

Mynydd Fforch Dwm Wind Farm

Environmental Impact Assessment Scoping Request



Mynydd Fforch Dwm Wind Farm

EIA Scoping Report

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1. Introduction

- 1.1. This Scoping Report is submitted on behalf of Naturalis Energy Development Ltd ('The Applicant') in relation to a proposed project for the construction and operation of up to 7 wind electricity generating turbines, a solar photovoltaic array, battery storage facilities and associated infrastructure located approximately 6km to the east of Neath and 4km to the south of Resolven, within Neath Port Talbot County Borough Council (NPTCBC). The project is named the Mynydd Fforch Dwm Wind Farm (MFD) ('The MFD Wind Farm Project').
- 1.2. The MFD wind farm project is anticipated to comprise an electricity generating station with an installed capacity of between 10 and 50 MW. It therefore falls within the definition of a "Development of National Significance" (DNS) as defined by section 4 of the Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016, for the purposes of section 62D of the Planning (Wales) Act 2015.
- 1.3. This Scoping Report therefore accompanies a request for a Scoping Direction to the Planning Inspectorate Wales under Regulation 33 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (as amended by the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018) ('the EIA Regulations'), in respect of applications for planning permission to Welsh Ministers as a DNS project.
- 1.4. In accordance with Regulation 33 (2) this request for a Scoping Direction therefore includes:
 - (a) a plan sufficient to identify the land;
 - (b) a brief description of the nature and purpose of the development including its location and technical capacity;
 - (c) its likely significant effects on the environment;
 - (d) a statement that the request is made in relation to a development of national significance for the purposes of section 62D of the 1990 Act; and,
 - (e) such other information or representations as the person making the request may wish to provide or make.
- 1.5. This request for a Scoping Direction seeks the views of the Planning and Environment Decisions Wales (PEDW), on behalf of the Welsh Ministers, as to the scope and level of detail of information to be provided in an Environmental Statement in support of the MFD Wind Farm Project.
- 1.6. Part 5, Regulation 17 (4) of the EIA Regulations requires that: "An environmental statement must—(a) be prepared by persons who in the opinion of the relevant planning authority or the Welsh Ministers, as appropriate, have sufficient expertise to ensure the completeness and quality of the statement." In this respect any developer for a DNS scheme is required under sub-paragraph (b) to include a statement regarding the expertise of the person (company) undertaking the EIA and composing the Environmental Statement.

- 1.7. Savills has been appointed by Naturalis as the EIA coordinator for the MFD Wind Farm Project. Savills has completed EIA projects, including renewable energy projects throughout the UK across a variety of consenting regimes. Savills has maintained accreditation through the Institute of Environmental Management and Assessment (IEMA) quality mark since its inception, which requires adherence to and compliance with specified commitments and includes reviews of key EIA personnel and Environmental Statements in order to ensure they meet the required standards. Through maintaining the IEMA accreditation Savills ensures it has the required competency to conduct and coordinate EIAs. The specialist sub-consultants also have appropriate accreditation and competence to meet the requirements of the Regulations, with further statements made in the sub-sections below. An appropriate statement will also be made within the ES. Table 1.1 below confirms the appointed specialist consultant team for the MFD project.

Table 1.1: Specialist EIA consultants appointed for the MFD wind farm project

Discipline/ES chapter	Consultant
Landscape and Visual impact	Stephenson Halliday
Traffic and Transport	Pell Frischmann
Ecology Ornithology	Avian Ecology
Geology, Hydrology and Hydrogeology Carbon Emissions Cultural Heritage	SLR
Noise	Hoare Lea
Socio-economic	Wavehill
Other issues: -Infrastructure, telecoms and broadcast services -Aviation -Shadow Flicker	Savills WPAC SLR

2. Purpose of the Scoping Report

- 2.1. The purpose of this scoping report is to provide sufficient information to enable the Planning and Environment Decisions Wales, as advised by statutory consultees, to specify the scope of the EIA for the MFD wind farm project. In order to do so it provides: details of the Proposed Development; the environmental and field-based survey work undertaken to date; the potential significant environmental effects to be considered within the EIA and ES; and, the proposed EIA survey and assessment methods.
- 2.2. A key objective of the scoping report is to identify those impacts which are considered to be outside of the scope of the EIA ("scoped-out") because a significant effect is not anticipated.
- 2.3. On the basis of completed survey work, desktop studies and the professional judgment of the project team, each topic based chapter in this report is therefore structured as follows:
- introduction;
 - summary of the environmental baseline and potential sources of impact;
 - proposed method of assessment and reporting;
 - approach to mitigation, including embedded mitigation in the design process;
 - potentially significant effects associated with the construction, operation and decommissioning of the proposed MFD wind farm project;
 - those effects considered unlikely to be deemed significant, and therefore able to be scoped-out of the EIA process; and,
 - a summary of key questions for consultees.
- 2.4. In doing so each topic based chapter also seeks to:
- confirm and agree the basis of baseline environmental information;
 - agree survey and assessment approach and methodology;
 - obtain any other relevant comments from consultees on the proposed survey and assessment methodologies;
 - obtain responses from consultees to particular questions;
 - confirm the preferred approach to presenting the assessment in the ES; and,
 - receive any further relevant information from consultees and the competent authority.

2.5. The proposed ES structure is provided in table 2.1 below:

Table 2.1: Proposed Environmental Statement structure

Document / Chapter	
Non-Technical Summary	
Main ES Introductory and Concluding Chapters	Chapter 1: Introduction Chapter 2: Site Description Chapter 3: Alternatives and Proposed Scheme Evolution Chapter 4: Proposed Scheme Description Chapter 5: Policy Context Chapter 6: Scoping and Consultation Chapter 16: Summary of Mitigation and Residual Effects
Specialist Topic Chapters	Chapter 7: Landscape and Visual Chapter 8: Noise and Vibration Chapter 9: Ecology Chapter 10: Ornithology Chapter 11: Geology, Hydrology and Hydrogeology and Peat (including carbon emissions) Chapter 12: Archaeology and Cultural Heritage Chapter 13: Transport and Access Chapter 14: Socio-Economic Chapter 15: Other issues: Aviation and Telecommunications; Shadow Flicker and Safety

3. The Proposed Development

The Applicant

- 3.1. Naturalis Energy Developments Limited is a major new force in the UK wind, solar and battery storage sectors and brings together the combined skills, experience and financial resources of REG Power Management (REG) and Falck Renewables (Falck).
- 3.2. Since its incorporation in 2005, REG has been dedicated to developing new renewable energy projects to help in the shift to a zero carbon future. To date, REG has developed over 1GW of wind, solar and bioenergy projects in the UK, Poland and Canada, with over 40 projects built and in operation today.
- 3.3. Falck Renewables has been active in the United Kingdom since 2002 and is currently operating an installed capacity of 413 MW. The company has twelve wind farms around the UK from Kilbraur in Sutherland to Cefn Croes in Ceredigion and has its operational headquarters in Inverness. It pioneered the co-operative ownership approach to wind farm development at its Boyndie Wind Farm and supports local investment, with co-operatives owning a stake in eight of its wind farms. Falck Renewables S.p.A., listed on the Italian stock exchange ("FKR.MI"), develops, designs, builds and manages power production plants from renewable sources, with an installed capacity of 1,349 MW in the United Kingdom, Italy, United States, Spain, France, Norway and Sweden, using wind and solar power, WtE and biomass technologies. The Group is also a global player in the renewable energy technical advisory and asset management services business.

The Application Site

- 3.4. For the purposes of this EIA Scoping Direction Request and the requirement for a plan to identify the Site, the attached plan, at Figure 1: EIA Scoping - Indicative site location, identifies the location of the proposed MFD Wind Farm Project as follows:
 - a 'main renewable energy infrastructure design area' (hereafter 'The MFD design area') of c.290 hectares – this is the area within which the main part of the development, i.e. the proposed wind turbines, solar photovoltaic array and battery storage facilities, together with ancillary substation and associated development such as main internal wind farm access tracks would be located.
 - In addition there is a grid connection corridor (hereafter 'the grid corridor') associated with the MFD Wind Farm Project. This is a wide indicative corridor within which it is anticipated the required grid connection would be located. It extends westwards for c.9 km from the MFD design area to the agreed connection point at Briton Ferry. It should be noted that the final grid connection will be a linear project with a commensurately much more limited footprint.
- 3.5. For the purposes of this EIA Scoping Direction Request, the Proposed Development comprises the MFD Wind Farm project only. Consent for the grid connection will be subject to a separate application.

The main renewable energy infrastructure design area (MFD Design Area)

- 3.6. The MFD design area comprises c.290 hectares of land located on plateaus located c.6km to the east of Neath and 4km to the south of Resolven, approximately 1km to the north east of the village of Tonmawr.
- 3.7. It consists of two distinct land types: pasture land which is found within the eastern area at Fforch-dwm and fallow pasture land due to be planted with coniferous plantation trees in the western area around Mynydd Bleanafon. The farm complex of Fforch-dwm is to the south of the Fforch-dwm area, comprising of two residential properties and agricultural barns. The north-eastern part of the Site comprises 'open country' CROW Act land, and a footpath/track passes from south-west to north-east, parallel with the watercourse, understood to form part of a former minerals railway.
- 3.8. Elevations within this area range from at or slightly below 200m above Ordnance Datum (aOD) along the Nant Blaenpelenna watercourse in the west and north of the site to 350m aOD in the south east of the site. Within the site a small ridge extends south west to north east (Mynydd Fforch-dwm), which lies between the watercourses of Nant Blaenpelenna to the north and Cwm y Pant towards the south of the site. To the north, Pelenna Forest rises to above 290m aOD within the site boundary.
- 3.9. In terms of adjoining land uses, the south western end of the operational Pen Y Cymoedd wind farm (76 turbines with a 145 metre tip height) is immediately adjacent to the north and north east, with the operational Ffynnon Oer wind farm (16 turbines with a 92 metre tip height) also to the east. Both these wind farms are located within upland commercial forestry plantation. Other notable nearby uses include the Afan Forest Park which is approximately 3km to the south.

Site access corridor (access corridor)

- 3.10. The Proposed Development will be accessed directly from Fforch-dwm Road, with a new link providing access to the western development area on Mynydd Blaenafon. The eastern section of the site will be accessed from the end of Fforch-dwm Road. These two accesses would be used for all deliveries to the site
- 3.11. Access for Abnormal Indivisible Loads (AIL) will be taken from Swansea Docks to the two access junctions. The route selected has been considered in detail and initial consultations undertaken with local roads officers. The proposed route will be via the A483, M4, A465, A474, B4434, B4287, Ton Mawr Road and Fforch-dwm Road. The use of specialist blade lifting trailers will be necessary to negotiate the constraints located within Neath, Cimla, Efail-fach and Tonmawr.

Grid connection corridor (grid corridor)

- 3.12. The grid corridor is an indicative area approximately 9km in length and up to 2km wide. It leads south west from the MFD design area to the agreed grid connection point at Briton Ferry and is the area within which the final grid connection route will be located. A wide corridor or 'search area' has been identified and a detailed assessment will be completed with the subsequent application for grid connection consent.

- 3.13. The grid corridor encompasses a wide, predominantly rural area containing pasture and commercial forestry with occasional dispersed farms and houses. The north east section broadly follows the route of the Pelenna River south west from the MFD design area as far as the B4287. From its crossing of the B4287 the grid corridor broadens out to allow an appropriate route to be selected through to the western end of the corridor, passing in the vicinity of Mynydd-y-Gaer to a point to be confirmed between Briton Ferry to the north and Baglan to the south. This final section will necessarily pass through one or other of these urban areas, crossing the A48, M4 and railway to reach the agreed connection point. Ultimately, the grid connection itself will be a combination of overhead and underground elements, with occasional small temporary construction compounds/working areas along the route, and will have a considerably smaller, linear footprint wholly within the indicated corridor.

Site selection

- 3.14. The location of the project site has been identified to accord with the spatial frameworks provided by adopted and emerging national and local planning policy.
- 3.15. Future Wales: The National Plan 2040 was published in February 2021 and is the National Development Plan for Wales, setting out the direction for development to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy and achieving decarbonisation and climate-resilience. Future Wales 2040 set out the national development plan context for energy and provides specific policies for heat network and renewable energy development.
- Future Wales incorporates the following national policy targets on renewable energy:
 - For 70% of electricity consumption to be generated from renewable energy by 2030;
 - For one gigawatt of renewable energy capacity to be locally owned by 2030;
 - For new renewable energy projects to have at least an element of local ownership from 2020.
- 3.16. Future Wales states that the planning system plays a significant role in the provision of new renewable and low carbon energy and gives effect to the Welsh Government's national targets, setting the overall strategic framework and direction within which developers can propose new energy infrastructure projects. Future Wales notes that "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".
- 3.17. The pre-assessed areas for wind energy alongside Policies 17 and 18 provide policy direction setting out requirements for DNS scale projects.
- 3.18. These pre-assessed areas have been identified by the Welsh Government and are considered, in principle, to be areas where DNS scale onshore wind projects would be acceptable subject to the criteria of Policy 17. Accordingly, there is a presumption in favour of large-scale onshore wind energy development and the associated landscape change, subject to the criteria within Policy 18.
- 3.19. The Site is located within 'pre-assessed area for wind energy (area 9)', which means Policy 17 is relevant, yet there is emphasis on Policy 18 as it provides the criteria to frame assessment priorities and decision making.

- 3.20. The proposed site has therefore been identified in response to the clear national and local planning policy focus to the delivery of onshore wind project in this area.

The Proposed Development

- 3.21. At this stage it is anticipated that the MFD Wind Farm Project would comprise the following main components:
- up to 7 wind turbines with an indicative height of up to 200m to tip;
 - up to approximately 20 hectares of solar PV panels, mounted on frames fixed to the ground with associated inverters, security fencing and CCTV system;
 - wind turbine foundations;
 - external transformer housing;
 - crane pads/turbine laydown areas;
 - access tracks, entrance and turning points;
 - replacement bridge over Nant Blaen Pellenna
 - a substation and control building;
 - permanent met mast or LiDAR compound for wind monitoring;
 - underground electricity cables between the turbines and solar array and the onsite sub-station;
 - temporary construction and storage compounds and ancillary infrastructure;
 - temporary borrow pits and,
 - potential energy storage infrastructure, anticipated to be in the form of a containerised battery storage.

Indicative turbine co-ordinates are detailed in Table 3.1 below:

Table 3.1 –Indicative turbine Co-ordinates and indicative solar location

Turbine No.	Easting	Northing
1	282616	198055
2	283052	197742
3	282063	197853
4	282495	197501
5	280593	197600
6	281054	197691
7	280821	197204
Solar	280821	197035

- 3.22. At this stage it is anticipated that the MFD Wind Farm Project would have an operational life of 35 years after which it would be decommissioned and the Site largely cleared.

- 3.23. In terms of the approach to assessing the Proposed Development, it is proposed that the ES will be prepared on the basis of the above design parameters (e.g. maximum dimensions/envelopes of turbines and associated infrastructure), with locations of infrastructure fixed (subject to micro-siting allowances specified by planning condition). The ES will assess the relevant worst-case scenario for each specialist topic chapter.

Grid Connection

- 3.24. The grid connection will comprise a separate subsequent planning application.
- 3.25. Thus, at this EIA scoping stage a wide grid connection corridor or 'search area' has been identified.
- The initial planning application and EIA will include a high level assessment of the main environmental constraints within the grid connection corridor shown in figure 1 to confirm that a grid connection is likely to be possible without unacceptable environmental impacts. At this stage consultees are thus requested to confirm that the assessment methods/approach specified within the relevant sections of this scoping report for scenario 1 are appropriate for assessing that wider grid connection corridor.
- 3.26. An initial feasibility assessment has confirmed that the grid connection infrastructure is likely to comprise the following:
- a single circuit 33kV cable incorporating both overground (wooden pole) and underground elements.
- 3.27. The initial high level assessment work will comprise the use of desk-based environmental constraints mapping, with reference to the relevant Holford Rules¹ and other relevant policy and guidance, in order to confirm that an appropriate route or routes exists within the wider grid connection corridor. Consideration will also be given to those locations/sections along the route that may be suitable/acceptable for overhead line and undergrounding.

¹ In 1959, Lord Holford, then advisor to the Central Electricity Generating Board (CEGB), developed a series of planning guidelines in relation to amenity issues, which have subsequently become known as the "Holford Rules". Although never formally published as official guidance, they are often referred to in planning publications such as "Planning Overhead Routes (RJB Carruthers, 1987)" and "Visual Amenity Aspects of High Voltage Transmission (GA Goulty, 1989)". The Holford Rules therefore form an important part of the decision making process of siting overhead transmission lines, and minimising the potential landscape impact of such infrastructure.

4. Approach to EIA

- 4.1. EIA is a process through which the likely significant environmental effects of a development proposal can be identified and, where possible, adverse effects avoided or mitigated. This process is reported in an Environmental Statement (ES), which is submitted with a planning application.
- 4.2. The Applicant considers the MFD Wind Farm Project is EIA development requiring EIA to be undertaken and reported in an ES. The EIA Regulations require that the ES should identify those aspects of the environment likely to be 'significantly affected' both directly and indirectly by the development proposed. It should then describe the nature of those significant effects taking account of the magnitude of the impact and sensitivity of the receptor. These assessments will be individual to the specific environmental parameters and will identify mitigation where appropriate and evaluate residual effects with this in place.
- 4.3. The environmental effects of the MFD Wind Farm Project will be considered during the construction, operational and decommissioning phases. The findings of the EIA will be presented in a main written statement, supported by figures and appendices. A non-technical summary of the ES will be provided as a separate document.

Scope of assessment

- 4.4. The EIA will assess the effect arising from both the construction and operation of the MFD project (up to 35 years operational life) and the decommissioning of the infrastructure.
- 4.5. The spatial scope of the EIA will take account of:
- The individual components of the proposed project, including all ancillary development and development required for a temporary period;
 - The baseline environmental conditions within the study area;
 - Key receptors to the likely environmental effects; and
 - Relevant UK, national and local planning policy.
- 4.6. The proposed technical scope of the EIA has been established based upon those topics within which the Applicant considers there to be a likelihood of significant environmental effects. It is proposed that the ES will include the following technical chapters:
- Chapter 7: Landscape and Visual
 - Chapter 8: Noise and Vibration
 - Chapter 9: Ecology
 - Chapter 10: Ornithology
 - Chapter 11: Geology, Hydrology and Hydrogeology and Peat (including carbon emissions)
 - Chapter 12: Archaeology and Cultural Heritage
 - Chapter 13: Transport and Access
 - Chapter 14: Socio-Economic
 - Chapter 15: Other issues: Aviation and Telecommunications; Shadow Flicker and Safety

Approach to assessment

Consultations for the purposes of EIA

- 4.7. Further to this EIA scoping exercise, ongoing consultation with PEDW and the key statutory consultees will continue if necessary to confirm the detailed methodology for specific assessments. Each topic-based EIA chapter will reference the supporting consultations that were undertaken with expert stakeholders on the methodology employed.

Pre-application consultation

- 4.8. The Applicant will undertake effective pre-application consultation with the Council, consultees and other stakeholders (including local residents) in accordance with the requirements of the DNS process. Further details and timings will be confirmed shortly, taking into account the latest Welsh Government advice regarding the Covid-19 situation. This will support timely decision-making, reduce possible delays arising as a result of the effects of the coronavirus pandemic, and maintain public participation in the decision-making process.

Assessment methodology

- 4.9. Each technical chapter of the ES will include an explanation of the assessment methodology used for the specific assessment topic, adopted from relevant guidance where this is in place. Wherever possible, the methodologies will be used to predict environmental effects in a standard framework. Where there is variation from this approach, an explanation will be provided in the relevant ES chapter to provide contextual information to support the criteria used. The final approach to the grid connection will also be set out and explained.
- 4.10. The EIA will identify environmental effects by estimating the predicted change that will take place as a result of the construction and operation of the MFD Wind Farm Project compared with the baseline scenario. Each chapter will begin by identifying potential receptors. A receptor might be a location, a group of locations, buildings, people, features or wildlife and each topic subject will potentially affect a different range of receptors. Each chapter will identify those receptors relevant to the topic and explain how they have been identified. Once the receptors are identified they will then be assessed to determine their sensitivity to change as a result of the project from the known baseline. The receptors will be attributed a sensitivity level ranging from high to low as set out in table 4.1 below.

Table 4.1: Sensitivity of a generic environmental receptor to change

Sensitivity	Receptor type
High	Receptors of high importance with a high susceptibility to change and limited potential for substitution or replacement.
Medium	Receptors with some sensitivity to change and medium importance. Often have relevance at a regional scale with some opportunity for substitution or replacement.
Low	Receptors with low importance and sensitivity to change, often of relevance at a local scale.
Negligible	The receptor has very low importance / is not sensitive to change.

- 4.11. The magnitude of impact affecting each receptor will then be considered. These can be positive or negative as well as temporary or permanent. The nature of each will be analysed based on quantitative and qualitative techniques and a magnitude assigned ranging from major to no change, as set out in table 4.2 below.

Table 4.2: Criteria for the magnitude of environmental impact

Magnitude	Description of criteria
Negligible	Very minor changes that are not noteworthy or material.
Minor	Some measurable changes that are noteworthy and material. Minor benefit or minor loss/detrimental change to the receptors characteristics, features or elements.
Moderate	Adverse loss of resource or damage to characteristics, features or elements but limited impact on integrity; or Benefit or addition to characteristics, features and elements that improve the receptor.
Major	Effects will be of a consistently high magnitude and frequency and cause severe damage to key characteristics, features and elements or even total loss; or Major improvement to characteristics, features and elements of receptor.

- 4.12. The environmental effect is a function of the sensitivity of receptors and the magnitude of the impact and will be dependent upon the outcomes of the assessment process. Having identified the sensitivity of the receptor and the magnitude of the impact the standard significance matrix for the project set out in table 4.3 below will indicate the level of the effect ranging from neutral to substantial. For the purposes of the ES, unless specifically defined otherwise in an ES chapter, effects of moderate and higher are considered to be significant effects.

Table 4.3: Framework for identifying environmental effects

Receptor sensitivity	Magnitude of impact			
	Negligible	Minor	Moderate	Major
Negligible	Neutral	Neutral	Minor/neutral	Minor
Low	Neutral	Minor	Moderate	Moderate/Major
Medium	Neutral	Moderate	Moderate/Major	Major
High	Neutral	Moderate/Major	Major	Substantial

- 4.13. Whilst the definition of levels of effect will be defined within each chapter of the ES, Table 4.4 sets out general definitions for topics where specific EIA guidance is not available.

Table 4.4: Broad Definition of Effect

Effect	Definition
Substantial	A key factor in the decision-making process. Generally, but not exclusively associated with features of national importance which cannot be replaced or relocated.
Major	Likely to be important considerations at a regional or district scale but, if adverse, are potential concerns, depending upon the relative importance attached to the issue.
Moderate	Important at a local scale.
Minor	Effects concerning local issues that are of relevance at the detailed design stage.
Neutral	Effects which are not perceptible, or within normal bounds of variation or forecasting.

4.14. The likely effects of the Proposed Development will be described as:

- Adverse / beneficial;
- Direct / indirect;
- Temporary / permanent;
- Reversible / irreversible.

Baseline assessment

4.15. The topic-based chapters of the ES will identify the current baseline scenario, and where relevant the future scenario, against which the environmental effects of the Proposed Development will be measured. This will include consideration of cumulative development, as described below. The baseline assessment will involve describing the current state and circumstances of the identified receptors and changes that might be expected to occur as a result of the Proposed Development and other cumulative development.

Assessment of environmental effects

4.16. The topic-based chapters will identify receptors that are likely to be affected by the Proposed Development (taking into account elements of the scheme design that are inherent in the mitigation of potential effects from the proposal). The assessments will then outline the potential impacts that could arise as a result of the development in the absence of any additional mitigation. Where adverse effects are identified, the ES will set out the measures considered to mitigate any significant adverse effects of the Proposed Development, where feasible and necessary. The residual effects will be evaluated and an assessment of their significance will be reported based upon the magnitude of impact against the sensitivity of the receptor.

Assumptions and limitations

4.17. In the preparation of the ES, it is assumed that all legislative requirements will be met and the Proposed Development will be constructed in accordance with industry standard techniques and best practice methods implemented on-site. It is therefore not necessary to re-consider this as mitigation that will be evaluated in the assessment of residual effects. Further details are set out in the following Sections.

Assessment of cumulative effects

4.18. The requirement for cumulative effects assessment is set out in Schedule 4 of the EIA Regulations. At Schedule 4(5), the EIA Regulations require 'A description of the likely significant effects of the development on the environment resulting from, *inter alia*: ... (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

4.19. The cumulative impact comprises the combined effects of the Proposed Development with other existing and/or approved development. It is proposed that the EIA will consider the following:

- proposals which are subject to an application for planning consent which has not yet been determined;
- proposals that have been granted planning permission but are not yet constructed or operational; and,
- schemes which are under construction or are operational.

- 4.20. The potential for cumulative effects needs to be considered with regard to specific environmental receptors, the characteristics of the natural environment as well as the neighbouring communities. The ES will consider which other developments have the potential for cumulative effects when the construction and operational phases could be concurrent, and where there are sensitive receptors common to both developments within a defined geographical area known as the Zone of Influence (ZOI). A list of wind farm developments known to lie within approximately 10km of the Site are provided in Table 4.2 below and are shown on Figure 2.

Table 4.2 – Wind Farm Developments within approximately 10km of the Site

Wind Farm	No. of Turbines	Status	Tip Height (m)
Pen y Cymoedd	76	Operational	145 metres
Ffynnon Oer	16	Operational	92 metres
Melin Court	5	Consented	145 metres
Foel Trawsant	11	Consented	120 metres
Llynfi Afan	12	Operational	120 metres
Mynydd Brombil	4	Operational	100 metres
Upper Ogmor	7	Application	150 metres
Y Bryn	21	Scoping	250 metres

Mitigation and Monitoring

- 4.21. Paragraph 7 of Schedule 4 of the EIA Regulations notes that the ES should include: “A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases”.
- 4.22. The ES will therefore identify and describe measures required to prevent, reduce or remedy, where possible, significant environmental effects caused by the Proposed Development, including inherent mitigation.

Questions for Consultees

- 4.23. Can the consultees please confirm:
- Question 4.1 – Are there other wind farm proposals or other developments that are candidates for possible consideration in the cumulative assessment?

5. Legal and Policy Context

- 5.1. This section provides an overview of the international, national and local legislative and policy background relevant to the Proposed Development. An appraisal of the Proposed Development and its contribution to UK renewable energy targets will be presented in a Planning Statement that will accompany the DNS planning application. In terms of the content of the ES, it is proposed that a summary will be provided of the most relevant policy, focussed on each specialist topic. At this stage the following legal and policy context is considered relevant.

Legislative Context

- 5.2. The statutory basis for the Developments of National Significance (DNS) process is provided by the Planning (Wales) Act 2015, amending the Town and Country Planning Act 1990.
- 5.3. The principal legislative and procedural requirements are set out in the following;
- Town and Country Planning Act 1990
 - Planning and Compulsory Purchase Act 2004
 - Planning (Wales) Act 2015
 - Well-being of Future Generations (Wales) Act 2015
 - Environment (Wales) Act 2016
 - Developments of National Significance (Wales) Regulations 2016
 - Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016 (as amended)
 - Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (as amended)
- 5.4. The application will be promoted and assessed in accordance with the above primary and secondary legislation, as amended.

Planning Policy

UK Energy Policy – Renewables

- 5.5. UK energy policy is not devolved to the Welsh Government and thus UK energy policy provides the applicable framework for the determination of relevant applications, such as the deployment of new onshore wind farms. The key UK wide energy policy comprises the following:
- The Renewable Energy Strategy (RES) 2009
 - The Clean Growth Strategy 2017- sets out the UK's legally binding climate objectives, including carbon budgets requiring the UK to reduce greenhouse gas emissions to 57% below 1990 levels.
 - National Policy Statement (EN-1)
 - National Policy Statement (EN-3)

- 5.6. The ES and supporting application documentation will have regard to the above policy and the contribution the Proposed Development will have towards meeting UK targets.

Welsh National Planning Policy

- 5.7. Whilst the Welsh Government does not have devolved responsibility for energy policy, it benefits from such powers with regard to planning policy. It is through the mechanism of national planning policy that the Welsh Government is able to provide objectives to deliver the transition to low carbon deployment of electricity generation.
- 5.8. Relevant national planning policy comprises:
- Planning Policy Wales (Edition 11)
 - Future Wales – The National Plan 2040
 - Wales Spatial Plan (2008)
 - Energy Wales: A low carbon transition
 - Prosperity for All: A Low Carbon Wales (2019)
 - Technical Advice Notes (TANs)
 - Technical Advice Notes (TANs)
 - TAN 5: Nature Conservation and Planning
 - TAN11: Noise
 - TAN 12: Design
 - TAN13: Tourism
 - TAN15: Development and Flood Risk
 - TAN18: Transport
 - TAN24: Historic Environment
- 5.9. Future Wales: The National Plan 2040 is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy and achieving decarbonisation and climate-resilience. Future Wales 2040 set out the national development plan context for energy and provides specific policies for heat network and renewable energy development.
- 5.10. Future Wales incorporates the following national policy targets on renewable energy:
- For 70% of electricity consumption to be generated from renewable energy by 2030;
 - For one gigawatt of renewable energy capacity to be locally owned by 2030;
 - For new renewable energy projects to have at least an element of local ownership from 2020.

- 5.11. Future Wales states that the planning system plays a significant role in the provision of new renewable and low carbon energy and gives effect to the Welsh Government's national targets, setting the overall strategic framework and direction within which developers can proposed new energy infrastructure projects. Future Wales notes that "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".
- 5.12. The pre-assessed areas for wind energy alongside Policies 17 and 18 provide policy direction setting out requirements for DNS scale projects.
- 5.13. These pre-assessed areas have been identified by the Welsh Government and are considered, in principle, to be areas where DNS scale onshore wind projects would be acceptable subject to the criteria of Policy 17. Accordingly, there is a presumption in favour of large-scale onshore wind energy development and the associated landscape change, subject to the criteria within Policy 18.
- 5.14. The Site is located within 'pre-assessed area for wind energy (Area 9)', which means Policy 17 is relevant, yet there is emphasis on Policy 18 as it provides the criteria to frame assessment priorities and decision making.

National Guidance

- 5.15. Regard will also be had to Welsh Government guidance relating to the DNS process. The guidance documents most relevant to EIA comprise:
- Developments of national significance guidance: environmental impact assessment (June 2019)
 - Developments of national significance guidance: habitats regulations assessment (June 2019)

Welsh National Development Framework - Evidence base "Resources"

- 5.16. The Welsh Government have published the "Assessment of on-shore wind and solar energy potential in Wales (Arup Report – July 2019)", which is relevant to the Proposed Development. Regard will be had to this document in assessing the proposal.

Local Development Plan

- 5.17. The Proposed Development is located wholly within the administrative boundary of Neath Port Talbot County Borough Council (NPTCBC). The adopted development for the purposes of determining planning applications under the Planning and Compulsory Purchase Act 2004 is the Neath Port Talbot County Borough Council Local Development Plan (2011-2026), which was adopted in January 2016.
- 5.18. The key relevant policies to the Proposed Development are:
- | | |
|-----------------------|---|
| Strategic Policy SP1 | Climate Change |
| Strategic Policy SP15 | Biodiversity and Geodiversity |
| Policy EN6 | Important Biodiversity and Geodiversity Sites |
| Policy EN7 | Important Natural Features |
| Strategic Policy SP6 | Environmental Protection |
| Policy EN8 | Pollution and Land Stability |

Strategic Policy SP 14	The Countryside and Undeveloped Coast
Policy EN2	Special Landscape Areas
Strategic Policy SP18	Renewable and Low Carbon Energy
Policy RE1	Criteria for the Assessment of Renewable and Low Carbon Energy Development
Strategic Policy SP20	Transport Network
Policy TR1	Transport Proposals
Policy TR2	Design and Access of New Development
Strategic Policy SP21	Built Environment and Historic Heritage
Policy BE2	Buildings of Local Importance
Policy SP22	Welsh Language

5.19. NPTCBC have also published a range of Supplementary Planning Guidance (SPG) documents to be considered as material considerations. The relevant SPGs are:

- Supplementary Planning Guidance – Landscape and Seascape
- Supplementary Planning Guidance – Biodiversity and Geodiversity
- Supplementary Planning Guidance - Pollution
- Supplementary Planning Guidance – Renewable and Low Carbon Energy
- Supplementary Planning Guidance - Design
- Supplementary Planning Guidance – The Historic Environment
- Supplementary Planning Guidance – Development and the Welsh Language.

Questions for Consultees

5.20. Can the consultees please confirm:

- Question 5.1 - Is there any other relevant guidance to consider?

6. Landscape & Visual

Introduction

- 6.1. The Landscape and Visual Impact Assessment (LVIA) will consider direct and indirect effects on landscape resources, landscape character and designated landscapes. It will examine the nature and extent of effects on existing views and visual amenity. The effects of the Proposed Development, as well as the ancillary infrastructure (access track, masts, transformers etc.) will be assessed during the construction and operational phases of the Proposed Development. The LVIA will also consider cumulative effects i.e. the incremental effects of the Proposed Development in combination with other renewable energy developments.
- 6.2. The LVIA will inform modifications and refinements to the layout design and will be undertaken following the approach set out in Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3). The assessment will also draw upon LANDMAP Guidance Note 046; Local landscape character information from Neath Port Talbot Council and Natural Resources Wales; local policy, guidance and baseline technical studies, and on current good practice guidance as defined in section 6.55 of this report.
- 6.3. The LVIA will be completed by Chartered Landscape Architects at Stephenson Halliday. The Practice has over 24 years of experience working on over 100 wind energy proposals throughout the UK. Key individuals working on this project have over 20 years of experience as chartered landscape architects. The Practice is a Landscape Institute and IEMA registered practice and all work is prepared and reviewed internally by senior highly experienced landscape planners with Public Inquiry experience.

Environmental Baseline and Potential Sources of Impact

Site Location and Description

- 6.4. The Site Location is described in detail in Chapter 3: Proposed Development. In summary it comprises two main areas: the site (where the proposed wind turbines, solar array and related infrastructure would be located) and a site access route. In addition, there is also a grid connection corridor to the west.
- 6.5. In general the Site occupies open ground and forestry between the valleys of Vale of Neath to the northwest and Afon Alan to the south, adjacent to the south west of the operational Pen y Cymoedd wind farm, and with the site access corridor approaching the site via Neath, Efail-fach and Tonmawr. The prevailing wider landscape pattern is of open and/or forested bands of upland set between valleys which contain transport corridors and villages set within a small-scale farmland field pattern with hedgerows, deciduous woodland and trees. Dispersed farms and individual dwellings occur occasionally throughout the area – typically being situated on the lower slopes above the settled valleys. Larger settlements and major transport corridors are situated closer to the coast to the southwest and west of the site.
- 6.6. The grid connection will be subject to a separate application but its likely design and effects will be described within the assessment. The on and offsite grid connections are anticipated to consist of a mix of underground cable and overhead wooden pole lines (responding to localised constraints and sensitivities), and to extend south west from the wind farm site towards the proposed substation connection near the M4 west of Baglan.

- 6.7. The inclusion of the site as suitable for renewable and low carbon energy developments of national significance wind development within Pre Assessed Area 9 within the Stage 2 refinement study at the national level suggests there is landscape capacity for wind energy in this area subject to a detailed assessment of site constraints and effects arising from development. This is reinforced by the Future Wales Policy 17 which states that “In Pre-Assessed Areas for Wind Energy the Welsh Government has already modelled the likely impact on the landscape and has found them to be capable of accommodating development in an acceptable way. There is a presumption in favour of large-scale wind energy development (including repowering) in these areas, subject to the criteria in policy 18.” Within Policy 18 the only relevant criterion in relation to landscape and visual impact for schemes within pre-assessed areas is that “there are no unacceptable adverse visual impacts on nearby communities and individual dwellings”. In terms of scoping an LVIA, Policy 18 also indicates that “The cumulative impacts of existing and consented renewable energy schemes should also be considered”. Taking this into account a proportionate assessment approach will be taken to the LVIA – reporting on landscape effects briefly and focussing primarily on visual effects, taking account of cumulative development.
- 6.8. In this policy context, effects on landscape character and designated landscapes have been pre-assessed as acceptable, indicating no requirement to report on these matters for planning purposes. An obligation remains under the EIA Regulations to report effects which are likely to be significant. In this policy context a proportionate scope of assessment is proposed below - limited to only those effects on landscape character and designations which are likely to be significant.

Landscape Character Context

- 6.9. The proposed wind farm site lies within National Landscape Character Area (NLCA) 37: South Wales Valleys. The area is broadly described as a ‘landscape of contrasts’ containing extensive upland plateaux which is dissected by steep-sided urbanised valleys. The site is also located within areas 18 Mynydd Resolven, Craig-y-Llyn & Mynydd and 11 Cwm Afan and Cwm Pelenna within the NPT character assessment, with area 17 Foel Fynyddau nearby to the west.
- 6.10. Existing wind farms and forestry are key influences on character in the vicinity of the site, with extensive areas of both extending across the uplands.

Visual Amenity

- 6.11. As shown in Figure 1 the site is in a relatively sparsely settled area of open moorland and forested upland adjacent to Pen y Cymoedd wind farm. Effects on the adjacent valleys are a key consideration, though the ZTV study (Figure 3 and Figure 4) indicates very limited visibility from these areas.
- 6.12. Settlements within 5km of the site include Resolven, Abergarwed, Melincourt, Clyne, Cilfrew, Tonna, Tonmawr, Pontrhydyfen, Cynonville, Bryn, Duffryn, Cymer, Croeserw and Caerau. Dispersed farms and individual dwellings occur occasionally throughout the area – typically being situated on the lower slopes above the settled valleys.
- 6.13. A number of main roads pass in relatively close proximity, including the A4107 which connects small settlements in the Afon Alan valley (1.7km S), the A465 ‘Commercial Road’ which connects progressively larger settlements on the River Neath in The Vale of Neath (3.1km NW). The railway also travels this route, connecting to Neath and on to Swansea.

- 6.14. National Cycle Network Route 47 passes within 1km of the northern edge of the site, following across the upland area. NCR 46 and 887 also pass through the study area within the Vale of Neath and Afon Alan valley respectively. Long distance walking trails passing close to the site include St Illtyd's Walk which comes within 1km of the turbines before passing between the Pen y Cymoedd and Ffynnon Oer Windfarms directly to the east of the site and continuing south to join Afon Afan. The Wales Coastal Path long distance route also passes through the study area within 8.5km from the site.

Landscape Designations

- 6.15. Brecon Beacons National Park is the nearest nationally designated landscape and is located approximately 14km north of the site. The Gower Peninsula AONB is located approximately 20km to the southwest of the site. Other local landscape designations within 15km are SLAs identified within the Bridgend County Borough Landscape Character Assessment (2013) and proposed SLAs within Rhondda Cynon Taf *Proposals for Designation of Special Landscape Areas* (2008).
- 6.16. Landscapes designated for their heritage interest within 10km of the site include two Landscapes of Historic Interest as noted below and several Registered Historic Parks and Gardens including The Gnoll, located 2.1km to the west of the site.

Consultation

- 6.17. The content of this scoping report represents an initial consultation in respect of landscape and visual matters. Further consultation will be undertaken, as set out below, with relevant consultees in respect other elements of the assessment as required information becomes available.

Method of Assessment and Reporting

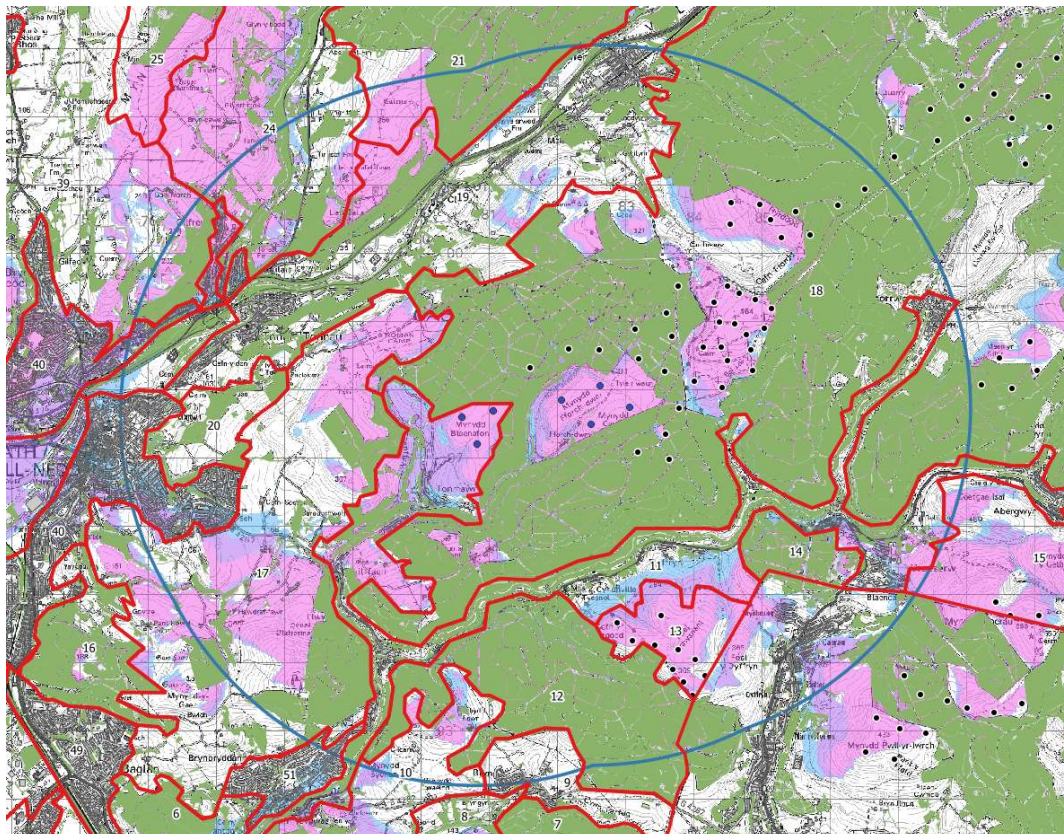
- 6.18. The LVIA will be undertaken following the approach set out in Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3).

Study Area

- 6.19. An initial study area of 35km from the proposed turbines within the site is proposed to assess the relationship between the Proposed Development and the wider area in terms of potential significant effects on landscape character and visual amenity, in line with SNH guidance on *Visual Representation of Wind Farms: Version 2.2* (2017) and GN046 which indicates a search area of up to 33km. For the purpose of identifying, mapping and assessing the likely significant effects of the Proposed Development on the landscape of the site and its immediate surroundings, a 'detailed study area' from the outer turbines will be defined. This detailed study area will be informed through on-going assessment work but is proposed at this stage to include areas of potential visibility within 15km. Effects are expected to be limited by the presence of existing large wind farms – particularly to the north and east of the site, and the detailed study area may ultimately be reduced to reflect this.
- 6.20. The site access corridor is not anticipated to give rise to any potentially significant landscape and visual effects, but relevant localised impacts will be identified within the assessment. Potential effects which are likely to arise from the offsite elements of the grid connection will be described within the LVIA. Detailed assessment of the proposed grid connection would form part of the grid connection application.
- 6.21. In terms of the grid corridor, the study area will extend 1km beyond the broad corridor.

Landscape Character Assessment

- 6.22. Given the varied information sources available it is proposed that the character areas included within the 2004 NPT LANDMAP Landscape Assessment are treated as the landscape character receptors, supplemented with information from the more up-to-date 2014 national assessment, and site observations as needed. Sensitivity judgements will be informed by LANDMAP and the 2018 NPT landscape and seascape SPG.
- 6.23. The NPT 2011 'Provision of Landscape Advice' report referenced by the SPG appears to be potentially relevant in relation to considering landscape sensitivity for the Proposed Development, but does not appear to be available on the NPT website. If NPT wish the considerations set out within that document to be considered beyond the content included within the SPG then a copy would need to be provided.
- 6.24. In line with national policy, as discussed at 6.8 above, it is proposed that the scope of assessment focuses only on those effects likely to be significant. The inset plan below shows the proposed turbine locations, existing and consented turbines, the character areas and the ZTV. In this context it is judged that character area 18 is not likely to receive significant effects given the existing turbines in that area, but that significant effects may arise on character areas 11 and 17 which either host to or are close to the proposed turbines and do not already have existing or consented turbines within them. Other more distant character areas would either have limited visibility and/or the turbines would not notably add to effects arising from the existing and consented wind farms.
- 6.25. It is therefore proposed that only character areas 11 and 17 would be considered within the assessment.



LANDMAP

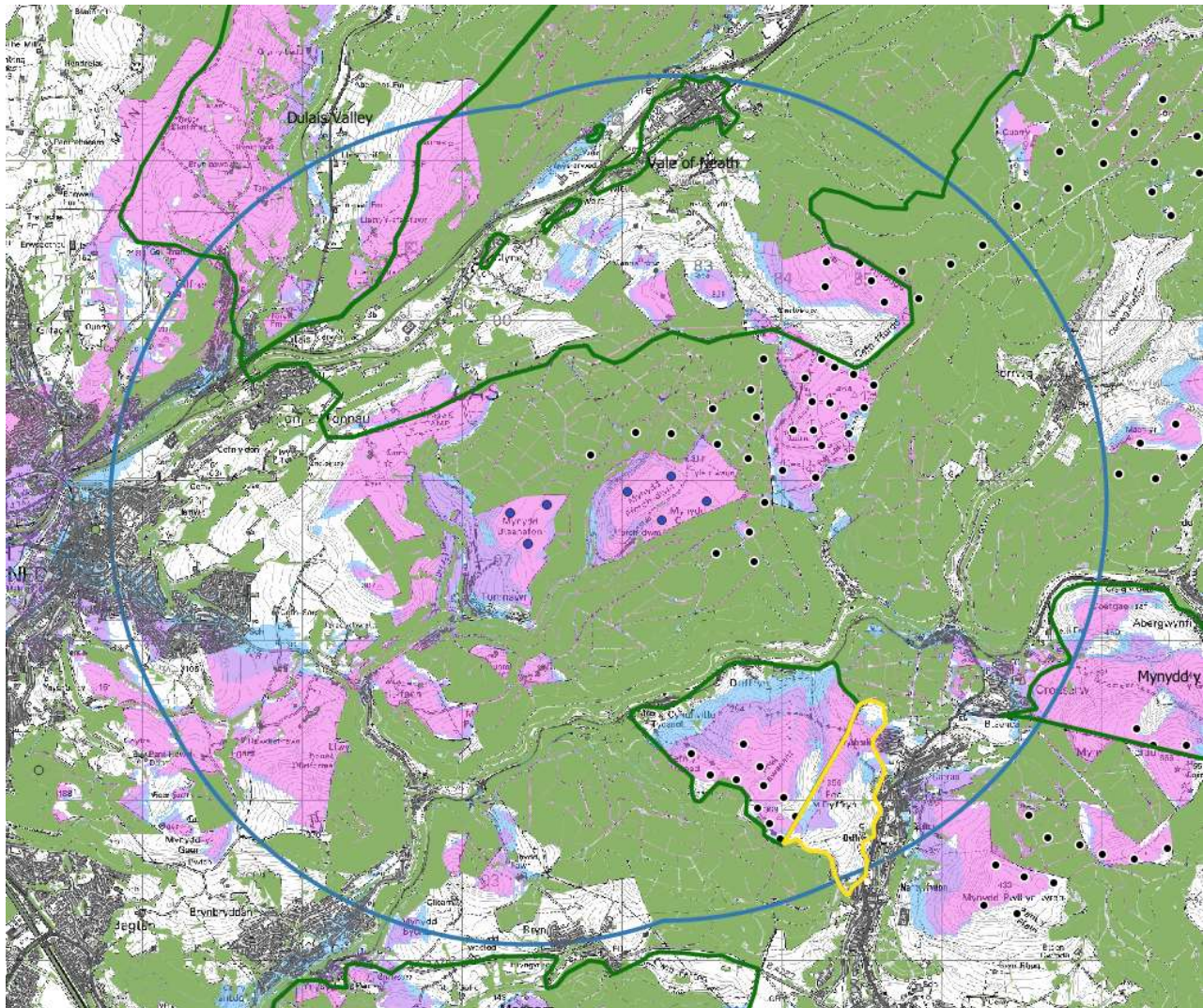
- 6.26. The LANDMAP findings for the areas identified for assessment above will be used to inform considerations of sensitivity, but the filtering approach recommended by GN046 will not be applied given the context of development within a pre-assessed area and the assessment approach proposed above.

Visual Assessment

- 6.27. The assessment will be a receptor-based assessment. The assessment will include potential effects on settlement areas and routes, including roads, railway lines, walking and cycle routes within the detailed study area where potential visibility is indicated by the Zone of Theoretical Visibility (ZTV) (see figures 3 and 4). The assessment will focus on those receptors where there may be the potential for significant effects, which is likely to be those within approximately 5-6km of the proposed wind turbines, though outlying receptors may be selected due to their importance.
- 6.28. In terms of the grid corridor the assessment will be based on a clearly stated set of assumptions and will be provided for visual receptors potentially within 1km of the route.

Designated Landscapes

- 6.29. In line with national policy, as discussed at 6.8 above, it is proposed that the scope of assessment focusses only on those effects likely to be significant. In terms of significant effects on the purposes of designation and special qualities of designated areas, this would only be likely to arise for those with notable visibility within 5-6km that are closer to the proposed turbines than they are the existing and consented wind farms.
- 6.30. The Brecon Beacons National Park and Gower Peninsula AONB are both more than 14km distant and would not receive significant effects.
- 6.31. There are a number of registered Parks and Gardens within 15km. Those which are closest (The Gnoll, Jersey Park and Rheola) would have very limited visibility.
- 6.32. The inset plan below shows the proposed turbine locations, existing and consented turbines, nearby Special Landscape Areas and the ZTV. In this context it is judged that the nearby SLAs would either have limited visibility and/or the turbines would not notably add to effects arising from the existing and consented wind farms.
- 6.33. It is therefore proposed that effects on designated areas would be scoped out of the assessment. Effects on visual amenity for recreational visitors to these areas will be considered within the assessment of visual effects.



Viewpoints

- 6.34. The list of viewpoint locations proposed to be used in the assessment of the Proposed Development are detailed in Table 6.1 below and illustrated on Figures 3 and 4. Some viewpoints, particularly those beyond 20km, may be illustrated with wireframes only. Grid references are indicative at this stage, viewpoints will be subject to on-site verification and may be moved slightly to obtain a clearer or more representative view, whilst remaining as close as possible to the receptor group and location proposed above.

Table 6.1 Proposed Viewpoints

V P	Location	Grid Ref (see note).	Distance / Directio n	Receptors
1	St Illtyd's walk near Carn Caca	282364, 200464	2.4km N	Vale of Neath SLA, Recreational – walkers on St Illtyd's walk national trail.
2	East of Tonna	279678, 198885	1.6km NW	Vale of Neath SLA, national cycle route 47, dispersed settlement.
3	By-way near Cynonville	283268, 195153	2.5km SE	Foel Trawsnant SLA, Recreational – walkers, east of Foel Trawsnant.
4	Afan Bike Park	280726, 195528	1.7km S	Recreational – walkers and cyclists.
5	Sarn Helen	279445, 202152	4.7km NW	Dulais Valley SLA, Vale of Neath SLA, Recreational – walkers.
6	Heol-Y-Fedw, Croeserw	286786, 195629	4.3km SE	Settlement, Mynydd y Gelli SLA
7	Tonmawr Road, Tonmawr	279422, 195927	1.9km SW	Settlement, road users, footpath users
8	Cilfrew	277107, 200451	4.5km NW	Dulais Valley SLA, Settlement, road users
9	Bridleway near Cimla Equestrian Centre	278039, 195125	4.8km SW	Settlement/road users – dispersed settlements.
10	Heol Penlan, Neath Abbey	273439, 197975	7.2km W	Recreational, settlement – suburban development, school, and sporting complex.
11	Beach Path, Swansea University Bay Campus	270319, 192752	11.4km SW	Recreational/, civic – walkers, swimmers/beach goers.
12	Cwn Clydach walk outside Pontardawe	270281, 204297	12.2km NW	Mynydd y Garth SLA, Recreational – walkers, cyclists. Cwn Clydach walk.

V P	Location	Grid Ref (see note).	Distance / Directio n	Receptors
13	National Park, above Pontneddfechan	291901, 211671	16.5km, N	Recreational - National park visitors, footpath users
14	National Park, above Ystalfera	277763, 214168	16.9km NW	Recreational - National park visitors, footpath users
15	Mumbles Head, (AONB: Gower)	262755, 187428	20.5km, SW	Recreational – Gower AONB visitors, tourists
16	John's Terrace, Tonmawr	280093, 196543	1.0km SW	Settlement, road users, footpath users
17	Cimla Common	276140, 196201	4.0km SW	Settlement, road users, footpath users
18	A474 flyover, Neath	274882, 197111	5.7km W	Road Users. Note this viewpoint is not accessible for photography and will be presented as wireline only.
19	Pleasant View, Caerau	285850, 194012	4.7km SE	Settlement, road users, footpath users

Visualisations

- 6.35. The assessment will be supported by a series of photomontages and wireframes from agreed viewpoint locations. Visualisations from each viewpoint will be prepared in accordance with SNH guidance *Visual Representation of Windfarms: Version 2.2* (2017).
- 6.36. Photomontages will be prepared for viewpoints within a 20km radius. Ancillary elements (i.e. substation, tracks, transformers) will only be shown from close viewpoints where needed, as it is considered that from most viewpoints these ancillary elements would only form a minor element of the entire Proposal.

Cumulative Assessment

- 6.37. In line with the EIA regulations and SNH guidance *Assessing the Cumulative Impact of Onshore Wind Energy Developments* (2021) the assessment will consider other wind farms within the detailed LVIA study area including those which are operational, consented and those for which an application has been submitted but which are yet to be determined. Schemes in scoping will only be included by exception where there is specific justification for doing so.
- 6.38. An initial cumulative search will be undertaken for a 20km study area and all other wind farm developments identified. Groups of 3 turbines or fewer, and turbines under 50m in height will only be included where they lie within 5km of the proposed turbines. The proposed scope of the cumulative assessment will focus on where there may be likely significant effects which may influence the outcome of the consenting process. Figure 2 identifies wind farms within 10km of the MFD Wind Farm project. An initial schedule of committed schemes is provided in Chapter 4.
- 6.39. Operational and consented sites will form part of the baseline and future baseline respectively for the assessment. Unconsented proposals will be considered as potential cumulative scenarios.

Night-time Assessment

- 6.40. This is an emerging area of assessment, but at present turbines of 150m or greater tip height would require visible aviation lighting. It is expected that a reduced intensity of lights (from 2000 cd to 200 cd in clear visibility conditions) would be included as mitigation. Other forms of mitigation will also be investigated-
- 6.41. The agreed Lighting Strategy will form the basis of the assessment and visual material presented. An assessment of night-time impacts on landscape and visual receptors will be carried out and included within in the LVIA.
- 6.42. The proposed study area for night-time effects is 15km from the turbines. The assessment will be supported by a ZTV study illustrating the extent of visibility of the lights and the number of lights visible. The consideration of night time effects on landscape receptors will be informed by satellite mapping of existing light levels and the character and special qualities of the landscape receptors at night. Visualisations will consist of wireline diagrams indicating the number of lights likely to be visible and by photomontages from receptor groups most likely to be affected. These are considered to be areas where people are likely be during hours of darkness (typically around settlements) and nearby Dark Sky Parks or Dark Sky Discovery sites.
- 6.43. Within the 15km study area, key night receptors include the settlements identified at section 6.12 above; Dark Sky Discovery Sites at Glyncorrwg ponds (approx. 4km East); Hendre Mynydd car park approx. 10km East) and the Brecon Beacons National Park which is also identified as a Dark Sky Park. Wireline diagrams will be prepared from:
- Viewpoints likely to be visited at night, within 15km of the turbines and included in the LVIA – i.e. viewpoints 2, 6, 7, 8, 9, 10;
 - Viewpoints within the Brecon Beacons National Park included within the LVIA – i.e. viewpoints 13 & 14;
 - Glyncorrwg ponds and Hendre Mynydd Car Park.
- 6.44. Previous work has established that night photomontages are of limited value in representing effects due to the difficulties of fully representing the brightness of lights on paper / screen and only 2-3 will be provided representing the most affected receptors in a range of distances and directions. These will be confirmed with consultees once initial assessment work has been completed.

Residential Visual Amenity Assessment

- 6.45. A separate assessment of the effects on residential visual amenity will be undertaken as a standalone appendix/document. This will be undertaken in line with Landscape Institute Technical Guidance Note 2/19: *Residential Visual Amenity Assessment* (RVAA).
- 6.46. The study area for the RVAA will be 2km from the proposed turbines.

Approach to Mitigation

- 6.47. The primary form of mitigation for landscape and visual effects is through iterative design of the layout of the turbines and infrastructure, as seen from key viewpoints. Design development will be set out in detail in the design strategy that will form part of the ES.

Potential Significant Effects of the Development

- 6.48. Taking account of the findings of the work undertaken to date whilst still adopting a precautionary approach at this preliminary stage, the potential visual, landscape and cumulative effects that will be assessed in the EIA are described below. Given the extent and scale of existing wind farms nearby, it is anticipated that significant effects may extend up to 5-6km to the south and west but be less extensive to the north and east. The detailed study areas and receptor lists provided above are more extensive than this area, in order to ensure that all potentially significant effects are considered.

Landscape Effects

- 6.49. The following list summarises the potential significant landscape effects:

- Effects on the landscape character areas 11 Cwm Afan and Cwm Pelenna and 17 Foel Fynyddau.

Visual Effects (including night-time)

- 6.50. The following list summarises the potential significant visual effects:

- Visual effects on local residents (including local farmsteads and residential properties within 2km);
- Visual effects on Tonmawr and other settlements within 5-6km;
- Visual effects on local road users within 3-4km of the proposed turbines; and,
- Visual effects on recreational receptors (e.g. users of National Cycle Route 47, walkers using the local long distance routes of St Iltyd's Way and Sarn Helen; users of the extensive network of cycle routes within Afan Bike Park, and users of public rights of way and open access land within 5-6km of the proposed turbines).

Effects Scoped Out

- 6.51. On the basis of the work undertaken to date, the national policy context, the professional judgement of the assessment team and experience from similar projects and consultation responses, it is proposed that the following effects can be scoped out.

Landscape character

- 6.52. Landscape character areas except for areas 11 and 17 are scoped out of assessment.

Landscape Designations

- 6.53. Effects on all landscape designations are scoped out of assessment.

Cumulative – small developments

- 6.54. Turbines below 50m and groups of 3 turbines or fewer will only be considered within a 5km radius of the Proposed Development and are scoped out of the assessment beyond this distance.

References and Standard Guidance

6.55. The following references are of relevance to this scoping report and/or the LVIA:

- Landscape Institute (LI) and the Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3).
- Landscape Institute (2019) Technical Guidance Note 2/19 Residential Visual Amenity Assessment.
- Landscape Institute (2019) Technical Guidance Note 6/19 Visual Representation of Development Proposals.
- Technical Guidance Note 02/21 Assessing landscape value outside national designations. Landscape Institute 2021.
- Scottish Natural Heritage (2021) Assessing the Cumulative Impact of Onshore Wind turbine developments.
- Scottish Natural Heritage (2017) Visual Representation of Wind Farms (Version 2.2).
- Scottish Natural Heritage (2017) Siting and Designing Wind Farms in the Landscape (Version 3).
- Natural Resources Wales (2021) Guidance Note 046 Using LANDMAP in LVIA
- Natural Resources Wales (2014) National Landscape Character.
- Natural Resources Wales LANDMAP.
- Neath Port Talbot (2016) Local Development Plan.
- Neath Port Talbot (2017) Renewable and Low Carbon Energy Supplementary Planning Guidance.
- Neath Port Talbot (2018) Landscape and Seascape Supplementary Planning Guidance.
- Neath Port Talbot (2004) LANDMAP Landscape Assessment.
- Brecon Beacons National Park Management Plan 2015-2020.
- Brecon Beacons Landscape Character Assessment (2012).
- Bridgend (2013) Local Development Plan.
- Bridgend County Borough (2013) Landscape Character Assessment.
- Bridgend (2014) SPG 20: Renewables in the Landscape.
- Bridgend (2010) Designation of Special Landscape Areas.
- Powys (2018) Local Development Plan.
- Powys (2019) LDP Supplementary Planning guidance: Renewable Energy.
- Powys (2019) LDP Supplementary Planning Guidance: Landscape.
- Rhondda Cynon Taf (2011) Local Development Plan.
- Rhondda Cynon Taf (2008) Proposals for Designation of Special Landscape Areas.

Questions for consultees

6.56. Can the consultees please confirm?

- Question 6.1: Do consultees consider the size of the detailed 15 km radius study area to be appropriate, while recognising that significant effects within this radius is not likely to be beyond an expected 5-6 km?
- Question 6.2: Are there any other relevant parties who should be included within the post-scoping consultation process for the LVIA?
- Question 6.3: Is the proposed scope for the assessment of effects on landscape character considered to be proportionate and adequate to consider all potentially significant effects?
- Question 6.4: Is the proposed scope for the assessment of effects on designated landscapes considered proportionate and adequate to consider all potentially significant effects?
- Question 6.5: Do consultees consider that the proposed viewpoints are appropriate to inform the visual assessment, and that the suggested presentation of visualisations is proportionate?
- Question 6.6: Is the approach to inclusion of schemes within the cumulative assessment appropriate?
- Question 6.7: Is the scope of the assessment of effects on residential visual amenity appropriate?
- Question 6.8: Is the scope of the night-time, impact assessment proportionate and adequate to consider all potentially significant effects?
- Question 6.9: Do consultees have any suggestions (taking account of the ZTV study shown in Figure 4) for night-time viewpoints that they consider merit photomontages? These should be locations in which people would be both expected to be during hours of darkness, and sensitive to changes in the lighting environment.
- Question 6.10: Do consultees have any specific concerns regarding potential landscape and visual impacts that they feel would not be covered by the proposed scope of assessment?

7. Noise and vibration

Introduction

- 7.1. This chapter sets out the proposed approach to the assessment of potential noise and vibration effects associated with the construction and operation of the Proposed Development and has been prepared by Hoare Lea.
- 7.2. The author of this chapter is Matthew Cand (Dipl Eng PhD MIOA) who has over 15 years' experience in the assessment of environmental acoustics, including more than 70 wind farm developments. Matthew has provided expert witness evidence on noise from wind farms at several planning hearings and inquiries and was centrally involved in key national research projects. Matthew is a full member of the UK Institute of Acoustics (IOA), and one of the authors of the IOA Good Practice Guide on the application of ETSU-R-97.

Environmental Baseline and Potential Sources of Impact

Information Sources

- 7.3. The following sources of information have been reviewed during the desk-based research for this Scoping Report:
- Ordnance Survey information for the vicinity of the Site.
 - Environmental Statement for the Pen-y-Cymoedd Wind Farm application.

Existing Conditions

- 7.4. As shown in figure 1, the site is located around 8 km north-east of Port Talbot, and approximately 5 km east of Neath. The noise environment in the surrounding area is expected to be largely influenced by 'natural' sources such as noise from vegetation, animals/birds, as well as a number of watercourses such as the river Afan. Anthropogenic noise sources such as distant road traffic or farming activities may also represent an influence at some properties. These sources will however tend to have a reduced influence during quiet periods of the day (evenings and weekends) as well as at night.
- 7.5. The noise environment will also be influenced to a varying extent by noise from existing wind turbines, such as the Pen-y-Cymoedd and Ffynnon Oer wind farms in particular. The relevant guidance for the assessment of wind farm noise, ETSU-R-97 (see below) however requires baseline levels to be characterised in the absence of the influence of previous wind farm noise. It is therefore proposed to make reference to the results of the extensive background noise measurement reported in the Environmental Statement for the Pen-y-Cymoedd Wind Farm application, as described below.

Method of Assessment and Reporting

Legislation, Policy and Guidance

- 7.6. The assessment of effects of the Development will be carried out in accordance with the principles contained within the following documents:
- Planning Policy Wales (edition 11, February 2021);

- Technical Advice Note (TAN, Wales) 11: Noise (1997);
- The assessment and rating of noise from wind farms (ETSU R 97) 1996;
- A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, Institute of Acoustics (IOA), May 2013, (IOA GPG);
- British Standard BS 4142 (2014+A1:2019);
- Environmental Protection Act 1990;
- Control of Pollution Act 1974;
- British Standard BS 5228 (2009+A1:2014), Code of practice for noise and vibration control on construction and open sites, parts 1 and 2;
- Minerals Technical Advice Note (Wales) 1: Aggregates (MTAN1);

- 7.7. Planning Policy Wales (PPW) requires consideration of potential noise impacts for developments such as the MFD wind farm.
- 7.8. Good practice in the application of the ETSU-R-97 methodology will be referenced, as set out in the Institute of Acoustics Good Practice document (IOA GPG).
- 7.9. In Wales, the Environmental Protection Act 1990 (EPA) and the Control of Pollution Act 1974 are two legislative instruments which address the effects of construction noise and vibration and nuisance.
- 7.10. To assess construction noise and vibration, Annex B of TAN 11 refers to BS 5228. Part 1 of the standard (BS 5228-1) provides guidance on a range of considerations relating to construction noise including the legislative framework, general control measures, example methods for estimating construction noise levels and example criteria which may be considered when assessing the significance of any effects. Similarly, part 2 (BS 5228-2) provides general guidance on legislation, prediction, control and assessment criteria for construction vibration.
- 7.11. TAN11 does not deal specifically with noise from stone extraction (for example from borrow pits). However, Welsh planning guidance on surface mineral extraction provides guidance that is relevant to the types of mineral extraction activity associated with site construction works. Specifically, Minerals Technical Advice Note (Wales) 1: Aggregates (MTAN 1) can be referenced in addition to general guidance in BS 5228-1 and BS 5228-2.

Proposed Study Area

- 7.12. The assessment will consider noise sensitive residential locations in the vicinity of the Proposed Development. Specifically, ETSU-R-97 states that operational noise levels will be considered acceptable, even in the absence of measured baseline data, if predicted noise levels (including cumulative contributions from all wind farms) do not exceed 35 dB LA90.
- 7.13. An initial desktop study based on a preliminary turbine layout will form the basis of identifying receptors to include in this study area.
- 7.14. Construction noise effects will also be assessed for the same receptors, as well as properties located along the Development construction access route and within the grid connection corridor.

Desk Study and Background Noise Surveys

Desk Study

- 7.15. The desk-based study will be designed to assist in determining the characteristics of the site and will collate baseline information from available sources. The desk-based study will involve the following elements:
- Review of baseline noise data presented in the Environmental Statement for the Pen-y-Cymoedd Wind Farm;
 - Operational noise modelling of the turbines based on the proposed layout iteration and representative emission data;
 - Review of information on neighbouring cumulative sites and modelling of associated operational noise emissions;
 - Modelling of effects of construction activities including the associated traffic on relevant noise-sensitive locations.

Baseline Noise Characterisation

- 7.16. It is not proposed to undertake additional baseline noise surveys to support the operational noise assessment for the reasons described above. The baseline environment will be assessed by reference to the data previously measured at relevant properties as part of the Environmental Statement for the Pen-y-Cymoedd Wind Farm, which appears to have been measured in accordance with current good practice and was the basis for the consent for that wind farm. This previous data is considered sufficient to characterise the background at properties in the study area for the Proposed Development.
- 7.17. Although consideration will be given to potential construction noise effects for properties located along the Development construction access route and within the grid connection corridor, a qualitative assessment of the baseline noise environment at these locations will be sufficient for the purpose of this assessment.

Consultation

- 7.18. Ongoing consultation will be undertaken with the Environmental Health Department of Neath Port Talbot County Borough Council as part of establishing the characterisation of baseline noise levels.

Assessment Method

- 7.19. The assessment of noise and vibration effects will be based, where appropriate, upon the methodology outlined in Chapter 4 of this EIA Scoping Report. Impact magnitude will be determined based upon relationship with the relevant limits set out in guidance and legislation.

Construction Noise

- 7.20. In assessing the impact of construction noise and vibration, it is usual to accept that the associated works are of a temporary nature. The assessment of potential impacts due to noise emissions during construction will be undertaken in accordance with the BS 5228 British Standard guidance. Predictions of construction noise will be made referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the methodology set out in BS 5228 Part 1, which is referenced in TAN 11. This standard can be used to predict noise levels associated with the different construction activities used throughout the construction programme. Part 2 of the BS 5228 standard considers construction vibration and this will also be referenced.

- 7.21. Consideration will also be given to the potential impact of construction traffic on sensitive receptors in the area. Depending upon the outcome of the Traffic Assessment, the impact of traffic along the site access route will be assessed on the basis of the methodology within BS 5228-1:2009, as well as the accepted UK prediction methodology provided by 'Calculation of Road Traffic Noise' (CRTN, 1988), where appropriate.
- 7.22. The effects associated with the proposed grid connection route would also be assessed using the same methodology.

Operational Noise

- 7.23. The methodology for the assessment of operational noise from wind farms recommended in planning guidance is that documented in ETSU-R-97. In summary, the assessment shall:
- Identify the nearest noise sensitive receptor(s);
 - Determine the quiet day-time and night-time noise limits from previously measured background noise levels at the nearest neighbour(s);
 - Specify a candidate turbine with noise emissions characteristic of the possible wind turbines for the site;
 - Calculate noise immission levels owing to the operation of the wind turbines as a function of site wind speed at the nearest neighbours, including the cumulative effect of all turbines;
 - Compare the calculated wind farm noise immission levels with the derived noise limits.
- 7.24. Please note that the term 'noise emission' relates to the sound power level actually radiated from each wind turbine, whereas 'noise immission' relates to the sound pressure level (the perceived noise) at a receptor location due to the combined operation of all wind turbines.
- 7.25. The IOA good practice guidance referenced above will be taken into account, including advice on baseline survey, wind shear assessment and noise prediction methodology.
- 7.26. The calculated wind farm noise immission levels will be compared with the noise limits derived in accordance with ETSU-R-97.
- 7.27. The noise limits derived according to ETSU-R-97 guidance, for each noise-sensitive receptor, apply to the total noise produced by all wind farms. Therefore, potential cumulative operational noise levels, including existing, consented and in planning wind turbines in the area, must be assessed relative to these limits.
- 7.28. Fixed plant associated with the proposed substation will be enclosed and therefore unlikely to be a significant source of noise. Operational noise from this proposed substation and/or energy storage plant will be assessed using BS 4142 which applies to general noise sources of this type. This will reference existing baseline noise levels in the area, as appropriate.

Approach to Mitigation

- 7.29. Mitigation of operational noise will be achieved through the design of the project, such that the relevant ETSU-R-97 noise limits can be achieved at the surrounding properties with commercially available wind turbines, taking into account the noise immissions from cumulative wind farms in the area.
- 7.30. Regarding construction noise and vibration, relevant working practices, traffic routes, management procedures and proposed working hours will be set out in the noise chapter of the ES.

Potential Significant Effects of the Development

Construction

- 7.31. During construction of the Proposed Development and its decommissioning, noise could arise from activities within the project area such as the construction of access tracks, turbine foundations, the control building (substation) etc., and also from the movement of construction related traffic both within the project area and travelling on public roads to and from the Proposed Development. Assessment of the temporary effects of construction noise and vibration is primarily aimed at understanding the need for dedicated management measures and, if so, the types of measures that are required.
- 7.32. The indicative grid connection corridor shown in Figure 1 includes a number of isolated properties as well as properties on the outskirts of Baglan and Briton Ferry. Works associated with the grid connection will be of very limited duration in any particular area and so are unlikely to represent significant effects unless they occur in relative proximity to noise-sensitive locations, taking into account as well construction working hours and management measures: this will be reviewed as part of the assessment.
- 7.33. Taking account of the findings of the work undertaken to date whilst still adopting a precautionary approach at this preliminary stage, the potential construction effects to be assessed in the EIA will include:
- noise and vibration associated with on-site construction and decommissioning activities;
 - noise associated with the construction traffic (including cumulative).

Operational

- 7.34. During their operation, wind farms have the potential to create noise effects through both aerodynamic noise and mechanical noise. Aerodynamic noise will be caused by the interaction of the turbine blades with the air. Mechanically generated noise will be caused by the operation of internal components, such as the gearbox and generator, which are housed within the nacelle of the turbine. However, the level of mechanical noise radiated from current technology wind turbines is generally engineered to a low level.
- 7.35. Taking account of the findings of the work undertaken to date whilst still adopting a precautionary approach at this preliminary stage, potential operational (including cumulative) effects to be assessed in the EIA include:
- noise during operation of the Proposed Development;
 - cumulative operational impacts.

Effects Scoped Out

- 7.36. On the basis of the work undertaken to date, the professional judgement of the assessment team and experience from other similar projects, it is proposed that the following effects can be scoped out due to good design and implementation of standard good practice construction measures:
- operational noise from the proposed grid connection route;
 - vibration associated with construction traffic;
 - vibration effects during operation.
- 7.37. In wet weather conditions, over-ground power transmission lines can generate small levels of noise (through so-called 'corona discharge'). Given the nature of the proposed grid connection proposed it is unlikely that significant noise levels will be generated at neighbouring noise-sensitive locations in this case.

- 7.38. Occasional momentary vibration can arise when heavy vehicles pass dwellings at very short separation distances, but this is not sufficient to present a risk of significant effects. Therefore, vibration effects of construction are also proposed to be scoped out.
- 7.39. It is recognised that vibration resulting from the operation of wind farms is imperceptible at typical separation distances. It is therefore proposed to scope out the assessment of vibration produced during the operation of the Proposed Development.

Questions for consultees

- 7.40. Can the consultees please confirm?
- Question 7.1 Do the relevant Local Authorities agree with the suggested methodology for the noise assessment?
 - Question 7.2: Do the relevant Local Authorities agree with the noise topics proposed to be scoped out of the EIA?
 - Question 7.3: Are there any other relevant consultees who should be consulted about the noise assessment?

8. Ecology

Introduction

- 8.1. This section has been prepared by Avian Ecology Ltd. Avian Ecology is a specialist ecological consultancy with considerable experience in the undertaking of ecological surveys and assessment to inform wind energy developments in south Wales. As such, all field surveys and subsequent assessment will be undertaken by suitably qualified, experienced and competent ecologists.
- 8.2. This section provides a summary of baseline (non-avian) ecological information collected to date, and that proposed to inform the EIA of the Proposed Development. An overview of potential impacts to be addressed within the Environmental Statement (ES) is also provided.
- 8.3. The Proposed Development occupies two separated, but nearby, land parcels (Figure 1 and Figure 8). The wind farm site lies approximately 5km north east of Neath in South Wales and consists of two areas of site, one on the boundary of Tonmawr to the north east (Mynydd Blaenafon; MB) and the other on the opposite side of the Nant Blaenpelenna water course further to the north east (Mynydd Fforch-Dwm; MFD).
- 8.4. The receptors that will be the focus of the assessment will comprise:
- relevant statutory designated sites, and their cited qualifying interests, such as Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs) and National Nature Reserves (NNR's);
 - internationally or nationally important habitats (e.g., habitats listed on Annex I of EC Habitats Directive², and habitats listed under The Environment (Wales) Act 2016³); and,
 - populations of non-avian species listed on Annex IV of the EC Habitats Directive or Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) or a priority for conservation listed on the Welsh Government list of habitats and species of principal importance in Wales (known as the Section 7 lists).

Relevant Policy and Legislation

- 8.5. The following key pieces of legislation and policy will be referred to:

National

- Planning Policy Wales 11 February 2021;
- Protection of Badgers Act 1992;
- Technical Advice Note 5 – Nature Conservation and Planning⁴;
- Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) (hereafter the 'Habitats Regulations');
- The Environment (Wales) Act 2016;
- The United Kingdom Biodiversity Action Plan (UK BAP) Priority Species and Habitats (2007); and,

² Council Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora.

³ <https://www.legislation.gov.uk/anaw/2016/3/contents/enacted>

⁴ <https://gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf>

- The Wildlife and Countryside Act 1981 (as amended);

Local

- Neath Port Talbot Local Development Plan 2011-2026 (adopted January 2016)⁵;
- Neath Port Talbot Biodiversity Duty Plan (2017); and,
- Neath Port Talbot Nature Recovery Action Plan (due for publication in 2021)⁶.

Environmental Baseline and Potential Sources of Impact

Baseline Conditions

8.6. Baseline ecological conditions to inform the design and assessment of the Proposed Development, will be established through desk study and field surveys. Full details will be presented within the ES. A brief summary of key findings to date is provided below.

8.7. Where specific Welsh guidance is not available, guidance from NatureScot (formerly Scottish Natural Heritage (SNH)) is adopted, where appropriate.

Initial Desk Study

8.8. An initial desk study was undertaken in 2019, updated in 2021, to inform the proposed approach to baseline information gathering, including the scope and requirement for baseline ecological surveys.

8.9. The following key sources have been consulted:

- DEFRA (MAGIC Map)⁷ and Natural Resources Wales (NRW) search function⁸;
- South East Wales Biodiversity Records Centre (SEWBRc)⁹;
- Aerial imagery;
- NatureScot general pre-application/scoping advice to developers of onshore wind farms (SNH, 2018¹⁰); and,
- National Biodiversity Network (NBN) Gateway.

8.10. Peer reviewed literature and publicly available resources will also be reviewed and will be referred to where relevant within the ES.

8.11. Field surveys were also undertaken in 2015 to inform an earlier iteration of the project (located within the MFD section only); full details are not provided here but in summary consisted of:

- Extended Phase 1 Habitat Survey;
- National Vegetation Classification (NVC) Survey;
- Bat Activity Surveys

⁵ https://www.npt.gov.uk/media/7321/ldp_written_statement_jan16.pdf?v=20170727124344

⁶ <https://www.npt.gov.uk/5405> [accessed December 2021]

⁷ <https://magic.defra.gov.uk/>

⁸ <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en>

⁹ <http://www.sewbrec.org.uk/>

¹⁰ <https://www.nature.scot/snh-general-pre-application-and-scoping-advice-developers-onshore-and-wind-farms>

- Eight automated ground-level static surveys, monthly between April and September 2015; and,
- Four walked transect surveys between May and September 2015.

- Reptile surveys.

8.12. Baseline data collected in 2015 is considered to provide useful contextual information and will be referred where considered appropriate.

Statutory Designated Sites for Nature Conservation

8.13. No statutory designated sites are located within 5km of the Proposed Development.

8.14. No SAC's for bat interests are located within 10km of the Proposed Development.

Field Surveys

8.15. The scope for field surveys was determined through a review of Key Sources listed above. The following surveys have therefore been completed within the Proposed Development site to confirm baseline features:

MFD Section

- Extended Phase 1 Habitat Survey (June 2015, updated in 2019 and 2021);
- NVC Survey (June 2015, updated with habitat 'validation' surveys August 2019 and July 2021 to confirm no notable change to on-site habitats);
- Terrestrial Mammal Survey (June 2015, with additional searches for evidence of protected mammals also undertaken during phase 1 habitat surveys in 2019 and 2021);
- Bat Activity Surveys (May to September 2015, then spring, summer and autumn 2019 and repeated in 2021); and,
- Reptile Surveys (August and September 2015).

MB Section

- Extended Phase 1 Habitat Survey (2021, including searches for evidence of protected mammals);
- NVC Survey (2021); and,
- Bat Activity Surveys (spring, summer and autumn 2021).

8.16. In addition, an ecological walkover survey of the proposed grid-connection route was carried-out in September 2021 so as to identify habitats along the route. Furthermore, ecological walkover surveys (to include an Extended Phase 1 Habitat Survey) will be undertaken of the sections of access route that falls outside the boundary of the Site or the proposed grid-connection route. The information gathered from the desk study sources listed in section 8.9 will also be considered for the proposed access route (as well as the grid-connection route). Substantive constraints along the proposed access route are considered unlikely.

Habitats and Vegetation

8.17. Habitat surveys referred to the following guidance documents;

- Averis, A., Averis, B., Birks, J., Horsfield, D., Thompson, D., Yeo, M. (2004). *An Illustrated Guide to*

British Upland Vegetation. JNCC, Peterborough;

- Countryside Council for Wales (2010) Assessing the Impact of Windfarm Developments on Peatlands in Wales;
- JNCC (2010). Handbook for Phase 1 Habitat Survey - a technique for environmental audit. Revised Reprint 2016. JNCC, Peterborough;
- Rodwell, J. S. (2006). *National Vegetation Community Users' Handbook*. JNCC, Peterborough;
- Rodwell, J. S. (ed.) (1992). *British Plant Communities. Volume 3. Grasslands and montane communities*. Cambridge University Press, Cambridge; and,
- Rodwell, J. S. (ed.) (1993). *British Plant Communities. Volume 2. Mires and Heaths*. Cambridge University Press, Cambridge.

- 8.18. Much of the MFD section is dominated by semi-improved acid grassland and semi-improved neutral grassland, with mixed plantation and broadleaved woodland also present. The MB section is dominated by *Molinia* mire, with extensive areas of bracken cover and semi-improved acid grassland on the western slope. Grasslands appeared to be managed for hay and are probably seeded.
- 8.19. Three streams intersect the MFD section; Nant Cwm-y-pant, Nant y Cywion and Nant Blaenpelenna. The only named stream in the MB section is the Nant Blaengwenffrwd, although an agricultural drain is also present.
- 8.20. Where habitats were deemed to potentially support Annex I habitats, they were subject to further NVC survey. The following NVC communities were identified across the Site;
- Marshy grassland (M23b);
 - Semi-improved neutral grassland (MG6);
 - Semi-improved acid grassland (U6);
 - Wet modified bog (M20, M25a and M25b); and,
 - Acid/neutral flush (M6b, M4).
- 8.21. It should be noted that parts of the MB section are currently (2021) being planted with coniferous trees and will subsequently become commercial forest over time. Whilst there will be a transition period, the creation of forestry will lead to a drastic alteration of habitats within the MB section and which will substantially reduce habitat quality, with corresponding impacts on associated plant and animal species.

Protected and Notable Species

- 8.22. Protected species surveys were identified with reference to the following guidance documents:
- Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London;
 - Scottish Natural Heritage, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (BCT) (2019) Bats and Onshore Wind Turbines: Survey Assessment and Mitigation. This document is referred to as the 'Joint Agencies guidance'.

- 8.23. Bat activity surveys undertaken in 2019 and 2021 sought to establish baseline bat species assemblage known to utilise the Proposed Development site, the location and extent of commuting and foraging resources and the locations of likely roosts and swarming sites that may be affected by the Proposed Development.
- 8.24. Surveys consisted of preliminary roost assessments of buildings and trees within 200m plus blade tip of turbine locations and ground level activity surveys in accordance with Joint Agencies guidance (2019). Survey effort comprised the sampling of bat activity in spring (April-May), summer (June-mid-August) and autumn (mid-August-October) 2019 (MFD only) and 2021 (across the Proposed Development site). Surveys recorded the presence of *Myotis* species, noctule, common pipistrelle and soprano pipistrelle.
- 8.25. Using the criteria set-out in Table 3a of Joint Agencies guidance (2019), the Proposed Development site is considered to most closely fit the description of a 'low/medium' site risk for bats. Full results will be presented in the ES, including analysis of the data from an Ecobat assessment, as per Joint Agencies guidance (2019) guidance.
- 8.26. The Phase 1 Habitat Surveys were extended to search for presence or potential presence of protected and notable faunal species.
- 8.27. Watercourses were mostly fast flowing, with rock substrate and limited bankside vegetation, offering limited opportunities for water vole *Arvicola amphibius*. No evidence was found during survey. No evidence of otter *Lutra lutra* was observed during survey but watercourses may offer a foraging and commuting resource as part of a wider territory.
- 8.28. Marshy grassland present across much of the Site is unsuitable for badger *Meles meles* sett creation, but woodland habitats within the surrounding the locality may offer sett building opportunities.
- 8.29. Common lizards were observed during the habitat and bat surveys and the Site was considered suitable to support adder *Vipera berus*. Reptiles are therefore considered to be present for the purposes of the assessment (with appropriate mitigation measures to be adopted; see section 8.31).
- 8.30. No ponds are present within the Proposed Development site, or within at least 500m of turbine locations and therefore presence of great crested newt within the Proposed Development site is highly unlikely.
- Additional Field Surveys proposed to be scoped out*
- 8.31. There are some species groups which, providing the implementation of suitable mitigation measures, are unlikely to be subject to significant effects as a result of wind farm developments. As such, they do not require surveys to inform an EIA. This includes invertebrates, reptiles and amphibians.
- 8.32. Amphibian and updated reptile surveys will not be undertaken. Likely significant effects will not occur with the adoption of standard construction mitigation embedded into the design of the Proposed Development.
- 8.33. Detailed surveys for fish are not proposed, given the incorporation of standard mitigation measures embedded within the Proposed Development. These are well understood and should the Proposed Development require the loss of suitable habitat for fish species, appropriate mitigation, further survey and/or licences will be adopted, through discussion with consultees.

- 8.34. Subsequently no further field surveys are proposed; the baseline data gathered, combined with reference to existing planning applications, peer-reviewed research and monitoring data (where available) is considered to provide a comprehensive basis for impact assessment in accordance with CIEEM (2018)¹¹ guidelines.

Method of Assessment and Reporting

Approach

- 8.35. Full details of baseline studies and consultations will be provided within the ES.
- 8.36. Impact assessment presented within the ES for ecological features will be based on CIEEM guidance (2018).
- 8.37. The assessment process will include the following stages:
- determination and evaluation of important ecological features;
 - identification and characterisation of impacts;
 - outline of mitigating measures to avoid and reduce significant impacts;
 - assessment of the significance of any residual effects after such measures;
 - identification of appropriate compensation measures to offset significant residual effects; and,
 - identification of opportunities for ecological enhancement.
- 8.38. The Ecology Chapter of the ES will be supported by Technical Appendices detailing the desk study results, consultation, survey methods and results, and will be further supported by relevant figures, tables and photographs, where necessary. Where sensitive data is recorded, the Ecology Chapter will be supported by confidential appendices which will not be released to the public domain.

Determining Importance

- 8.39. Relevant national and local legislation policy and guidance will be referred to in order to determine the importance (or 'sensitivity') of ecological features. In addition, importance will also be determined using professional judgement, specialist consultation advice and the results of baseline surveys and the importance of features within the context of the geographical area.
- 8.40. Importance will not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.
- 8.41. The importance of ecological features will be defined in a geographical context from "Local" to "International".

Identification and Characterisation of Impacts

- 8.42. The identification and characterisation of impacts on important ecological feature will be undertaken in accordance with the CIEEM 2018 guidelines with reference made to magnitude (e.g. area or number of individuals to be impacted), extent, duration and reversibility as appropriate.

¹¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine.

- 8.43. Impacts will be considered during the construction, operational and decommissioning phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Significant Effects

- 8.44. CIEEM 2018 guidelines define a 'significant effect' as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general (i.e., the feature could be positively or negatively significantly affected).
- 8.45. CIEEM guidelines on ecological impact assessment note that, "A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures as long as the mitigation hierarchy has been applied effectively as part of the decision-making process."
- 8.46. Potentially significant effects identified will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ecological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.
- 8.47. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect will be assumed as a precautionary approach.

Cumulative Assessment

- 8.48. The potential for cumulative effects on ecological features with other wind farm proposals will be assessed in accordance with NatureScot guidance (2021)¹², in the absence of specific Welsh guidance, but will be restricted to those developments located within the same hydrological catchment(s) or within the known range of mobile species (e.g. bats up to 10km).
- 8.49. The assessment will encompass the effects of the proposal in-combination with existing developments, either built or under construction; approved developments; awaiting implementation; and, proposals awaiting determination within the planning process with design information in the public domain.

Approach to Mitigation

- 8.50. The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ecological features will be part of the iterative design process for the Proposed Development.
- 8.51. Measures to avoid or otherwise minimise potentially adverse impacts upon ecological features during scheme design will include:
- Land-take

¹² NatureScot (2021) Assessing the Cumulative Impact of Onshore Wind Energy Developments. Available online at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> [accessed November 2021] Inverness

- Development infrastructure will be designed to minimise the requirement for land-take and the number of watercourse crossings and woodland felling.
- Watercourse crossings
 - New watercourse crossings will be avoided where possible. New watercourse crossings required will be designed in accordance with best practice and enable the free passage of fish and other wildlife.
- Watercourse Buffers
 - A minimum 50 m buffer between scheme infrastructure will be applied around all main watercourses in so far as possible having regard to other ecological and non-ecological constraints.
- Construction Environmental Management Plan (CEMP)
 - A CEMP (or similar) will be in place during the construction, operational and decommissioning phases of the development. The CEMP will include all good practice construction measures, pollution prevention controls and monitoring to be implemented over the course of the development in line with current guidance.
- Bat Habitat Features
 - A minimum 50 m buffer (from blade tip) will be applied to woodland edge and main watercourses in so far as possible having regard to other ecological and non-ecological constraints.

8.52. Full details of embedded mitigation measures in relation to ecology will be detailed within the ES, together with additional site-specific measures, where required to further mitigate potentially adverse effects upon ecological features. Where such measures are required, the ES will present a further assessment of residual effects.

Residual Effects

8.53. Where the EIA proposes measures to mitigate potentially significant adverse effects on ecological features, a further assessment of residual ecological effects, taking into account any ecological mitigation recommended, will be undertaken.

Compensation

8.54. Where significant residual effects still remain, after the adoption of mitigation measures, compensation will be provided. This could include replacement habitat, or habitat improvements which would offset the significant residual effects

Enhancement

8.55. The appropriateness and feasibility of enhancement will be discussed with NRW/NPTCBC and relevant consultees over the course of the EIA, with view to prescriptive enhancement measures being detailed post-consent, within a Habitat Management Plan (HMP).

Potentially Significant Effects of the Development

8.56. Potential adverse impacts upon ecological features to be assessed within the ES which could arise during the construction, operational and decommissioning phases of the Proposed Development and are summarised below.

- 8.57. Impacts will be assessed and informed on the basis of baseline study findings and through consultation with relevant specialist groups as required.

Construction

- 8.58. During construction of the Proposed Development, in the absence of mitigation, impacts upon ecological features to be addressed within the ES may arise from:
- habitat loss, fragmentation or change as a result of the delivery and installation of development infrastructure; and,
 - disturbance, inadvertent killing or injuring of protected or otherwise notable species or inadvertent damage to their breeding sites or resting places.
- 8.59. The potential for indirect impacts upon ecological features as a result of the potential spillage and/or mitigation of pollutants and sediments during the construction phase will be considered, however potentially significant effects will be highly unlikely on the basis of embedded mitigation measures.
- 8.60. Effects would be minimised through the detailed design of any watercourse crossing, the CEMP / Pollution Prevention Plan (PPP) as required under the Pollution Control Construction Site Handbook (April, 2018)¹³.
- 8.61. There will be no direct or indirect impacts on any statutory designated site for nature conservation.

Operation

- 8.62. During operation of the Proposed Development, in the absence of mitigation, impacts upon ecological features to be addressed within the ES may arise from:
- disturbance to protected or otherwise notable species as a result of operational activities such as vehicular traffic and maintenance works;
 - habitat loss or change, inadvertent killing or injuring of protected or otherwise notable species resulting from the potential spillage of pollutants; and,
 - interaction of bats with operational turbine blades leading to mortality due to collision or barotrauma.

Decommissioning

- 8.63. Potential impacts associated with the decommissioning phase are likely to be similar to those identified for the construction phase.

Effects Scoped Out

- 8.64. The above scope is based on the requirement for EIA to consider likely significant effects of a Proposed Development. Effects that are not likely to be significant do not require assessing under the EIA regulations. CIEEM guidance (2018) further allows features to be scoped out if they are not considered to qualify as 'important'.
- 8.65. On review of desk study and field survey information gathered to date, the following ecological features can be scoped out of detailed assessment; water vole, otter, badger, reptiles, amphibians and invertebrates.
- 8.66. There will also be no direct or indirect impacts upon any designated site for natural conservation.

¹³ <https://www.srs.wales/Documents/Pollution/SRS-PollutionControlHandbook-ConstructionA4-E.pdf> [accessed November 2021]

- 8.67. Effects on habitats and species (excluding bats) during operation can also be scoped out. No further damage is anticipated to habitats during operation, and maintenance visits will be rare and unlikely to result in disturbance to protected species.
- 8.68. The potential for indirect impacts upon ecological features as a result of potential spillage and/or escape of pollutants during the construction phase will be considered, however potentially significant effects are considered highly unlikely on the basis of implemented avoidance and standard good practice measures. Similarly potential indirect impacts upon ecological features as a result of potential light pollution (such as light spill) associated with the Proposed Development will be considered; however similarly significant effects are considered highly unlikely based on the implementation of avoidance and standard good practice measures.

Questions for Consultees

- 8.69. Can the consultees please confirm?
- Question 8.1: Do Consultees agree that the scope of ecological desk study and field surveys undertaken is sufficient and appropriate to inform an assessment?
 - Question 8.2: Do consultees agree with the approach to field surveys and desk study proposed?
 - Question 8.3: Are there any other relevant consultees/key sources who should be contacted with respect to updated baseline ecological information gathering and assessment?
 - Question 8.4: Can NPTCBC provide bat monitoring data from the Pen y Cymoedd wind farm development so as to further inform the assessment?
 - Question 8.5: Do consultees agree with the proposed assessment of the potential effects as a result of the Proposed Development, including the approach to cumulative assessment?

9. Ornithology

Introduction

- 9.1. This section has been prepared by Avian Ecology Ltd. Avian Ecology is a specialised ornithological consultancy with considerable expertise in the undertaking of ornithological surveys and assessment to inform wind energy developments in South Wales and across the UK. As such, all field surveys and subsequent assessment will be undertaken by suitably qualified, experienced and competent ecologists.
- 9.2. This section provides a summary of baseline ornithological information collected to date, and that proposed to inform the EIA of the Proposed Development.
- 9.3. The Proposed Development occupies two separated, but nearby, land parcels (Figure 1 and figure 8). The wind farm site lies approximately 5km north east of Neath in South Wales and consists of two areas of site, one on the boundary of Tonmawr to the north east (Mynydd Blaenafon; MB) and the other on the opposite side of the Nant Blaenpelenna water course further to the north east (Mynydd Fforch-dwm; MFD).
- 9.4. An overview of potential impacts to be addressed within the Environmental Statement (ES) is also provided.
- 9.5. The receptors that will be the focus of the assessment will include:
- relevant statutory designated sites, and their cited qualifying interests, such as Sites of Special Scientific Interest (SSSIs) and Special Protection Areas (SPAs); and,
 - populations of bird species listed on Annex I of the EC Habitats Directive or Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) or a priority for conservation listed on the Welsh Government list of habitats and species of principal importance in Wales (known as the Section 7 lists).

Relevant Policy and Legislation

- 9.6. The following key pieces of legislation and policy will be referred to:

National

- Planning Policy Wales 11 February 2021
- Technical Advice Notes 5 – Nature Conservation and Planning¹⁴;
- The Environment (Wales) Act 2016;
- Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) (hereafter the 'Habitats Regulations')
- The United Kingdom Biodiversity Action Plan (UK BAP) Priority Species and Habitats (2007); and,
- The Wildlife and Countryside Act 1981 (as amended);

Local

- Neath Port Talbot Local Development Plan 2011-2026 (adopted January 2016)¹⁵;
- Neath Port Talbot Biodiversity Duty Plan (2017); and,

¹⁴ <https://gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf>

¹⁵ https://www.npt.gov.uk/media/7321/ldp_written_statement_jan16.pdf?v=20170727124344

- Neath Port Talbot Nature Recovery Action Plan (due for publication in 2021)¹⁶.

Environmental Baseline and Potential Sources of Impact

9.7. Baseline ornithological conditions to inform the design and assessment of the Proposed Development, will be established through desk study and field surveys. Full details will be presented within the ES. A brief summary of key findings to date is provided below.

9.8. Where specific Welsh guidance is not available, guidance from NatureScot (formerly Scottish Natural Heritage (SNH)) is adopted, where appropriate.

Initial Desk Study

9.9. An initial desk study was undertaken in 2019 to inform the proposed approach to baseline information gathering, including the scope and requirement for baseline ornithological surveys.

9.10. The following key sources have been consulted:

- MAGIC¹⁷ and Natural Resources Wales search function¹⁸;
- Aerial imagery;
- NatureScot general pre-application/scoping advice to developers of onshore wind (SNH, 2018¹⁹);
- NatureScot guidance (2017)²⁰ on bird survey methods at onshore wind farms and,
- National Biodiversity Network (NBN) Gateway.

9.11. Peer reviewed literature and publicly available resources will also be reviewed and will be referred to where relevant within the ES.

9.12. Field surveys were also undertaken in 2015 and 2016 to inform an earlier iteration of the project (within the MFD section only). Full details are not provided here but in summary consisted of:

- Vantage Point (VP) flight activity surveys (March 2015 to February 2016);
- Moorland breeding bird survey (MBBS) (April to July 2015);
- Raptor searches (June and July 2015);
- Nightjar survey (June 2015); and,
- Winter walkovers (October 2015 to February 2016).

9.13. Baseline data collected in 2015-2016 is considered to provide useful contextual information and will be referred where considered appropriate.

¹⁶ <https://www.npt.gov.uk/5405> [accessed December 2021]

¹⁷ <https://magic.defra.gov.uk/>

¹⁸ <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en>

¹⁹ <https://www.nature.scot/snh-general-pre-application-and-scoping-advice-developers-onshore-and-wind-farms>

²⁰ SNH (2017) *Recommended bird survey methods to inform impact assessment of onshore wind farms*. Scottish Natural Heritage, Edinburgh. March 2017, Version

Statutory Designated Sites for Nature Conservation

- 9.14. The following statutory designated sites have been identified:
- *Crymlyn Bog Ramsar and SSSI* is an area of lowland fen, located 9.5km west of the Proposed Development and notified for supporting important populations of reed warbler *Acrocephalus scirpaceus* and sedge warbler *A. schoenbaenus*.
 - *Crymlyn Burrows SSSI*, located 8.3km west of the Proposed Development is known for supporting overwintering waders. Bird species are not named within the citation.
 - *Mynydd Ty-Isaf SSSI*, a cliff system which is known to support an unnamed Schedule 1 breeding raptor, is located c.8.7km east.
- 9.15. No SPAs are located within 20km of the Proposed Development.

Field Surveys

- 9.16. The Proposed Development site is located within an area identified as 'low / unknown ecological sensitivity' (RSPB Wales 'Wind Farm Sensitivity Map'²¹).
- 9.17. Field surveys have been completed (or are on-going), following the methodologies set-out in NatureScot guidance (2017)²⁰. The scope for field surveys was determined through a review of Key Sources listed above. The following surveys have therefore been completed (or are on-going) to confirm baseline features:

MFD Section

- Vantage Point (VP) flight activity surveys (March 2019 to February 2020, then March 2021 to February 2022);
- Moorland Breeding Bird Surveys (MBBS) (2019 and 2021);
- Breeding Annex 1/Schedule 1 raptor and owl searches (2019 and 2021); and,
- Nightjar survey (2019 and 2021).

MB Section

- VP flight activity surveys (March 2021 to February 2022);
- MBBS (2021);
- Breeding Annex 1/Schedule 1 raptor and owl searches (2021); and,
- Breeding nightjar survey (2021).

Target Species

- 9.18. In review of existing ornithological information the key ornithological sensitivities for a wind farm development for the Proposed Development site, target species are considered to comprise the following in accordance NatureScot (SNH, 2017²⁰ and 2018¹⁹) guidance and with reference to the following;

²¹<https://www.rspb.org.uk/our-work/our-positions-and-casework/our-positions/climate-change/action-to-tackle-climate-change/uk-energy-policy/wind-farms/mapping-and-locational-guidance> [accessed December 2021].<https://www.rspb.org.uk/our-work/our-positions-and-casework/our-positions/climate-change/action-to-tackle-climate-change/uk-energy-policy/wind-farms/mapping-and-locational-guidance>

- Annex 1 of the Birds Directive (2009/147/EC);
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); and,
- Red-listed Birds of Conservation Concern (BoCC) (Stanbury *et al.* 2021²²).

- 9.19. Target species also includes those species on the priority list (Section 7) for Wales (the Environment (Wales) Act (2016)), and considered a priority with reference to NatureScot guidance (SNH, 2018¹⁹).
- 9.20. Target species for recording included all Annex 1/Schedule 1 raptors, waders, swans, geese, ducks (excluding mallard *Anas platyrhynchos* and feral species), nightjar as observed during VP watches.
- 9.21. Secondary species were defined as commoner raptors (e.g., buzzard *Buteo buteo*, kestrel *Falco tinnunculus* and sparrowhawk *Accipiter nissus*), all gulls, feral species and mallard *Anas platyrhynchos*, along with any large concentrations of Schedule 1 or 'BoCC Red-listed' passerines as recorded during survey. Schedule 1 species included species like crossbill which may use coniferous plantation adjacent to the wind farm site.

Vantage Point (VP) Flight Activity Surveys

MFD Section

- 9.22. A single VP location (at grid ref: SS 82861 97535) has been used to provide visual coverage of the required VP survey area for the Proposed Development in accordance with SNH guidance (2017)²⁰; defined as a 500m buffer around outermost proposed turbine locations.
- 9.23. A total of 81 hours of VP survey effort was completed between March 2019 and February 2020, achieving a minimum of 36 hours in each of the breeding and non-breeding seasons. Surveys recorded a total of 32 red kite *Milvus milvus* flights and 2 hen harrier *Circus cyaneus* flights. No other target species were recorded. Low levels of secondary species flights were recorded, comprising commoner raptors, gulls and raven *Corvus corax*.
- 9.24. The same VP location has been used for the (on-going Year 2) March 2021 to February 2022 surveys, with a total of 81 hours VP effort programmed for the period (i.e., matching 2019/2020). To date (up to October 2021), 12 red kite flights have been recorded, along with single flights of goshawk, *Accipiter gentilis* merlin *Falco columbarius* and peregrine *Falco peregrinus*.

MB Section

- 9.25. A single VP location (at grid ref: SS 80768 97785), which provides good visual coverage of the VP survey area. Surveys commenced in March 2021 and are scheduled to complete in February 2022 surveys, with a total of 81 hours VP effort programmed. To date (up to October 2021), 11 red kite flights have been recorded, along with single flights of marsh harrier *Circus aeruginosus* and hen harrier.

²² Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., J. Brown, A., Douse, F., Hearn, R.D., Lock, L., Musgrove, A., Lindley, P., McCulloch, N.J., Noble, D., and Win I. 2021. The status of our bird populations: the fifth. G., Stroud, D.A. & Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.. British Birds 114: 723-747. Available online at <https://britishbirds.co.uk/content/status-our-bird-populations108,708-746>.

Moorland Breeding Bird Surveys

MFD Section

- 9.26. The methodology employed followed the Brown and Shepherd (1993²³) method for censusing upland breeding waders, based upon the recommendations set out in Calladine *et al.* (2009²⁴), as recommended in NatureScot guidance (SNH, 2017). The methodology is suitable for moorland and open country species including, waders, gulls and some wildfowl species however, incidental observations of any raptors, owls or notable passerines (i.e., Schedule 1 and BoCC red-listed) may also be recorded.
- 9.27. In 2019 and 2021, a series of four staggered visits were completed during each survey year, between April and July. The Site was found to support an assemblage of breeding species considered typical of the locale and habitats present. This consisted of a suite of common and widespread moorland passerines. No moorland or open country breeding species, including waders, gulls or wildfowl were recorded.

MB Section

- 9.28. Surveys were conducted concurrently with the MFD section in 2021, using the same methodology and with directly comparable results.

Breeding Raptor and Owl Searches

- 9.29. Searches for breeding Annex 1 and/or Schedule 1 raptor and owls were undertaken in 2019 and 2021 with reference to species-specific methodologies outlined in Hardey *et al.* (2013²⁵), as per current industry standard guidance (SNH, 2017²⁰).
- 9.30. The breeding raptor and owl survey area has comprised coverage of the Proposed Development site and accessible areas out to at least 2km for all raptor and owl species. A series of search visits were made, staggered across the core breeding season, between April and July.
- 9.31. A single breeding pair of red kites was observed in 2019. The nest location is considered confidential and can be provided on request and will be included in a confidential appendix to the ES.
- 9.32. No other Annex 1 and/or Schedule 1 breeding raptors or owl species were recorded.

Nightjar Survey

MFD Section

- 9.33. A nightjar survey was carried out with reference to species-specific methodologies outlined in Gilbert *et al.* (1998²⁶), and comprised two survey visits (one dawn and one dusk survey), in June 2019 and 2021, carried out in favourable conditions. The nightjar survey area comprised all suitable habitat (including clear-fell and regenerating plantation) within the Proposed Development site and out to 500m (where accessible). Three breeding nightjar territories were identified.

²³ Brown, A.F. & Shepherd, K.B. (1993) A method for censusing upland breeding waders. *Bird Study*, 40, 189-195.

²⁴ Calladine, J., Garner, G., Wernham, C. & Thiel, A. (2009) The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study*, 56 (3), 381-388.

²⁵ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring*. 3rd Edition, The Stationery Office, Edinburgh.

²⁶ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods*. RSPB, Sandy.

MB Section

- 9.34. A nightjar survey following the same methodology was undertaken in July 2021 in favourable conditions. The nightjar survey area comprised all suitable habitat (including clear-fell and regenerating plantation) within the Site and out to 500m (where accessible). Three breeding nightjar territories were identified.

Additional Baseline Information

- 9.35. Three years of ornithology surveys have been undertaken in the MFD Section, and one year in the MB Section. Combined, these surveys are considered to provide an accurate representation of the activity of ornithology species sensitive to wind farms at the locality. Furthermore, parts of the MB Section are in the process of being planted with coniferous trees (see section 9.37) so it is likely that the current baseline for the MB Section is over-representative in terms ornithological value, with the ornithological value of the MB Section, likely to decline with time, as the commercial forestry establishes. No further field surveys are proposed; the baseline data gathered, combined with reference to existing planning applications, peer-reviewed research and monitoring data (where available) is considered to provide a comprehensive basis for impact assessment in accordance with CIEEM (2018) guidelines.

Desk Study

- 9.36. A records request will be undertaken with SEWBrEC²⁷ to request records of protected and notable species and non-statutory designated sites within 5km of the Proposed Development. In the unlikely event these data should highlight the potential for additional significant effects than those scoped in above, consultees will be consulted to agree the scope.

Future Baseline

- 9.37. It should be noted that parts of the MB section is currently (2021) being planted with coniferous trees and will subsequently become commercial forest over time. Whilst there will be a transition period, the creation of forestry will lead to a drastic alteration of habitats within the MB section and which will substantially reduce habitat quality, with corresponding impacts on associated bird species.

Method of Assessment and Reporting

Method of Assessment

- 9.38. Full details of baseline studies and consultations will be provided within the ES.
- 9.39. Impact assessment presented within the ES for ornithological features will be based on current CIEEM guidance (2018)³².
- 9.40. The assessment process will include the following stages:
- determination and evaluation of important ornithological features;
 - identification and characterisation of impacts;
 - outline of mitigating measures to avoid and reduce significant impacts;
 - assessment of the significance of any residual effects after such measures;
 - identification of appropriate compensation measures to offset significant residual effects; and,
 - identification of opportunities for ornithological enhancement.

²⁷ <http://www.sewbrec.org.uk/>

- 9.41. The approach to assessment will take account of existing guidance and published scientific literature in relation to birds and windfarms, together with professional judgement and experience of wind farm EIA.
- 9.42. The ES will provide a detailed description of the existing baseline ornithological features of the study area, along with the assessment of the potential impacts of the wind farm proposal on the identified important ornithological features
- 9.43. The Ornithology Chapter will be supported by confidential appendices which will not be released to the public domain.

Determining Importance

- 9.44. The assessment within the EIA report will only assess in detail impacts upon important ornithological features i.e., those that are considered important and potentially significantly affected by the Proposed Development. A detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts will not be undertaken and justification for “scoping out” provided.
- 9.45. Relevant national and local legislation policy and guidance will be referred to in order to determine the importance (or ‘sensitivity’) of ornithological features. In addition, importance will also be determined using professional judgement, specialist consultation advice and the results of baseline surveys and the importance of features within the context of the geographical area.
- 9.46. Importance will not necessarily relate solely to the level of legal protection that a feature receives, and ornithological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.
- 9.47. The importance of ornithological features will be defined in a geographical context from “Local” to “International”.

Identification and Characterisation of Impacts

- 9.48. The identification and characterisation of impacts on important ornithological feature will be undertaken in accordance with the CIEEM guidelines with reference made to magnitude (e.g., area or number of individuals to be impacted), extent, duration and reversibility as appropriate.
- 9.49. Impacts will be considered during the construction, operational and decommissioning phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Significant Effects

- 9.50. CIEEM guidelines define a ‘significant effect’ as an effect that either supports or undermines biodiversity conservation objectives for ‘important ornithological features’ or for biodiversity in general (i.e., the feature could be positively or negatively significantly affected).
- 9.51. CIEEM guidelines on ornithological impact assessment note that, “A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ornithological effects can be lawfully permitted following EIA procedures as long as the mitigation hierarchy has been applied effectively as part of the decision-making process.”

- 9.52. Potentially significant effects identified will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ornithological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.
- 9.53. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect will be assumed as a precautionary approach. Where uncertainty exists, this will be acknowledged.

Cumulative Assessment

- 9.54. Cumulative impacts will be assessed with reference to NatureScot guidance (SNH, 2021²⁸ and 2018²⁹) for all ornithological features subject to a detailed assessment. The potential for significant cumulative effects due to habitat loss, disturbance/displacement and collision risk mortality will be assessed. The assessment will be based on the consideration of residual effects i.e., assuming that proposed mitigation and compensation measures (where relevant) are implemented.
- 9.55. The cumulative assessment will include consideration of:
- existing wind farm developments, either built or under construction;
 - approved wind farm developments, awaiting implementation; and,
 - wind farm proposals awaiting determination within the planning process with design information in the public domain.
- 9.56. NatureScot guidance (SNH, 2018¹⁹) does recognise that access to relevant data for other developments may be limited and therefore a meaningful assessment of cumulative effects of such developments is not always possible.

Presentation of Sensitive Information

- 9.57. Sensitive data (e.g., breeding raptor locations) will be included in a confidential appendix to the ES which will not be made publicly available, but will be issued to Planning and Environment Decisions Wales (PEDW).

Approach to Mitigation

- 9.58. The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ornithological features resulting from the Proposed Development will be part of the iterative design process of the Proposed Development.
- 9.59. Full details of the scheme design evolution and embedded mitigation measures in relation to ornithology will be detailed within the ES. This will include the specification of any species-specific working buffers as necessary to ensure legislative compliance following the completion of baseline studies outlined.

²⁸ SNH (2012) *Assessing the cumulative impact of onshore wind energy developments*. Guidance. March 2012.

²⁹ SNH (2018) *Assessing significance of impacts from onshore wind farm outwith designated areas*. Guidance. Version 2 – February 2018

Residual Effects

- 9.60. Where the EIA proposes measures to mitigate potentially significant adverse effects on ornithological features, a further assessment of residual ornithological effects, taking into account any mitigation recommended, will be undertaken.

Compensation

- 9.61. Where significant residual effects still remain, after the adoption of mitigation measures, compensation will be provided. This could include replacement habitat, or habitat improvements which would offset the significant residual effects

Enhancement

- 9.62. The appropriateness and feasibility of enhancement will be discussed with NRW/NPTCBC and relevant consultees over the course of the EIA, with view to prescriptive enhancement measures being detailed post-consent, within a Habitat Management Plan (HMP).

Potential Significant Effects of the Development

- 9.63. Potential adverse impacts upon ornithological features to be assessed within the ES which could arise during the construction, operational and decommissioning phases of the Proposed Development are summarised below.
- 9.64. Impacts will be assessed and informed on the basis of baseline study findings and through consultation with relevant specialist groups as required.

Important Ornithological Features

- 9.65. The identification of important ornithological features for detailed assessment will be undertaken on the basis of baseline study results with reference to NatureScot guidance (SNH 2017²⁰ and SNH 2018¹⁹) and will broadly include:
- species listed on Annex I of the Birds Directive; and,
 - species listed on Schedule 1 of the Wildlife and Countryside Act.
- 9.66. In addition, red-listed Birds of Conservation Concern (BoCC) (Stanbury *et al.*, 2021), will also be identified where the conservation status of such species may reasonably be adversely affected by the Proposed Development.

Construction

- 9.67. During construction of the Proposed Development, in the absence of mitigation, impacts upon ornithological features to be addressed within the ES may arise from:
- habitat loss, fragmentation or change as a result of the delivery and installation of development infrastructure; and,
 - disturbance to and loss of nest sites, eggs and/or dependent young.
- 9.68. Construction activities are predicted to result in a temporary increase in noise, vibration and human presence within construction areas. This has the potential to displace birds from the vicinity of construction areas for the duration of construction works.

- 9.69. There will be no direct impact on ornithological interests of any designated site for nature conservation. The potential for direct disturbance to species associated with nearby designated sites is considered unlikely by virtue of spatial separation from the designations.
- 9.70. Overall construction disturbance would be considered temporary and would occur only when construction activities are taking place. Furthermore, construction would be not expected to take place over the whole Site, but within defined working areas, phased over small areas.

Operation

- 9.71. The operation of turbines and maintenance activities has the potential to cause disturbance and displacement of birds throughout the Proposed Development's operational lifetime. The extent of displacement is however, highly variable between species and species-group and therefore a species-specific assessment will take place on the basis of baseline studies.
- 9.72. The risk of avian mortality resulting from the collision of birds with the turbine blades (or additional wind farm infrastructure) is also acknowledged to be higher for some species due to their biometrics and flight behaviour. The likelihood of collision is also likely to be influenced by the type of habitats within the Proposed Development site and the surrounding area.
- 9.73. There is unlikely to be an impact on ornithological interests of any designated site for nature conservation during the operation of the Proposed Development due to the spatial separation of such designations from the Site.
- 9.74. Where flight activity data requires it Collision Risk Models following the Band Model in accordance with NatureScot guidance (Band et al., 2007³⁰; SNH, 2000³¹) will be undertaken to quantify the likelihood of mortality for target species.

Decommissioning

- 9.75. Potential impacts associated with the decommissioning phase are likely to be similar to those identified for the construction phase.

Effects Scoped Out

- 9.76. The above scope is based on the requirement for EIA to consider likely significant effects of a Proposed Development. Effects that are not likely to be significant do not require assessing under the EIA regulations. CIEEM (2018) guidance³² further allows features to be scoped out if they are not considered to qualify as 'important'.
- 9.77. There will be no direct or indirect impacts upon designated sites for nature conservation with qualifying ornithological interests. Based on the distances from the Proposed Development, and the features for which they are designated, there is considered to be no connectivity and therefore no likely significant effects between the Site and statutory designated sites.

³⁰ Band, W., Madders, M. & Whitfield, D.P. (2007) *Developing field and analytical methods to assess avian collision risk at wind farms*. In: de Lucas, M., Janss, G.F.E. & Ferrer, M. (Eds.) *Birds and Wind Farms: Risk Assessment and Mitigation*, pp 259-275. Quercus, Madrid

³¹ SNH (2000) *Windfarms and Birds - Calculating a theoretical collision risk assuming no avoiding action*. SNH Guidance Note. Available at <http://www.snh.gov.uk/docs/C205425.pdf>

³² CIEEM (2018, updated 2019) *Guidelines for Ecological Impact Assessment in the UK and Ireland*. Terrestrial, Freshwater, Coastal and Marine.

- 9.78. Current NatureScot guidance (SNH, 2017) does not stipulate the requirement for the surveys of moorland or woodland passerines; however, Schedule 1 species will be considered to ensure legislative compliance under the provisions of the Wildlife and Countryside Act 1981 (as amended).

Questions for Consultees

- 9.79. Can the consultees please confirm:
- Question 9.1: Do Consultees agree that the scope of ornithological desk study and field surveys undertaken is sufficient and appropriate to inform an assessment?
 - Question 9.2: Do consultees agree with the approach to additional field surveys and desk study proposed?
 - Question 9.3: Are there any other relevant consultees/key sources who should be contacted with respect to updated baseline ornithological information gathering and assessment?
 - Question 9.4: Can NPTCBC provide bird monitoring data from the Pen y Cymoedd wind farm development so as to further inform the assessment?
 - Question 9.5: Do consultees agree with the proposed assessment of the potential effects as a result of the Proposed Development, including the approach to cumulative assessment?

10. Geology, hydrology & hydrogeology

Introduction

- 10.1. This section considers the scope of work required to assess potential significant effects associated with hydrology and soils during the construction, operational and decommissioning phases of the Proposed Developments. The assessment has been overseen by Martin Baines of SLR Consulting Ltd. Martin is a Technical Director (Hydrology and Hydrogeology) employed by SLR and has more than 20 years' experience assessing renewable energy and electrical infrastructure projects and specifically their potential effects on soils, geology and the water environment. He is based in England and has worked throughout the UK, including sites in Wales in similar settings to the Proposed Development. He has also prepared and given expert witness evidence for wind and electrical infrastructure projects. Martin has been assisted by members of SLRs in-house hydrology, hydrogeology, peat and geology teams.

Legislation and Planning Guidance

- 10.2. Regard will be given to technical guidance and other codes of best practice during the design phase of the development, in order to limit;
- the potential for contamination of ground and surface waters;
 - the potential for flooding to be caused to the existing water environment and surrounding sensitive users; and
 - other potential impacts on the water environment.

- 10.3. The Hydrology and Hydrogeology assessment of impact will therefore be in accordance with the following:

European Legislation

- 10.4. The Water Framework Directive (2000/60/EC) (the WFD) provides the foundation for the protection of the UK's water environment. The WFD seeks to protect all elements of the water cycle and to enhance the quality of groundwater, surface waters, estuaries and coastal waters. The Directive is transposed and implemented within England through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Chapter 7 also makes reference to the WFD in assessment of the offshore water environment.
- 10.5. The Groundwater Directive (2006/118/EC, including amendments to Annex II detailed under Directive 2014/80/EU) (the GWD) is designed to combat groundwater pollution and sets out procedures for assessing quality of groundwater. Aspects of the GWD are transposed and implemented through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, the Environmental Permitting (England and Wales) Regulations 2016 and the Groundwater (England and Wales) Regulations 2009.
- 10.6. The Floods Directive (2007/60/EC) requires assessment of all watercourses and coastlines to determine risk of flooding and action to take adequate and coordinated measures to reduce this flood risk. The Flood Risk Regulations 2009 transpose the EU Floods Directive into law in England and Wales.

National Legislation

- 10.7. The objectives of the directives discussed above that are relevant to this assessment are met through the following UK legislation, relevant to the protection of the water environment:
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 transposes the WFD and aspects of the GWD into UK legislation;
 - The Groundwater (England and Wales) Regulations 2009 implements in England and Wales Article 6 of the GWD which details measures to prevent or limit inputs of pollutants into groundwater;
 - The Environmental Permitting (England and Wales) Regulations 2016 consolidate and replace the Environmental Permitting (England and Wales) Regulations 2010, which have been amended 15 times to date. The 2010 Regulations are still in force and are the main implementing regulations for the environmental permitting regime;
 - The Flood Risk Regulations 2009 transposes the EU Floods Directive into UK legislation and sets out requirements of the Environment Agency (EA), NRW and local authorities in preparing assessments and mapping of flood risk for each river basin district in England and Wales;
 - Flood and Water Management Act 2010 includes provision for the management of risk in connection with flooding and sets out requirements for SABs in preparing strategies for local flood risk management;
 - The Water Resources Act 1991 and amendment (England and Wales) Regulations 2009. The Act regulates water resources, water quality and flood defence. The amended Regulations make changes to the powers for carrying out anti-pollution works and serving notices;
 - The Land Drainage Act 1991 and 1994 sets out requirements for maintenance of watercourses by riparian owners;
 - Environment Act, 1995 sets out roles and responsibilities for NRW; and
 - The Private Water Supplies (Wales) Regulations 2017 transpose requirements of European Law on the quality of water intended for human consumption from private abstractions.

National and Local Planning Policy and Strategy

- 10.8. The following national and local policy and guidance is considered relevant for the Mynydd Fforch Dwm Wind Farm in relation to the water and soils environment:

Planning Policy Wales

- 10.9. In Wales, Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government and includes a framework for ensuring that development is delivered sustainably whilst striving to improve social, economic and cultural wellbeing. Technical Advice Notes (TANs) have been developed to supplement PPW and to provide guidance on a number of key issues and sensitivities. Of relevance to this assessment is TAN 15: Development and Flood Risk, 2004.
- 10.10. It is noted that at the time of reporting consultation is being sought on a revised version of TAN15 which has been released in draft format. This emerging guidance will be taken into consideration as part of the assessment however it is understood that a revised TAN15 would not be released until June 2023, following the planning submission.

Neath Port Talbot County Borough Council Local Development Plan (2011 – 2026)

10.11. Development policies of relevance in terms of the water environment and flooding are listed below.

- Policy M1 – Development in Mineral Safeguarding Areas; and
- Policy RE1 – Criteria for the Assessment of Renewable and Low Carbon Energy Development

Other Relevant Guidance

10.12. Relevant UK guidance on good practice for construction projects that will be referenced during assessment is detailed in the following documents.

- Control of Water Pollution from Construction Sites (C532), Construction Industry Research and Information Association (CIRIA) 2001;
- Environmental Good Practice on Site (C741), CIRIA 2015;
- Control of Water Pollution from Linear Construction Projects: Site Guide (C649), CIRIA 2006;
- Control of Water Pollution from Linear Construction Projects (C648), CIRIA 2006;
- NRW's Guidance for Pollution Protection – Works and maintenance in or near water, version 1.2, February 2018; and
- The Suitable Drainage System (SuDS) Manual (C753), CIRIA 2015.

10.13. The CIRIA guidance provides help on environmental good practice for the control of water pollution arising from construction activities. It focuses on the potential sources of water pollution from within construction sites and the effective methods of preventing its occurrence.

10.14. The NRW guidance is part of a wider suite of guidance for pollution prevention (GPP) relating to environmental good practice. The full suite can be found on the NetRegs website at <https://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>.

10.15. The SuDS Manual incorporates the latest research, industry practice and guidance for design, delivery and maintenance of Sustainable Drainage Systems (SuDS).

Environmental Baseline and Potential Sources of Impact

10.16. Baseline data to inform scoping for Hydrology and Hydrogeology has been taken from publicly available information and opensource data from a range of sources. The data review includes:

- Lle Geo-Portal, Welsh Government and Natural Resources Wales (NRW):
- Flood Zone and Development Advice Map data relating to flood risk;
- Spatial Flood Defence data and mapping;
- Flood Warning and Flood Alert Areas;
- Main Rivers;
- Historic and active landfill sites;
- Water Framework Directive (WFD) surface water and groundwater classification data; and
- Groundwater Source Protection Zones (SPZ).

- British Geological Survey (BGS) GeoIndex mapping:
 - Geology – artificial ground, mining, superficial deposits, bedrock;
 - Borehole data; and
 - Aquifer designation and groundwater vulnerability.
 - Department for Environment, Food and Rural Affairs (DEFRA) MAGIC website:
 - Statutory and non-statutory environmental designations.
 - Cranfield Soil and Agrifood Institute Soilscape map viewer:
 - Soil type and character.
 - Neath Port Talbot Council:
 - Local Flood Risk Management Strategy; and
 - Strategic Flood Consequence Assessment.
- 10.17. Third party data from bodies such as Local Authorities, NRW and DEFRA's MAGIC website has been used to characterise the sensitivity of water features and identify any water dependent designated areas.
- 10.18. The wind farm site lies approximately 5km north east of Neath in South Wales and consists of two areas of site, one on the boundary of Tonmawr to the north east (Mynydd Blaenafon; MB) and the other on the opposite side of the Nant Blaenpelenna water course further to the north east (Mynydd Fforch-dwm; MFD). Elevations within the MFD design area range from at or slightly below 200m above Ordnance Datum (aOD) along the Nant Blaenpelenna watercourse in the west and north of the site to 350m aOD in the south east of the site. Within the site a small ridge extends south west to north east (Mynydd Fforch-dwm), which lies between the watercourses of Nant Blaenpelenna to the north and Cwm y Pant towards the south of the site. To the north, Pelenna Forest rises to above 290m aOD. Elevations within the MB design area range from at or below 200m aOD along the Afon Pelenna water course to the west and the south of the site. To the north east towards the location of the wind turbines, the elevation rises to above 300m aOD within the site boundary.
- 10.19. The grid connection corridor identified to the south west of the wind farm site, initially follows a course to the north of the Afon Pelenna. Ground elevations along the corridor route gradually fall from the wind farm site to the potential substation connection at Baglan.
- 10.20. The MFD and MB design areas lie within the Tawe to Cadoxton Water Framework Directive (WFD) management catchment, specifically within its Pelenna (headwaters to confluence with Afan) sub-catchment of which the Nant Blaenpelenna and Nant Fforch-dwm are headwaters. It is noted that no statutory designated sites lie within this area or within 1km thereof, and that no nitrate vulnerable zones are located within the entire Tawe to Cadoxton catchment.
- 10.21. This part of the site is underlain by three sedimentary bedrock units of sandstone:
- Hughes Member – Sandstone, the predominant bedrock unit within the site;
 - Brithdir Member – Sandstone, confined to lower elevations along the Nant Blaenpelenna and Nant Fforch-dwm watercourse valleys (MFD), and along the Afon Pelenna watercourse valleys (MB); and
 - Hughes Member – Mudstone, siltstone and sandstone, generally between the Hughes Member – Sandstone and Brithdir Member – Sandstone units, and also in the north west and south east corners of both areas of the site.
- 10.22. The grid corridor route is largely underlain by the same Sandstone bedrock formations to the south west of the wind farm site.

- 10.23. Superficial geology records include areas of peat along the Mynydd Fforch-dwm ridge, the south east extent of the MFD design area and two areas that extend within the site at Pelenna Forest to the north. No peat is identified at the MB design area, except in the north extent. At the confluence of the Nant Blaenpelenna and Nant y' Cywion watercourses and along the Cwm Gwenffrwd to the west of Tonmawr, a discrete unit of glaciofluvial deposits including Devensian sand and gravels exist. Immediately to the south west of the glaciofluvial deposits and along the Nant Blaenpelenna watercourse, the BGS have recorded landslide deposits approximately 140m in diameter at its widest. In the south west corner of the MFD design area along the Nant Fforch-dwm watercourse, and in the south west corner of the MB design area along the Afon Pelenna watercourse and along the Cwm Gwenffrwd to the west of Tonmawr, glacial till has been recorded. In the south west of the MB design area between the glaciofluvial deposits and the glacial till, is a section of alluvium – clay, silt, sand and gravel. On the north edge of the till deposits on the southern boundary of the MB design area, the BGS have recorded two landslide deposits approximately 130-170m in width at the widest.
- 10.24. Superficial deposits along the proposed cable corridor are limited to lower elevations within valley features and generally comprise Till, Glaciofluvial or Head deposits.
- 10.25. There are historic mining features within the area and coal seams which have been recorded and inferred by the BGS within the site, fringing the Nant Blaenpelenna watercourse channel and extending around the Mynydd Fforch-dwm ridge towards the Nant Fforch-dwm watercourse, and through the MB design area around the Afon Pelenna and Gwenffrwd watercourse, as well as around the south western and southern boundary of the MB design area. An inferred fault is indicated to extend from the Nant Fforch-dwm watercourse, north east towards the Mynydd Fforch-dwm ridge. An assessment of mining risk will be included as part of the geological assessment.
- 10.26. Soils along the watercourse corridors are recorded as freely draining acid loamy soils over rock. Very acid loamy upland soils with a wet peaty surface are recorded over much of the Mynydd Fforch-dwm ridgeline, extending southwards. A separate unit of very acid loamy upland soils within the north of the site is associated with higher elevations, which drop into the MB design area covering the eastern side of this site associated with higher elevations. Much of the west of the MFD design area and north west of the MB design area is recorded as slowly permeable wet very acid upland soils with a peaty surface.
- 10.27. The BGS identify the bedrock beneath both design areas as Secondary A aquifers, described as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The glacial till superficial geology along the Nant Fforch-dwm watercourse and in the south west corner of the MB design area along the Afon Pelenna watercourse and along the Cwm Gwenffrwd to the west of Tonmawr has been identified as Secondary (undifferentiated) aquifer, described as being assigned in cases where it has not been possible to attribute either category A or B aquifer to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type. The discrete unit of glaciofluvial deposits at the confluence of the Nant Blaenpelenna and Nant y' Cywion and along the Cwm Gwenffrwd to the west of Tonmawr has been classified as a Secondary A aquifer while the areas of peat are recorded as unproductive aquifers.
- 10.28. The BGS have classified both the bedrock and superficial aquifers within the site with high to medium vulnerability, described as areas that can easily transmit pollution to groundwater (high) and aquifers that offer some groundwater protection (medium).

- 10.29. NRW identify the site to lie within the Swansea Carboniferous Coal Measures groundwater body. NRW classified the Swansea Carboniferous Coal Measures groundwater body in 2015 with an overall status of Poor and a quantitative status of Good.
- 10.30. As confirmed at Figure 7 a NVC survey has been undertaken of the site. This data will be used to screen for the potential presence of Groundwater Dependent Terrestrial Ecosystems (GWDTEs). Assuming that the majority of the site is defined as being at low risk and any GWDTE noted to be on site can be avoided, it is proposed to address reporting of GWDTE within the ES chapter under a separate subsection.
- 10.31. NRW have classified the Pelenna (headwaters to confluence with Afan) catchment in 2018 with an overall status of Poor, attributed to ecological parameters, whilst water quality parameters have been classified as Good.
- 10.32. The Afan Valley Angling Club manage fishing within the catchment, downstream of the site, between Port Talbot to Cymmer where stocks of Brown Trout, Sea Trout and Salmon are introduced to watercourses.
- 10.33. A small number of isolated properties are noted to the south west of the MFD design area and a selection along Fforch-Dwm Road on the southern end of the MB design area, and up north through Tonmawr which are potentially reliant on private water supply (PWS) sources. A data request will be issued to Neath Port Talbot Council to determine the presence of any registered water abstractions for private use within or around the Proposed Development boundaries. Data from this request would be initially reviewed in order to inform a desk-based risk screening of each potential PWS source based on the council registered data and a desktop catchment analysis.
- 10.34. The screening assessment would determine which properties are using a PWS that have the potential to be influenced by development of Mynydd Fforch Dwm Wind Farm and Mynydd Blaenafon Wind Farm. It is proposed that if required, a house visit would be carried out for the identified properties to determine further detail regarding the type of PWS and the exact location of the source.
- 10.35. The site does not lie upgradient of any surface water or groundwater public water supply abstractions and no licenced abstractions are registered within 1 km of the Applications Boundary. Several licenced abstractions lie downstream within the catchments linked to the site:
- Licence number 21/58/61/0039 – groundwater impoundment 4.5 km south west of site;
 - Licence number WA/058/0061/007 – surface water impoundment 9.7 km south west of site; and
 - Licence number 21/58/61/0009 – surface water abstraction 9.8 km south west of site.
- 10.36. A separate Flood Consequence Assessment (FCA) report would be prepared as an appendix to the ES chapter. A review of flood risk defined by NRW mapping indicates that the site boundary is within zone A as per the Development Advice Maps accompanying TAN15 apart from the immediate corridor of Nant Blaenpelenna, an upstream tributary of Afon Pelenna, which is defined as Zone C. The Zone C coverage generally matches Flood Zone 3, indicating a potential fluvial risk of flooding along the river corridor during a 1 in 100 chance fluvial event. Apart from this risk along the immediate river corridor, no other flood risk issues are noted. Our proposed work would be to liaise with NRW initially to confirm methodology for undertaking the FCA before preparing a standalone report. The report would consider comments raised by stakeholders and would also seek to include detail regarding the use of Sustainable Drainage (SUDS) techniques.

Consultation

10.37. Consultation and data requests will be conducted with the following bodies:

- Neath Port Talbot Council;
- NRW; and
- Welsh Water.

Method of Assessment and Reporting

10.38. The assessment of effects will be based on a Proposed Development description as currently outlined in Chapter 3: Project Description and will include:

- construction effects of the Proposed Development;
- operational effects of the Proposed Development;
- decommissioning effects of the Proposed Development; and
- cumulative effects of the Proposed Development and other proposed windfarms in the study area (no other types of development were identified as relevant to the assessment when screening for cumulative effects).

10.39. The potential effects from the Proposed Development on ground conditions and the water environment will be assessed by completing a desk study and field investigation followed by an impact assessment, the processes of which are detailed as follows.

Desk Study

10.40. An initial desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to soils, geology, hydrology, and hydrogeology such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include review of published geological maps, Ordnance Survey maps, aerial photographs and site-specific data such as site investigation data, geological and hydrogeological reports, digital terrain models (slope plans) and geological literature.

10.41. The desk study will identify sensitive features which may potentially be affected by the Proposed Development and will confirm the geological, hydrogeological and hydrological environment.

Field Surveys

10.42. The hydrological assessment specialists will liaise closely with the project ecology and geology / geotechnical specialists to ensure that appropriate information is gathered to allow a comprehensive impact assessment to be completed.

10.43. A detailed site visit and walkover survey will be undertaken to:

- verify the information collected during the desk and baseline study;
- undertake a visual assessment of the main surface waters and identify private water supplies in proximity to the wind farm sites;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;

- visit any identified potential GWDTEs (in consultation with the project ecologists);
- prepare a schedule of potential watercourse crossings; and
- inspect rock exposures, establish by probing an estimate overburden thicknesses (a probe is pushed vertically into the ground to refusal and the depth is recorded).
- The desk study and field surveys will be used to identify potential development constraints and be used as part of the site design.

10.44. Peat probing to be completed:

- peat depths within the design areas and the limited extent of new main access track will be obtained using a 100m grid where access is possible (the probing will also provide information of the substrate below the peat);
- a limited (in terms of aerial extent) geomorphological mapping exercise will be undertaken to link the topographic features with the underlying geology and to visit those areas of the site that may be identified as potentially 'at risk from peat slide';
- the thickness of the peat will be established by probing and the underlying sub-strata confirmed by inspection of watercourses;
- the investigation will look at turbine locations, access routes and borrow pits for signs of existing or potential peat instability; and
- output from the field survey will comprise a record of investigation locations and summary of peat depths recorded.

10.45. Once the desk and field surveys are completed and sensitive soil, geological and water features identified, an impact assessment will be undertaken to assess the potential effects on soils, geology and the water environment as a result of the construction and operation of the Proposed Developments.

Assessment of Effects

10.46. The purpose of this assessment will be to:

- identify any areas susceptible to peat slide, using peat thickness and terrain data to analyse slopes;
- assist in the micro-siting of turbines and tracks in areas of no peat or shallow peat;
- assess potential effects on soils, peat and geology;
- determine what the likely effects of the Proposed Development are on the hydrological regime, including water quality, flow and drainage;
- allow an assessment of potential effects on identified licensed abstractions or PWS;
- assess potential effects on water (including groundwater) dependent habitats;
- determine suitable mitigation measures to prevent significant hydrological and hydrogeological effects;
- assist in the micro-siting of turbines in the least hydrogeologically and hydrologically sensitive areas by applying buffer zones around watercourses and other hydrological features;
- develop an acceptable code for working on the site that will adopt best practice procedures, effective management and control of onsite activities to reduce or offset any detrimental effects on the

geological, hydrogeological and hydrological environment; and

- minimise carbon emissions from peat disturbance so as to confirm an acceptable carbon balance assessment.

- 10.47. There are no published guidelines or criteria for assessing and evaluating effects on hydrology or hydrogeology within the context of an EIA. The proposed assessment will therefore be based on the assessment methodology outlined in Chapter 4 and guidance provided by the Institute of Environmental Management and Assessment. The methodology sets out a list of criteria for evaluating the environmental effects.
- 10.48. Professional judgement and a qualitative risk assessment methodology will be used to assess the findings in relation to each of these criteria to give an assessment of significance for each potential impact.
- 10.49. Once the impact significance and likelihood of occurrence have been assessed these will then be combined to determine the likelihood of each potential effect occurring. Effects assessed as minor negative or less would be considered not significant in terms of the EIA regulations. If the assessment results in moderate or major negative effects, then this effect would be considered to be significant.
- 10.50. This approach provides a mechanism for identifying the areas where site specific mitigation measures will be required and for identifying mitigation measures appropriate to the risk presented by the development proposals. This approach also allows effort to be focused on reducing risk where the greatest benefit may result.
- 10.51. A review of other existing and planned developments near the Proposed Development will be undertaken and potential impacts on hydrology, hydrogeology and geology will be assessed to identify cumulative impacts.

Peat Management Plan & Peat Landslide Hazard and Risk Assessment

- 10.52. If initial studies determine that further investigation of peat resources on the site is required, this may include additional reporting. If necessary, a draft Peat Management Plan would be prepared as a supporting Technical Appendix to the ES chapter. This appendix would be guided by the Waste Framework Directive (WFD) 2008/98/EC, which sets out a requirement to apply a waste hierarchy. In terms of this project, this hierarchy should be considered as follows:
- prevent excavation;
 - reduce volumes of peat excavated; and
 - reuse excavated peat in a manner to which it is suited.

Carbon Balance Assessment

- 10.53. The objective of reporting will be to assess and produce a statement of expected carbon savings over the lifetime of the wind farm. In order to achieve this, it is proposed that the following sources of information would be consulted as part of the study:
- The final development proposals for the wind farm including number of proposed turbine locations and all associated infrastructure, including length of new roads;
 - Geological information would be obtained from the published geological maps; and
 - Topographical information combined with soil survey and drift geology information would be used to determine ground conditions.

- 10.54. A carbon assessment would be undertaken for the Proposed Development in accordance with Scottish Government recommended methodology 'Calculating Carbon Savings from Wind Farms on Scottish Peatlands – A New Approach' (Nayak et. al., 2010). This methodology has been developed specifically for calculating carbon savings from wind farms on Scottish peat lands. Assessment is undertaken using the Scottish Government Windfarm Carbon Assessment Tool - Version 2.9.1. and v1.5.1. (Online version).

Approach to Mitigation

- 10.55. The Proposed Development has undergone design iterations and evolution in response to the constraints identified as part of the baseline studies and field studies so as to avoid and/or minimise potential effects on receptors where possible. This has included geological, hydrological and hydrogeological constraints which include slope stability, watercourse locations, areas of potential flooding, water users and sensitive habitat.

Potential Significant Effects of the Development Potential Sources of Impact

- 10.56. Without mitigation, impacts on soils, geology, hydrology and hydrogeology could occur during the life of the development. A summary of the potential effects on ground conditions and the water environment resulting from development of a wind farm is provided below. These will be considered in the ES Report.

Potential Impacts During Construction

- 10.57. Without mitigation, the following potential significant effects could arise:
- disturbance and loss of deposits of peat;
 - disturbance of any residual ground contamination which might be associated with historic land use (such as mining or forestry);
 - ground instability (inc. peat slide risk);
 - impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
 - discharge of sediment-laden runoff to drainage systems and watercourses;
 - increased flood risk to areas downstream of the site through increased surface runoff;
 - changes in groundwater levels from dewatering excavations;
 - potential change of groundwater flow paths and contribution to areas of peat and GWDTEs;
 - disturbance of watercourse bed and banks from the construction of watercourse crossings;
 - potential pollution impacts to private water supplies; and
 - potential blockage of existing forestry drainage channels or culverts during forestry clearance or construction activities.
- 10.58. Installation of the cable from the wind farm site to a network substation will involve a combination of buried cable sections and overhead line. Potential effects on ground conditions and the water environment would be similar to those on the wind farm site albeit with more limited excavation activity.

Potential Impacts During Operation:

- increased runoff rates and flood risks, resulting from increases in areas of tracks and hardstanding at turbines;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement;
- longer term impacts on abstraction for water supplies, particularly any supplies dependent on groundwater; and
- pollution impacts on surface water quality from maintenance work.

10.59. Once installed, there will be no effect on ground conditions or the water environment from the electricity cables.

Potential Impacts During Decommissioning:

10.60. The decommissioning phase will involve the removal of above ground wind farm infrastructure and may include the reinstatement of access tracks. Potential effects from these activities will be similar to the construction phase due to the presence of heavy machinery on site, however there will only be limited, if any, excavation or earthwork activity which will limit the potential for impact.

Effects Scoped Out

10.61. At this stage, it is proposed that the following are scoped out:

- Detailed Flood Risk Assessment: Published mapping confirms that most of the site is not located in an area identified as being at flood risk. It is proposed, therefore, that a simple screening of potential flooding sources (fluvial, coastal, groundwater, infrastructure etc.) is presented in the form of an FCA appendix to the ES chapter and measures that would be used to control the rate and quality of runoff will be specified within this report.
- Water Quality Monitoring: Classification data is available from NRW for the watercourse catchment at site and, other than forestry, there are no known sources of potential water pollution at site that might give rise to the need for water quality monitoring.

Questions for Consultees

10.62. Can the consultees confirm?

- Question 10.1: Do you agree that the data sources identified (Section 10.16) are sufficient to inform the hydrology, hydrogeology and geology baseline for the Mynydd Fforch Dwm Wind Farm ES?
- Question 10.2: Have all potential impacts resulting from Mynydd Fforch Dwm Wind Farm been identified for water environment and geological receptors?
- Question 10.3: Do you agree that the impacts described in Section 10.61 can be scoped out?
- Question 10.4: For those impacts scoped in (Section 10.56 to 10.60), do you agree that the methods described are sufficient to inform a robust impact assessment?

11. Archaeology & Cultural Heritage

Introduction

- 11.1. This chapter considers the scope of work required to assess potential significant effects associated with the historic environment during the construction, operational and decommissioning phases of the Proposed Development. It has been completed by Charlotte Dawson MCIfA. Charlotte is a full member of the Institute for Archaeologists and has over 15 years' experience in Archaeology and Heritage Consultancy.

Legislation and Planning Policy

- 11.2. The following list includes key statutory, policy and national guidance that have relevance to this assessment:
- The Historic Environment (Wales) Act 2016 is the primary statutory tool for protecting historic assets and sustainable management of the historic environment. It is designed to enable greater transparency into decisions taken on the historic environment and to make it a statutory requirement for information on the historic environment to be safe-guarded for the public good.
 - National policy within Wales is set out in by Planning Policy Wales Edition 11, February 2021, which Section 5.7-5.9 states the importance of Renewable Energy, and explains the need for a reasonable and proportionate impact assessment to ensure Proposed Development is sustainable and to prevent unnecessary harm to historic assets.
 - PPW is supported by Technical Advice Note 24: The Historic Environment (May 2017) which is designed to assist local authorities with developing their local plans and for determination of planning applications or listed building consent in relation to historic assets.

Other Relevant Guidance

- 11.3. The two principal guidance documents that will be followed in this assessment are those produced by Cadw on behalf of the Welsh Government for managing historic assets: *Heritage Impact Assessment in Wales* (May 2017) and the *Setting of Historic Assets in Wales* (2017).
- 11.4. Cadw's *Conservation Principles for the sustainable management of the historic environment in Wales* (March 2011) will also be used to establish objective assessment of the value and significance of historic assets within and surrounding the Proposed Development site.

Environmental Baseline and Potential Sources of Impact

Location and topography

- 11.5. The Site is located at the South Western end of the operational Pen Y Cymoedd windfarm adjacent to the also operational Ffynnon Oer windfarm (Grid Reference: E:2282322, N:197842 and nearest post code SA12 9SS). It consists largely of pasture surrounded by commercial forestry. Elevations within the Site and grid connection corridor range from 300m aOD to 200m aOD, the lower elevations within the Site being along the watercourses which sit in the localised valleys adjacent to the Site. These include Nant Fforch Dwm and Nant Blaenpelenna which are present to the southern and north-western boundaries of the eastern-most land parcel and Cwm Blaenpelenna which is present to the west of the western-most land parcel. These drain to the Afon Pelenna which extends to the south of a section of the proposed access.

Sources

- 11.6. Baseline data on designated historic assets to inform scoping for the Historic Environment has been taken from the following sources.
- Cadw national data download for statutory designations:
 - World Heritage Sites;
 - Scheduled monuments;
 - Listed buildings; and
 - Registered Historic Landscapes.
 - The Inventory of Historic Battlefields website
 - Archwilio website:
 - Registered Parks and Gardens; and
 - Conservation Areas.
 - The Glamorgan Gwent Archaeological Trust (GGAT) Historic Environment Record (HER) consulted for non-designated historic assets.

Identified Assets

- 11.7. There are 10 scheduled monuments (SM), two Listed Buildings (LB), and approximately 238 non designated historic assets recorded on the GGAT HER within an inner study area of 2km. These include the following assets within or on the boundary of the Site:
- Scheduled Monument and Grade II Listed Building within the boundary of the Site Cwm Pelenna Colliery Ventilation Furnace (references GM458 & 22888);
 - Non designated asset - GGAT07100w – post medieval house;
 - Non designated asset - GGAT00695w – probable location incised stone (medieval);
 - Non designated asset - GGAT00862w – post medieval house;
 - Non designated asset - GGAT06756w – post medieval sheep crawl;
 - Non designated asset - GGAT00693w – earthwork platform (medieval);
 - Non designated asset - GGAT00694w – medieval long hut;
 - Non designated asset - GGAT08252w – post medieval field boundary;
 - Non designated asset - GGAT5990w – sunken green lane associated with deserted settlement;
 - Non designated asset - GGAT05991w – remains of a medieval building;
 - Non designated asset - GGAT02708w – post medieval long house;
 - Non designated asset - GGAT05992w – post medieval enclosure;
 - Non designated asset - GGAT02435.0w – post medieval railway;
 - Non designated asset - GGAT03859w – post medieval colliery;
 - Non designated asset - GGAT07283w – modern coal level;
 - Non designated asset - GGAT02110w – post medieval workers cottage.

- 11.8. Within an outer study area of 5km there are a further 19 SMs, 147 LBs, one Conservation Areas (CA), one Registered Park and Garden and one Historic Landscape (Margam Mountain)). The Listed Buildings within the 5km search area comprise ten Grade II* Listed Buildings and 139 Grade II Listed Buildings.

Potential Impacts

- 11.9. Dependent upon any consolidation proposals for the proposed access track where it passes the Scheduled Monument/Grade II Listed Building present within the Site, direct impact may need to be assessed in respect to the Cwm Pelenna Colliery ventilation furnace (GM458/22888). Other direct impacts would be considered in respect to potential buried remains recorded with the GGAT HER within the boundary of the Site. The recorded assets in the site could attest to medieval occupation and medieval/post medieval agricultural activity or industrial activity. Other unknown buried archaeological remains cannot be ruled out.
- 11.10. It is anticipated that the assets to be assessed for indirect impact would include the following which are shown on Figure 9:
- Scheduled Monument and Grade II Listed Building within the boundary of the Site Cwm Pelenna Colliery Ventilation Furnace (references GM458 & 22888);
 - Scheduled Monument Cefn Mawr Cairn (reference GM581) 800m north-east;
 - 2x Scheduled Monuments Melin Court Brook prehistoric & Roman camps (references GM366 and 367) 1.5km north-east;
 - Scheduled Monument three round cairns on Carn Caca (reference GM385) 2km north;
 - 2 x Scheduled Monuments Blaen Cwmbach prehistoric and Roman earthworks (references GM258 and 277) 1.1km north;
 - Scheduled Monument Pen Rhiw Angharad round cairns (reference GM276). 1.5k north;
 - Scheduled Monument Cefn Morfydd Dyke and earthworks (reference GM264). 1.2km north-west;
 - Scheduled Monument Mynddy gaer (reference GM055) 4km south-west;
 - Scheduled Monument Buarth y Gaer (reference GM054) 4.4km south-west;
 - Scheduled Monument Pen-y-Castell (reference GM098) 5km south;
 - Grade II* Registered Park and Garden (reference GM50) 2km west (not shown on drawing);
 - Grade II* Church of St Catwgwg (reference 11767) 4.6km west;
 - Grade II* Melincwrt Independent Chapel (reference 23083) 3km north;
 - Grade II Scotch Fald (reference 11857) 150m north; and
 - Grade II Ivy Tower (reference 11768) 2.6km west.

Method of Assessment and Reporting

Assessment methodology overview

- 11.11. Baseline assessment, including a review of CADW and GGAT datasets and the consolidation of information gathered from the local record office, would be undertaken in accordance with relevant guidance provided by the Institute for Archaeologists (IFA) and CADW:
- IFA Standard and Guidance for Historic Environment Desk Based Assessment (2020);
 - CADW Setting of Historic Assets in Wales (2017);
 - CADW Conservation Principles (2011);
 - CADW Heritage Impact Assessment in Wales (2017).
- 11.12. The Archaeology and Cultural Heritage Chapter of the ES would be supported by technical appendices prepared in accordance with guidance referenced above. The technical appendices would include an Archaeological Desk Based Assessment (DBA) prepared to assess the potential direct impact to the buried archaeological resource. Supporting archaeological information would also be provided through reports referencing the results of evaluation fieldwork should this be undertaken prior to the completion of the assessment. A further technical appendix would comprise a Heritage Statement prepared specifically with regard to potential in-direct effects as a consequence of changes within the setting of designated heritage assets.
- 11.13. The direct impact assessment would assess non designated historic assets as well as designated ones within the Site and use data for up to 2km around the Site boundary to estimate the potential for previously unknown archaeological remains to be found on site. A site walkover would be conducted to identify any unknown archaeological remains within the vicinity of the proposed turbines and other infrastructure.
- 11.14. A further site visit would be conducted to designated historic assets in the surrounding area that need assessment due to the potential indirect (visual) impact. The indirect assessment will examine designated historic assets (Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Conservation Areas) which lie within a 5 km study area of the turbines. Beyond this distance the likelihood that any significant effects would result from visibility of the turbines is considered very low, unless there is a specific long distance view towards them as part of a designed landscape or through a functional relationship such as a hillfort which required overview of the landscape. Consultees are urged to reference any such assets within their consultation responses.
- 11.15. The LVIA Consultant would be engaged with to consider the potential necessity for photo views/photomontages as appropriate. Consultees are urged to include any requirements within their consultation responses.
- 11.16. With further reference to potential in-direct change, the detailed guidance issued by Cadw, including the *Setting of Historic Assets in Wales* (May 2017) and *Heritage Impact Assessment in Wales* (May 2017) promote a staged approach to assessing assets, their historic significance and the potential impacts from development. The guidance is sufficiently detailed for a clear distinction to be made between the aims of the assessment, which is to establish heritage significance, how setting contributes to that heritage significance, and how this might be altered by a development, on the understanding that change is not necessarily harmful.

- 11.17. A staged approach would be applied as part of the EIA for cultural heritage, utilising in the first instance a ZTV. The ZTV would be used to filter out assets which would not experience intervisibility with the turbines, supplemented by a field visit for those designated assets that have the potential to be affected. The ZTV would use the hubs and full rotor blade length as the criteria for this ZTV filtering exercise, as blade-tip ZTVs can be very misleading once vegetation and structures are introduced which effectively screen out the theoretical, bare earth modelled, visual change.

Assessment of Effects (Impact Prediction)

- 11.18. The significance of direct and indirect effects would be predicted through due consideration of the importance/significance of a receptor (be that buried archaeological remains or built heritage) and the magnitude of change which the proposals may cause.
- 11.19. Relevant national legislation, policy and guidance will be referred to in order to determine the importance (or 'sensitivity') of archaeology and heritage receptors. In addition, importance will also be determined using professional judgement.

Cumulative impact

- 11.20. Various definitions of cumulative impacts (also referred to as effects) exist. For example, *Planarch 2 Review of Cultural Heritage Coverage in Environmental Impact Assessments*, (Lambrick, G. and Hind, G. (Oxford Archaeology. P.121) defines cumulative effects as follows:

'effects which arise or are increased as a result of a number of developments occurring in an area over a period of time'.

- 11.21. In this assessment the following approach is adopted: having first assessed the effects of the current application alone, cumulative effects are addressed in two stages:

A) Assess the combined effect of the developments including the current application;

B) Assess the degree to which the current application adds to the combined effects of the other developments.

Consultation

- 11.22. It is envisaged that consultation would be necessary with Cadw, Glamorgan Gwent Archaeological Trust, and Neath Port Talbot's Conservation Officer to agree methodology and potential representative viewpoints for significant assets that the consultees would wish to ensure have been individually assessed.

Design input

- 11.23. Initial feedback to the turbine array and ancillary works would be via constraint mapping and by a comparison of potential direct or severe indirect impacts on historic assets. Alternative siting or micro-siting of turbines, access road, borrow pits, grid connection and related items would be part of an iterative design process to help avoid or minimise potential effects on historic assets. Particular consideration of the access road in the vicinity of the Scheduled Monument/Grade II Listed Building would be undertaken at this point with due regard to the nature of the extant track, any proposed consolidation and the consultee responses from CADW and the Conservation Officer.

Consultation

- 11.24. It is envisaged that consultation would be necessary with Cadw, Glamorgan Gwent Archaeological Trust, and Neath Port Talbot's Conservation Officer to agree methodology and potential representative viewpoints for significant assets that the consultees would wish to ensure have been individually assessed.

Grid Connection

- 11.25. The approach to grid connection will be determined at a later date. The approach to baseline assessment would be adapted dependent upon the engineering solution with baseline search areas assessing archaeological potential reduced to a 50-250m buffer of any cable route and walkovers targeted according to archaeological potential and potential impact. The methodology for impact prediction would be as set out above.

Potential Significant Effects of the Development

- 11.26. Potential effects on cultural heritage associated with the construction and/or operation of the Proposed Development includes direct physical change to potential buried remains, and indirect effects through development within the settings of designated historic assets harming heritage significance, including those resulting from intervisibility between an asset and the Proposed Development.

Direct

- 11.27. Direct impacts are defined as those which cause a physical change to an historic asset. This could be through groundworks for turbine bases, borrow pits, sub-stations, access tracks, underground cables or ancillary structures. At the scoping stage potential impact to buried archaeological remains cannot be ruled out. Particular note is provided here in respect to the Scheduled Monument/Grade II Listed Building which is located within the boundary of the Site: Scheduled Monument and Grade II Listed Building within the boundary of the Site Cwm Pelenna Colliery Ventilation Furnace (references GM458 & 22888).

Indirect

- 11.28. Indirect impacts are those which cause change through development within the setting of a designated historic asset such as visibility, noise, vibration, hydrological change or air quality, any or all of which could have an effect on the heritage significance of the asset and how it is appreciated and experienced in its landscape surroundings. At the scoping stage potential significance effects to designated historic assets within 5km of the proposed turbines cannot be ruled out, with assets potentially sensitive to change including the following assets:

- Scheduled Monument and Grade II Listed Building within the boundary of the Site Cwm Pelenna Colliery Ventilation Furnace (references GM458 & 22888);
- Scheduled Monument Cefn Mawr Cairn (reference GM581) 800m north-east;
- 2x Scheduled Monuments Melin Court Brook prehistoric & Roman camps (references GM366 and 367) 1.5km north-east;
- Scheduled Monument three round cairns on Carn Caca (reference GM385) 2km north;
- 2 x Scheduled Monuments Blaen Cwmbach prehistoric and Roman earthworks (references GM258 and 277) 1.1km north;
- Scheduled Monument Pen Rhiw Angharad round cairns (reference GM276). 1.5k north;
- Scheduled Monument Cefn Morfydd Dyke and earthworks (reference GM264). 1.2km north-west;
- Scheduled Monument Mynddy gaer (reference GM055) 4km south-west;
- Scheduled Monument Buarth y Gaer (reference GM054) 4.4km south-west;
- Scheduled Monument Pen-y-Castell (reference GM098) 5km south;

- Grade II* Registered Park and Garden (reference GM50) 2km west (not shown on drawing);
- Grade II* Church of St Catwg (reference 11767) 4.6km west;
- Grade II* Melincwrt Independent Chapel (reference 23083) 3km north;
- Grade II Scotch Fold (reference 11857) 150m north; and
- Grade II Ivy Tower (reference 11768) 2.6km west.

Duration

- 11.29. The activities that might cause impacts will be considered in terms of their longevity, as temporary or permanent, during Construction, Operation and decommissioning.

Matters Scoped Out

- 11.30. At this stage, it is proposed that the following can be scoped out of detailed assessment:
- Impact to non-designated historic assets outside the Site boundary (apart from their contribution to predictive modelling for unknown remains within it);
 - Assessment of indirect impact to designated historic assets that fall outside the hub and rotor blade ZTV and/or a 5km search area; and
 - ASIDOHL assessment of Margam Mountain

Approach to Mitigation

- 11.31. Mitigation measures would be formulated in accordance with the findings of the baseline and the prediction of effects. In respect to the archaeological resource mitigation could comprise pre-commencement works which, if required, would need to be agreed in advance with GGAT and/or CADW. Archaeological mitigation may also comprise a watching brief during construction, again in agreement with GGAT and/or CADW as appropriate.

Questions for Consultees

- 11.32. Can the consultees confirm?:
- Question 11.1 Do you agree that the data sources identified are sufficient to inform the archaeology and heritage baseline?
 - Question 11.2 Do you agree with the search areas identified?
 - Question 11.3 Do you agree that the 'matters scoped out' can be scoped out?
 - Question 11.4 Do you agree that the methods described are sufficient to inform a robust impact assessment?
 - Question 11.5 Do you have any specific requirements for the archaeology and heritage methodology in excess of those described?
 - Question 11.6 Do you have any specific comments regarding the use of the access track currently present at Cwm Pelenna Colliery Ventilation Furnace?
 - Question 11.7 Do you have any specific requirements regarding photoviews/photomontages?

- Question 11.8 Are there any designated historic assets beyond the 5km search area which should be considered as part of the assessment?

12. Transport & Access

Introduction

- 12.1. This chapter considers the scope of work required to assess potential significant effects associated with the transport of materials and staff during the construction phase of the Proposed Development. It has been completed by Gordon Buchan B.Eng (Hons), MSc, FCIHT, CMILT, divisional director for Pell Frischmann who has experience in over 500 wind farm projects across the UK, Ireland and northern Europe.

Environmental Baseline and Potential Sources of Impact

- 12.2. The Proposed Development will be accessed directly from Fforch-dwm Road, with a new link providing access to the western development area on Mynydd Blaenafon. The eastern section of the site will be accessed from Fforch-Dwm Road following the existing farm access road. The two accesses would be used for all deliveries to the site
- 12.3. Access for Abnormal Indivisible Loads (AIL) will be taken from Swansea Docks to the two access junctions. The route selected has been considered in detail and initial consultations undertaken with local roads officers. The proposed route will be via the A483, M4, A465, A474, B4434, B4287, Ton Mawr Road and Fforch-Dwm Road. The use of specialist blade lifting trailers will be necessary to negotiate the constraints located within Neath, Cimla, Efail-fach and Tonmawr.

Method of Assessment and Reporting

- 12.4. A Transport Assessment (TA) will be provided to review the impact of transport related matters associated with the Proposed Development. This will be appended to the Environmental Statement (ES) and will be summarised into a Transport and Access Chapter within the ES.
- 12.5. The following policy and guidance documents will be used to inform the Transport & Access Chapter:
- Planning Policy Wales, Edition 11 February 2021;
 - Wales Transport Strategy;
 - Wales National Transport Plan;
 - Technical Advice Note (TAN) 18: Transport;
 - The Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (IEA), 1993);
 - South East Wales Valleys Local Transport Plan, Rhondda Cynon Taf County Borough Council; and
 - Joint Local Transport Plan, Neath Port Talbot County Borough Council.
- 12.6. The Guidelines for the Environmental Assessment of Road Traffic (IEMA 1993) sets out a methodology for assessing potentially significant environmental effects. In accordance with this guidance, the scope of assessment will focus on:
- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
 - Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.

- 12.7. The main transport impacts will be associated with the movement of general HGV traffic travelling to and from the site during the construction phase of the development.
- 12.8. Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to site. The components will be delivered on extendable trailers which will then be retracted to the size of a standard HGV for the return journey.
- 12.9. Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry through to the site access junction to demonstrate that the turbine components can be delivered to site and to identify any temporary road works which may be necessary.
- 12.10. Once operational, it is envisaged that the level of traffic associated with the proposed wind farm would be minimal. Regular monthly or weekly visits would be made to the wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the wind farm for specific maintenance and/or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase of the development is proposed.
- 12.11. The traffic generation levels associated with the decommissioning phase will be less than those associated with the development phase as some elements such as access roads would be left in place on the site. As such, the construction phase is considered the worst case assessment to review the impact on the study area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding.
- 12.12. The grid connection works are small scale works for this type of development and their transport impact would be distributed over a wide area. The impacts associated with these works are generally low in nature and occur outwith the peak period for traffic generation. As such it is proposed that the grid connection be scoped out of the formal assessment period and that a review of the access issues relating to construction activities is dealt with by means of a Construction Traffic Management Plan that would be prepared post consent and secured by planning condition.
- 12.13. The following rules taken from the guidance would be used as a screening process to define the scale and extent of the assessment:
- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
 - Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.
- 12.14. Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted as a consequence of the Proposed Development will therefore be assumed to result in no discernible environmental impact and as such no further consideration will be given to the associated environment effects.
- 12.15. The estimated traffic generation of the proposed wind farm development will be compared with baseline traffic flows, obtained from existing traffic survey data, in order to determine the percentage increase in traffic.

- 12.16. Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where appropriate.
- 12.17. Committed development traffic, i.e. those from proposals with planning consent will be included in baseline traffic flows, where traffic data for these schemes is considered significant and is publicly available. Developments that are proposed or at scoping would not be included.
- 12.18. It is not anticipated that a formal Transport Assessment (i.e. one with junction capacity assessments) will be required as these are not generally considered necessary for temporary construction works.
- 12.19. Baseline traffic count data will be obtained from new Automatic Traffic Survey (ATC) counts located on Fforch Dwm Road and from Ton-Mawr Road.
- 12.20. Traffic data for the wider access network will be obtained from UK Government Department for Transport (DfT) traffic count database. National Road Traffic Forecast (NRTF) Low Traffic Growth assumptions will be used to provide a common future year baseline to coincide with the expected construction traffic peak.
- 12.21. Traffic accident data would be obtained from Crashmap UK for the study network to inform the accident review for the immediate road study area. Three years worth of data for the abnormal load route and for the B4287 between Efail Fach and its junction with the A4107.

Consultation Proposals

- 12.22. Consultation with the following stakeholders will be undertaken:
- Neath Port Talbot County Borough Council transport department officers;
 - Welsh Government transport officers; and
 - Various consultees responsible for reviewing the possible effects of abnormal loads on road structures, including Network Rail and the trunk road agents. These consultations will be undertaken using Highways England ESDAL consultation system.

Approach to Mitigation

- 12.23. Standard mitigation measures that are likely to be included in the assessment are:
- Production of a Construction Traffic Management Plan;
 - The design of suitable access arrangements with full consideration given to the road safety of all road users;
 - A Staff Sustainable Access Plan; and
 - A Framework Abnormal Load Transport Management Plan.

Potential Significant Effects of the Development

- 12.24. The assessment will consider the potential effects associated with construction and operation of the Proposed Development as detailed below.
- 12.25. The key issues for consideration as part of the assessment will be:
- The temporary change in traffic flows and the resultant, temporary effects on the study network during the construction phase;
 - The physical mitigation associated with the delivery of abnormal loads;

- The design of new access infrastructure; and
 - The consideration of appropriate and practical mitigation measures to offset any temporary effects.
- 12.26. The potential effects of these will be examined in detail. The decommissioning phase of the Proposed Development is proposed to be screened out from the assessment.
- 12.27. Traffic levels associated with this stage of the development's life cycle will be less than those associated with the construction phase as elements such as access junctions and associated items of infrastructure are likely to be retained on site following the decommissioning of the turbine equipment. As such, the construction phase represents a worst case assessment scenario.

Questions for Consultees

- 12.28. Can the consultees please confirm the following.
- Question 12.1: That the proposed methodology is acceptable?
 - Question 12.2: That the methods proposed for obtaining traffic flow data are acceptable?
 - Question 12.3: That the use of Low National Road Traffic Forecasts (NRTF) is acceptable for the whole of the study?
 - Question 12.4: What developments should be included as committed developments within the baseline traffic flows in the assessment, noting that these should have planning consent at the time of scoping?
 - Question 12.5: Details of any upgrades or network changes that may be undertaken to the study area network within the next five years?

13. Socio-economic impacts

Introduction

- 13.1. The MFD wind farm proposal could have a range of positive and negative economic and societal impacts on the local economy surrounding the Site. This chapter sets out how a socio-economic impact assessment will be carried out to consider the effects of the proposed renewable energy project during construction, operation and decommissioning within the local area (defined below) and the Welsh economy.
- 13.2. Economic impacts will be considered through the numbers of jobs safeguarded and created and the contribution to Gross Value Added. Social impacts will be assessed through a review the consequences of the development has for use of the site and implications for local residents and how they live and work in proximity to an operating wind farm. This will also consider some of the mitigations covered under any potential community fund deployed as part of the development.
- 13.3. The assessment will be completed by Wavehill who specialise in social and economic research. Based in Wales, with extensive experience completing socioeconomic impact assessments across Wales and throughout the UK including those associated with renewable energy (and particularly) wind farm sites, Wavehill are well placed to provide assessment of the MFD wind farm.

Environmental baseline and Potential Sources of Impact

- 13.4. This section sets out a summary of the socio-economic characteristics of the local area to the proposed MFD wind farm site. It details a number of indicators against which the area can be assessed, providing comparison figures to Wales and the UK where appropriate. This data is drawn from mainly ONS sources.
- 13.5. Neath Port Talbot has a resident population of 144,400, with an average age of 43.4 years³³ and has seen steady population growth since 2001, from both international and internal migrants. The top industry by employment is manufacturing (18 per cent of all employment within NPT).³⁴ Although economic activity is similar to national levels, the availability of work in the area is lower, leading to commuting to places like Swansea and Cardiff. The areas productivity, as measured by GVA per hour worked, for the NUTS3 area of Bridgend and Neath Port Talbot is slightly above the Wales average³⁵ and qualifications are below the national and UK averages across all levels. There are 3,110 enterprises in NPT,³⁶ with 88.4 per cent (2,750) of these being micro in size (0-9 employees). The site of the proposed MFD wind farm is in an LSOA (Cymmer 1) ranked in the bottom third of deprivation in Wales, though neighbouring LSOAs (Cymmer 2 and Caerau 1 & 2) which contain Croeserw village and northern areas of Maesteg town (including Caerau) are in the 5% most deprived LSOAs in Wales. NPT overall has the 5th highest percentage of areas in the most deprived 50.

³³ Mid-year population estimates, ONS, 2020

³⁴ Business Register and Employment Survey, ONS, 2021

³⁵ Gross Value Added (balanced) by Region, ONS, 2018

³⁶ Ibid

Policy position

- 13.6. The UK government has made a commitment to reach net zero by 2050, and renewable energy, including wind power, is fundamental to achieving this. Welsh Government is also committed to sustainable development and net zero with a pledge campaign across the country to reduce carbon emissions.³⁷ Other policies and strategies either support, or will be supported by, renewable energy development and decarbonisation include the Wellbeing of Future Generations Act (2015) which places emphasis on the importance of decarbonisation for the future.³⁸
- 13.7. Prosperity for All: a low carbon Wales builds on the Wales Environment Act and furthers the importance of reducing greenhouse emission by 2050 and working towards net zero goals.³⁹ It sets out how a low carbon economy for Wales can be achieved and its benefits, including clean growth, quality jobs, clean air and water and improved health. The development of new onshore wind farm sites, including MFD wind farm, directly align and contribute to this and other policy areas, by creating high value jobs, improving sustainability and reducing emissions, diversifying the economy and increasing wellbeing.
- 13.8. Capturing the Potential: a green jobs strategy for Wales aims to strengthen the low carbon energy sector in Wales, focusing on the transition Wales needs to undergo to become a low carbon economy in all regards.⁴⁰ This includes fostering innovation and technological progression, supporting sustainability in businesses and investing in a more sustainable economy (feeding into later strategies with similar objectives).
- 13.9. At a regional level, the Swansea Bay City Deal aims to grow the area and develop high value sectors and employment to improve GVA and productivity.
- 13.10. Climate change is one of the overarching policies within the Neath Port Talbot Local Development Plan 2011-2026 (2016). The LDP also highlights objectives for economic development. These include objectives to encourage employment opportunities and growth within the county which will be supported by the windfarm development alongside.

Method of Assessment and Reporting

- 13.11. To estimate the impacts of the proposed wind farm on the economy and local communities, desk based analysis will be conducted to gather data from a range of sources. This includes information from a review of economic policy and literature of similar wind farm sites to identify comparable benchmarks. Recognised metrics for construction impacts will also be used, drawing on ONS data to convert spend into GVA and jobs created.
- 13.12. The impact assessment will include a review of the socio-economic baseline of the area local to the site; consideration of the social and economic policy context at the local, regional and national level; modelling of the likely scale and scope of any impacts; and details on any mitigations taken as appropriate.

³⁷ Working together to reach net zero: All Wales Plan 2021-25, Welsh Government, October 2021

³⁸ The Wellbeing of Future Generations Act (2015), Welsh Government <https://www.futuregenerations.wales/about-us/future-generations-act/>

³⁹ Prosperity for All: a low carbon Wales a Welsh Government plan, 2019 https://gov.wales/sites/default/files/publications/2019-06/low-carbon-delivery-plan_1.pdf

⁴⁰ Capturing the Potential. A green jobs strategy for Wales, Welsh Government, 2009

- 13.13. There is no published standard for assessing significance of impacts of the development on different receptor groups, though generally, the more proximate the receptor, the level of usage and the ease of mitigation determine sensitivity. An economic model will therefore be developed to assess the impact of the wind farm that supports multiple scenarios, providing a sensitivity analysis to the estimates. This can then be compared with an economic baseline drawn up for the study area. The judgments and assumptions underpinning these scenarios and assessments will be drawn from experience on other projects, the economic baseline and the evidence from other completed schemes.
- 13.14. Considerations of the effect on tourism and recreation will also be made, taking into account public perceptions of wind farm developments and changes in enjoyment levels brought about by large scale construction projects based on published evidence.

Study area

- 13.15. Three areas of impact will be considered in economic impact assessment. A local study area established as the lower super output areas⁴¹ (LSOAs) that fall within 10km of the proposed MFD site, the Neath Port Talbot (NPT) County Borough area, and Wales. The location of the MFD wind farm is fairly central to the NPT county area, with much of the county within 10km of the site. Given socio-economic data is more recent and readily available at the Local Authority level, this geographic boundary will be the primary focus of the socio-economic baseline. It does however include areas to the North West and South East of the county which are over 10km from the site and may therefore be less affected by the development. It also ignores some LSOAs in Bridgend County Borough, just north of Maesteg, which are to the East of the site and within 10km.
- 13.16. Where possible and pertinent, Lower Super Output Areas (LSOAs) information may be used to provide a more detail on the area of specific impact, given the smaller scale of the development, Zone of Theoretical Visibility and the communities thereby directly affected.

⁴¹ Lower super output areas typically contain a population of around 1,500.

Map of study area



- 13.17. Economic impacts from the scheme will be considered on a national Welsh level and more widely across the UK. This will allow for the fact that much of the economic benefits such as jobs created and GVA will be to businesses based outside of NPT, and potentially even Wales. Sensitivity to the location of contractors and supply chains will be made to allow for the fact that some economic impacts may be accrued outside of the UK (for instance turbine manufacture and supply is likely to be from a company based outside of the UK).

Potential Significant Effects of the Development

- 13.18. Wind farms may potentially have a variety of direct and indirect economic effects relating to matters such as change of land use, provision of employment and associated income, use of hospitality services by workers during construction, changes to recreational activity, and the potential for community or shared ownership. A recent UK wide Energy and Climate Change Public Attitudes Tracker (PAT) found that 82% of respondents supported renewable energy (an increase from 77% in the previous PAT). 74% of respondents supported onshore wind, opposition to renewables was very low at 3%. Overall, the existing literature does not support the proposition that wind farms may have significant negative effects on tourism, but instead suggests there is potential for some positive effects (Whitelee Wind Farm near Glasgow is a good example).

- 13.19. In addition, wider study has shown that only a very small proportion of visitors are put off by wind farms and similarly, recreational activity impacts are likely to be minimal. These include research carried out by the Welsh Government in 2014⁴² which found there is little evidence that wind farms have had or are having a negative effect on tourism across Wales and the UK as a whole.
- 13.20. Economic benefits are likely to accrue from the construction phase where contractors may be locally sourced or local businesses are able to access the supply chain requirements. During the operation of the site there will be some economic benefit locally and indirect benefits such as training, multiplier effects and conglomerate effects may also help the area.
- 13.21. The economic impacts, such as increased employment and contributions to Gross Value Added will be assessed based on expenditure in construction and operation. This will include assumptions from the literature and evidence on the extent of local content of contracts issued.
- 13.22. Given the proximity of the MFD wind farm proposal to others, cumulative effects across other developments will be considered. Assessment of whether cumulative effects are beneficial or an enhancement of opportunity will be used to determine implications for the supply chain.

Effects Scoped Out

- 13.23. Due to the scale of the Development, such positive effects that may occur will not be expected to be significant according to the EIA Regulations. No significant effects on tourism (either positive or negative) are therefore expected in relation to the proposals and it is proposed to scope out tourism from the EIA and ES. The evidence provided in a Welsh Government report, as well as other research, suggests that impacts on tourism are minimal, with tourism data for NPT showing increases in visitor numbers in the last few years despite development of large wind farms which neighbour the proposed MFD site.
- 13.24. This approach has been previously accepted by Welsh Ministers (in relation to Alwen Forest Wind Farm) and has been relatively common practice in the past for other socio-economic effects of wind farms to be considered within the EIA process and reported on in the wind farm ES.

Questions for Consultees

- 13.25. Can the consultees please confirm:

Question 13.1: Are the consultees in agreement with the proposals for the assessment of effects on socio economic impacts and tourism?

Question 13.2: Can consultees confirm the methodology outlined above is appropriate to inform the socio-economic assessment given the scope of the scheme?

Question 13.3: Do consultees agree that the proposed geographic study areas (10km radius, NPT, Wales and the UK) are appropriate for reviewing socio-economic impact?

Question 13.4: Do consultees agree that tourism impact effects can be removed from subsequent socio-economic impact analysis given the evidence provided?

Question 13.5: Can the consultee identify any relevant stakeholders who should be included in our consultation exercise regarding the development of the socio-economic impact assessment?

⁴² Welsh Government (2014) Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector, https://gov.wales/sites/default/files/publications/2019-06/potential-economic-impact-of-wind-farms-on-welsh-tourism_0.pdf (accessed 16/09/2020)

14. Other issues: Aviation, Telecoms, Shadow Flicker and Safety

Introduction

- 14.1. This section considers aviation, telecoms, shadow flicker and other topics recently introduced by the current EIA regulations such as climate change, major accidents and disasters and human health.

Aviation

- 14.2. Wind developments have the potential to affect aviation interests, either by presenting a physical obstruction or collision risk to aircraft, or by interfering with the operation of navigational equipment. Specialist aviation consultant WPAC has undertaken an initial assessment of the potential aviation effects of the proposed MFD wind farm, including the use of specialist radar propagation prediction software, and the following considerations have been identified:

- Whilst the proposed turbines will be visible to the Cardiff Airport radar this will be at a significant distance of 38km and none of the procedures for aircraft arriving or departing are close to the Proposed Development. However, NATS have completed a TOPA Assessment (Technical and Operational Assessment) on behalf of Cardiff Airport and raised potential concerns with regards to potential impacts on their approach radar. Further engagement is therefore ongoing. Whilst Swansea Airport is located 26km to the east of the site, it does not have a radar and consultation is not required.
- Taking into consideration the site location, there is no possibility of any NATS radar being affected by the Proposed Development.
- Taking into consideration the site location, there is no greater than a negligible impact predicted on Ministry of Defence air defence or ATC radar, Met Office radar, Military Low Flying Areas or military airfields.

- 14.3. It is therefore proposed that further consultation with the relevant stakeholders will be undertaken in order to determine the most appropriate response in the ES. In the event that the consultation process does not result in any objection from the relevant stakeholders, then it is proposed that aviation be scoped out of detailed assessment within the ES. Instead, any relevant restrictions on project design (turbine heights, micro-siting etc.), and required mitigation such as aviation warning lighting, will be referenced within the ES Scheme Description chapter. Where a requirement for aviation warning lights is specified by consultees, this will be assessed in the LVIA as described in section 6 above.

Telecommunications

- 14.4. Wind developments have the potential to cause interference to telecommunication systems, including terrestrial fixed microwave links, terrestrial radio telemetry links and television broadcasts.
- 14.5. With the advent of digital television signals, effects are not generally anticipated, and in any event such impacts are capable of mitigation through the simple repositioning/reorientation of antenna or the installation of alternative satellite or cable infrastructure. Given the above, it is considered that effects upon television signals should be scoped out of the ES.

- 14.6. Following a review of the telecommunications open access information held by Ofcom accessible via the Spectrum Information System website, it has been identified that there are only a limited number of communication links in the vicinity of the MFD wind farm. It is considered unlikely that there will be any significant impacts upon these links. Notwithstanding this, consultation will be undertaken with the various link operators to determine whether any sustained objections are raised. It is proposed that only in the event of a sustained objection will telecommunications be 'scoped in' to the ES through a focussed assessment. If no objection is received, it is proposed that the ES will simply describe any restrictions arising and the design response within the ES Scheme Description chapter.

Shadow Flicker

- 14.7. Shadow flicker is the term given to an effect that can occur under certain conditions when the sun passes behind a wind turbine and casts a shadow through narrow window openings which 'flicks' on and off within a neighbouring property. The effect is unlikely to be considered a problem where a turbine is located more than 10 x the rotor diameter distance from a receptor. It will not happen where there is intervening topography, vegetation or other obstruction between the turbines and the receptor. The likelihood and duration of the effect depends upon:
- orientation of the property's windows relative to the turbines: in the UK, only properties within 130 degrees either side of north, relative to the turbines, can be affected, as turbines do not cast long shadows on their southern side;
 - distance from the turbines: the further the observer is from the turbine, the less pronounced the effect would be;
 - turbine height and rotor diameter;
 - time of year and day; and,
 - weather conditions (cloudy days reduce likelihood).
- 14.8. It is proposed that once baseline work has progressed to such a stage as to allow the MFD and MB wind farm layout to progress to the scheme evolution stage, the potential for a shadow flicker effect on nearby residential properties will be confirmed with reference to the above criteria. If no concerns are identified at this stage, it is proposed that this matter is 'scoped out' of the ES, with appropriate commentary provided in the ES Scheme Description Chapter. In the event that the above assessment confirms a shadow flicker effect is possible, it is proposed that the ES contains an assessment of shadow flicker and appropriate mitigation.

Climate Change

- 14.9. As a renewable energy project, the proposed MFD wind farm may have effects relating to climate change through the generation of low carbon electricity. The MFD wind farm ES will include calculation of net carbon savings from the wind farm. This calculation will employ the latest version of the Scottish Government Carbon Calculator Tool which remains the suitable standardised tool for use in relation to net carbon saving calculations.

Major accidents and disasters

- 14.10. The MFD wind farm site is not located in an area known to experience natural disasters such as extreme weather events. In addition, its design, construction, operation and decommissioning will be managed in accordance with various health and safety focussed Regulations, including the Construction (Design and Management) Regulations 2015 and the Health and Safety at Work etc. Act 1974. It is not therefore considered necessary to undertake an assessment of the Development with respect to major accidents and disasters within the ES.

Human Health

- 14.11. It is not considered necessary to include a standalone Human Health Impact Assessment chapter within the ES, with relevant matters considered within the specialist topic chapters, notably noise, landscape and visual and transport.

Questions for consultees

- 14.12. Can the consultees please confirm:
- Question 14.1 Are the consultees in agreement with the proposals for the assessment of effects on aviation, telecommunications and utilities, shadow flicker, climate change, human health and major accidents and disasters?

15. Conclusion

- 15.1. This scoping report provides an outline of the information that will be presented in the Environmental Statement and the intended approach to the assessment studies. It has been provided to accompany a formal scoping opinion request submitted to PINS Wales.
- 15.2. The key questions to consider when reviewing the environmental issues are as follows:
- Are there any potential significant impacts that have not been included?
 - Is the intended method of assessment appropriate?
 - Are there additional mitigation measures that should be considered?
- 15.3. Responses to this scoping report should be sent to PEDW.