardiff Airport and the NERL Clee Hill Radar. A subsequent review by independent aviation consultants has identified that there are mitigation options available, such as upgrades to radar equipment, that would enable operation of wind farms without radar interference. Further consultation is being undertaken with NATS and Cardiff Airport to agree measures that will be adopted and how these will be secured, most likely via a condition on any planning consent should this be forthcoming.

Telecommunications

7.10.5 Ofcom identified four links crossing the Site which may be affected by the Proposed Development. If a reduction in television reception quality occurs in the surrounding area, it is most likely to be noticed when the proposed wind farm becomes operational. Should planning permission be granted and to mitigate any problems with reception arising, the developer would assess current television signals in advance of development and mitigate post-development problems to television reception arising where effects are attributable to the proposed wind farm. Consultation suggests adverse effects may not occur and that in the unlikely event that interference does occur, this would be localised. This could be controlled by planning condition.

7.10.6 Viewing quality can be improved by considering each or a combination of the following mitigation techniques:

- Replace or upgrade the receiving aerials (e.g. with directional receiving aerials) for affected households;
- Re-tune the television receivers at affected households;

- Re-align the television aerial to an alternative transmitter and re-tune the receiver at affected households; and
- Provision of a bespoke 'self-help' solution (this could comprise a new low powered transmitter, a cable network, a satellite receiver, or a combination of these measures).

7.10.7 In relation to Arqiva consultation response, further discussions are being held to understand potential technical solutions to mitigate impacts as a result of the wind farm. The Applicant is committed to adopting measures to ensure no significant effects on Aviation or Telecommunications arise as a result of the Proposed Development

7.11 Shadow Flicker

7.11.1 Shadow flicker is the flickering effect caused when rotating wind turbine blades periodically cast shadows through constrained openings such as the windows of properties.

7.11.2 A study has been undertaken 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.

7.11.3 Up to 20 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.

7.11.4 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.

7.11.5 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 shadow flicker effects arising from the Proposed Development.

7.12 People and Business (Socio-economics)

7.12.1 The assessment has considered the likely significant effects of the Proposed Development on tourism and recreational and economic receptors at both the construction and operational stages.

7.12.2 The study area for baseline data covered the Site boundary and grid connection corridor, together with the wider county borough, regional and national context. Sources of information included the following:

- Department of Business, Energy and Industrial Strategy (BEIS) for the installed capacity of renewable energy for Torfaen County Borough Council and Blaenau Gwent County Borough Council;
- The Welsh Government for data relating to deprivation, national renewable energy generation statistics and data for spend and visitor trips by region and local authority area; and
- The Nomisweb and StatsWales websites for data related to demography, occupations, employment/unemployment, out-of-benefits for Torfaen County Borough Council and Blaenau Gwent County Borough and at ward level.

7.12.3 Of the six wards where the Proposed Development is located, the two which are in Blaenau Gwent have a marginally lower percentage of people classed as economically active (Llanhilleth 74.5%, Six Bells 70.9%) than the Blaenau Gwent average (75.3%). For Torfaen, in the four wards within which parts of the Proposed Development would be located and with the exception of Wainfelin (78.4%), all are below the levels of economic activity represented by the average for Torfaen (76%).

7.12.4 The earnings by place of residence are higher in Torfaen (£631.80) but lower in Blaenau Gwent. Whilst the 2022 figures are provisional they show a significant decline in pay for residents of Blaenau Gwent, reducing from £572.90 in 2021 whilst in Torfaen, and Wales as a whole weekly gross pay rose (Torfaen being £567.30 and Wales £563.70 in 2021).

7.12.5 The Welsh Index of Multiple Deprivation (WIMD, 2019) is an official Welsh Government measure of deprivation in Wales. The WIMD includes a number of different measures in small geographic areas called Lower Super Output Areas (LSOA). The WIMD is designed to allow comparison of deprivation across the country with LSOAs ranked from 1 (most deprived) to 1,909 (least deprived). The WIMD identifies the most deprived of the LSOAs as being Abersychan 2 Llanhilleth 1 and Six Bells 1) each being within the top 20% most deprived LSOAAs in Wales (with Abersychan being in the top 10%).

7.12.6 There are a number of Public Rights of Way (PRoWs) that cross the Site:

- Bridleway 337/118/1, runs along the south of Blaen-Y-Cwm Road;
- 418/135/1, 413/90/1, 413/88/1 and 331/176/1 together combine to provide access alongside and sometimes upon the access road;
- 413/83/1 and 423/1031 run north and south respectively of Turbine 2, within the 50m offset from the rotor blade.413/83/1 would also pass within the 50m rotor blade offset of Turbine 1;
- public right of way 423/44/1 would pass within the 50m rotor blade offset of Turbine 6 and west of Turbine 7;
- 423/20/1 would run outside the rotor blade offset but close to the east of Turbine 8;
- Turbine 5 would be located between 423/101/1 and 423/100/1 both of which would pass within the 50m rotor blade offset; and
- Internal site tracks would cross some PRoWs.

7.12.7 A number of measures will be implemented in relation to these PRoWs, including (where necessary) temporary closure and diversion, during both construction and operation. A number of health and safety signs will also be put in place through construction and operation. It is anticipated that PRoWs will remain open, where possible, during construction and that alternative permissive paths will be made available so as to allow continued use by the public during construction and operation.

7.12.8 A substantial area of land within the Site is within Mynydd Llanhilleth Common which is designated as common land. Because work will take place within this designation the Applicant has submitted a secondary consent application (under sections 16 and 38) to PEDW via the Commons Act 2006.

7.12.9 The Proposed Development site surrounds the Site of Tir Pentwys Quarry. The quarry is vacant but is identified within a wider Preferred Area (Policy M3 of the Torfaen Local Development Plan). In view of the fact that proposals for the Tir Pentwys Quarry have not come forward successfully, which an application to reopen the quarry refused at appeal in 2019, that the Site is also subject to environmental designations and that it and the land upon which the Proposed Development would be located presents a small part of the

substantial areas of land safeguarded of mineral extraction, it is considered that the effects arising from its construction and operation would not be significant.

7.13 Inter-related cumulative effects

7.13.1 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.

7.13.2 The most likely types of receptors where topic effects are likely to combine are those pertaining to the amenity of the relevant human population, for example noise, visual, shadow flicker and traffic. Consideration has also been given to the potential for cumulative effects on other environmental receptors.

7.13.3 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 inter-related cumulative effects.

8. Looking Forward

8.1 What happens next?

8.1.1 The below table sets out the indicative timetable moving forward from the submission of the DNS application to PEDW.

Summer 2023	**DNS Application submitted to PEDW**
Winter 2023	Examination of application by PEDW and recommendation submitted to Welsh Government
Spring 2024	Welsh Ministers determine application.

8.1.2 Subject to planning consent being granted, the construction of Mynydd Llanhilleth would take around two years, so current timescales indicate that it would be operational and generating electricity by Summer 2027.

8.2 What if I would like further information?

8.2.1 This document is a non-technical summary of the ES for the proposed Mynydd Llanhilleth Wind Farm project. The full ES, which [redacted]nical information, is available to view on the following link: [redacted].Further information can also be obtained:

[redacted]