

BRECHFA NORTH ENERGY PROJECT

Environmental Impact Assessment (EIA) Scoping Report





Brechfa North Energy Project **Environmental Impact Assessment (EIA) Scoping Request**

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1.0 INTRODUCTION

1.1 The Applicant

Renewable Energy Systems Ltd ('RES') are part of the Sir Robert McAlpine group, a British family-owned firm with over 100 years' experience in construction and engineering. RES is one of the world's leading independent renewable energy developers with operations across Europe, North America and Asia-Pacific. RES is active in a range of renewable energy technologies including onshore wind, offshore wind, and solar as well as enabling technologies such as energy storage and demand-side management.

1.2 Background

RES has commissioned the undertaking of an Environmental Impact Assessment (EIA) for a renewable energy project located north of Brechfa Forest, approximately 12 miles north-east of Carmarthen and 2 miles east of the village of New Inn ('the Project'). The Potential Development Area (PDA) is centred on GB National Grid Reference E251341, N236444. Please refer to **Figure 1**.

The purpose of the Project is the generation and storage of renewable electricity. The Project will look to generate renewable electricity through onshore wind technology. Studies to date suggest that the PDA could accommodate up to nine wind turbines. In order to match on-site electricity generation to energy demand, as well as facilitate the reduction in any possible grid constraint requirements, the Project will also consider the provision of energy storage units as part of the infrastructure. Further detail about the PDA and infrastructure is provided in **Chapter 2**.

1.3 Determining Authority and Regulatory Requirements

The indicative size and scale of the proposed development means that it will be a Development of National Significance (DNS) to be determined by the Welsh Ministers. As such, a planning application would be submitted to the Planning Inspectorate for Wales (PINS) for consideration by an appointed Planning Inspector. PINS examine the application and make a recommendation to the Welsh Minister based on planning merits and national priorities. The Minister then decides whether or not to grant permission.

The statutory basis for the DNS process is provided in Part 5 of the Planning (Wales) Act 2015, which amends the Town and Country Planning Act 1990 ("the Act"), the Developments of National Significance (Procedure) (Wales) Order 2016, and subsequent Regulations.

The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2016, referred to herein as the 'EIA Regulations' implement the requirements of the European Directive on EIA in Wales. The proposed development will fall under Schedule 2 of the EIA Regulations as an 'installation for the harnessing of wind power for energy production (wind farm)'. For Schedule 2 projects, an EIA is needed if significant environmental effects are likely to arise from implementation of the Project. Based on current available information, RES have concluded that an EIA should be carried out and that an Environmental Statement (ES) will be submitted in support of a planning application. RES will therefore not be seeking an EIA Screening Opinion from PINS.

The undertaking of an EIA will ensure that the likely significant environmental effects, both positive and negative, of the Project, are assessed in a systematic way which will enable the significance of these effects to be clearly understood by PINS, the Welsh Ministers and key stakeholders, including the local community. Where appropriate, the EIA will consider the scope for mitigating any adverse effects, and assess the residual effect of any impact following mitigation to minimise any predicted environmental impacts.

1.4 About this document

This document is a scoping report submitted under Regulation 30 of the EIA Regulations. Guidance provided by PINS¹ states that the developer should carefully consider the best time to request a scoping opinion and are encouraged to undertake informal consultation with prescribed consultation bodies to inform the scoping request.

The purpose of this report is to inform PINS, statutory consultees, and other stakeholders about the proposed scope of the EIA, the findings of which will be presented in the ES that will accompany any subsequent planning application for the Project. Whilst at this stage the final design of the Project is not available, a considerable amount of background studies and baseline work has been completed; this has resulted in an indicative design where EIA scoping is now desirable.

RES can confirm that this request for a scoping direction is made in relation to a development of national significance for the purposes of section 62D of the Town and Country Planning Act 1990.

In accordance with the requirements of Regulation 30, the following information has been included within this scoping report:

- A plan sufficient to identify the land;
- A brief description of the nature and purpose of the development and of its possible effects on the environment; and
- Such other information or representations as the person making the request may wish to provide or make.

In addition, PINS Procedural Guidance (Appendix 3) sets out that the Scoping Report should include the following information:

- An outline of the main alternatives considered and the reasons for selecting a preferred option;
- Results of desktop and baseline studies where available;
- A record of consultation undertaken with relevant bodies (including any public engagement) to date;
- Referenced plans presented at an appropriate scale to convey clearly the information and all known aspects associated with the proposal;
- Guidance and best practice to be relied upon, and whether this has been agreed with the relevant bodies (for example the statutory nature conservation bodies or local authorities) together with copies of correspondence to support these agreements;
- Methods used or proposed to be used to assess impacts and the significance criteria framework used;
- Any mitigation proposed and the extent to which these are likely to reduce impacts;
- Where impacts from consequential or cumulative development have been identified, how applicants intend to assess these impacts in the ES (for example, a high level assessment of the grid connection where this does not form part of the proposed development for a power station);
- An indication of any European designated nature conservation sites that are likely to be significantly affected by the proposed development and the nature of the likely significant impacts on these sites; and
- Key topics covered as part of applicants' scoping exercise; and
- An outline of the structure of the proposed ES.

¹ PINS Procedural Guidance – Appendix 3: Environmental Impact Assessment

1.5 Report Structure

This report is structured as follows:

- **Section 2: Potential Development Area and Infrastructure**
This section provides a description of the PDA and surrounding environs, the main components of the Project, and the anticipated approach to construction, operation and maintenance, and decommissioning of the Project.
- **Section 3: Environmental Impact Assessment (EIA) and the scoping process**
This section outlines the EIA process and methodology, the EIA Scoping process, and proposed structure of the Environmental Statement (ES).
- **Sections 4-10: Environmental Impact Assessment Methodology**
Sections 4-10 will address the scope of the EIA for each environmental interest/discipline. Where relevant, each section will look to summarise:
 - The extent of the study area considered for the EIA;
 - Baseline environmental information gathered to date;
 - Pre-scoping meetings/communication to inform the EIA;
 - Guidance, methodologies, and survey programme to be adopted as part of the EIA; and
 - Identify the potential significant effects of the Project on identified environmental interests to permit recommendations to be made for areas that can be scoped out of the EIA.
 - Identify any relevant mitigation and assess the residual effect following the implementation of such mitigation
- **Section 11 – Other Topics**
This section will address the scope of any other technical or environmental assessments which must be carried out and reported within the ES.
- **Section 12 – Summary of Proposed EIA Scope**
This section will summarise the proposed scope for each of the environmental and technical studies that will be undertaken as part of the EIA. It will also clearly outline the areas which have been scoped out of each assessment.
- **Section 13 – Other Supporting Documentation**
This section provides a brief overview of any other supporting documentation that will sit alongside the ES as part of the DNS application.

2.0 POTENTIAL DEVELOPMENT AREA AND INFRASTRUCTURE

2.1 Strategic Planning and Site Identification

2.1.1 Introduction

The UK and Welsh Governments have made very clear their commitment to both energy saving and renewable energy sources as ways of meeting the requirements to reduce carbon emissions. There is now a strong direction, in the form of ministerial statements, the guidance in Technical Advice Note 8 (TAN 8), the Energy White Paper (2007), the Climate Change Act (2008), the Renewable Energy Strategy (2009), the UK Renewable Energy Roadmap (2011) and its Update (2012), the Welsh Government Energy Policy Statement (2010) and the revised Planning Policy Wales of October (2012) that much more has to be done through the planning system to meet the greatly enhanced level of renewable energy development that is now required.

There is no requirement that, in terms of the benefits, any renewable energy project has to have demonstrated that these cannot be economically attained with less adverse impact elsewhere. No such position arises even within the EIA Regulations or indeed in advice on planning and energy at national level. There is no requirement that a renewable energy developer has to provide proof that there is no alternative that has lesser environmental effects, or that a different proposal on the same site would have lesser effects. There is also no requirement in the case of renewable energy developments, for which there will need to be a number of different sites all making a contribution to the overall targets for renewable energy, that a form of sequential testing has to be carried out in which a series of proposals have to be ranked according to their environmental acceptability, and this is explicitly confirmed in the National Policy Statement EN-3².

The national policy is to secure the deployment of renewable energy resources in large quantities to meet the adopted targets. Targets must be met and, where met, raised as appropriate. Renewables must be developed wherever and whenever the technology is viable and environmental, economic, and social impacts can be addressed satisfactorily. As such, no concept of alternatives arises.

RES's site selection route for the Project has been to identify suitable sites but not to then consider any as alternatives to each other. However, alternative design options as part of the iterative EIA process and the evolution of the Project will be carefully considered and will be clearly presented as part of the ES.

2.1.2 Identification of Brechfa North Energy Project

RES is an established renewable energy developer with an extensive range of technical, environmental and economic assessment tools that ensure an effective site selection and design process.

The PDA has been identified and designed through consideration of the Strategic Search Areas (SSA) identified within TAN8 and in accordance with internal RES procedures that are designed to result in maximum environmental benefit with minimum significant negative effects within the locality of any project.

RES maintains sophisticated Geographic Information System (GIS) models for site selection which seek to mirror planning, environmental, technical and commercial requirements. RES undertook a computer-based analysis to establish wind farm site suitability across Wales.

Use of GIS technology enabled objective and consistent treatment of the whole country and this work has since been updated regularly, when new data has become available or other factors have changed. Where available and appropriate, the GIS model incorporates published advice from statutory consultees.

² National Policy Statement for Energy (EN-3), Department for Energy and Climate Change (DECC), July 2011

The key factors included in the GIS modelling are listed below:

- Relevant national/local planning policy and renewable energy suitability studies;
- Wind speed at 45m height in excess of 6 metres per second (m/s);
- Outside Areas of Outstanding Natural Beauty (AONB), National Parks, European and internationally designated sites such as RAMSAR, Special Areas of Conservation (SAC) and Special Protection Areas (SPA);
- Discretionary consideration of Site of Special Scientific Interest (SSSI) and other county/local level environmental designations;
- The location of residential dwellings and local settlements;
- Good site access;
- Reasonable distance to a grid connection;
- Radar and aerodrome operations;
- Underground infrastructure and overhead lines; and
- Telecommunications and microwave links.

In response to the results of GIS modelling, initial site visits, and advice from RES technical staff and consultants, the site was considered suitable to investigate in more detail. RES subsequently entered into land agreements with landowners, and a decision was taken to advance development proposals through detailed survey work.

2.2 Potential Development Area (PDA)

The PDA comprises an irregularly shaped area measuring approximately 183 hectares (ha), please refer to **Figure 1**. It is characterised by upland fringe pasture and moorland edge interspersed with wooded river valleys which feed into the Afon Clydach. The pasture is grazed by sheep and cattle, while the valleys have, in the main, been commercially afforested although tracts of semi-natural deciduous woodland are present in places.

The PDA is bordered on its northern, western, and southern edges by an expanse of open moorland which is registered as common land. To the north and west of the PDA, Mynydd Llanllwni Common (CL3), this measures 967 ha, and to the south, Mynydd Llanfihangel Rhos-y-Corn Common (CL4), which measures 225 ha. The common land is a mosaic of unimproved acid grassland and wet heath, with the two habitat types grading into each other in response to localised variance in gradient, hydrology, grazing, and management pressure. Sheep grazing is the most obvious agricultural use of the common land, and some areas are also subject to mowing/heather cutting.

There are three public rights of way (PRoW) which dissect the PDA:

- Public Footpath 14/20 runs from west to east through the centre of the PDA passing a ford, several disused farm buildings known as Esgair-garn, and through Bryn Llywelyn Farm en-route;
- Public Footpath 17/12 runs through the centre of the PDA from south to north passing a farm building at Nant-y-Caws before running across a river valley and finally crossing through Bryn Llywelyn Farm; and
- Bridleway (section 14/24) runs from south to north towards the eastern side of the PDA, largely following one of the tributaries which feed into the Afon Clydach.

The registered common land, which borders the PDA, provides members of the public with the 'right of access for air and exercise' through the Crown Estate's execution of a deed poll in 1932 under Section 193 of the Law of Property Act 1925.

There are no villages or hamlets within the PDA, however there is one property, Bryn Llywelyn Farm (located at grid reference: 515 367) which includes several active farm buildings, a small stone quarry, and a network of well maintained stone tracks. Access to the farm is obtainable along an access track which traverses across Mynydd Llanllwni Common. There are a number of other habitations which border the PDA.

2.3 Project Components

2.3.1 Overview

The Project is still in the design stage, as such the infrastructure requirements and layout will evolve throughout the EIA process. However, to ensure that a detailed and accurate EIA Scoping Opinion can be provided by PINS (and Statutory Consultees), the main components of the Project, as outlined in this section, are considered worst case.

Based on the initial constraints work which has been carried out, the PDA is considered to have sufficient capacity for up to nine (9) horizontal-axis wind turbines and associated infrastructure. An indicative layout has been established to provide a basis for this report, please refer to **Figure 2**. This initial design will, of course, be subject to change based on identified technical and environmental constraints that become evident throughout the EIA process.

2.3.2 Permanent Infrastructure

The following components would form permanent features throughout the life of the Project:

- Wind turbine;
- Wind turbine transformers and switchgear (if located outside the wind turbine tower);
- Turbine foundations;
- Crane hardstandings;
- Control building, substation, and storage compound;
- Electrical cabling; and
- On-site access tracks, entrances, and exits.

Wind Turbines

The wind turbine industry is evolving at a significant rate. Designs continue to improve technically and economically. The most suitable turbine model for a particular location can change with time and, therefore, a final choice of turbine for the Project has not yet been made. The most suitable machine would be chosen before construction, within the overall height limit assessed as part of the EIA and consented as part of the DNS application.

For the purposes of this report, indicative turbine dimensions would be: a hub height of 100m and a rotor diameter of 100m; giving an overall tip height of 150m from ground level. The indicative capacity of each wind turbine is 2-3 Megawatts (MW). The turbines would be painted in a visually recessive colour, typically a light grey or white.

Wind turbine transformers and switchgear

For most current models, the transformer and switchgear is located alongside the base of each turbine, although for larger turbines some manufacturers install the transformer in the nacelle or tower base. The transformer's function is to raise the generation voltage from typically 690 volts (V) to the higher transmission level of 33 kilo-Volts (kV) that is needed to transport the electricity into the grid. At this stage it is unknown if an internal or external transformer would be used, but the latter has been selected for the purpose of a worst case assessment (i.e. from a land-take and visual perspective).

Turbine foundations

The wind turbines would be supported on steel reinforced concrete foundations. A typical gravity-base foundation will be used if the ground conditions are found to be suitable. The exact quantities of concrete, reinforcement, diameters and depths would vary depending on the actual make of turbine used. Different turbine foundations may also be considered for different turbine locations depending on the local ground conditions. The dimensions, materials, and construction processes associated with the turbine foundations considered as part of the EIA will be clearly outlined within the ES.

Crane hardstanding

The turbines are erected using mobile cranes. These require areas of permanent hardstanding adjacent to the turbine locations, which can support the load of the cranes on their outriggers. Typically, these consist of one main permanent area adjacent to the turbine position where the main turbine erection crane would be located. The dimensions, materials, and construction processes associated with the crane hardstanding considered as part of the EIA will be clearly outlined within the ES.

Control building, substation, and storage compound

The control building compound would accommodate metering equipment, switchgear, the central computer system, and electrical control panels. A spare parts store room, toilet and wash basin along with a kitchenette would also be located in the control building. Although not permanently staffed, the buildings would be visited periodically by maintenance personnel.

The sub-station compound would contain power quality improvement equipment, up to two auxiliary transformers, and possibly a spare turbine transformer.

The energy storage devices will consist of a number of permanent containers mounted on small concrete foundations. Please refer to **Figure 3** for an example drawing of a storage container.

The location, overall size, and individual structures contained within the compound will be clearly defined within the ES.

Electrical Cabling

The turbines would be electrically connected to the substation by means of 33kV cables. These cables would be laid underground (where possible) in trenches running adjacent to the on-site access tracks. A cable plan will be provided as part of the ES, outlining all overhead and sub-surface cabling associated with the Project.

On-site access tracks, entrances, and exits

A network of access tracks will be required to provide access to each turbine location within the PDA. Existing tracks will be utilised wherever reasonably practicable and upgraded as required. Tracks will typically be 5m wide with appropriate widening at corners and passing places, as required. RES will consult with appropriate consultees to agree the location of new access tracks which interact with areas of common land, sensitive habitats, and hydrological features.

The location and design of any site entrances/exits as part of the Project will be agreed with the relevant Statutory Consultees as part of the iterative design process. Any offsite mitigation works required to facilitate the movements of Abnormal Indivisible Loads (AILs) will be identified by swept path analysis.

2.3.3 Temporary Infrastructure

The following components would form temporary features throughout the construction phase of the Project:

- Temporary enabling works and construction compounds;
- Hardstanding for lay-down areas; and
- Power performance masts.

Temporary enabling works and construction compounds

Enabling works are erected at the beginning of the construction period. Upon completion of any initial access tracks to the main development area, temporary structures associated with the enabling works would be transferred to a construction compound. The location(s), size, and individual structures contained within the enabling works and construction compound(s) will be clearly defined within the ES. Each temporary construction compound may contain temporary site offices and with services including sealed waste storage toilet facilities; sufficient parking for cars and construction vehicles; containerised storage facilities and a receiving area for incoming vehicles.

Hardstanding for lay-down areas

Areas of temporary hardstanding would also be required as part of the crane hardstanding general arrangement, this would be required during the erection of the wind turbine for laying down wind turbine components and access.

Power Performance Masts

Temporary guyed meteorological masts, known as power performance or calibration masts, up to the final hub height may be required to confirm the detailed wind flow of the Project. These masts are raised prior to turbine erection and the data they gather is used in the acceptance tests on the turbines.

If required, the masts will be raised around the same time as the turbine foundations are poured, approximately six months before the turbines are erected.

2.4 PDA Access

The PDA lies to the east of the A485, a single carriageway route that runs in a north-south direction linking the towns of Aberystwyth, Lampeter and Carmarthen. The A485 forms a principal road within the county network and intersects the A40 approximately 20km to the south west of the PDA at Carmarthen. The B4337 and B4310 meet to the east of the PDA at Llansawel. The B4337 runs to the north-west, intersecting the A485 at Llanybydder, whilst the B4310 continues southwards to Upper Tumble, where it meets the A476.

The final access route for construction vehicles will be subject to a feasibility study to identify the most appropriate route into the Project and to establish any pinch points that may need to be modified to permit access to the PDA during construction. Any associated environmental impacts will be assessed as part of the EIA. A Traffic Management Plan (TMP) will also be prepared in support of the DNS application, please refer to **Section 13** for further information.

2.5 Grid Connection

The Project will require a new grid connection. The grid connection and the Project are separate schemes and as such will both be subject to separate consent procedures and appropriate EIA procedures. The grid connection will therefore not be considered in detail as part of this EIA.

As part of the ES, a high level environmental review of the indicative grid connection route between the Project and the point of connection to the electricity grid will be provided based on the information available at the time of writing.

The grid connection consenting work will be undertaken by Western Power Distribution (WPD), the local Distribution Network Operator (DNO). The ES will, however, make reference to relevant information available at the time of writing relating to the likely grid connection point and a possible route corridor.

2.6 Phased lifetime of the project

2.6.1 Construction Phase

It is currently estimated that a construction period of 12-18 months would be scheduled as part of the Project. The main phases of the construction period would include:

- Access route road improvements;
- Site entrance construction;
- Construction/upgrade of on-site access tracks;
- Construction of temporary construction compound and hardstandings;
- Construction of turbine foundations, requiring the import of concrete and steel;
- Construction of the control building, substation, and storage components;
- Excavation of trenches and laying of cables alongside site tracks;
- Connection of distribution cables;
- Delivery and erection of wind turbines;
- Commissioning of site equipment; and
- Site demobilisation and restoration.

Some of these activities will be carried out concurrently in order to reduce the length of the construction programme. Site restoration will be conducted as early as possible. Details of the phasing and further construction matters will be contained in a Construction Method Statement.

Vehicle Movements during Construction

Vehicle movements associated with construction works will include:

- Cars and minibuses for transporting construction personnel onto the site;
- Heavy goods vehicles (HGVs) for pre-construction delivery of site offices and construction equipment;
- Abnormal Indivisible Load (AIL) transport vehicles for delivery of the turbine components and base rings;
- Two mobile road going cranes, used for the erection of the turbines; and
- Standard HGVs for transporting electrical cable, steel reinforcement for foundations, construction plant fuel and other items and equipment.

A TMP will be prepared in consultation with the local highway authority and other stakeholders to address scheduling and routing of deliveries, and any mitigation measures pertinent to the project. Please refer to **Section 13** for further information.

2.6.2 Operational Phase/Maintenance

A wind farm is typically visited up to four times a month by a small maintenance crew. There will also be a requirement for maintenance of the access tracks and substation.

2.6.3 Decommissioning

Turbines typically have an operational life of 25-30 years and the normal operating life of the wind farm would be 25 years. At the end of this period the turbines can be removed, reconditioned or replaced in accordance with planning permission requirements, and appropriate site restoration measures implemented.

3.0 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND THE SCOPING PROCESS

This section outlines the EIA process and methodology, the EIA Scoping process, and proposed structure of the Environmental Statement (ES).

3.1 Environmental Impact Assessment (EIA)

The EIA Regulations (as referred to in Section 1) require an EIA to be undertaken for a specified range of major development proposals. EIA was defined in the Department of the Environment, Transport and the Regions Circular 02/99³ as:

“...a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects, and the scope for reducing them, are properly understood by the public and the relevant competent authority before it makes a decision.”

The output of an EIA, in the form of an Environmental Statement (ES), are used to inform the decision making process of the consenting authority. The following key stages will be form part of the iterative EIA process:

- **EIA Scoping:** Consultation with statutory consultees and other stakeholders to obtain their views on the proposal; identify potential impacts; identify existing environmental information and to agree methods for the assessment of these impacts. Further information is provided in **Section 3.2**.
- **Baseline Studies:** Identification of existing environmental conditions and sensitivities through review of existing information and monitoring and field studies as required;
- **Design Freeze:** Once the baseline information has been recorded and key receptors identified, the final Project will be fixed and will form the basis against which the impact assessment is measured.
- **Assessment of Effects and their Significance:** An assessment of the significance at local, regional, national and international scales of potential effects;
- **Mitigation:** There are three forms of mitigation which are integrated into the Project as part of the EIA at different stages. ‘Primary Mitigation’ refers to modifications made to the location or design of the Project during the pre-application phase that will become an inherent part of the project, and do not require additional action to be taken. ‘Secondary Mitigation’ refers to actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the ES. ‘Tertiary Mitigation’ refers to actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects (e.g. considerate contractors’ practices that manage activities which have potential nuisance effects).
- **Residual Effects:** Identification and assessment of residual effects after mitigation.

There is no required format for an ES, but it must provide the information specified in part 2 of schedule 4 of the EIA Regulations, and as much of the relevant information in part 1 of schedule 4 as is reasonably required to assess the effects of the Project and which the Developer can reasonably be required to compile. Please refer to **Section 3.6**.

³ Circular 02/99: Environmental Impact Assessment, Department for Communities and Local Government (DCLG), 1999

3.2 Scoping an EIA

Once the requirement for an EIA has been established, ‘scoping’ is the next important stage because it sets the parameters for the rest of the process. The purpose of scoping is to define environmental effects which need to be assessed as part of the EIA. This recognises that there may be some environmental aspects of the Project that will result in no significant effects and which does not therefore need to be considered further in the more detailed assessment phase. Elements that are likely to result in significant effects or impacts are therefore identified during scoping to be assessed in greater detail in the EIA.

This Scoping Report has therefore been prepared to:

- Provide an overview of the PDA, Project Components, and location;
- To establish the availability of baseline data;
- To define a survey and assessment framework from which a comprehensive overall EIA can be produced;
- To invite PINS, the Local Planning Authority, and other Statutory Consultees to comment on the proposed methodology for each topic considered and provide any relevant environmental information relating to the PDA and surrounding area.

If the scope of the EIA is defined too narrowly, a critical area of uncertainty or an unexpected adverse effect may emerge later in the process, with potential consequences for the design and timetable for development. If the scope is defined too loosely, then time, expense and effort may be wasted on pursuing unnecessary detail. Careful consideration has been given to the scale and nature of the project proposals, in the context of site specific and local environmental baseline conditions.

The intention has been to scope issues considered to be potentially significant into the EIA. Where a particular issue has not been included within the proposed scope of the EIA, this is not to suggest that there will be no associated effects, but rather that these will not be significant. It is hoped that all consultees can agree a focussed scope leading to a carefully considered but concise ES.

3.3 The EIA Assessment Methodology

Once the scope of the EIA is agreed, and the necessary surveys have been completed, potential ‘effects’ will be verified and assessed by analysing the identified magnitude of change against the established sensitivity of the environmental receptor. For ease of comparison across topic areas this assessment will utilise a standard matrix and terminology, although this may not be appropriate for all topic areas. The assessment will establish whether identified effects are ‘significant’ and will also make it clear whether these significant effects are judged to be slight, moderate, substantial or very substantial and whether they are direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development. The assessment of effects will also distinguish between the construction, operational and decommissioning phases of the Project and where appropriate, take account of cumulative effects (see **Section 3.4**).

Each environmental topic will clearly identify mitigation measures which are an inherent part of the design of the Project and will establish a level of significance before and after additional mitigation or control measures that may be required to address an identified significant effect. The ES may also identify some environmental enhancement measures, which although not required to provide mitigation for an identified significant effect, are nevertheless identified as an opportunity for environmental enhancement. Ultimately the EIA process reported in the ES will identify the ‘residual’ significant effects that are left after all mitigation and control measures are taken into account.

3.4 Cumulative Effects

Cumulative impacts arise where the effects of one development combine with the effects of another, with the result that, usually, a larger (and possibly more significant) effect might arise. Cumulative effects should be considered in the case of operational and consented wind farms, as well as proposed wind farms which are the subject of undetermined applications.

The cumulative assessment will, therefore, distinguish between predicted cumulative impacts arising from the Project in combination with committed projects in the vicinity and those in combination with projects at an early stage in the planning process. This is because committed or consented proposals are less likely to change, and so impacts can be predicted with greater confidence; whereas projects at earlier stages of planning are less certain, in respect of layout or more fundamentally, simply their feasibility.

Cumulative effects will be considered on an issue-by-issue basis and the scope of the EIA will be expanded where necessary to include them in the assessment of each topic.

3.5 Consultation

Consultation with statutory and non-statutory consultees is an essential part of defining the scope as these organisations will have an important role in guiding and shaping the EIA process. It is intended that this scoping report will form the basis of discussions with many of the consultees, although consultation has already been initiated and will be maintained with key consultees throughout the development stages.

The following organisations have already been informally consulted on relevant environmental assessments at this pre-scoping stage:

- Natural Resource Wales (ecological baseline studies, ornithological baseline studies, and landscape and visual scope); and
- Carmarthenshire County Council (ecological baseline studies, ornithological baseline studies, and landscape and visual scope).

Further information has been provided within each environmental topic (Sections 4-10) where informal comments from consultees have been considered as part of the EIA Scope.

Early consultation has also been carried out with political and community stakeholders to raise awareness of the Project and anticipated timescales to engage and contribute to the design and characteristics of the Project as part of the DNS process.

3.6 Structure of the Environmental Statement

The ES would be produced in four (4) volumes:

- Volume I: Non Technical Summary (NTS) of the detailed ES;
- Volume II: Written Statement;
- Volume III: Supporting technical appendices; and
- Volume IV: Supporting figures and plans.

The written statement (Volume II) structure is likely to be as follows, subject to any changes to the scope identified through the consultation process:

- Chapter 1: Introduction
- Chapter 2: Design Evolution and Alternatives
- Chapter 3: Proposed Development
- Chapter 4: Landscape and Visual Assessment
- Chapter 5: Acoustic Assessment
- Chapter 6: Ecological Impact Assessment
- Chapter 7: Ornithological Impact Assessment
- Chapter 8: Cultural Heritage Assessment
- Chapter 9: Geological and Hydrological Assessment
- Chapter 10: Socioeconomic Assessment
- Chapter 11: Other topics (*including shadow flicker and aviation, and telecommunications*)
- Chapter 12: Summary of Effects

The Individual environmental topic chapters within the written statement (Volume II) will look to follow a consistent format:

- Introduction and Overview;
- Methodology;
- Baseline Information;
- Design Evolution (Primary Mitigation);
- Predicted Significant Effects of the Project;
- Secondary Mitigation and Enhancement Measures; and
- Assessment of Residual Significant Effects.

The ES will be provided in hard copy and electronic format.

4.0 LANDSCAPE AND VISUAL ASSESSMENT

4.1 Introduction

The location, indicative turbine layout and preliminary Zone of Theoretical Visibility (ZTV) study are shown on **Figure 4**. The ZTV shows that beyond the immediate environs of the PDA, potential visibility would generally be intermittent and largely confined to hill tops or high ground. The most notable areas of potential visibility are located to the north and west, within approximately 20km, while there is a notable absence of potential visibility to south and east. Beyond 24km in all directions potential visibility would be very limited.

In line with Planning Guidance for Wind Turbine Development⁴, a 15km study area is proposed for the examination of effects on landscape and visual receptors, with a 23km search area for cumulative sites. Planning Guidance for Wind Turbine Development was prepared for Heads of the Valleys, but is likely to be applicable in future in Carmarthenshire and will be treated as the applicable local guidance in terms of scope and methodology guidance. The Pembrokeshire Supplementary Planning Guidance⁵ (prepared with Carmarthen County Council (CCC), but not yet finalised for CCC SPG), will be treated as the applicable local guidance in terms of cumulative effects, except where it differs from the previously mentioned guidance (mainly study areas in relation to turbine sizes) where *Planning Guidance for Wind Turbine Development* will take precedence. Revisions to these documents as they are amended and become applicable within Carmarthenshire will be taken on board as far as is possible given application and assessment timescales.

4.2 Landscape Character

4.2.1 Detailed Study Area

As a rule of thumb, effects are typically likely to be of Large Scale within 700m - 1km of turbines (where the turbines may become the dominant characteristic of the landscape), reducing to Medium Scale within up to 2-4 km (where the turbines may become one of the key characteristics of the landscape) and decreasing further thereafter. The size of the development, the nature and susceptibility of the receiving landscape, and local 'barriers' in the landscape (such as breaks of topography, woodlands, settlements, and roads or rivers) will determine the exact extent of effects for each development, but in practice significant effects are highly unlikely beyond 10 km.

In line with the emerging LANDMAP guidance, the full 15km study area will be used; however, the focus for detailed assessment will be on those areas closest to the PDA and with notable visibility of the turbines.

4.2.2 Landscape Baseline

It is understood that CCC will shortly be issuing for consultation a draft wind energy landscape capacity study. Should this be available at the time of the Landscape and Visual Impact Assessment (LVIA) being carried out it is proposed that the information contained within this should provide the landscape character baseline. Should the draft capacity study not be available it is proposed that landscape character areas, and their key characteristics, as defined in the Bryn Llywelyn Wind Farm⁶ ES⁷ should be used to provide a landscape character baseline. These areas are underpinned by LANDMAP data.

⁴ Planning Guidance for Wind Turbine Development Landscape and Visual Impact Assessment Requirements (Draft for Consultation), Gillespies LLP

⁵ Pembrokeshire and Carmarthenshire: Cumulative Impact of Wind Turbines on Landscape and Visual Amenity guidance, White Consultants, 2013

⁶ Bryn Llywelyn Wind Farm was a 21-wind turbine project submitted to CCC in 2012, which encompassed the PDA and surrounding common land. This project is no longer active.

⁷ Bryn Llywelyn Wind Farm Environmental Statement, Arup, 2010

A full assessment of the baseline LANDMAP data will be included as an appendix to the LVIA. This will be carried out in accordance with Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines⁸. NRW are currently in the process of updating this guidance (see **Appendix A**); the assessment will take cognisance of the updated guidance should it be published prior to completion of the LVIA.

4.3 Visual Receptors

4.3.1 Detailed study area

Given the proposed height of the turbines and observing the pattern of visibility as shown by the ZTV study, a 6km study area is proposed for detailed assessment of effects on visual receptors. Extending the detailed study area to 7km has been considered in order to take account of the increased height of the turbines; however this would not bring in any additional communities with notable visibility of the Project – just areas of farmland on higher ground to the west and northwest.

Viewpoints will be located throughout the 15km study area. Additionally, two specific viewpoints will be included beyond this (see section 4.3.5).

4.3.2 Community Visual Receptors

The pattern of settlements, Public Rights of Way (PRoW) and local roads within the proposed 6km detailed study area can be seen on the two scoping ZTV's.

Within 6km, there are a number of settlements and dispersed groups of scattered houses. Effects will be assessed on these settlements or groups of properties as communities, incorporating effects on views from both the residential areas and the public spaces within the settlements (or around the houses), and the routes and accessible landscape in the surrounding countryside. The initially identified community receptor groups listed below are illustrated on **Figure 5**. These early draft areas may be revised during assessment (areas may be split, joined or differently bounded) and are provided as information at this stage rather than as an agreed scope.

The following community receptor groups are located within 6km of the PDA and have theoretical visibility of the development:

- **Mynydd Llanllwni (0km)** – Including the common land within approximately 2km to 3km of the proposed turbines and incorporating its network of PRoW, minor roads and dispersed residential properties. To the east of the turbines this area is constrained to within approximately 0.5km by a valley crossing the plateau.
- **Pencader, New Inn and Gwyddgrug (2km, SW)** – Follows the A485 and B4459 corridors between around 2km to 6km from the proposed turbines to the west.
- **Llanllwni (2km, NW)** – Around the junction of the A485 and B4336 and extending between around 2km to 6km from the proposed turbines.
- **Gwernogle (2km, SE)** – Incorporates the settlement and extends into Brechfa Forest as far as the B4310, up to approximately 4.5km from the proposed turbines.
- **Llidiad-Nenog (0.5km, E)** – Incorporates an area between approximately 0.5km to 4km from the proposed turbines running from the north of Mynydd Llanybyther to south of Llidiad-Nenog.
- **Brechfa (4km, S)** – Incorporates the settlement to approximately 6.5km from the proposed turbines and a small area extending towards Brechfa Forest.

⁸ Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines, Natural Resource Wales, July 2013

- **Maesycrugiau, Rhuddlan and Drefach (5.2km, NW)** – extends between the B4459 north of Llanfihangel-ar-arth and A475 north of Drefach, broadly following the northern slopes of the Teifi Valley. This area falls largely beyond 6km however given the extent of potential visibility it will be considered as requested by CCC.

With these areas, it is likely that there would be some visibility of the Project, and effects on visual receptors within them will therefore be assessed. For each receptor group the assessment will be informed by the use of ZTV studies, aerial photography, representative viewpoints and site work to identify the scale and extent of visual effects.

Other areas within 6km of the proposed turbines, namely woodland to the south and east and farmland to the north, is illustrated by the scoping ZTV's to have very limited or no potential visibility of the Project and therefore visual receptors within these areas would not be considered for detailed assessment. The only area in this group which has some patchy visibility and which contains settlement is in the vicinity of Llanfihangel-ar-arth where visibility is likely to be limited. Given the limited visibility and distance, it is suggested that this area is scoped out of detailed assessment.

4.3.3 Key Routes

Roads and Rail

The only main road route passing within the proposed 6km study area is the A485 which is located approximately 2.9km west of the PDA. Scoping ZTV's indicate potential visibility along the southern half of the route as it passes through the 6km study area and it will therefore be assessed.

No rail routes pass within 6km of the proposed turbines.

Long Distance Recreational Routes

Cycle route 82 lies approximately 6km to the north west of the PDA. The Long Distance Walkers Association identifies two undesignated long distance routes within 6km of the PDA:

- **Sarn Helen** – a Roman route running north-south through West Wales between Carmarthen and Caerhun and which passes through the PDA.
- **Cistercian Way** – a route which links the Cistercian Abbeys of Wales forming a large circuit which comes within approximately 3km to the southeast of the PDA.

No other long distance recreational routes have been identified passing within 6km of the proposed turbines.

4.3.4 Accessible and Recreational Landscapes

The common land occupying the upland area of Mynydd Llanllwni which lies within 100m of some turbines will be included within the Mynydd Llanllwni visual receptor group described in section 4.3.2.

In the wider 6km study area there is accessible woodland of the Brechfa Forest extending from southwest to northeast, generally located between around 1km and 3km from the proposed turbines. Due to the wooded nature, and as illustrated by the scoping ZTV's, users of the accessible woodland are unlikely to experience notable visibility of the proposed turbines and so these areas will not be considered further.

4.3.5 Specific Viewpoints

Ordnance Survey mapping indicates one panoramic viewpoint located approximately 1.9km north of the proposed turbines. The scoping ZTV's indicate that there would be no potential visibility from this location (the viewpoint also looks out to the northwest, away from the PDA) and therefore it will not be considered further. No other specific viewpoints have been identified within the proposed 15km study area.

At the request of CCC two specific viewpoints, Paxton's Tower and Carreg Cennen Castle have been included beyond the 15km study area due to being prominent visitor destinations within the Brecon Beacons National Park and Tywi Valley Special Landscape Area (SLA). Further details are provided in Table 4.2.

4.3.6 Representative Viewpoints

Viewpoints agreed for the Bryn Llywelyn wind farm have been used as a starting point for the selection of viewpoints for use in the LVIA for the Project. These have been refined based on an initial ZTV study of the Project. In reviewing the viewpoints, suggested changes are focussed on having most of the viewpoints within approximately 10km and representing the main areas of visibility and visual receptors within that zone. The proposed representative viewpoints are illustrated on **Figure 4** and presented in Table 4.1 overleaf.

Table 4.1 – Representative viewpoints

| VP | VP Name | X | Y | Dist/Dir | Relation to Bryn Llywelyn VP's | Montage? | Notes |
|-----|------------------------------------|--------|--------|------------|--------------------------------|----------|---|
| 01 | Peace Cairn | 250197 | 235474 | 0.8km, S | 12 | Y | |
| 02 | New Inn | 247178 | 236684 | 3.2km, W | 18 | Y | VP moved approx. 20m from Bryn VP18 to give better visibility of new proposal. |
| 03 | Llanllwni | 248160 | 238849 | 3.3km, NW | 19 | Y | |
| 04 | Pen Llwyn-uchel | 251765 | 238794 | 1.9km, N | 03 | Y | Bryn VP03 relocated from minor road to parking area at Mynydd Llanllwni. |
| 05 | Minor Road, south of Llidiad Nenog | 254586 | 236919 | 2.8km, E | 04 | Y | |
| 06 | Minor Road, east of Gwernogle | 254225 | 234142 | 3.3km, SE | 05 | Y | |
| 07 | Public Footpath, west of Pencader | 243733 | 236575 | 6.6km, W | 17 | N | The Project is likely to be partially obscured by vegetation with cumulative schemes in more open view, montage unnecessary. |
| 07a | Public Footpath, west of Pencader | 243695 | 236534 | 6.6km, W | 17 | N | CCC request consideration of change to location of VP07 to provide clearer visibility and avoid existing vegetation to north. |
| 08 | Minor Road, east of Capel Dewi | 247660 | 242806 | 7.0km, NW | N/A | Y | |
| 08a | Brynteg | 247660 | 242806 | 7.2km, NW | N/A | Y | CCC request consideration of change to location of VP08 further north near to the silver bench and on crossroads at Brynteg. |
| 09 | Minor Road, south of Brechfa | 252631 | 229095 | 6.9km, S | 10 | Y | |
| 10 | Minor Road, near Plas Farm | 248080 | 227087 | 9.1km, S | 11 | N | The Project is likely to appear behind and much smaller than cumulative schemes, montage unnecessary. |
| 11 | Minor Road, west of Dolgran | 240856 | 234441 | 9.6km, W | 16 | Y | |
| 12 | A475, west of Cwmsychbant | 246705 | 246165 | 10.1km, NW | 21 | Y | |
| 13 | Mynydd Cynros | 261921 | 232749 | 10.7km, SE | 06 | Y | |
| 14 | Heol Mafon, Llanfihangel-ar-arth | 244568 | 239272 | 6.5km, NW | 20 | Y | |

Table 4.2 – Specific Viewpoints

| VP | VP Name | X | Y | Dist/Dir | Relation to Bryn Llywelyn VP's | Montage? | Notes |
|----|----------------------|--------|--------|------------|--------------------------------|----------|-------|
| 15 | Paxton's Tower | 254088 | 219175 | 16.9km, S | 09 | Y | |
| 16 | Carreg Cennen Castle | 266797 | 219142 | 22.9km, SE | 08 | Y | |

Table 4.1 includes a judgement about whether the proposed viewpoint is primarily likely to illustrate effects of the Project alone or the cumulative effects with other operational, consented, or planned wind energy developments. It also indicates for which viewpoints photomontages are proposed to be included in addition to wireframe images. Visualisations will be produced in accordance with current industry best practice as set out in Visual Representation of Wind Farms (Version 2)⁹.

⁹ Visual Representation of Wind Farms (Version 2), SNH, December 2014

4.4 Designated Landscapes

4.4.1 National Designations

There are no nationally designated landscapes within the 15km study area. The nearest is the Brecon Beacons National Park which is located around 18.5km to the southeast.

4.4.2 Local Designations

There are a number of locally designated landscapes situated within 15km of the proposed turbines, referred to as SLA's across both Carmarthenshire and Ceredigion. It is noted that the Carmarthenshire Local Plan Proposals Map (web based) does not distinguish between individual SLA's and the June 2011 Special Landscape Areas evidence document provides no graphic representation, only brief textual descriptions of the proposed SLA boundaries. However, based on an analysis of the information available the following locally designated landscapes have been identified within the study area:

Carmarthenshire

- Llanllwni Mountain SLA (contains the PDA)
- Teifi Valley SLA (3.0km, NW)
- Cothi Valley SLA (4.4km, S)
- Tywi Valley SLA (11.9km, S)
- North Eastern Uplands SLA (11.9km, NE)

Ceredigion

- Teifi Valley SLA (5.5km, N)

Of those listed above the Tywi Valley and North Eastern Uplands SLA's are situated almost entirely beyond 12km from the PDA and would have limited visibility, so would not be assessed in detail.

4.5 Cumulative

Operational and consented wind farms within 23km will be considered to form part of the baseline. Cumulative effects with proposed wind farms (submitted applications) within 23km will also be considered. Schemes in scoping will not be considered unless there is reason to believe an application is imminent, and adequate information about turbine sizing and layout is available to undertake an assessment.

GLVIA (2013) and SNH's latest cumulative guidance (March 2012), both emphasise the need within the LVIA to maintain proportionality and to focus on potentially significant cumulative effects. In line with this guidance and the *Planning Guidance for Wind Turbine Development* document the following criteria are proposed for the inclusion of schemes within the cumulative assessment:

- 'Micro' turbines (<25m) up to 2km from the Project;
- 'Small' turbines (25-50m) up to 8km from the Project;
- 'Medium' turbines (50-80m) up to 12km from the Project;
- 'Large' turbines (80-109m) up to 17km from the Project;
- 'Very Large' turbines (>109m) up to 23km from the Project.

At present, there are no known developments within the study area which are not wind farms, that would warrant detailed cumulative assessment, with the proposed 'wooden pole' grid connection being the largest proposed development near to the PDA.

4.6 Residential Visual Amenity

Planning Guidance for Wind Turbine Development recommends a study area of 1.5 times tip height. A distance of 1.5km was agreed by the Appellant and CCC at the Bryn Llywelyn appeal as sufficient to identify any properties that might be unacceptably affected by the proposals and would be 1.8km if proportionately increased to take account of the greater proposed turbine height; as requested by CCC a 1.8km study area will be used. Residential properties within 1.8km are illustrated on Figure 6 – Residential Visual Amenity.

For each property the assessment will be informed by the use of ZTV studies, aerial photography, representative viewpoints and site work to identify the scale and extent of visual effects. The level of detail and illustrative material provided for each property will be proportionate to the likely effects. For those with no likely visibility the ZTV study and a brief description will be provided. For those properties likely to be most affected, information including detailed ZTV studies, photowires or wireframes, photography and aerial photography are likely to be provided alongside detailed description. Properties in between these two 'extremes' will have sufficient illustration and description to support the assessment.

Effects on the approaches and surrounding environs of all properties and the wider community will be considered separately within the main body of the LVIA.

5.0 ECOLOGICAL ASSESSMENT

5.1 Background to Approach

The approach to characterising baseline ecological conditions for the PDA has involved consultation, desk study and field survey. It has been co-ordinated by BSG Ecology and is summarised in the following sections.

5.1.1 Consultation

Consultation to date has involved a meeting with Bonnie Palmer, Huw Williams and David Watkins of Natural Resources Wales (NRW) in April 2015, followed by liaison by email concerning the approach to work and the likely focus of subsequent ecological assessment. Liaison has also been undertaken with the NRW species team with regard to the approach to and results of the bat survey work, and both the NRW project officer (Bonnie Palmer) and the species team have been provided with technical reports for comment.

Consultation has also been undertaken with ecologists from CCC (Rosie Carmichael and Lindsey Rendle). A meeting to discuss the approach to ecological survey, the emerging results of work completed in 2015 and that planned for 2016, took place in Carmarthen in early April 2016, together with an on-site meeting in late May 2016 (to discuss the emerging layout and to gain site appreciation). The CCC ecologists have also been issued baseline technical reports for comment.

5.1.2 Desk study

The approach to the work has been substantially informed by survey undertaken to inform the Bryn Llywelyn Wind Farm ES⁷, which covered a far larger area (including the entire site). The most recent protected species survey work for that scheme was completed to inform supplementary environmental information to the planning application submitted in 2012¹⁰. It included Phase 1 habitat survey, National Vegetation Classification (NVC), and survey for bats, dormouse, badger and bats.

In addition to review of the Bryn Llywelyn information, the following has been completed:

- A review of the presence of statutory designated sites of nature conservation interest in relation to the PDA using the MAGIC website (<http://magic.defra.gov.uk/>), (most recently accessed on 15/06/2016).
- The West Wales Biodiversity Information Centre (WWBIC) has provided records of non-statutory designated sites and records of protected/notable species and habitats within 2 km of the PDA (10 km for bat species).
- Aerial photographs of the PDA and surrounding area have been regularly viewed using Google Earth and used in conjunction with the Ordnance Survey Getamap website to gain contextual information about the PDA and surrounding area.

5.1.3 Field survey

Survey work has involved the completion of an extended Phase 1 Habitat Survey of the entire PDA based on industry standard methods¹¹. The work was completed in spring and summer 2015, and included walking the indicative route of access tracks. In addition to recording the habitats present, the potential of the PDA to support a range of protected species was assessed and recorded.

¹⁰ Bryn Llywelyn Wind Farm Environmental Statement: Supplementary Environmental Information, Arup, 2012

¹¹ Handbook for Phase 1 Habitat Survey, JNCC, 2010

Bat surveys based on the recommendations of Bat Conservation Trust guidance¹² for a 'medium risk' site have also been completed. These have involved:

- An initial site appraisal (a reconnaissance visit in early Spring 2015);
- Monthly walked transect surveys (in each of April to October 2015 inclusive);
- Vantage Point (VP) surveys for early emerging bats (in each of May to September 2015 inclusive);
- Automated bat detector survey (at nine indicative turbine locations and six paired habitat features);
- An appraisal of roosting opportunities (during the Phase 1 habitat survey, based on surveys for Bryn Llywelyn Wind Farm and the results of 2015 work); and
- Surveys of buildings with the potential to support roosting bats within the PDA.

Additional localised surveys are likely to be needed around water crossings (with regard to habitat quality and for protected species) and any changes to access track routes once the project is approaching a 'design freeze.' This will inform the need for mitigation (such as 'micro-siting' of infrastructure) and licensing to ensure legislative compliance.

5.2 Baseline Conditions

Survey work is ongoing, and the following summary is based on results of survey completed to date.

5.2.1 Designated Sites

There are no statutory or non-statutory sites of nature conservation interest within the PDA or 2 km of the PDA.

The closest statutory designated site is the Afon Teifi Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) which is located approximately 3km north-west of the PDA. The Afon Teifi was designated based on the characteristics of the watercourse, associated plant communities and protected plants, the presence of a range of Annex 1 (Habitats Directive) fish species and otter.

5.2.2 Habitats

The PDA is characterised by pasture fields broken up into discrete areas by steep-sided wooded valleys. The pasture fields are of varying size (typically 160-180m in length by 100-130m in width), and are sheep-grazed (cattle also graze small areas of the site). Although there are several recently improved fields within the PDA, the main habitat type present is poor semi-improved grassland. Small blocks of plantation are also present throughout the area, either acting as wind breaks or on areas of poorly drained ground.

The boundaries of the pasture fields mainly comprise earth banks topped with hedgerows. The vast majority of the hedgerows are defunct, with segregation of stock only resulting where post and wire fences have been erected. There is evidence of historic hedge laying, but following the cessation of this ash has grown up into standards, which occur frequently. Shrub species occurring commonly within the hedges are laburnum, hawthorn and blackthorn.

Habitats of greatest conservation interest within the pasture land are confined to steep ground where the gradient has prevented agricultural improvement. These include small areas of valley mire, ffridd, broad-leaved woodland and rhos pasture.

¹² Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust, Hundt L, 2012: The most recent iteration of the bat guidance (issued in 2016) has not been updated with regard to wind farms as new Scottish Natural Heritage bat guidance will be issued in late 2016 that will replace both Natural England and BCT guidance with regard to bat survey for onshore wind farms. It is understood that this guidance will be endorsed by all statutory nature conservation stakeholders in the UK.

The Afon Clydach and the Afon Nenog flow along the bases of the valleys, with the lower slopes supporting broadleaved woodland. The upper valley slopes have been planted with coniferous plantation dominated by Sitka spruce with some older stands of European larch and Scots pine.

The PDA is bordered on its western and southern edges by an expanse of open moorland. The moorland is a mosaic of acid grassland and wet heath with some extensive areas of marshy grassland. These habitat types grade into each other in response to localised variance in gradient, hydrology, grazing and management pressure. The moorland is common land, and is grazed by sheep and cattle. Management practices including mowing / heather cutting and burning, all of which are widespread, and this is resulting in the development of a gradually more grass-dominated community.

5.2.3 Bats

Survey work to support the Bryn Llywelyn wind farm ES included walked transects, the deployment of static data-loggers, and roost surveys. Noctule, a long-eared bat species (assumedly brown long-eared bat), Nathusius' pipistrelle, one or more species of Myotis bat, common and soprano pipistrelle were recorded. Of these, common and soprano pipistrelles were by far the most frequently noted species. A common pipistrelle roost was recorded at Bryn Llywelyn farmhouse and a soprano pipistrelle was noted emerging from Nant-y-caws barn (towards the southern edge of the PDA).

WWBIC returned numerous records of bats within 10km of the PDA. These largely referred to common species and roost sizes were not exceptional.

Bat surveys completed in 2015 by BSG Ecology recorded low levels of noctule activity (in comparison with other sites surveyed in England and Wales), and infrequent use of the site by other species that are considered sensitive to wind farm development, such as Leisler's bat and Nathusius' pipistrelle. Moderate activity levels of common and soprano pipistrelle were noted, and clear preferential use of field boundary and woodland edge habitats was noted by these and by Myotis species.

Roost survey work at Bryn Llywelyn farmhouse, Nant-y-caws barn and other buildings confirmed that there is a small common pipistrelle bat roost (peak count 4) at Bryn Llywelyn Farm. DNA analysis of droppings has also resulted in confirmation that brown long-eared bat occurs at the Farm. No evidence of roosting bats was recorded from the derelict buildings or Nant-y-caws barn and no bats were recorded roosting during activity surveys.

5.2.4 Other Protected Species

The combination of desk study and the extended Phase 1 survey completed in 2015 resulted in the following initial conclusions with regard to protected species.

- All watercourses within the PDA were found to be broadly suitable to support otter seemingly having good water quality (based on visual observation) and having the potential to support fish. The wooded valleys offer potential lying up opportunities and could contain structures suitable for use as holts though none were recorded during the survey. One record of otter was returned for the search area by WWBIC (for a location approximately 2 km from the PDA).
- There were no records of water vole returned by WWBIC, from the Bryn Llywelyn survey work or from the Phase 1 survey (which incorporated searches of some sections of watercourse). The streams within the PDA were broadly assessed as being sub-optimal for this species. They are typically shallow, have a steep gradient and are either heavily shaded (in the wooded valleys) or heavily grazed to the edges (in the pasture habitats).
- Dormouse habitat within or close to the PDA is largely confined to broad-leaved woodland along the river valleys. The hedgerow resource within the field system was not considered to offer potential habitat for this species as it was generally found to be defunct and species poor. No records were returned of the species by WWBIC or in connection with the Bryn Llywelyn wind farm planning application.

- No records of pine marten were returned by WWBIC. The species is known to be present at low densities in Carmarthenshire, but the habitats within the PDA are likely to be of very low suitability for the species.
- There are historical records of red squirrel (from 1981) for the area. The PDA has little woodland, and grey squirrels have been observed during survey work.
- The PDA is outside of the typical range of great crested newt, no records for the species were returned in the WWBIC data or from the Bryn Llywelyn application and no ponds were recorded on site during any of the survey work.
- Badger occurs within the PDA. A few active and disused setts were recorded during the Phase 1 survey (some of which were previously documented).
- The pasture fields within the PDA are largely unsuitable for reptiles due to their current grazing levels and limited refugia. Where steeper ground and bracken encroachment have led to a reduction in grazing and the vegetation is more structurally diverse, there is potential for common species of reptile to occur. The open moorland also offers opportunities for common reptile species.

The non-native invasive species Japanese knotweed, which is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), was recorded in one location during the survey work. The clump was approximately 1m in diameter and appeared to be relatively recently established.

5.3 Potential Effects

Desk study, consultation and survey has established that the main ecological issues that will need to be assessed in the EcIA are likely to be habitat loss and degradation associated with infrastructure (particularly new tracks across common land), and impacts on protected species (including collision of bats) resulting from wind farm construction and operation.

Effects on statutory and non-statutory designated sites are unlikely to occur due to the distance of the PDA from protected areas.

5.4 Assessment Methods

The approach to the EcIA for the Project will be based on industry standard assessment methods¹³. It is not practical for an EcIA to consider potential impacts on all ecological receptors. It follows that effects on statutory and non-statutory designated sites of nature conservation interest, bat species identified as potentially being of high and moderate sensitivity to wind farm development¹⁴ and other protected and priority species and habitats will be afforded particular priority. These will include ecological receptors afforded statutory protection under the Conservation of Habitats and Species Regulations 2010 (as amended), the Wildlife and Countryside Act 1981 (as amended) and listed in response to Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006, all of which are material considerations of the planning process.

Mitigation is being incorporated into development design to reduce or avoid negative effects. Areas of higher quality habitat within the PDA will be avoided wherever possible, while access tracks will seek to minimise loss of moorland habitats. The Project is also taking account of the results of bat survey, and turbines will be located as far away from field boundary features as is possible.

The EcIA will also include a cumulative ecological assessment. In completing the assessment we would consider the 'in combination' effects on various ecological receptors identified during baseline work.

¹³ Guidelines on Ecological Impact Assessment (Second Edition), CIEEM, 2016

¹⁴ Bats and onshore wind turbines (Interim guidance) (TIN051), Natural England, 2014

For bats we would propose that developments within 8 km of the PDA should be considered (based on core sustenance zone of the species recorded as given in BCT guidance¹⁵).

For other ecological receptors a more limited geographical area (e.g. 2 km) is considered appropriate. The cumulative assessment will only consider projects that have gone beyond the scoping stage.

¹⁵ Bat Conservation Trust, Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd Edition), 2016

6.0 ORNITHOLOGICAL ASSESSMENT

6.1 Background to Approach

The approach to characterising baseline ornithological conditions for the PDA has involved consultation, desk study and field survey. It has been co-ordinated by BSG Ecology and is summarised in the following sections.

6.1.1 Consultation

Consultation to date has involved a meeting with Bonnie Palmer, Huw Williams and David Watkins of Natural Resources Wales (NRW) in April 2015, followed by liaison by email concerning the approach to work and the likely focus of subsequent ornithological assessment. An ornithological report covering the 2015 breeding season has been submitted to NRW for their information and comment.

Consultation has also been undertaken with ecologists from Carmarthenshire County Council (CCC), Rosie Carmichael and Lindsey Rendle. The approach to and results of ornithological survey completed between April 2015 and March 2016 were presented to them at a meeting in Carmarthen in early April 2016, and there has been a further on-site meeting in late May 2016 (to discuss the emerging layout and to gain site appreciation). The CCC ecologists have also been issued the breeding bird report for 2015 for their information and comment.

6.1.2 Desk study

The approach to the work has been substantially informed by survey undertaken to inform the Bryn Llywelyn wind farm ES⁷, which covered a far larger area (including the entire PDA and considerable areas of adjacent moorland to the north and south).

Work to support that application included standard vantage-point (VP) survey from three locations, walkover breeding and wintering bird survey, a raptor survey extending to 2 km from the PDA, and surveys for nightjar and honey buzzard in Brechfa Forest (which was far closer to the edge of the Bryn Llywelyn Wind Farm site than it is to the PDA). Supplementary environmental information (to that presented in the Bryn Llywelyn Wind Farm ES) on the winter bird community was collected in 2010 and 2012¹⁰.

In addition to review of the Bryn Llywelyn information, the following has been completed:

- A review of the presence of statutory designated sites of nature conservation interest in relation to the PDA using the MAGIC website (<http://magic.defra.gov.uk/>), (most recently accessed on 15/06/2016).
- The West Wales Biodiversity Information Centre (WWBIC) has provided records of non-statutory designated sites and records of bird species within 2 km of the PDA (10 km for bat species)
- Aerial photographs of the PDA and surrounding area have been regularly viewed using Google Earth and used in conjunction with the Ordnance Survey Getamap website to gain contextual information about the PDA and surrounding area.
- Sources including the Carmarthenshire Bird Report (published annually by Carmarthenshire Bird Club), Birds in Wales 1992-2000¹⁶, and the Bird Atlas 2007-2011¹⁷ have been used for context in interpreting the results of work.

¹⁶ Birds in Wales 1992-2000, Jonathan Green, 2002

¹⁷ Bird Atlas 2007-2011, Balmer et al., 2013

6.1.3 Field survey

All survey work completed at Brechfa North has taken account of industry guidance on bird survey for onshore wind farm¹⁸, which is endorsed by NRW. It involved the following in 2015:

- VP surveys from two locations during the 2015 breeding season and the winter of 2015/16. These locations, in combination, afford excellent views over the PDA and surrounding areas. In accordance with guidance, at least 36 hours of survey data have been collected from each of the locations during the breeding and winter periods.
- Breeding raptor surveys of land within 2 km of the PDA.
- Walkover breeding bird surveys of the PDA and adjacent areas of moorland (extending to 600 m from indicative turbine locations and to 300 m from indicative access tracks at the time of survey). Within the PDA (where there are very few opportunities for ground-nesting birds due to the short sward), these have followed field boundaries and habitat features, while on adjacent moorland transects have been walked in accordance with the Brown & Shepherd¹⁹ method for moorland wader survey. Surveys were repeated on four occasions during the 2015 breeding season.
- Nightjar survey of a small area (5.3 ha) of stunted coniferous plantation to the south-east of the proposed turbine array on two occasions in 2015 (in accordance with the timings suggested by Gilbert et al.²⁰).
- Monthly walkover winter bird surveys of the PDA and adjacent moorland to plot the distribution of flocks of golden plover and characterise the wider winter bird community. Survey effort was increased to twice-monthly visits in late autumn and late winter, as previous survey suggested golden plover numbers can increase at these times (as birds pass through the area).

Ornithological survey work in 2016 has been limited to resurvey of a number of nests, apparently constructed by red kite, but not occupied in 2015. As a result of the detection of a pair of red kite using one of these nests, it is being monitored under (a Schedule 1) licence, and 36 hours of data are being collected from one of the VP locations used in 2015 (to characterise the flight activity of the birds) over the breeding season.

6.2 Baseline Conditions

Survey work is ongoing, and the following summary is based on results of survey completed to date.

6.2.1 Designated Sites

There are no statutory or non-statutory sites of nature conservation interest within the PDA or 2 km of the PDA. The nearest Special Protection Area (SPA) is Elenydd Mallaen, located approximately 19 km north of the PDA. Due to the distance between the PDA and the SPA no effects on its interest features are considered likely to occur.

6.2.2 Breeding Birds

Bryn Llywelyn Data

Surveys completed to inform the Bryn Llywelyn Wind Farm ES recorded frequent use of the area by red kite. Kite activity was noted to increase if there was carrion present. Walkover survey work suggested that there was one pair of kites breeding at a location approximately 2.5 km from the current proposed wind farm. A range of other species was recorded less frequently during VP work including goshawk, kestrel, merlin, hobby, wintering golden plover and a whimbrel on spring passage.

¹⁸ Recommended bird survey methods to inform impact assessment of onshore wind farms, SNH, 2014

¹⁹ A method for censusing upland breeding waders, Brown and Shepherd, 1993

²⁰ Bird Monitoring Methods, Gilbert et al., 1998

Walkover surveys of moorland areas completed in connection with Bryn Llywelyn ES recorded up to four pairs of curlew in 2009 and a single pair in 2010. None of these birds were confirmed as breeding. Anecdotal evidence from local landowners is that the perceived decline indicated by these results continued, and curlew is not now noted on the common land with regularity.

Surveys for nightjar indicated three breeding territories in the northern part of Brechfa Forest. As part of the survey for this species, individuals trapped at Brechfa Forest were fitted with radio-trackers. No evidence was found of birds crossing the Bryn Llywelyn Wind Farm site, from either observational or radio-tracking studies. No records of honey buzzard were made over the Bryn Llywelyn Wind Farm site during the targeted surveys for the species, although a bird was recorded over forestry approaching 5 km distant from the current PDA²¹.

WWBIC Data

Data obtained from WWBIC includes records of golden plover, snipe, curlew, nightjar, red kite, peregrine, kestrel and merlin within 2 km of the PDA. The limited resolution of these data and/or the lack of associated information regarding the nature of the sightings reduce their usefulness in the context of the work.

2015 Breeding Bird Survey Data

VP survey work completed by BSG Ecology in the 2015 breeding season recorded red kite, kestrel, peregrine, merlin, hobby, goshawk and golden plover. Additional target species recorded during walkover surveys were snipe, dunlin and whimbrel, all of which are likely to have been passage birds (for example the party of four dunlin appeared to have been grounded due to low visibility).

Red kite was recorded during all breeding season VP watches (a total of 198 flights were mapped). Increased kite activity during watches was generally linked to the presence of a carcass, and a peak count of seven birds was noted over the PDA (attracted to a dead sheep). In 2015 one pair of kites was considered likely to be breeding in a location on the edge of the 2 km survey area, but access was not possible to confirm this.

Other species were recorded on a more occasional basis: there were four flights of kestrel; two flights of peregrine; one of merlin; one of hobby; two of goshawk; and, one of golden plover (a lingering winter / spring passage flock of twenty birds). Most of these flights were over adjacent moorland as opposed to the PDA.

The walkover breeding bird surveys recorded territorial activity in 51 species within the area surveyed. The bird community was passerine and near-passerine dominated: no waders were noted holding territory within the PDA or surrounding moorland, and raptors that were confirmed and considered likely to be breeding respectively (other than the aforementioned red kite) were limited to buzzard and sparrowhawk. Within the PDA, breeding birds were largely restricted to hedgerows and woodland, with no species recorded nesting within the open pasture fields due to the lack of sward structure.

Nightjar was not noted during the dedicated survey work (and was also not recorded during bat surveys of the PDA).

2016 Breeding Kite Data

Survey in 2016 has established the presence of one pair of red kites approximately 250 m from the PDA. These birds fledged young in early July 2016. Flight line data have been collected relating to the pair and the fledglings.

²¹ The resolution of this information has been reduced due to the confidential nature of the record.

6.2.3 Wintering Birds

Bryn Llywelyn Data

Survey completed to inform the Bryn Llywelyn ES recorded large numbers of red kites and raven associated with moorland areas adjacent to the PDA. A peak count of 43 red kites and a flock of 224 ravens were both noted in February 2009¹⁰. It was concluded that dumping of animals carcasses was likely to have resulted in these large numbers of birds.

Numbers of golden plover using the moorland to the south and north-west of the PDA peaked at 1,123 and 435 birds in October 2008 and 2009 respectively.

These were the main winter bird issues considered in the ornithological assessment for Bryn Llywelyn Wind Farm. However, it should be noted that the PDA does not include the moorland areas in which these sightings predominantly occurred, and many of them will be from areas now relatively remote from the PDA.

WWBIC Data

Data from WWBIC indicates that flocks of up to 2,500 golden plover have been recorded on/over moorland within 2 km of the PDA. The highest counts typically occur in October and November, with more variable numbers persisting through the winter and occurring in the early spring. The location of some of these sightings is consistent with sightings in connection with Bryn Llywelyn Wind Farm and walkover survey data collected in winter 2015/16 by BSG Ecology.

WWBIC data also indicate that a range of raptor species typical of moorland habitats have also been recorded in the area on an infrequent basis, including hen harrier, merlin, short-eared owl, kestrel and peregrine, with the latter two species being reported with the greatest regularity.

2015/16 Winter Survey Data

During winter 2015/16 red kite continued to be the most common target species during VP survey work. Activity levels appear to have been broadly consistent with the breeding season, and animal carcasses continue to draw in birds. Goshawk was noted in flight over the PDA on two dates.

Merlin was noted using areas of common land adjacent to the PDA in four months between October 2015 and March 2016 inclusive, and short-eared owl was recorded in the same areas during three of these months. Neither species was noted commuting across the PDA at collision risk height.

Golden plover was most abundant in October and November 2015 (when flocks of 320-350 birds were present), with numbers dropping to 18 birds in January, and a late winter increase to a peak count of 83 birds in March 2016. These birds favoured areas off site, particularly Llanfihangel Rhos-y-Corn in excess of 600m south of the PDA.

6.3 Potential Effects

Desk study, consultation and survey has established that the main ornithological issue with regard to the Project is likely to be collision (and potentially displacement) of red kite.

Effects on wintering golden plover and breeding curlew, which were important considerations for the Bryn Llywelyn ES, are likely to be more modest with regard to the Project, as the wind turbines will be situated on pasture land as opposed to the moorland habitats used and predominantly flown over by these species. Curlew also appears to have declined to local extinction in the vicinity of the PDA over the past five years, reflecting the wider decline of this species in Wales.

6.4 Assessment Methods

The approach to the Ecological Impact Assessment (EclA) for the Project will be based on industry standard assessment methods¹³.

It is not practical for an EclA to consider potential impacts on all ornithological receptors. It follows that effects on statutory and non-statutory sites designated for their ornithological interest, highly protected birds and bird species that are potentially sensitive to wind farm development (due to their scarcity and/or empirical data indicating collision or displacement issues) typically form the focus of wind farm assessments.

These include bird species afforded enhanced statutory protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) such as red kite, and species of particular conservation priority in Wales, including curlew and golden plover. The assessment will therefore concentrate on species that meet these criteria.

The EclA will also include a cumulative ecological assessment. In completing the assessment we would consider the 'in combination' effects on various ornithological receptors identified during baseline work. SNH guidance indicates that development within 4 km of the Brechfa North should be considered as part of the scope of this work. The cumulative assessment will only consider projects that have gone beyond the scoping stage.

7.0 ACOUSTIC ASSESSMENT

7.1 Introduction

Noise can have an effect on the environment and on the quality of life enjoyed by individuals and communities. The effect of noise, both in the construction and operational phase, is therefore a material consideration in the determination of planning applications. Operational noise emitted by wind turbines can be associated with two types of noise source: aerodynamic sources due to the passage of air over the turbine blades; and mechanical sources associated with the gearbox, generator and other parts of the drive train.

The main focus of the acoustic impact assessment of operational noise will be the most relevant type of noise emission for modern wind turbines: aerodynamic noise, which is broadband in nature.

Mechanical noise, which can be tonal in nature, is also considered albeit less relevant to modern wind turbines. Implicitly incorporated within this assessment is the normal character of the noise associated with wind turbines (commonly referred to as ‘blade swish’) and consideration of a range of noise frequencies, including low frequencies. An assessment of the impact of construction noise, due to the operation of machinery and movement of traffic, will also be undertaken.

7.2 Baseline Environment and Assessment Methodology

Planning Policy Wales (PPW) references Technical Advice Note 11: Noise (TAN 11)²² which provides advice on how the planning system can be used to minimise the adverse impact of noise. TAN 11 refers to detailed guidance on noise from wind turbines contained in TAN 8. TAN 8 identifies ETSU-R-97 - The Assessment and Rating of Noise from Wind Farms²³, as providing relevant guidance and this will therefore be utilised to provide a robust basis for assessing the acoustic impact of operational noise from the Project. The guidance makes it clear that the noise restrictions placed on a wind farm must balance the environmental impacts of the development (particularly in relation to residential amenity) with the widely recognised and policy driven benefits that would arise through the development of renewable energy resources.

A Good Practice Guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise²⁴, which has been endorsed by the Welsh Assembly Government, provides guidance on all aspects of the use of ETSU-R-97. The operational noise assessment process can be outlined as follows:

- Identify the nearest residential properties;
- Identify the type and noise emission characteristics for the candidate wind turbine;
- Calculate the noise levels predicted due to the operation of the proposed wind turbines at the properties being considered;
- Determine the need for a background noise survey;
- Agree the acoustic assessment methodology, and discuss background noise survey locations if required, with CCC’s Environmental Health Department;
- Carry out baseline survey, if required (background noise surveys have already been carried out in consultation with CCC);
- Derive noise limits in accordance with relevant planning guidance; and
- Assess the predicted noise levels due to the operation of the proposed wind farm against the derived limits.

²² Technical Advice Note 11: Noise, Welsh Government, 1997

²³ The Assessment and Rating of Noise from Wind Farm (ETSU-R-97), Working Group on Noise, 1997

²⁴ A Good Practice Guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise, Institute of Acoustics, May 2013

TAN 11 also provides advice on the assessment of construction noise in which it refers to the use of BS 5228. BS 5228:2009 'Code of practice for noise and vibration control on construction and open Sites' provides well established standardised techniques for calculating and assessing construction noise levels. It will therefore be used to assess noise levels produced during the construction of the Project.

7.3 Predicted Impacts and Design Iteration

An assessment will be carried out to determine the impact of construction and operational noise in accordance with appropriate guidance. The following guidance is relevant to the assessment of operational noise:

- ETSU-R-97: The Assessment and Rating of Noise from Wind Farms
- Institute of Acoustics (2009) Acoustics Bulletin Article, Prediction and Assessment of Noise from Wind Farms; Bowdler et al, Vol. 34, No. 2
- Institute of Acoustics (2013): A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise

With regard to construction noise, the following legislation and standards are relevant:

- The Control of Pollution Act 1974 (CoPA 1974)
- BS 5228: 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites

7.4 Cumulative Assessment

Where there are any other wind energy proposals operational, consented or in planning that are located such that they require consideration, a cumulative impact assessment will be undertaken. Again, if necessary and dependent upon the status of the scheme(s) being cumulatively modelled, iterative designs would be considered to ensure compliance with acceptability thresholds and the protection of amenity for local residents.

Projects to be included within the scope of the cumulative assessment will be agreed with the CCC Environmental Health Department.

7.5 Mitigation measures, Conclusion and Summary of Effects

Where any significant adverse effects cannot be mitigated through design iterations, these would be clearly identified within the ES and a view offered regarding secondary mitigation and the residual effect on receptors, including the potential effects on amenity.

8.0 CULTURAL HERITAGE ASSESSMENT

8.1 Introduction

This chapter details the proposed approach to assessing the potential effects on the historic environment that would result from the construction, operation and decommissioning of the Project. Historic assets that may be affected include archaeological remains and components of the historic landscape. These assets include statutory designations as well as non-statutory designations and non-designated assets.

The EIA objectives regarding the historic environment will be to:

- Identify known and potential assets that may be affected;
- Assess the value ('heritage significance') of those assets;
- Determine the direct and/or indirect impacts, if any, of the Project on assets, the magnitude of impact and the resulting significance of effects upon them;
- Identify possible measures to mitigate any significant effects; and
- Determine the residual significance of the effect on the historic environment that the Project would have, taking into account mitigation.

8.2 Guidance Documents

The approach to protection and management of the historic environment in Wales is detailed in Conservation Principles²⁵. The six principles identified by Cadw for the sustainable management of the historic environment in Wales are:

- Historic assets will be managed to sustain their values;
- Understanding the significance of historic assets is vital;
- The historic environment is a shared resource;
- Everyone will be able to participate in sustaining the historic environment;
- Decisions about change must be reasonable, transparent and consistent; and
- Documenting and learning from decisions is essential.

Conservation Principles define the heritage significance of an asset as being composed of different forms of value: evidential, historical, aesthetic and communal (p. 16-17). Each value may contribute to the overall heritage significance of an asset, and impacts on the asset must be considered in relation to the nature of the impact and how it affects those values.

The EIA will be undertaken in accordance with the Code of Conduct of the Institute for Archaeologists²⁶ and with other standards and guidance where appropriate.

The EIA will also consider the draft proposals for best-practice guidance documents to support the Historic Environment (Wales) Act 2016, new planning policy, and advice.

²⁵ Conservation Principles for the Sustainable Management of the Historic Environment in Wales, Cadw, 2011

²⁶ Code of Conduct, Chartered Institute for Archaeologists, 2014

8.3 Baseline Data Sources

The following sources of data will inform the production of the EIA:

- Details of non-designated assets held in the Historic Environment Record (HER) maintained by Dyfed Archaeological Trust (DAT);
- Details of designated assets supplied by Cadw;
- Details of Conservation Areas supplied by Carmarthenshire County Council;
- The Register of Landscapes of Outstanding Historic Interest and Register of Landscapes of Special Historic Interest, including alterations and additions recorded in the Dyfed Historic Environment Record; and
- Historic Landscapes data contained on LANDMAP, maintained by NRW.

The following additional sources of data will be used to inform the EIA:

- Historic aerial photographs held by the National Monuments Record of Wales (NMR), as well as modern vertical aerial and satellite images;
- Details of any assets currently being considered for designation, to be obtained from Cadw; and
- Historic mapping, primarily any tithe or estate maps and the historic Ordnance Survey mapping series.

8.3 Assessment Methodology

8.3.1 Desk-Based Assessment (DBA)

A desk-based assessment (DBA) will be undertaken to conform to the IFA's Standard and guidance for historic environment desk-based assessment²⁷. The DBA will include baseline information relating to the archaeology of the PDA and the cultural heritage features in the surrounding area where potentially significant effects may occur.

The DBA will consider:

- Sites on the Register of Landscapes of Historic Interest in Wales within 10km of the PDA;
- Grade I and II* listed buildings, Scheduled Ancient Monuments (SAMs), and sites on the Register of Parks and Gardens of Special Historic Interest in Wales within 5km of the PDA;
- Grade II listed buildings within 2.5km of the PDA; and
- Below ground archaeological remains within a 500m radius of the PDA.

Not all of these features will be of relevance to the proposal. Identified sites will be assessed for their importance, likely adverse impacts and the significance of those impacts.

8.3.2 Field Survey

A site walk-over survey was carried out on the 6th and 7th April 2016 to inform an initial baseline assessment of the PDA. The aim of the walk over survey was to locate and record the character, extent and current condition of all visible cultural heritage sites, monuments, and landscape features. Further site work will be carried out in order to assess the Project against relevant receptors identified within the DBA.

²⁷ Standard and guidance for historic environment desk-based assessment, Institute of Field Archaeologists, 2014

Field reconnaissance of the PDA may potentially lead to the discovery of previously unrecorded cultural heritage sites, which may in themselves present constraints in terms of the siting of turbines. This information along with details on the recorded sites will be used to inform the layout design, avoidance measures will be adopted where possible, and mitigation measures developed where avoidance measures are not achievable.

8.3.3 EIA Approach

The assessment methodology adopted will be based on accepted guidance and best practice methodologies. Guidance will be sought from Cadw and CCC's planning authority at an early stage, regarding definitions of acceptable distances between SAMs and development infrastructure and the setting of SAMs and historic landscapes. A brief for the required content and methodology for the baseline cultural heritage assessment and impact assessment will be sought from CCC's archaeological planning advisors (Dyfed Archaeological Trust) and Cadw. This guidance will be integrated into the assessment methodology.

Considering the PDA does not lie within 10km of a Registered Landscape of Historic Interest in Wales (for which ASIDOHL assessment methodology would be undertaken), an ASIDOHL will not be carried out as part of the EIA.

8.3.4 Ongoing Consultation

Ongoing consultation would continue throughout the EIA process, topics of discussion will include:

- The heritage significance of known assets and potential archaeological remains;
- The settings of assets, their capacity to absorb change without harm to heritage significance, and the requirement for detailed assessment regarding setting;
- Opportunities to find design solutions for adverse effects; and
- The scope for potential mitigation and enhancement.

8.4 Potential Effects and Mitigation

Construction activities associated with the Project have the potential to directly disturb or damage known and unknown archaeological remains or features of cultural heritage. The presence of the Project may also indirectly affect the setting or characteristics of a particular heritage asset. Both these direct and indirect effects on any such features present on or in the vicinity of the PDA will be addressed during the environmental assessment process.

Where any significant adverse effects cannot be mitigated through design iterations, these would be clearly identified within the ES and a view offered regarding secondary mitigation and the residual effect on receptors.

The results of the assessment will be presented in an ES chapter together with the production of appendices and figures, where appropriate. Depending upon the outcome of consultation with statutory consultees and the agreed methodology, visualisations (either wireframe or photomontages) may also be produced for key receptors to aid in assessment and representation of visual (in-direct) impacts.

8.5 Cumulative Assessment

Where there are any other developments operational, consented or in planning that are within distance of the Project that subsequently require consideration, a cumulative impact assessment will be undertaken.

9.0 HYDROLOGICAL AND GEOLOGICAL ASSESSMENT

9.1 Introduction

This sections sets out the proposed approach for evaluating potential geological, hydrogeological and hydrological impacts.

Based on our current understanding of the PDA, potential water environment and geological constraints include:

- Groundwater: The area is one of high rainfall and with relatively shallow bedrock. A deep groundwater water table is likely to exist in the interbedded sandstone and mudstone.
- Surface water: Surface water run-off needs to be considered due to the relatively shallow bedrock and topography of the PDA and surrounding area. A number of surface water abstractions are also present within the river catchment area.
- Superficial Deposits: There are limited superficial deposits across the PDA, with bedrock at relatively shallow depths. No Peat bogs are located within the development area, though are indicated in the beyond the southern boundary.

9.2 Scope of Assessment

The ES will include the assessment of a study area comprising lands contained within the PDA for geological, hydrological and hydrogeological impacts, and any possible off-site impacts in hydrologically and hydrogeologically connected areas downstream of the site up to approximately 5 km downstream of the PDA. This will include supporting material to address the geological, hydrological and hydrogeological concerns frequently highlighted in relation to wind farms.

The impact of construction, operational and decommissioning activities on water resources (surface water and groundwater quality) as well as likely geological, hydrological and hydrogeological receptors within the PDA and the surrounding area will be considered as part of the assessment. These will be established through a combination of a desk study, a site visit, and consultation with statutory and non-statutory bodies.

Risks to hydrogeology, in particular surface water and groundwater will be considered through an assessment of geology and topography.

The site infrastructure/access tracks are predominately restricted by the topography. The proposed locations of the turbine foundations and access track locations will be considered in the assessment, especially the effect of these potential locations upon surface water flows.

In summary, the assessment will set out the baseline water and geological environmental characteristics of the study area, and will assess potential impacts on the baseline. Advice on appropriate avoidance and mitigation measures will be provided to offset each of the potential risks which will seek to ensure good site practice is carried out.

9.3 Legal context and relevant guidance

In the planning and implementation of the assessment, relevant legislation, planning policies, codes of practical, technical references, and applicable best practice guidance documents will be referred to.

9.4 Assessment Methodology

Potential significant effects to geological, hydrological and hydrological features will be based on the collection and review of a wide range of data and information from published material principally made available by the Welsh Government, plus consultations with statutory bodies, principally Natural Resources Wales, relating to the local and wider hydrological environment, as well as qualitative professional judgement by appropriately qualified individuals based on previous experience on similar projects.

9.4.1 Desk Study

A desk study and site visit will be undertaken as the first stage of establishing the baseline conditions at the PDA. These will inform the assessment of potential scheme effects upon geology, hydrology and hydrogeology.

The following sources of information will be consulted:-

- British Geological Survey – relevant published maps (solid and superficial geology, soil conditions, hydrogeological and groundwater vulnerability), reports, memoirs and mineral resources maps. A limited number of previous boreholes exist on site and in the surrounding areas (dated 1957);
- Carmarthenshire County Council e.g. private water supplies;
- Natural Resources Wales LIE, A Geo-Portal for Wales – Information on risk from flooding from rivers, Flood Zone Maps, Flood Storage Areas;
- Natural Resources Wales Water Watch Maps - relevant to the Water Framework Directive and River Basin Management Plans;
- Welsh Government– relevant published data e.g. Development Advice Map;
- Historic Wales – Listed buildings, scheduled ancient monuments, National Museum Archaeology Collection and National Monuments Records for Wales;
- Ordnance Survey – relevant published topographical maps to identify natural catchment areas;
- Meteorological Office – rainfall and evapotranspiration statistics.
- Aerial photography – to assist with drainage lines, areas of marginal stability and potential areas of ground disturbance due to activities such as farming or quarrying.

Further sources will be consulted if particular lines of research become important.

Flood risk advice will be provided, however a flood risk assessment will not be undertaken. The Natural Resources Wales Flood Map Zones and the Welsh Government Development Advice Map show the wind farm to be located outside any areas at risk of flooding.

9.4.2 Field Work

Field work will include the following elements:-

Reconnaissance/Mapping

Multi-disciplinary mapping will be prepared as follows:-

- Geological mapping : Including locations of outcrops, strata types, dips and dip directions, fault lines (mapped or inferred) and other relevant geological features;
- Hydrological mapping (water features survey): Including springs, drainage lines, ponds, indications of shallow water table, sinks, bogs and other relevant hydrological features;
- Hazard mapping (where applicable): Including potentially unstable ground, quarries, swallow holes, cavities, mine shafts, adits and other mining features, landslips (active or dormant), and other potential hazards.

Peat Surveys

It is understood a peat probing survey was previously undertaken targeting specific areas of a preceding development plan, which revealed limited or no peat to present.

The geological mapping of the area indicates peat to be absent from the PDA, though a limited number of isolated areas are identified to the south. On site it is possible some isolated pockets may be present associated within drainage runs, or in water logged areas within the common land.

9.4.3 Consultation

The following statutory consultees will be contacted for support, advice and information relating to the proposals:

- Natural Resources Wales
- Carmarthenshire County Council

9.4.4 Assessment

A qualitative impact assessment will be undertaken, which will consider potential impacts to natural drainage patterns, runoff volumes and rates, groundwater levels and recharge, groundwater and surface water quality, water supplies and flows within watercourses.

The assessment will consider each impact separately during the construction/de-commissioning and operational phases of the scheme. This will require liaison with other members of the design team to agree on potential impacts and mitigation measures. At this stage it is considered this will be particularly important for proposed access routes within the PDA.

It is proposed to include figures to inform the geology, surface water catchments of the area, and private water supplies which may be impacted by the Project.

A site visit will further enable drainage patterns and overall site conditions to be identified, to allow possible sources of contamination, pathways and any key sensitive receptors to be identified.

10.0 PUBLIC ACCESS, AMENITY, AND SOCIOECONOMIC ASSESMENT

10.1 Introduction

This chapter will consider the socioeconomic context of the Project and assess the effects that its construction, operation, and decommission might have locally on:

- Employment and job creation;
- Land use;
- Public access; and
- Recreation, amenity, and tourism.

The assessment will identify the potential impacts set out the socioeconomic baseline of the local (5km), regional (Carmarthenshire) and national (Wales) area.

10.2 Baseline Data

Baseline data will be collated in various ways. The most up to date, publicly available data will be used wherever possible. The data will be used to generate a picture of the baseline conditions across the study area for context. Data sources will include, but not be limited to:

- Census 2011;
- Annual Population Survey;
- Nomis (official labour market statistics);
- Business Register and Employment Survey;
- Index of Multiple Deprivation;
- Local authority reporting and statistics.
- Wales Tourism Alliance;
- Visit Wales;
- Carmarthenshire Tourist Association;
- Brechfa Forest and Llanllwni Mountain Tourism Cluster Association;
- Caravan and Camping Club; and
- Cambrian Mountain Initiative.

10.3 Assessment Methodology

The methodology of this assessment will be based on desk based analysis, comprising the collection and review of a wide range of data and information from published material as well as through consultation with key stakeholders. In order to predict the likely impact of a development, it is important to have a clear understanding of the socio-economic conditions of the area. This can be used as a baseline against which the significance of predicted changes can be assessed. In addition, social impacts of similar developments have been reviewed in order to give a good indication of the likely effect of the Project.

There is no standard approach to this element within an EIA; however the general approach will be to outline the areas of the Project where there will be the potential for some economic / social effect within the wider area. This will be undertaken with a view to examining the significance of these effects. Where possible (quantifiable), the significance will be assessed by way of comparison of the factor (e.g. construction jobs) with the variance of related factors within the local economy. Where effects cannot be quantified, the assessment of significance will be undertaken using professional judgement and experience.

10.4 Consultation

Relevant consultees will be contacted during the assessment and as part of the community consultation. Consultees will include, but not be limited to:

- Carmarthenshire County Council;
- Local Community Councils;
- Countryside Council for Wales;
- Ramblers Cymru and Local Ramblers Groups including the Carmarthen and District, Dinefwr, and Llanelli Groups;
- Visit Wales Tourist Board;
- South West Wales Tourism Partnership; and
- British Horse Society and Affiliated Groups such as the Carmarthenshire Riders.

10.5 Potentially Significant effects

The assessment will examine the level of construction activity and job creation and the potential linkages with the wider local economy. This will include an assessment of potential multiplier effects within the local economy and the degree to which local businesses could benefit from involvement with the Project, use and eventual decommission. Potential community effects will also be examined and, whilst it is considered unlikely to be significant, the assessment will also qualitatively consider the potential for the Project to have an effect on other existing business activity.

11.0 OTHER TOPICS

11.1 Shadow Flicker

Shadow flicker is an effect that can occur within buildings situated in relatively close proximity to wind turbines, when the shadow from rotating blades passes over a window opening, causing a flickering effect to be perceived within the building. Shadow flicker intensity is defined as the difference or variation in brightness at a given location in the presence and absence of a shadow. Shadow flicker can be a nuisance to nearby human receptors, and its effects therefore must be considered during the design of a wind-energy project. It only occurs when the turbine is in operation (i.e. sufficient wind speed is present), the sun is low in the sky (dawn, dusk, winter days), there is no cloud cover and the turbine lies between the direction of the sun and the building in question.

There is no guidance on shadow flicker in Welsh planning policy, however, the Companion Guide to PPS22²⁸ which covers England states that shadow flicker effects have been proven to only occur within ten times the rotor diameter of a wind turbine. The study area for the proposed wind energy development will therefore encompass all of the properties located within ten times the maximum rotor diameter, in this case, 1,000m.

For an accurate assessment of shadow flicker, complex modelling is required taking into account the turbine's dimensions and the movement of the sun throughout the year. Data will be input into the modelling as follows:

- The locations of properties within ten rotor diameters of each proposed wind turbine;
- The locations and dimensions of the proposed turbines;
- The local topography (Ordnance Survey Digital Terrain Model); and
- The estimated dimensions of windows.

The modelling calculates the position of the sun throughout the day in accordance to the curvature of the earth, the time of year and the sites position. The software calculates the occurrences of shadow flicker at each identified receptor. Analysis will be conducted to represent a worst case scenario, namely:

- The sun is shining all day, from sunrise to sunset;
- The rotor plane is always perpendicular to the line from the wind turbine to the sun;
- There are no obscuring features such as trees and vegetation;
- The analysis looks at shadow casting over the building from all directions rather than over vertical orientated windows only; and
- The wind turbine is always operating.

11.2 Aviation

In the wake of recent, Government-led consultation with aviation organisations such as NATS, Civil Aviation Authority (CAA), and the Ministry of Defence (MOD), it is clear that large scale wind farm proposals can impact significantly on primary, secondary or weather radar stations and thus affect operational safety. Developers are encouraged to engage with these organisations and airport operators at an early stage in the design process, to establish the potential impacts and agree acceptable technical solutions. Where actual or potential conflicts exist, it is important that a solution is identified and that the relevant consultee agrees to that solution being realised within a suitable timescale.

²⁸ Planning for Renewable Energy: A Companion Guide to Planning Policy Statement 22, ODPM, 2004

Further consultation will be carried out with the CAA, NATS and the MOD as part of the EIA process. Consultation would lead to greater knowledge of existing links and transmitters and the requirement of mitigation measures to offset any disruption such as radar and obstacle effects for aircraft.

Information obtained from the consultees will be taken into account and, if necessary, RES will begin discussions with the relevant operators over the likelihood and practicalities of radar mitigation. The conclusions of any discussions or agreements with relevant operators will be presented in the ES.

11.3 Electromagnetic Interference

Wind farm developments have the potential to interfere with electro-magnetic signals passing above ground and existing infrastructure that is buried below ground. However, an initial review has indicated that it is unlikely that impacts on telecommunications would arise as a result of the Project.

Further consultation will be carried out with OFCOM, television and telecommunication providers to clarify that there are no links crossing the PDA or that turbine development within this area is likely to impact on digital TV signals. Information obtained from the consultees will be taken into account and if necessary the Project will be designed to take on board existing telecommunication links.

Consultation would lead to confirmation of existing links and transmitters and the requirement of mitigation measures to offset any disruption such as:

- Reflection / scatter of point-to-point microwave radio links; and
- Reflection of television signals leading to 'ghosting' images.

Investigation would be undertaken to examine any potential problems with interference and ways to minimise interference through the Project layout. Arrangements with the telecommunications and transmitting companies would be described to cover any mitigation measures necessary.

12.0 SUMMARY OF PROPOSED EIA SCOPE

This chapter summarises the proposed scope for each of the environmental studies that will be undertaken as part of the EIA, please refer to Table 12.1.

Table 12.1 - Proposed scope of EIA

| Environmental Topic | Proposed Scope of Assessment | Elements to be scoped out |
|--|--|---------------------------|
| Landscape and Visual Assessment (Section 4.0) | <ul style="list-style-type: none"> • A full assessment of the baseline LANDMAP data will be included as an appendix to the LVIA; • A 15km study area is proposed for the examination of effects on landscape and visual receptors, with a 23km search area for cumulative sites; • A 6km study area is proposed for detailed assessment of effects on visual receptors – including community receptor groups, key routes, accessible and recreational landscapes, and specific viewpoints; • 16 representative viewpoints have been agreed with CCC throughout the study area; and • Residential properties within 1.8km of the proposed turbines will be considered as part of the residential amenity assessment. | |

| Environmental Topic | Proposed Scope of Assessment | Elements to be scoped out |
|--|---|---|
| Ecological Assessment (Section 5.0) | <ul style="list-style-type: none"> Assessment will be based on industry standard methods (CIEEM, 2016), and will include: <ul style="list-style-type: none"> A review of potential impacts on statutory and non-statutory designated sites within 2 km of the PDA Assessment of the impact of habitat loss as a result of wind farm infrastructure based on Phase 1 survey data Assessment of impacts on bats based on detailed data collected in accordance with industry-standard methods and supplemented by desk study information; A review of potential impacts on other protected species, particularly otter and water vole Cumulative assessment of the impact of the wind farm on ecology. Scope of assessment for bats to extend to 8 km from PDA (based on core sustenance zones). | <ul style="list-style-type: none"> Protected species surveys covering: Dormice, reptiles, great crested newt, and red squirrel. Phase II Botany Survey (NVC). |
| Ornithological Assessment (Section 6.0) | <ul style="list-style-type: none"> Assessment will be based on industry standard methods (CIEEM, 2016), and will include: <ul style="list-style-type: none"> A review of potential impacts on statutory and non-statutory sites designated for their ornithological interest An assessment of impacts on breeding / locally resident red kite and non-breeding golden plover will be completed. This will be supported by collision risk analysis and informed by industry-standard survey (vantage point work, walkover breeding and wintering bird surveys) Consideration of potential impacts on other Schedule 1 / Annex 1 species recorded during the survey work. A review of information relating to breeding curlew. A cumulative assessment of the potential effects of wind farm development within 4 km of the PDA. | <ul style="list-style-type: none"> Passerines will be considered only in the context of legislative compliance |

| Environmental Topic | Proposed Scope of Assessment | Elements to be scoped out |
|---|---|---|
| Acoustic Assessment (Section 7.0) | <ul style="list-style-type: none"> Operational noise effects will be considered and will follow 'The Assessment and Rating of Noise from Wind Farms, ETSU-R-97' published by ETSU for the Department of Trade and Industry. Construction noise will be evaluated although it is likely to be suitably controlled by following best practice guidelines and standard mitigation. Noise from construction traffic will be assessed on the identified access routes to the PDA. A cumulative noise assessment will be provided. | <ul style="list-style-type: none"> There will be minimal noise from operational traffic. This has therefore been scoped out of the assessment. |
| Cultural Heritage Assessment (Section 8.0) | <ul style="list-style-type: none"> A desk-based assessment (DBA) will be undertaken to conform to best practice guidance; Consideration of effects on the setting of Registered Landscapes of Historic Interest in Wales within 10km of the PDA; Consideration of effects on the setting of designated heritage assets (Scheduled Ancient Monuments, Grade I and II* Listed buildings, and sites on the Register of Parks and Gardens of Special Historic Interest in Wales) within 5km of the PDA; Consideration of effects on the setting of Grade II Listed buildings within 2.5km of the PDA; Consideration of effects on below ground archaeological remains within the PDA and within 500m of the PDA; and A cumulative impact assessment will be undertaken. | <ul style="list-style-type: none"> Geophysical site works; Intrusive site investigations works; and ASIDOHL. |

| Environmental Topic | Proposed Scope of Assessment | Elements to be scoped out |
|---|---|--|
| Hydrological & Geological Assessment (Section 9.0) | <ul style="list-style-type: none"> • An assessment of geological, hydrological and hydrogeological impacts within the PDA, and any possible off-site impacts in hydrologically and hydrogeologically connected areas downstream of the PDA up to approximately 5 km. • The assessment will set out the baseline water and geological environmental characteristics of the study area, and will assess potential impacts on the baseline. • A qualitative impact assessment will be undertaken, which will consider potential impacts to natural drainage patterns, runoff volumes and rates, groundwater levels and recharge, groundwater and surface water quality, water supplies and flows within watercourses. | <ul style="list-style-type: none"> • Detailed site investigation works; • Cumulative impact assessment; • Flood Risk Assessment (FRA); and • Peat surveys. |
| Socioeconomic Assessment (Section 10.0) | <ul style="list-style-type: none"> • Changes in land use will be assessed. • Job creation during construction, operation and decommissioning will be reviewed and related to wider employment within the region. • Public perception in relation to effects on tourism and amenity will be considered based on consultation and general research on this topic. • Issues related to common land will be assessed. | |
| Other Topics (Section 11.0) | <ul style="list-style-type: none"> • Shadow flicker: Will be assessed. • Aviation: An assessment on the impact of the proposed development on aviation will be undertaken. • Electromagnetic Interference: Will be assessed. | <ul style="list-style-type: none"> • Air Quality: It is anticipated that potential effects will be highly localised and can be effectively controlled through appropriate site management measures during the construction works. This issue has been scoped out of the ES. |

12.0 OTHER SUPPORTING DOCUMENTATION

12.1 Traffic Management Plan (TMP)

The principal objective of a Traffic Management Plan (TMP) is to provide details of the proposals to manage traffic during construction of the Project. The TMP will provide a detailed assessment of the proposed route for the delivery of turbine components and outline any traffic management measures required for the transportation of Abnormal Indivisible Loads (AIL) and Heavy Goods Vehicles (HGV) for general construction traffic.

The scope of this document will include the following:

- The policy and legislative context of the TMP;
- The process of determining the preferred delivery routes for AILs and HGVs;
- An estimate of regular and AIL traffic generation;
- A general description of necessary enabling highway works, highway upgrades, and the site accesses;
- Legal and other transport arrangements that are to be made in conjunction with the wind farm construction, namely with the AIL transport;
- The delivery routes, staging, and details of any enabling works;
- Steps which will be taken during the lead up to the construction of the wind farm to increase the public's awareness of the upcoming deliveries
- An assessment of the cumulative impact associated with other developments.

In order to agree the scope of the TMP and confirm the basic principles of the TMP, RES will look to consult with a number of stakeholders, including:

- Swansea County Council (SCC);
- Neath Port Talbot County Borough Council (NPTCBC);
- Carmarthenshire County Council (CCC);
- Welsh Government Highways – South (WGHS);
- North and Mid Wales Trunk Road Agent (NMWTRA); and
- South Wales Trunk Road Agent (SWTRA).

12.2 Design and Access Statement (DAS)

The design and access statement will contain the design principles and concepts that have been applied to the Project in respect of amount, layout, scale, landscaping and appearance; it will also detail how issues relating to access have been dealt with including how relevant access policies have been considered. The statement will also explain the evolution of the proposals throughout the consultation process and how this has influenced the design.

12.3 Supporting Planning Statement

The Supporting Statement will include a thorough review of planning policy context and appraisal, identifying the policy framework at the national, regional and local levels. National Planning Guidance will include Planning Policy Guidance Notes and Planning Policy Statements where relevant. Where relevant the Supporting Statement will also address any aviation, infrastructure and telecommunications issues.

The planning statement will highlight the benefits and advantages of the Project in terms of the Government's aim to tackle climate change and reduce the dependence on non-renewable sources of power generation.

12.4 Consultation Report

Under article 11 of the Developments of National Significance (Procedure) (Wales) Order 2016, a DNS application must be accompanied by a pre-application Consultation Report. The report should look to include, as a minimum, the following information:

- An account of the statutory consultation, publicity, deadlines set, and activities required under section 61Z of the Town and Country Planning Act 1990 ('the Act'), including:
 - Copies of all notices and publications used during the consultation;
 - Declarations that the relevant notices and publication requirements comply with the Act and Order;
 - The addresses of those given notice of the proposed application;
- A summary of all issues raised by any person consulted under section 61Z (3) of the Act and articles 8 and 9(2), including confirmation of whether the issues raised have been addressed and, if so, how; and
- The particulars of all responses received from persons consulted under section 61Z (3) or (4) of the Act, including copies of responses

APPENDIX A – CORRESPONDENCE WITH NATURAL RESOURCE WALES

From: [Bullen, Jill](#)
To: [Mark Evans](#)
Subject: RE: LANDMAP Guidance
Date: 20 May 2016 17:39:26

Hi Mark,

I am in the process of upgrading the guidance – mostly its NRW format changes, no significant changes to methodology or guidance notes, except for GN3, where I have not yet changed it but do intend to, really to give more indication on distances to be considered, the overall approach for using each layer will remain the same so its still ok to use.

It will be probably September by the time its updated I think

Thanks

Jill

From: Mark Evans [mailto:Mark.Evans@lda-design.co.uk]
Sent: 20 May 2016 14:01
To: Bullen, Jill <Jill.Bullen@cyfoethnaturiolcymru.gov.uk>
Subject: LANDMAP Guidance

Hi Jill

I was hoping you could let me know if there's a pending update to LANDMAP Guidance Note 3?
I've noted that over the past few months LANDMAP data and guidance has been hard to find online but recently appears to have been migrated to a new NRW website. GN3 is currently unavailable on the website so I was wondering if this is just yet to be uploaded or if you're taking the opportunity to update it?

Many thanks

Mark

Mark Evans

for

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