

# **GREEN GEN CYMRU**

## **Green GEN Towy Usk Scoping Report**

**October 2023**

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# Chapter 1

## Introduction

### Purpose of the Report

**1.1** This document has been prepared by LUC on behalf of Green Generation Energy Networks Cymru Limited (Green GEN Cymru). It relates to proposals to construct and operate a new 132 kilovolt (kV) grid connection which at this stage is proposed to be an overhead line (OHL) supported on steel lattice towers as well as a switching station in the Built Wells area. This project will be known as the Green Gen Towy Usk Project (hereafter 'the Project').

**1.2** The OHL will provide a connection between the proposed Nant Mithil Energy Park in Powys (under development by Nant Mithil Energy Park Limited, a subsidiary of Bute Energy) and the existing National Grid 400kV electricity network in Carmarthenshire. As well as connecting the proposed Nant Mithil Energy Park into the electricity network, it will also provide the key infrastructure to enable other future renewable energy generation to be connected into the National Electricity Transmissions System (NETS), including a number of additional energy parks being developed by Bute Energy.

**1.3** The location of the point of connection to the NETS in Carmarthenshire is shown in **Figure 1.1**.

**1.4** This report accompanies Green GEN Cymru's request for a Scoping Opinion which is being sought from Planning and Environment Decisions Wales (PEDW) in accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017<sup>1</sup> ('The EIA Regulations').

**1.5** Scoping is an early step in the Environmental Impact Assessment (EIA) process, ensuring the assessment process focuses on the likely significant effects associated with a project. Scoping also provides an opportunity for consultees to comment on the proposed methodologies, identify sources of baseline information and raise any specific issues that they consider require assessment.

### The Applicant

#### Green GEN Cymru

**1.6** Green GEN Cymru is a business in the Bute Energy Group which promotes and develops new grid infrastructure to distribute clean, green energy. Green GEN Cymru's approach aligns with Future Wales<sup>2</sup> (which is discussed in detail below) and the Welsh Government's ambitions for unlocking renewable energy generation in Wales. The approach also aligns with the UK Government's Net Zero targets.

**1.7** Green GEN Cymru will follow best practice in working with local communities throughout the development of its proposals, ensuring that communities have a strong voice in the process.

**1.8** In consultation with the Welsh Government, UK Government, Local Authorities and the private sector Green GEN Cymru is also keen to explore how others can use its infrastructure to the benefit of local communities.

#### Bute Energy

**1.9** Bute Energy is set to become a leading developer of onshore renewable energy in the UK. It was established to help address the climate crisis by providing low cost, reliable power using proven technology. The mission is to help unlock the potential for onshore renewable power generation and bring benefits to local communities where energy parks are created. Bute

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<sup>1</sup>The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. Available at: <https://www.legislation.gov.uk/ksi/2017/567/contents/made> (accessed 15/09/2023)

<sup>2</sup> Future Wales: The National Plan. Available at: <https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf> (accessed 15/09/2023)

Energy's aim is to be forward-thinking in everything it does, and it is passionate about finding better ways to deliver renewable energy.

**1.10** Bute Energy is seeking to deliver a package of sustainable benefits and clean energy initiatives. Headquartered in and focused on Wales, the aim is to deliver a portfolio of new energy parks to deliver onshore renewable power generation in Wales. They will invest millions of pounds directly into communities closest to their projects and a Community Benefit Fund will be established worth millions of pounds every year that will be spent in the local area.

## Background and Needs Case

**1.11** The Climate Change Act came into force in the UK in 2008 (the 2008 Act). Section 1, which was amended in 2019, requires the Secretary of State to ensure that the net UK carbon account for 2050 is at least 100% lower than the 1990 baseline. This is often referred to as the net zero target. The 2008 Act also requires the Secretary of State to set, at five year intervals beginning in 2008, legally binding carbon budgets, which place a restriction on the total amount of greenhouse gases the UK can emit over those five year periods. The underlying objective of these carbon budgets is to set a trajectory towards the achievement of the net zero target by 2050. The sixth carbon budget, which relates to the period 2033-2037, was made in 2021. The UK Government's October 2021 Net Zero Strategy sets out its policies and proposals for decarbonising all sectors of the UK economy in order to meet its net zero target by 2050.

**1.12** The Environment (Wales) Act 2016 also requires the Welsh Government to reduce greenhouse gas emissions (GGEs) in Wales to net zero for the year 2050, with a system of interim emissions targets and carbon budgets. In 2017, the Welsh Government set out a target that at least 70% of Wales' electricity consumption would be met from renewable generation by 2030.

**1.13** In April 2019, the Welsh Government declared a climate emergency. As part of its plan to tackle this emergency, the Welsh Government has brought forward policies to encourage innovative ways of creating energy that are sustainable, secure and cost effective. This includes Future Wales and the eleventh edition of Planning Policy Wales. As part of these new policies, the Welsh Government has confirmed that *"in determining planning applications for renewable and low carbon energy development, decision makers must give significant weight to the need to meet Wales' international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency"*.

**1.14** Onshore wind development will play a critical role in assisting the Welsh Government to meet its renewable targets. Central to this are the Pre-assessed Areas for Wind Energy identified in Future Wales, which comprise those areas where the Welsh Government has already modelled the likely impact on the landscape and has found them to be capable of accommodating development in an acceptable way. Future Wales confirms that *"there is a presumption in favour of large-scale wind energy development ... in these areas"*. Outside of these areas, Future Wales confirms that a positive policy framework still exists.

**1.15** It has long been acknowledged by the Welsh Government, energy generators and network operators that a key challenge with respect to delivering Wales' net zero obligations is the fact that the strongest renewable resources are generally in areas that have the lowest existing electricity network capacity, essentially meaning that key strategic opportunities for renewable energy generation are currently sterilised. Without intervention, this lack of grid infrastructure across Wales is likely to have a detrimental impact on achieving the UK Government and Welsh Government's net zero targets. Future Wales notes *"The Welsh Government acknowledges the significant challenge that grid infrastructure and capacity will have on the potential for new on-shore and off-shore renewable energy development across Wales"*, adding that the Welsh Government *"are committed to working with energy networks and developers to identify opportunities and barriers as well as working collaboratively to find solutions"*. There is therefore a clearly identified national need for new renewable energy development and associated grid infrastructure in Wales.

**1.16** In addition to the energy parks that will be directly connected to the grid, Bute Energy is proposing to develop new energy parks across Wales, that are geographically remote from existing high voltage (HV) electricity transmission infrastructure.

**1.17** A number of the proposed energy parks will be located in South East Wales – referred to as the South Wales Energy Parks. The options considered for connecting these energy parks to the NETS, including the rationale for the preferred option, are outlined in the ‘Green GEN Phase One Grid Connection Strategy’<sup>3</sup>.

**1.18** The proposed energy parks, and associated connection infrastructure, provide a key opportunity to help to address the climate emergency in a timely manner by providing network connection capability for a strategic renewable energy generation hub.

**1.19** Operation of infrastructure at 132kV within Wales is classified as ‘Electricity distribution’. These assets are in the main owned and operated by Distribution Network Operators (DNOs). However, to increase competition in the electricity distribution market, Ofgem, as the GB energy regulator, now licences Independent Distribution Network Operators (IDNOs). Once licensed by Ofgem, IDNOs are able to develop, operate and maintain electricity distribution networks. IDNOs connect their networks onwards into the local distribution network or national electricity transmission network.

**1.20** Green GEN Cymru have applied for an IDNO licence, and are anticipating a determination on the application in late 2023. This will enable Green GEN Cymru to move forward with its plans to design, develop and construct the most appropriate solution for connecting the new energy parks, ensuring the best solutions for the local area. It would also enable Green GEN Cymru to deliver efficient and reliable grid infrastructure in Wales, opening broader opportunities for connections in the future.

**1.21** As with DNOs, an IDNO holds an electricity licence under Section 6(1)(c) of the Electricity Act 1989<sup>4</sup> (hereafter referred to as ‘the Electricity Act’). DNO and IDNO licences also share the same Standard Licence Conditions. This places specific requirements on an IDNO, including “the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity”.

**1.22** With oversight of the development of both the connection infrastructure promoted by Green GEN Cymru as well as the energy parks, Bute Energy will be able to ensure effective coordination between these two elements, enabling collaboration regarding technical and environmental considerations and delivering the most appropriate solution. As a Welsh-based company, and a prospective IDNO licence holder, Green GEN Cymru will be able to play a proactive role in the progression towards achieving Net Zero in Wales. Bute Energy will support the development of proposed energy parks and, through the proposed connection to the NETS promoted by Green GEN Cymru, will also be able to support the efficient and timely connection of future renewable energy projects across Wales, demonstrating the benefits of the IDNO framework.

## Project Location

**1.23** The Project will provide a connection between the proposed Nant Mithil Energy Park in Powys and the existing 400kV NETS network in Carmarthenshire. It will also allow future renewable energy projects to connect to the existing network.

**1.24** The Project is approximately 96km in length, spanning across land within the jurisdiction of Powys County Council and Carmarthenshire County Council.

**1.25** The Project commences approximately 10km to the north-east of Llandrindod Wells at the Nant Mithil Energy Park substation (which will be consented as a separate project). The Project heads broadly south-west entering the Towy valley and passes to the north of Llandovery and Llandeilo. It crosses the A48 before terminating approximately 6km south of Carmarthen at a new substation being consented separately by National Grid. An overview of the location of the Project is shown on **Figure 1.2**.

## The EIA and Consenting Process

### Developing and Consenting Process

**1.26** The Project will be a ‘Development of National Significance’ according to the Planning (Wales) Act 2015. Developments of National Significance (DNS) are infrastructure development projects of national importance to Wales, and planning applications for DNS are decided by the Welsh Ministers. The DNS consenting process is specific to Wales and includes bespoke requirements for pre-application consultation to take place during the project development process.

<sup>3</sup> Green Gen Towy Usk. Available at: <https://www.greengentowyusk.com/index.php?contentid=29> (accessed 15/09/2023)

<sup>4</sup> The Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> (accessed 04/07/2023).

## Legislative Requirements

**1.27** The EIA Regulations are the pertinent regulations for identifying whether the Project is 'EIA development' and whether an ES is required to accompany the application.

**1.28** Schedules 1 and 2 of the EIA Regulations, provide the criteria for determining if EIA is required for a development. EIA is mandatory for all developments listed within Schedule 1 and may be required if thresholds in Schedule 2 are met. However, as the EIA regulations were published in 2017, prior to the inclusion of 132kV OHL infrastructure within the DNS process<sup>5</sup>, there is no mention in either Schedule 1 or 2 of the criteria for when EIA is triggered for such a project because prior to the 1<sup>st</sup> of April 2019, the Project would have been consented by the UK Government rather than the Welsh Ministers.

**1.29** Green Gen Cymru has therefore opted to prepare an ES on the basis that the Project is likely to result in significant effects. This approach is consistent with Schedule 3 of the EIA Regulations and Regulation 5 (2) (a) which allows an applicant to submit an ES when applying for planning permission regardless of the nature of their proposed development.

**1.30** This approach is also consistent with Schedule 2 of the Infrastructure Planning (EIA) Regulations which were the pertinent regulations for the Project prior to April 2019). Schedule 2 of these regulations state that EIA may be required for *"an electric line installed above ground with a voltage of 132 kilovolts or more"* and as Schedule 2 developments require EIA depending on the nature, size and location of the proposal Green Gen Cymru considers that the proposed grid connection has the potential to have significant effects and therefore an EIA will be undertaken.

**1.31** As a licence holder, Green GEN Cymru would be required to adhere to the Electricity Act. Schedule 9 (1) of the Electricity Act states that in formulating any relevant proposals, a person authorised to generate, distribute, supply or participate in the transmission of electricity shall:

- *"have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*
- *do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."*

**1.32** The EIA process will aim to avoid, reduce and where possible, mitigate likely significant environmental effects through an iterative design process for the OHL. The findings of the EIA will be presented within an Environmental Statement (ES) which will report on the effects of construction and operation of the Project.

**1.33** The ES will also consider the cumulative effects of the Project with other development projects which share the project study area and have progressed to the application stage of the development (or other projects that have been specifically requested by Statutory Consultees to be included).

## Purpose of the Scoping Report

**1.34** Scoping is an important part of the EIA process and is used to determine which likely environmental effects are assessed and presented in the ES.

**1.35** This Scoping Report sets out which environmental effects are considered likely to be significant allowing for the relevant baseline, emerging design proposals and mitigation options that are available. It also describes how the assessment will be undertaken and what methods will be used to identify and quantify the environmental effects. Where baseline surveys and consultation undertaken to date support the methodologies proposed, this evidence is presented. Relevant reports have also been referenced as appropriate.

**1.36** It is recognised that the scope of an EIA is a continually evolving process and following receipt of the Scoping Opinion, or a change in the Project or the environmental baseline, then there may be a resulting change in the scope of the ES. This Scoping Report will be referenced, and the Scoping Opinion included as a technical appendix to the ES and a full audit trail, along with a suitable justification for all scope amendments, will be provided within the ES.

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<sup>5</sup> Overhead electric lines of up to 132kV which are associated with a devolved generation station were captured by the DNS system from the 1<sup>st</sup> of April 2019



## Scoping Requirements and Recommendations

**1.37** The EIA Regulations state that the request for a Scoping Opinion should contain the following items presented in **Table 1.1**.

**Table 1.1: Scoping Requirements and Recommendations**

Scoping Requirements/ Recommendations	Location within the Scoping Report
A plan sufficient to identify the land.	<b>Figure 1.2</b>
A brief description of the nature and purpose of the development and of its possible effects on the environment.	<b>Chapter 3: Project Description</b>
An explanation of the likely significant effects of the development on the environment.	<b>Chapters 7-16</b>
Such other information or representations as the person making the request may wish to provide or make.	<b>Chapters 4-6</b>

## Structure of the Scoping Report

**1.38** **Table 1.2** presents the different chapters of the Scoping Report and the relevant author company. Refer to **Appendix A** for the competent expert details.

**Table 1.2: The different chapters of the Scoping Report and the Relevant Author Company**

Chapter	Relevant Author Company
<b>Chapters 1 - 6: Introductory Chapters</b>	LUC
<b>Chapter 7: Landscape and Visual Amenity</b>	LUC
<b>Chapter 8: Biodiversity</b>	LUC
<b>Chapter 9: Historic Environment</b>	LUC
<b>Chapter 10: Traffic and Transport</b>	LUC
<b>Chapter 11: Noise and Vibration</b>	Hoare Lea
<b>Chapter 12: Water Resources</b>	Yellow Sub Geo
<b>Chapter 13: Ground Conditions, Geology and Hydrogeology</b>	Yellow Sub Geo
<b>Chapter 14: Soils and Agriculture</b>	Arcadis
<b>Chapter 15: Air Quality</b>	Arcadis
<b>Chapter 16: Cumulative Effects</b>	LUC

**1.39** Each of the chapters are described in more detail below.

- **Chapter 2** provides a description on the main alternatives considered for the Project.
- **Chapter 3** provides a description of the Project, including outline construction and maintenance information.
- **Chapter 4** provides a description of the EIA approach and methodology.
- **Chapter 5** describes the relevant national and local planning policy relevant to the application and its determination for consent.

- **Chapter 6** describes the topics that are proposed to be scoped out of the assessment.
  - **Chapters 7 – 15** provide an overview of the environmental baseline and describe the specialist environmental studies, consultation and assessment methodologies that are proposed to assess the potential effects of the Project on the environment.
  - **Chapter 16** describes the approach to the identification of cumulative effects.
- 1.40** The following Appendices are also provided:
- **Appendix A:** Competent Expert Information
  - **Appendix B:** Proposed Structure of the ES
  - **Appendix C:** List of Proposed Consultees

## Chapter 2

# Alternatives Considered

### Introduction

**2.1** Schedule 4 (Regulation 17(3) of the EIA Regulations states that the ES should include a “description of the reasonable alternatives (for example, in terms of development design, technology, location, size and scale) studied by the applicant or appellant which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”. There is no statutory requirement to include an assessment of alternatives in support of a request for a Scoping Opinion although this chapter does identify the processes that have been followed to date in considering reasonable alternatives.

### Strategic Option Development

**2.2** In early 2023 Green GEN Cymru undertook an appraisal of grid connection options to determine the most appropriate solution to connect the proposed South Wales Energy Parks<sup>6</sup> to the NETS. This was compiled into the Green GEN Phase One Grid Connection Strategy<sup>7</sup>.

**2.3** The Green GEN Phase One Grid Connection Strategy assessed and considered 11 potential connection options, within three broad geographical zones. These were the North Zone (including the existing substations in Trawsfydd, Shrewsbury, Ironbridge and an option for a new substation in Lower Frankton), the South-East Zone (including the existing substations in Walham, Rhigos, Rassau and an option for a new substation in Abergavenny) and the South-West Zone (including the existing substations in Swansea North, Pembroke and an option for a new substation in Carmarthen). The options were reviewed against how they each performed on technical and environmental grounds, against the identified need to develop an efficient, co-ordinated and economic system.

**2.4** The appraisal process concluded that the most appropriate solution was to construct new OHL connections and substation in the Carmarthen area in the South-West Zone. The South Wales Energy Parks will be connected to this new substation by 132kV grid connections.

**2.5** The appraisal considered potential environmental impacts that the connection of the South Wales Energy Parks could have, as was available at that stage of the developments, with the measures that may be implemented to avoid, minimise or mitigate impacts.

**2.6** Overall, the analysis concluded that a route to a new substation in the Carmarthen area would offer the most appropriate solution having considered the environmental, technical and financial cost.

### Overview of the Routeing Process

**2.7** Having identified that a 132kV connection to a new substation in the Carmarthen area was the most appropriate solution, Green GEN Cymru undertook a routeing process to identify the most appropriate route for the overhead line connection. The methodology and findings of the routeing process were presented in the Green GEN Towy Usk Routeing and Consultation Document (March 2023).<sup>8</sup>

**2.8** The overall approach taken to routeing by Green GEN Cymru is based on the acknowledgement that the main effects of an OHL are landscape and visual. This is due to the scale of the OHL towers relative to the surrounding features in the landscape. As visual effects of OHLs cannot always be mitigated (for example via screening), careful routeing is the primary

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<sup>6</sup> Six Energy Parks referenced in the Grid Connection Strategy.

<sup>7</sup> Green GEN Phase One Grid Connection Strategy 2023. Available at:

<https://greengentowyusk.com/documents/Grid%20Connection%20Strategy%20Report.pdf> (accessed 04/07/2023).

<sup>8</sup>Green GEN Towy Usk Routeing and Consultation Document. Available at: <https://www.greengentowyusk.com/index.php?contentid=29> (accessed 04/07/2023).

way in which visual effects may be reduced. Other environmental and technical constraints and effects need to be taken into account alongside, and balanced with, landscape and visual effects.

**2.9** It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs (known as the 'The Holford Rules') should continue to be employed as the basis for routeing high voltage OHLs. The Holford Rules therefore provided the basis for the approach that was taken to routeing the Project. An overview of the steps involved in routeing is shown in **Figure 2.1**.

**2.10** The main environmental considerations taken into account during the routeing process reflect the Statutory duties imposed by Section 38 and Schedule 9 of the Electricity Act. These require licence holders to seek to preserve features of natural and cultural heritage interest, and to mitigate where possible, any effects which their proposals may have on such features. The construction and operation of an OHL will have potential effects on people and the environment, including potential effects on (in no hierarchical order):

- Visual amenity;
- Cultural heritage including archaeology;
- Ecology and ornithology;
- Hydrology, hydrogeology, geology and water resources;
- Landscape character;
- Land uses including mineral operations, agriculture and forestry; and
- Recreation.

**2.11** Some of these effects can be avoided or limited through careful routeing. Other effects are best mitigated through local deviations of the route, the refining of steel tower locations and/or specific construction practices. These are reviewed as part of the EIA process.

**2.12** There are technical considerations which influence routeing which include the existing electricity transmission network, existing transport infrastructure such as railways, access requirements/opportunities, Ministry of Defence (MoD) safeguarding areas, slope gradient, altitude, waterbodies and wind farms.

**2.13** Between March and April 2023, Green GEN Cymru consulted upon the routeing options for the Project and presented a preferred option for the route of the OHL. To ensure flexibility for the Project to develop following further planned stages of consultation, Green GEN Cymru considers that it is appropriate to seek a Scoping Opinion for the Project within a wider area than the preferred route that was subject to consultation. This is to allow Green GEN Cymru to consider alternative routes for the OHL within the preferred corridor that could deliver reduced impacts. As set out in Chapter 1 and shown on **Figure 1.2** this comprises the Scoping Corridor.

**2.14** The ES will include an 'Alternatives' chapter which will present a description of the process that Green GEN Cymru has followed to identify and develop the route and final design of the grid connection. It will also describe the reasons for the selection of the final design along with any environmental reasons that have informed the decision.

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graph TD
    A[A Identification of Study Area] --> B[B GIS Mapping]
    B --> C[C Identification of Corridors]
    C --> D[D Appraisal of Corridors]
    D --> E[E Detailed GIS Mapping]
    E --> F[F Identification of Route Options]
    F --> G[G Appraisal of Route Options]
    G --> H[H Detailed GIS Mapping]
    H --> I[I Identification of a preferred Route]
    I --> J[J Consultation with Stakeholders]
    J --> Output[Output of SOR Study]
    
    Feedback[Technical Feedback] --> C
    Feedback --> D
    Feedback --> E
    Feedback --> G
    Feedback --> H
    
    Consultation[Consultation Feedback] --> G
    Consultation --> I
    Consultation --> J
  
```

The flowchart illustrates the 10-step process of an SOR Study. Steps A, B, I, and J are green; C, D, E, F, G, and H are light grey; and steps A, B, I, and J are green. The process starts with 'Identification of Study Area' (A) and ends with 'Consultation with Stakeholders' (J), leading to the 'Output of SOR Study'. Feedback loops are shown for 'Technical Feedback' (affecting steps C, D, E, G, and H) and 'Consultation Feedback' (affecting steps G, I, and J).

## Chapter 3

### Project Description

#### Overhead Line Infrastructure

##### Steel Tower

**3.1** The proposed OHL will be supported on a 'L7' tower (or similar), which is a steel lattice tower with six cross-arms (three on each side) as shown on **Figure 3.1**. The required voltage for the OHL is 132kV.

**3.2** There are three types of L7 tower:

- Suspension towers- which are used to support OHLs along straight sections of the connection route.
- Tension towers- which are used to support OHLs at points where the route changes direction.
- Terminal towers- are used where the OHL terminates into a substation or onto an underground cable section via a separate cable sealing end compound or platform.

##### Tower Heights and Span Lengths

**3.3** The standard height for an L7 tower is 27m, and the section of OHL between the towers is known as the 'span', with the distance between them being known as the 'span length'. The average span length is approximately 250m, but this can be increased or decreased depending on the requirements of the terrain or intermediate obstacles like water bodies. In these limited locations it may be necessary to have taller towers to accommodate these longer spans and the assessment in the ES will allow for this accordingly.

**3.4** Tower heights can be increased for greater spans. The towers are used to regulate the statutory clearances required for conductor height, which is determined by the voltage of the OHL and the span length required between the towers.

##### Tower Colour

**3.5** As towers are fabricated from galvanised steel it is not possible to colour the towers to camouflage them for all times of day or all the seasons. Where towers are viewed against the sky, the colour cannot be relied upon to diminish the visibility as the lighting characteristics of the sky varies. Towers will weather to a dull grey colour approximately 18 months after installation.

##### Switching Station

**3.6** See **Figure 3.2** for indicative dimensions of a Switching Station that is likely to be required between the Nant Mithil Energy Park and Builth Wells. This Switching Station will measure approximately 80m by 90m with the electrical equipment reaching a likely maximum height of 12m. Additional land around the switching station could be required for landscaping and other required mitigation.

**3.7** The compound housing the switching station will be surrounded by a secure fence with a hard standing or grassed ground covering within the perimeter. A control room will be located near to the entrance gate although there will be no permanent presence on site and monitoring the switching station will be undertaken remotely.

**3.8** The Switching Station will facilitate the efficient connection and control of the energy generated from the proposed Energy Parks in this area to the Project and the onward transmission of electricity to the NETS.

##### Ancillary Development

**3.9** In addition to the proposed steel towers supporting the OHL conductors, ancillary development will be required to facilitate the construction of the OHL. Ancillary development will include working areas around towers, temporary access tracks,

winching/pulling areas and construction compounds/laydown areas. This ancillary development will be temporary and will be removed and the ground re-instated following completion of construction of the OHL.

### Underground Cabling Infrastructure

**3.10** Undergrounding of the cables could be appropriate along sections of the corridor. However, the undergrounding of cable infrastructure, whilst reducing visual impacts in the most highly sensitive locations, does generate additional impacts due to ground disturbance that would otherwise not occur with an OHL. This is particularly pertinent for ecological, archaeological and hydrological receptors.

**3.11** It is therefore essential that any proposals for undergrounding of the cable infrastructure include a detailed consideration of the likely significant effects associated with their construction to ensure that an appropriate balance is achieved that is consistent with planning policy.

**3.12** At this early stage in the development of the Project it is not yet possible to identify where undergrounding could be considered appropriate, and this will be developed and proposed as the design progresses following further consultation with stakeholders.

**3.13** In determining where along the Scoping Corridor it is appropriate to consider underground cables (UGC), Green GEN Cymru will firstly identify those areas that are subject to the greatest visual impacts (or impacts upon setting) before subsequently considering the capacity of the receiving environment to receive such an excavation.

**3.14** UGC will be considered in the most sensitive landscape areas or where the presence of OHL will be particularly dominant and impactful upon visual receptors.

**3.15** If it is deemed appropriate to consider UGC, Green GEN Cymru will consider and appraise the subsequent impacts that will arise from the excavation which could also include the visual impacts associated with vegetation clearance as well as the inherent loss of habitat and the time for re-instatement.

**3.16** Undergrounding will only be proposed where the balance of effects is justified whilst similarly considering the increased cost and viability of the Project. Any justification will be clearly explained in the ES.

### Construction Features and Methods

**3.17** The construction of OHLs can require temporary infrastructure such as temporary access to tower locations. All have minimal maintenance requirements and are subject to recognised procedures for dismantling and decommissioning.

#### Steel Tower Construction

**3.18** The construction of the OHL will follow a sequence of activities outlined below.

#### Preparation of accesses

**3.19** Prior to constructing the overhead line, temporary accesses will be constructed, as necessary, and laydown/storage areas established. Any trees which may impact on safety clearances will be removed or lopped. Existing entrances to fields will be used, where suitable, in preference to creating new entrances that may require vegetation removal.

**3.20** Access for plant and equipment to every tower location will be required during construction and where it is not possible to use the existing highway, a haul road will be constructed alongside the OHL, or underground cable, route. This will involve the removal and storage of topsoil and the placement of suitable haul road forming materials.

#### Construction materials

**3.21** At this stage it is anticipated that stone for access tracks will be sourced from a mix of existing local sources and imported stone from the wider area.

#### Excavation of foundation

**3.22** The tower's foundations will be made of concrete beneath each leg position. The depth of foundation will depend upon site conditions and tower type (see **Paragraph 3.3**) but will typically range between 3m and 5m in depth.

### **Tower delivery**

**3.23** The towers will be delivered to the relevant construction area in sections by HGVs of standard size that will not require any abnormal load notification.

### **Erection of towers**

**3.24** The towers will be erected using a mobile crane. Construction would either start with the tower body, then the cross arms and finally the insulators or alternatively, partly assembled on the ground, before lifting it in sections.

### **Delivery of conductors and stringing equipment**

**3.25** The conductors and stringing equipment would be delivered to the construction area by HGVs in large rolls.

### **Insulator and conductor erection and tensioning**

**3.26** Once the towers have been erected the stringing of the conductors can begin, which needs temporary 'pulling/stringing' areas at tower locations approximately every 3-4 km along the line. These temporary pulling areas are approximately 20 m by 50 m.

**3.27** At each of the tower locations a winch and a tensioner will be set up at opposite ends of the stringing section. The wires are placed in blocks which hang from the insulators and the winch will pull the wires to allow the conductor to be drawn through that section. The tensioner is used to make sure there is constant tension, allowing this to be controlled without the conductor touching the ground, avoiding any damage.

### **Clearance and reinstatement**

**3.28** Following completion of construction, all compounds, haul roads and access tracks will be reinstated in accordance with the requirements of any planning permission.

### **Switching Station Construction**

**3.29** Construction of the switching station will take place in parallel to construction of the OHL. Following ground clearance the concrete foundations will be laid followed by the electrical switch gear. Construction is estimated to take approximately 12-15 months.

### **Access**

**3.30** Prior to construction of the OHL or UGC, temporary accesses will be constructed (as needed) and laydown/ storage areas set up. The use of existing tracks and watercourse crossings will be maximised, with the upgrading of these if necessary.

**3.31** The use of low ground pressure vehicles when taking temporary access is preferred. If access is required to be taken through sensitive areas, which are identified during the EIA process, other less intrusive methods can be applied such as temporary steel matting, or timber roadways.

**3.32** Any trees which may have an impact on safety clearances will be removed or lopped. Following commissioning of the OHL, all equipment and temporary access of construction areas will be removed, and the land will be reinstated to the approval of the landowner and Planning Authority.

### **Temporary Working**

**3.33** Temporary working areas will be required for the duration of construction works. There is a requirement for temporary vehicular access to every tower location and to access the route of any UGC.

**3.34** L7 tower locations have a typical working area of approximately 25m x 25m for standard towers and 50m x 50m for angle towers. In some circumstances, the shape/ size of the working area is controlled by the environmental/ land-use constraints that are located nearby.

**3.35** The reinforced concrete foundations consist of 9-17 tonnes of concrete, dependant on the type (suspension or tension).



**3.36** The weight of an L7 tower is between 5 and 9 tonnes of steel, dependant of the type and the height.

**3.37** The 12 conductors and 1 earthwire required will have a combined weight of 12.8 tonnes per km.

**3.38** UGC requires a corridor of approximately 25m in width along which all vegetation would need to be removed to allow sufficient working room.

**3.39** The temporary working areas will be returned and restored to former conditions following the completion of the construction works.

### Construction Timescales

**3.40** The total duration of construction activity at any single tower site is approximately two weeks for tower foundations, a further two weeks for tower construction, and up to four weeks for conduction erection and stringing (this depends on the size of the tower and the number of conductors being strung). However, these timescales will not be consecutive as a gap of 4 weeks will be required for the foundation concrete to 'cure', a further gap will be required for all the towers in a section to be erected before any wiring works can commence. The total construction period is expected to be approximately 4 months per tower.

**3.41** UGC construction duration will be dependent upon ground conditions and the length of cable.

### Forestry Felling

**3.42** The felling of forestry will be required to construct the OHL and to maintain the required clearance for the safe construction and maintenance of the OHL. In areas of commercial forestry, a standard clearance wayleave for 132kV OHL corridor of 70m, comprising 35m either side of the centre of the OHL will be required to be maintained as open ground for the life of the Project. This is to ensure that sufficient safety clearance is provided. In other areas of woodland, this clearance wayleave could be reduced.

**3.43** The baseline of forestry will describe the woodland and timber crops existing at the time of preparation of the ES. This would include current species; the planting year (if known); and any felling and restocking plans; and other relevant woodland information. The baseline would be prepared from existing forest records, desk-based assessments, aerial photographs and site visits.

**3.44** A felling and replanting plan will set out the forestry felling and management requirements, including any potential replanting, associated with the construction and operation of the Project.

**3.45** The significance of any effects from forest felling would be assessed in the relevant chapters of the ES including Ornithology; Landscape and Visual; Hydrology, Geology and Hydrogeology; Ecology; and Traffic and Transport. Opportunities for re-planting within the wayleave corridor will be investigated as part of the EIA process to seek to deliver biodiversity net gain (BNG) and will be incorporated into the felling design plans where appropriate.

### Soils

**3.46** Best and Most Versatile (BMV) soils will be avoided where possible through routeing, although where this cannot be achieved, the ES will detail why this is the case.

**3.47** A Soil Management Plan will be prepared prior to the removal of any BMV during the construction phase of the Project. This Soil Management Plan will be substantially in accordance with the guidance within MTAN1.

### Operation and Maintenance

**3.48** Most OHL components are maintenance free, the exposed elements which suffer from corrosion, wear, deterioration and fatigue, will require inspection approximately every 12 months and periodic maintenance over the lifespan of the OHL. OHL conductors generally require refurbishment after approximately 40 years however the fittings and insulators may require replacing sooner (approximately 20-25 years).

**3.49** Any felled wayleave areas would also be managed to maintain the required clearances whilst the connection remains active. Walkover surveys or flyovers would identify where there is requirement to clear wayleaves of new growth.

## Embedded Mitigation Measures

**3.50** These are intrinsic to and built into the design of the Project, to avoid or reduce the level of significant effects that could be experienced during construction and operation of the Project.

**3.51** As further consultation is carried out the design of the Project will evolve further. The environmental assessment will continue to influence the design, to help avoid and reduce potentially significant effects. The ES will document all the embedded mitigation measures that have been developed during the assessment, with the following included:

- Routeing and siting of infrastructure to avoid and reduce impacts upon receptors. This will be through, for example and where possible to do so, the positioning of towers to avoid key views, or the avoidance of direct impacts upon notable habitats.
- Standard good practice construction measures such as use of Best Practical Means and adherence to a Construction Environmental Management Plan (CEMP).

## Underground Cabling Construction

**3.52** In the event that undergrounding is included, the conductors would be encased in insulated material and buried in a backfilled trench, with an adjacent working area; resulting in a total excavation swathe of approximately 25m in width. Where underground cables connect back to the OHL, there is the likely need for the construction of a permanent fenced area for the terminal supports and cable sealing ends.

**3.53** There are two standard techniques that can be used to install underground cables; standard open cut installation and trenchless installation and both may be required on the Project.

**3.54** Standard open cut installation usually involves the following:

- Vegetation would be removed where necessary and topsoil would be stripped and stored for reuse;
- A temporary haul route would be installed along the length of each cable section to provide access for construction vehicles to the working areas; and
- A number of open trenches (typically six trenches each accommodating up to three cables) would be excavated for cabling to be installed and covered.

**3.55** Trenchless installation (i.e. those involving no open excavations) could be necessary for crossing rivers, roads and railways and any other feature where engineering requirements prevent open excavation. The cable would be installed using a drilling/boring method to pass beneath features.

## Chapter 4

# The EIA Approach and Method

### Introduction

**4.1** This chapter describes the EIA approach and methodology that will be adopted in the assessment of the Project and production of the ES to accompany the DNS application.

**4.2** EIA is a process of systematically compiling, evaluating and presenting all the likely significant environmental effects, both positive and negative, of a proposed development, to assist the determining authority in considering the application for development consent, and reaching an informed decision. It enables the significance of these environmental effects, and the scope for reducing negative, or enhancing positive, effects to be clearly understood by the determining authority, as well as those consulted as part of the EIA process.

**4.3** Relevant information compiled during this process will be presented within an ES that will accompany the application. The proposed structure of the ES is provided in **Appendix B**.

**4.4** EIA is an iterative process and runs in tandem with the design of a project. During the process, as likely significant adverse effects are identified, the design of the Project, for example the positioning of the steel towers and ancillary infrastructure, can be adjusted to reduce or avoid the effects with mitigation measures subsequently proposed where appropriate.

**4.5** The significance of an effect is usually derived from combining the value of the receptor (sensitivity) with the magnitude of the impact. A significant effect is usually considered to be an effect that is of moderate or major significance although a precise determination will always entail an element of professional judgement.

**4.6** The EIA will be undertaken in accordance with the current Welsh Government's regulations, policy and guidance. More details on these are presented in **Chapter 5**.

### Scoping

**4.7** Scoping is important phase of the EIA process as it helps to focus the EIA on assessing the likely significant environmental effects that are relevant to the Project.

**4.8** From the work that has been undertaken to date as part of the routeing and consultation stage, feedback received in response to the routeing and consultation report, professional judgment of the EIA team, experience from other similar projects, as well as policy and guidance, each topic section in this Scoping Report outlines the likely significant effects anticipated to arise from the construction and operation of the Project. These are the topics that are proposed for detailed consideration within the ES.

**4.9** Environmental topics that are not likely to be significant are proposed to be 'scoped out' of the assessment. The justification for this is presented in **Chapter 6**.

**4.10** Other objectives of this Scoping Report are to consult with Statutory Consultees to:

- Establish the availability of baseline environmental data;
- Define a survey and framework from which a comprehensive overall assessment can be produced;
- Agree the proposed assessment methodology (including cumulatively);
- Agree the way in which the findings are presented in the ES; and
- Identify any additional stakeholders who Green GEN Cymru should consult to inform the EIA.

**4.11** A list of consultees who are invited to respond to this request for a Scoping Opinion to help inform the EIA is provided in **Appendix C**. The list has been informed through discussion with PEDW. Additional suggestions from stakeholders who may have an interest in the Project, and who may wish to be consulted for information to inform the EIA are invited as part of the Scoping process.

## Existing Conditions

**4.12** The EIA Regulations require that the aspects of the environment, which are likely to be significantly affected by the development, be defined within the ES. To achieve this each of the topic specialists will gather information on the environment, as it currently exists, i.e. 'baseline conditions'. This will be undertaken as the first step in the assembly of data for the ES through a combination of consultation with relevant stakeholders, field survey work and desk-based research.

## Future Baseline

**4.13** The EIA Regulations in Schedule 4 require an ES to outline how the baseline condition of the environment will evolve without the implementation of a project or development (the future baseline). The EIA Regulations acknowledge that this is subject to the availability of environmental information and scientific knowledge.

**4.14** The ES will, therefore, include within each assessment, as it is appropriate and feasible to do so, an appraisal of how the baseline scenario is likely to change were the Project not to proceed.

## Embedded mitigation

**4.15** Mitigation measures that are 'embedded', that is those mitigation measures that are integrated within the design and management of the Project, will be clearly stated within each chapter of the ES as appropriate. The subsequent assessment presented within that chapter will be undertaken on the basis that these measures are included and inherent within the Project.

## Undergrounding

**4.16** As stated in 3.10, at this stage in the Project it is not yet possible to identify where undergrounding could be considered appropriate.

**4.17** Should it be identified during the project development process that there are suitable areas to consider for UGC, then it will be necessary for the ES to reflect and assess the greater ground disturbance, but likely reduced visual impacts accordingly. This Scoping Report has, where appropriate, identified suitable approaches to the assessment of the installation of UGC relative to the assessment of OHL.

## Assessment of Effects (Including Cumulative Effects)

**4.18** The assessment of the likely significant effects, using a range of appropriate methodologies, will take into account the construction and the operation of the Project in relation to the study area and its environs as well as intra-project effects (i.e. those where more than one environmental factor impacts upon the same receptor).

**4.19** The baseline, will include other proposed projects which are at the following stages in the development process and which are of a scale and nature that they may result in significant cumulative effects upon the environment:

- Developments which are subject of applications for consent and which have been submitted to the relevant determining authorities but not yet determined (or are the subject of a valid appeal);
- Consented but not operational; and
- Under construction.

**4.20** The study area for each discipline will be defined separately to reflect the potential extent of likely significant effects associated with the project. The study area for each discipline is not necessarily defined by the site boundary, with some survey areas being smaller and some larger depending on the nature of effects and taking into account guidance and professional judgement. Therefore, study areas will be defined separately for each topic assessed in the EIA to reflect the extent of likely significant effects.

**4.21** In the interests of producing a focussed and concise report, which highlights clearly those issues of particular relevance to the Project, the specialist topic area assessment methodologies are not presented in detail within this Scoping Report. Reference is clearly made, however, to where the text of the relevant guidance or methodology can be accessed.

## Chapter 5

### Planning Policy Context

#### Introduction

- 5.1** This chapter presents an overview of the planning policy context for the Project. A summary of relevant policies will be included in a chapter within the ES and full details of the relevant policies will be provided in a Planning Statement.
- 5.2** This chapter, within the Scoping Report, is not intended to assess whether the Project will comply with the identified policies, or give weight to the relevant material considerations.
- 5.3** The Project is located across land within the jurisdiction of Powys County Council and Carmarthen County Council. As outlined in **Chapter 1**, the application will be determined by the Welsh Ministers, taking into account recommendations from PEDW. Powys County Council and Carmarthen County Council will be a statutory consultee for the application.
- 5.4** An overview of the relevant planning policy, from a national to local level, which will be considered as part of the EIA process, is provided below.

#### National Planning Policy

##### Future Wales: The National Plan 2040 (February 2021)

- 5.5** The Welsh Government launched the National Development Framework for Wales title 'Future Wales: The National Plan 2040 ('Future Wales')<sup>9</sup>. This is the highest tier Development Plan in Wales and sets out the key national planning policy direction. Future Wales provides the spatial direction for development in Wales and the policy framework for Local Development Plans.
- 5.6** Within the document Policy 17: Renewable and Low Carbon Energy and Associated Infrastructure, is a relevant policy. It states that *"new strategic grid infrastructure for the transmission and distribution of energy should be designed to minimise visual impact on nearby communities"*. This highlights that the Welsh Government will work with the relevant stakeholders to transition to a multi-vector grid network and try to decrease obstacles for implementation of new grid infrastructure.

##### Planning Policy Wales (February 2021)

- 5.7** The Welsh Government published Planning Policy Wales (PPW) Edition 11 in February 2021<sup>10</sup>. This provides the key principles for the planning system in Wales and is a material consideration in the planning process.
- 5.8** The overarching aim of PPW is to make sure that the planning system contributes to the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. PPW, in Paragraph 5.9.19 is clear that the contribution that a project has towards cutting greenhouse gas emissions and meeting government targets should be considered by the determining authority.
- 5.9** Section 5.7 relates specifically to electricity grid infrastructure/ electricity grid networks. Paragraph 5.7.8 states that *"an effective electricity grid network is required to fulfil the Welsh Government's renewable and low carbon ambitions. An integrated approach should be adopted towards planning for energy developments and additional electricity grid network infrastructure."*
- 5.10** Additionally, Paragraph 5.7.9 states that *"the Welsh Government's preferred position on new power lines is that, where possible, they should be laid underground. However, it is recognised that a balanced view must be taken against costs which could render otherwise acceptable projects unviable. Where undergrounding of lines is not possible or applicable, proactive"*

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<sup>9</sup> Future Wales: The National Plan. Available at: <https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf> (accessed 06/07/2023).

<sup>10</sup> Planning Policy Wales 2021. Available at: [https://www.gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11\\_0.pdf](https://www.gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf) (accessed 06/07/2023).

*engagement with energy companies and the public to mitigate the visual impact of any potential new transmission lines should take place.”*

**5.11** However, the costs and environmental impacts associated with undergrounding could make the Project unviable and therefore, the starting presumption of an OHL is considered to be the most appropriate technology type to be adopted, although as previously stated in **Chapter 3**, undergrounding may be considered in certain locations.

### Technical Advice Notes

**5.12** Technical advice notes (TANs) are used to supplement the PPW. The ones that are relevant to the application are:

- TAN 5: Nature Conservation and Planning (published 30th September 2009);
- TAN 6: Planning for Sustainable Rural Communities (published 30th July 2010);
- TAN 10: Tree Preservation Orders (published 31st October 1997);
- TAN 11: Noise (published 31st October 1997);
- TAN 13: Tourism (published 31st October 1997);
- TAN 15: Development and Flood Risk (published 30th July 2004, but last updated 24th November 2021);
- TAN 16: Sport, Recreation and Open Space (published 31st January 2009);
- TAN 18: Transport (published 31st March 2007); and
- TAN 24: Historic Environment (published 30th May 2017).

### Review of Wales' Renewable Energy Targets

**5.13** In January 2023 the Welsh Government consulted upon plans to formalise in policy that Wales generates the equivalent of 100% of its electricity consumption from renewable energy. At present, the target in adopted policy is that 70% of electricity use is generated from renewable sources by 2030.

**5.14** At present, Wales generates the equivalent of 55% of its own electricity from renewable sources and therefore further generation and distribution infrastructure is required in order to allow this policy commitment to be achieved.

### Local Planning Policy

**5.15** Local planning policies have been considered for both Powys County Council and Carmarthen Council, due to the Project being located in both councils' administrative areas.

#### Powys Adopted Local Development Plan (2011-2026)

**5.16** Powys County Council has its own development plan, the Adopted Local Development Plan (2011-2026)<sup>11</sup> which was adopted on 17th April 2018.

**5.17** Overall, the plan focuses on Powys County Council's visions, objectives, policies and proposals for the sustainable development and use of land in Powys between 2011-2026.

**5.18** Within Powys' Adopted Local Development Plan it states that *“utilisation of Powys' renewable energy resource and associated infrastructure should be supported where cumulative, environmental, socio-economic effects are acceptable”*. This aims to protect/ enhance the county's physical, social and cultural environment, including the natural landscape and historic environment.

**5.19** Policy RE1- Renewable Energy within Powys Adopted Local Development Plan focuses mainly on renewable energy. Paragraph 4.10.13 states that *“all renewable energy proposals and associated infrastructure, such as power lines or battery*

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<sup>11</sup> Powys LDP. Available at: [https://en.powys.gov.uk/media/4256/Adopted-Powys-LDP-Written-Statement-April-2018/pdf/Adopted\\_Powys\\_LDP\\_Written\\_Statement\\_April\\_2018.pdf?m=1536134184070](https://en.powys.gov.uk/media/4256/Adopted-Powys-LDP-Written-Statement-April-2018/pdf/Adopted_Powys_LDP_Written_Statement_April_2018.pdf?m=1536134184070) (accessed 06/07/2023).

*storage facilities, must respect the existence and amenities of neighbouring residential and sensitive properties including approved development”.*

### **Carmarthenshire Local Development Plan 2006-2021**

**5.20** The Carmarthenshire Local Development Plan 2006-2021<sup>12</sup> sets out the spatial vision for Carmarthenshire, which was adopted on the 10th of December 2014.

**5.21** The plan focuses on promoting sustainable development and tackling causes and effects of climate change within the county. Policy ‘SP117 Infrastructure’ states that *“renewable energy generation and associated utility connections will be encouraged, in appropriate locations, subject to other Plan policies.”* Sir Carmarthen County Council also recognises that to ensure the delivery of the Local Development Plan, plans and policies there needs to be suitable infrastructure to cope with the demand.

### **Replacement Carmarthenshire Local Development Plan 2018-2033**

**5.22** Until this plan is adopted, the existing 2006-2021 Carmarthenshire Local Development Plan will remain in place in line with advice from the Welsh Government.

**5.23** The ES will consider the Local Development Plan that is the most appropriate for the local administrative area at the time the Project commences.

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<sup>12</sup> Carmarthenshire Local Development Plan 2006-2021. Available at:  
[http://www.cartogold.co.uk/CarmarthenshireLDP/english/text/00\\_Content.htm](http://www.cartogold.co.uk/CarmarthenshireLDP/english/text/00_Content.htm) (accessed 06/07/2023).



## Chapter 6

# Our Approach to Topics Not to be Included in the EIA

### Introduction

**6.1** The purpose of this Scoping Report is to identify the scope of the EIA, the findings of which will be presented in the ES. Therefore, certain topics and/or effects associated with a particular environmental topic may be 'scoped out' or covered using an alternative approach where significant effects are considered unlikely, based on the nature of the project and our assessment undertaken to date.

**6.2** This chapter provides details of the topics and effects that are proposed to be 'scoped out' of the ES, provides information to justify this reasoning and outlines what alternative approach is proposed for some topics. Additional to whole topics being scoped out there may be effects which are proposed to be scoped out within individual topics, this is outlined within the individual topic chapters.

**6.3** During the course of the assessment and preparation of the ES, it may be necessary to revise and revisit the scope of the EIA as further detail on the Project and the baseline environment emerges. Should additional information identify a need to include, or justify the removal, of topics from the scope of the ES, the justification for doing so will be clearly presented along with any supporting information.

### Our Approach to Electric and Magnetic Fields

**6.4** An Electric and Magnetic Field (EMF) can occur naturally but they are also produced by any equipment that generates, distributes or uses electricity.

**6.5** All equipment that generates, distributes or uses electricity produces electromagnetic fields (EMFs) which vary depending on the operating voltage of the equipment (which is measured in V/m, or volts per metre). The Project will operate at 132kv and therefore there is a maximum current that can be carried through the OHL, although it will typically operate at levels far below what it is capable of carrying (known as the 'typical' level).

**6.6** The UK power frequency is 50 Hz which is therefore the principal frequency of the EMFs produced, which are also known as Extremely Low Frequency (ELF) EMFs.

**6.7** The strength of a magnetic field that is generated by an OHL is dependent on the electrical currents flowing, which vary according to the electrical power requirements at any given time and are measured in  $\mu\text{T}$  (microteslas). EMFs are present in all areas where electricity is in use (e.g. offices and homes), as they arise from all electric cabling and equipment. EMFs diminish rapidly with distance from the source and during a normal day, EMFs reduce to background levels approximately 45 m from an OHL (background levels being typical to those in an average home in the UK).

**6.8** Due to the designed voltages and currents, the maximum possible exposure directly underneath the proposed OHL is anticipated to be 38.9 microTesla ( $\mu\text{T}$ ) which is a similar level of exposure to using a hairdryer or walking close to microwave when it's cooking.

**6.9** There are limits in place for EMF exposure which have been established by independent scientific experts, who recommend safe levels of exposure for the public and workers. The exposure limit for members of the public is 360 microtesla<sup>13</sup>, so even directly underneath the OHL the maximum EMF levels are just a small fraction of the limit. After many decades of research and hundreds of millions of pounds spent investigating the issue, there are no established health effects below the exposure limits.

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<sup>13</sup> <https://www.nationalgrid.com/sites/default/files/documents/13791-Electric%20and%20Magnetic%20Fields%20-%20The%20facts.pdf>

**6.10** The Project will comply with the relevant exposure guidelines as specified by the Government and with other precautionary policies. It is therefore concluded that there would be no likely significant effects from EMFs and they are accordingly scoped out of the ES.

**6.11** However, Green GEN Cymru recognise the public interest and concern regarding EMFs and will provide all of the relevant information in relation to EMFs as part of the application for consent. Comprehensive information on EMFs as they relate to the Project will be prepared provided as a separate document alongside the ES and other DNS application documents. The information provided will include details and information on how the Project will comply with relevant guidelines and codes of practice.

### Construction

**6.12** EMFs are only generated when electricity is flowing through the equipment and the assessment of EMFs can therefore be scoped out of the construction assessment.

### Operation

**6.13** All OHLs produce EMFs, with these tending to be highest directly under the OHL. It decreases to the sides of the OHLs and at increasing distance, with substations and cable sealing end compounds not producing significant EMFs outside their boundaries.

**6.14** The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has developed health protection guidelines for both public and occupational exposure to EMF. The ICNIRP 2020 guidelines has set limits to ensure public protection from EMFs and it is the UK Government's policy that public exposure should comply with the ICNIRP guidelines and the electricity industry, including Green GEN Cymru has agreed to adopt this policy. As the siting of the OHL will therefore be undertaken to ensure that the ICNIRP guidelines are met, as is consistent with UK policy, it is accordingly concluded that the assessment of EMFs can be scoped out of the ES.

## Our Approach to Climate

**6.15** An assessment of Climate has two factors (as defined within the EIA Regulations):

- Greenhouse gas emissions; and
- Impacts relevant to adaptation.

### Greenhouse Gas Emissions

**6.16** Notwithstanding that the Project will facilitate the transfer of renewable low carbon energy produced at Nant Mithil Energy Park, as well as future energy park installations to export electricity to the NETS, the construction of the Project will have some inherent carbon cost associated with the materials that will be used.

**6.17** The Welsh Government has set carbon budgets for 2030, 2040 and 2050 in Planning Policy Wales with the overall aim of achieving net zero in 2050. Clearly the development of renewable low carbon energy will be an important contributor to that objective.

**6.18** The construction of the Project will require steel and concrete to construct the towers as follows.

- Steel for use in towers will equate to approximately 2000-3600 tonnes;
- Concrete will equate to approximately 3600- 6800 tonnes;

**6.19** Overall, in 2022 Wales produced approximately 373,000 tonnes of steel according to Welsh Government<sup>14</sup>. The Project will require between 2000-3600 tonnes of steel (based on 400 towers) which is 0.55%-0.99% of the total steel produced in Wales in 2022.

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<sup>14</sup> Stats Wales. Available at: <https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/Economic-Indices/Indices-of-Production-and-Construction/ironandsteelproduction-by-year-measure-area> (accessed 15/09/2023).

**6.20** Approximately 40 million tonnes of concrete are produced in the UK as published on Gov.UK<sup>15</sup>. the project will require between 3600 and 6800 tonnes of concrete (based on an assumption of 400 towers) which is 0.009% and 0.017% of the total concrete produced in the UK in 2022.

**6.21** Therefore, the total demand of concrete and steel is a tiny fraction of UK and Welsh production which therefore demonstrates its consequential significance of total UK and Welsh greenhouse gas emissions and hence this aspect is scoped out accordingly.

**6.22** The Project is proposing to connect multiple energy parks to grid with an approximate generating capacity of 650MW of renewable energy. Information regarding the expected generating capacity of the proposed energy parks is available within the Grid Connection Strategy Report.

### Impacts Relevant to Adaptation

**6.23** Consideration of this topic will be given within relevant environmental topic chapters in the ES where applicable. This includes the identification of the likely consequences on the following:

- Consequences of climate change for baseline conditions/assessment findings; and
- The resilience of mitigation measures to any projected changes in extreme weather, including heavy rainfall events.

### Our Approach to Health and Wellbeing

**6.24** The EIA Regulations state in Schedule 4 that an application that is EIA development needs to consider whether human health is a suitable factor for assessment within the ES. This assessment of health and wellbeing is proposed to be scoped in, however the findings of the assessment not presented in a separate standalone ES chapter. This is due to the inherent consideration of the impacts upon health and wellbeing associated with other factors that will be included within the ES (i.e. noise, traffic, ground conditions (contaminated land) and residential visual amenity).

**6.25** These impacts on health and wellbeing are unlikely to extend beyond the construction phase of the development and no significant effects during the operation of the Project are likely. The impacts of the operational phase of the Project upon human health and wellbeing are therefore proposed to be scoped out of the assessment.

**6.26** It is proposed that health and wellbeing is covered within individual topics chapters in the ES namely **Chapters 7, 10, 11 and 13**. **Chapter 7** will assess likely effects on residential visual amenity. **Chapter 10** will assess traffic and transport impacts, which will also consider the likely significant effects on Public Rights of Way (PRoWs), which could affect access to services. **Chapter 11** will consider impacts on noise and vibration, which could result in impacts on people's health during construction. **Chapter 13** will consider impacts on ground conditions, geology and hydrogeology in relation to contaminated land, analysing the impacts on the health of people through pollution of soil and water.

**6.27** Where there are intra-project effects (where a single receptor is potentially affected by more than one source of environmental impact), this would be considered in the intra-project cumulative effects assessment.

### Our Approach to Major Accidents and Disasters

**6.28** The EIA Regulations state in Regulation 4(3b) that an EIA needs to consider the vulnerability of their development to major accidents and disasters as well as any consequential significant environmental effects. For the purposes of this Scoping Report a major accident is defined as an occurrence that threatens immediate or delayed serious environmental effects to human health, welfare and/or the environment and requires the resources beyond those of the Applicant or its contractors to manage.

**6.29** The potential major accidents and disasters that could arise due to the proposal have been appraised from the definition of both man-made and natural hazards within the Major Accidents and Disaster in EIA IEMA Primer<sup>16</sup> as follows:

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<sup>15</sup> Gov.UK. Available at: <https://www.gov.uk/government/collections/building-materials-and-components-monthly-statistics-2012#2023-monthly-bulletins> (accessed 15/09/2023).

<sup>16</sup> IEMA Major Accidents and Disasters in EIA Guide. Available at: <https://www.iema.net/resources/blog/2020/09/23/iema-major-accidents-and-disasters-in-eia-primer> (accessed 15/09/2023).

- Physical accidents during the construction of the project e.g. crane topple;
- Electrical accidents associated with the commissioning of the infrastructure;
- Fire/ explosion during construction;
- Security threats;
- External interference; and
- Adverse weather.

**6.30** Green GEN Cymru will apply a comprehensive risk management framework both during construction and operation of the Project to reduce risks and to ensure that the risk of significant effects are as low as reasonably practicable (ALARP) and not significant. The Project will also be designed to withstand the extremes of the UK climate (including climate change predictions) and therefore external impacts upon the OHL infrastructure are not considered to be likely to be significant.

**6.31** Following the process in the flow chart provided in Figure 1 of the IEMA Primer it is not considered that any of the risks listed above cannot be mitigated through good working and construction practices to a level that is ALARP.

**6.32** Therefore the likelihood of these potential major accident and disaster events is considered so low that the risks are considered to be not significant and it is appropriate to scope this topic area out of the ES.

## Our Approach to Socio Economics

**6.33** The Applicant considers that the most appropriate way to present all relevant socio economic aspects for consideration within the DNS process is to submit a separate 'Socio-economic Information' document that accompanies the application. This information will present as a minimum the following, and the Applicant will engage with stakeholders to draw upon any relevant information and data that they have:

- Construction investment;
- Construction employment demands;
- Temporary impact upon farming operations;
- Temporary accommodation requirements; and
- The Bute Energy Community Benefit Fund.

**6.34** This is considered the most appropriate approach as the EIA Regulations state in Schedule 4 the 'environmental factors' that are to be considered within the EIA process if they are likely to be significantly affected by a development. These are listed in paragraph 4 of the Schedule as *"population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape."*

**6.35** Paragraph 5 then continues to clarify that the ES needs to consider the likely significant effects upon the environment resulting from aspects of a development and its parameters and characteristics.

**6.36** The Welsh Government guidance on the scope of an EIA within DNS is detailed in Appendix 3: Environmental Impact Assessment which states in Paragraph 3.2 it states that *"applications which are 'EIA development' must be accompanied by an ES that reports on the likely impacts on the environment."*

**6.37** UK Government guidance provides a description on what the purpose of the EIA process is, which is to ensure that *"....a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process."*

**6.38** The Institute of Environmental Management and Assessment (IEMA) in 2017 published a review of whether Environmental Statements were delivering their intended purpose. This review titled *"Delivering Proportionate EIA; Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice"* identified that there was a need to ensure that an ES was proportionate to the nature of the impacts and that every element within an ES needs to be justified and 'earn its place'.

**6.39** It is considered more appropriate for the Applicant to submit socio-economic information in a separate document as part of the application as opposed to including it within the scope of the EIA process for two reasons. Firstly, there is a tenuous connection between the inclusion of the word 'population' in Schedule 4 and the subsequent assumption that this requires an assessment of the impacts upon businesses and financial matters as these are not considered 'environmental' in nature. Secondly, there is a relative sparsity of guidance provided by either government or competent bodies such as the IEMA and Highways England (who in the DMRB publish the most comprehensive, detailed and broad compendium of methodologies for environmental assessments). If it was the intention of these bodies and regulators to ensure that socio-economics was included within the scope of the EIA process then, similar to other environmental factors, guidance would be available to ensure consistency and quality.

**6.40** It is because of this sparsity of guidance that applicants have often been unable to incorporate socio economics within an ES in a robust and consistent manner that can be clearly aligned with EIA practices and approaches not least because the 'value' of a receptor can be a subjective and emotive issue and in that respect consistency between applications can be very challenging.

**6.41** What is clear, therefore, from both the EIA Regulations and Government guidance, is that the EIA process is there to consider impacts upon the environment rather than other aspects of a project that may be material to the decision-making process and that the EIA regulations make no clear requirement for an applicant to consider socio economic factors.

**6.42** The Applicant will therefore, consistent with the approach that PEDW has agreed to in other recent Scoping Opinions, present socio-economic information in a separate document to be submitted alongside the DNS application.

**6.43** The ES will, however, by the nature of other factors that are scoped into the assessment, consider aspects relevant to potential socio-economic impacts on people as follows:

- Traffic and Transport; the effects upon road users and delays (including tourist visitors and local residents);
- Landscape and Visual; the view from footpaths and tourist attractions and effects on residential visual amenity;
- Noise; the impacts upon sensitive receptors will include tourist accommodation as well as residential dwellings; and
- Air Quality; construction dust assessments will consider impacts upon sensitive receptors in proximity to the Project.

## Decommissioning

**6.44** When the operational life of the Project ends, which is assumed to be 80 years, it is possible the OHL may be re-equipped with new conductors, insulators and refurbished. However, the OHL may also be fully decommissioned. The activities involved in decommissioning the Project will broadly reflect those used for construction of the Project (with the exception of any felling which is likely to be 'replaced' with re-planting woodland areas and other biodiversity net gain).

**6.45** It is proposed that decommissioning is scoped out of the ES as the Project has a lifespan of at least 80 years after which the OHL may be refurbished or decommissioned and removed. Neither of these activities is likely to have significant effects over and above those of the operational and maintenance phases of the Project and therefore study within the ES is not justified and warranted.

## Proposed Scope of the EIA

**6.46** Table 6.1 provides a summary of the proposed scope of the EIA.

**Table 6.1: Proposed EIA Scope**

Matter	Scoped In/Out
Landscape and Visual Amenity	Scoped In
Biodiversity	Scoped In
Cultural Heritage	Scoped In
Traffic and Transport	Scoped In
Noise and Vibration	Scoped In
Air Quality and emissions	Scoped In
Water resources	Scoped In
Ground conditions/ geology/ hydrogeology	Scoped In
Soils and Agriculture	Scoped In
Cumulative Effects	Scoped In
Health and Wellbeing	Scoped Out of the EIA as an individual topic chapter with information contained in appropriate chapters
Climate Change	Scoped Out of the EIA
Major Accidents and Disasters	Scoped Out of the EIA
Decommissioning	Scoped Out of the EIA
EMFs	Information to be prepared and submitted as a separate document with the application but scoped out of the EIA
Socio-Economics	Information to be prepared and submitted as a separate document with the application but scoped out of the EIA

#### Questions for Consultees

**Q6.1: Are the proposed topics to be scoped in/out appropriate?**

## Chapter 7

# Landscape and Visual Amenity

### Introduction

**7.1** This chapter sets out the proposed approach to the assessment of the likely significant effects of the Green GEN Towy Usk Project (the 'Project') on landscape and visual receptors.

**7.2** The purpose of Landscape and Visual Impact Assessment (LVIA) is to consider effects on:

- The landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

**7.3** The LVIA will identify, predict and evaluate potential landscape and visual effects arising from the construction and operation of the Project. The scale and location of the Project is such that there is potential for effects on the landscape character of the local area, and on the visual amenity experienced by people. The LVIA will assess the likely significant effects on landscape receptors (character areas and landscape designations) and visual receptors (people) within the Study Area.

### Study Area

**7.4** Informed by the type and scale of steel lattice tower proposed (typical height of approximately 27m), the LVIA Study Area for the purposes of EIA, will comprise a 3km buffer on either side of the nominal centre line of the final alignment. At this stage, the alignment of the proposed overhead line is not confirmed.

**7.5** As the extent of the LVIA Study Area cannot therefore be determined at this time, for the purposes of this Scoping Report, a 3km buffer has been applied to the Scoping Corridor, resulting in the 'provisional Study Area' shown in **Figure 7.1: LVIA Study Area**. The final Study Area for the LVIA will be smaller, and will be defined following confirmation of the final alignment.

**7.6** Should the final alignment comprise sections of underground cabling (UGC), the Study Area for these sections will comprise a 1km buffer on either side of the nominal centre line of undergrounded sections of the route.

**7.7** Based on professional judgement and experience of assessing OHL infrastructure, significant effects on landscape character and visual amenity are unlikely to occur beyond the LVIA Study Area. However, more distant visual receptors and representative viewpoints up to 5km from the Project will be considered where there is the potential for significant visual effects to arise beyond the LVIA Study Area. This could include highly sensitive viewpoints in nationally designated landscapes, or locations where the topography allows more far-reaching views of the Project. The location of these viewpoints will be informed by Zone of Theoretical Visibility (ZTV) mapping, which indicates the areas from which the OHL would be theoretically visible, supplemented by field work and agreed with consultees.

### Existing Conditions

**7.8** During the routeing stage a desk-based review of existing information was undertaken, including Ordnance Survey (OS) maps, the relevant Local Development Plans, LANDMAP, the National Landscape Character Assessment for Wales and the Powys Landscape Character Assessment. This was supplemented by field work and further informed by feedback received from stakeholders and the public.

**7.9** The Scoping Corridor is located within Powys and Carmarthenshire Council areas comprising a rural landscape. The provisional Study Area extends from the Edw valley in the Penybont Uplands, across a short section of the Wye Valley before following the Irfon Valley between Builth Wells and the Crychan Forest. The provisional Study Area extends through the Crychan Forest south-west towards the Bran and Towy Valleys. The provisional Study Area follows the Towy Valley, crossing the valley towards Llanarthne before passing south-west into the rolling lowland vale landscape to the south-east of Carmarthen.



## Information Sources

**7.10** The following information and data sources will be used to inform the LVIA:

- Ordnance Survey (OS) Maps;
- Aerial photography, Google Earth and Google Maps Street View;
- Natural Resources Wales (NRW) National Landscape Character Areas (NLCAs);
- Powys County Council (2022) Landscape Character Assessment;
- NRW's LANDMAP maps and surveys (and associated guidance notes);
- National and local landscape designations and associated designation statements/management plans, including the Bannau Brycheiniog National Park Local Development Plan;
- Powys Local Development Plan (2011-2026); and
- Carmarthenshire Local Development Plan (2006-2021) and emerging update.

## Landscape Baseline

**7.11** The provisional Study Area extends across a number of landscape character areas (LCAs), identified at national and regional level.

**7.12** NRW's National Landscape Character Assessment defines LCAs across Wales<sup>17,18</sup>. National LCAs within the provisional Study Area are shown on **Figure 7.2a** and include the following:

- Bryniau Maesyfed/Radnorshire Hills NLCA 20;
- Ffynhonnau Durol Canolbarth Cymru/The Spas and Wells of Central Wales NLCA 27;
- Dyffrynnoedd Gwy a Wysg/Wye and Usk Vales NLCA 29;
- Lwyfandir a Dyffrynnoedd Epynt/Epynt Plateau and Valleys NLCA 28;
- Uwchdiroedd Cymru/Cambrian Mountains NLCA 21;
- Dyffryn Tywi/Towy Valley NLCA 41;
- Dyffrynnoedd Gwendraeth/Gwendraeth Vales NLCA 33;
- Troedfrynau Penfro a Chaerfyrddin/Pembroke and Carmarthen Foothills NLCA 42; and
- Aber Afonydd Taf, Tywi a Gwendraeth/Taf, Towy and Gwendraeth Estuaries NLCA 45.

**7.13** The Powys County Council Landscape Character Assessment<sup>19</sup> provides a more detailed classification of the landscape within the north-eastern part of the provisional Study Area. Powys LCAs within the provisional Study Area are shown on **Figure 7.2b** and include the following:

- Coedwig Maesyfed/Radnor Forest LCA 43;
- Ucheldir Llanbister – Pen-y-bont/Llanbister – Penybont Uplands LCA 40;
- Ucheldir Aberedw/Aberedw Uplands LCA 50;
- Dyffryn Gwy (Llanfair-ym-Muallt i'r Gelli Gandryll)/ Wye Valley (Builth Wells to Haye-on-Wye) LCA 55;
- Dyffryn Gwy (Rhaeadr i Lanfair-ym-Muallt)/Wye Valley (Rhayader to Builth Wells) LCA 44;

<sup>17</sup> Natural Resources Wales (2014). National Landscape Character Areas (NLCA). Available at: <https://naturalresources.wales/evidence-and-data/maps/nlca/?lang=en> (accessed 03/08/2023)

<sup>18</sup> Carmarthenshire County Council has not produced a landscape character assessment.

<sup>19</sup> Powys County Council (March 2022). Local Landscape Character Assessment for the Powys Local Development Plan Area. Available at: <https://en.powys.gov.uk/article/13408/Replacement-Local-Development-Plan-Latest-Evidence> (accessed 03/08/2023)



- Dyffryn Irfon/Irfon Valley LCA 53;
- Mynydd Epynt/SENTA LCA 57; and
- Cymoedd Deheuol Bryn Glas/ Southern Bryn Glas Valleys LCA 52.

**7.14** LANDMAP is an online resource which provides detailed information about the landscape, as well as detailed information about geology, habitats, historical and cultural elements. It comprises five themed datasets, known as ‘aspects’, including the following:

- Geological Landscape;
- Landscape Habitat;
- Visual and Sensory;
- Historic Landscape; and
- Cultural Landscape.

**7.15** The LANDMAP aspect area citations note an ‘overall evaluation’ for each aspect area, which is based on a scale ranging from ‘low’ (‘little or no importance’) to ‘outstanding’ (‘nationally important’)<sup>20</sup>. The criteria which inform the overall evaluation judgement for each aspect area are noted in the NRW LANDMAP methodologies for each respective aspect area<sup>21</sup>. LANDMAP<sup>22</sup> aspect areas and their respective ‘overall evaluations’ within the Scoping Corridor are shown on **Figures 7.3-7.7**.

**7.16** The published national and regional landscape character assessments and LANDMAP provide a broad picture of the landscape character of the provisional Study Area. Given the varying scales and sources of the published landscape character assessments and LANDMAP, a finer grain landscape character assessment of the LVIA Study Area will be undertaken to form the baseline for the landscape character assessment within the LVIA. The local landscape character assessment will draw on the published landscape character assessments and LANDMAP data, consolidating these sources to define local landscape character areas of a suitable scale for the LVIA. The approach to the local landscape character assessment will use LANDMAP specific guidance<sup>23</sup> as a starting point, as LANDMAP forms the basis of the National Landscape Character assessment in Wales. A filtering process, as advocated in the NRW guidance, will be undertaken to determine the relevant LANDMAP aspect areas to be considered within the LVIA, although the ‘reporting units’<sup>24</sup> used within the LVIA will be based on the local landscape character areas.

**7.17** The approach to local landscape character assessment will also take into account guidance and information from the Landscape Institute<sup>25</sup>, Natural England<sup>26</sup> and NatureScot<sup>27</sup>, as referenced by NRW<sup>28</sup>.

<sup>20</sup> Natural Resources Wales (2017). LANDMAP Methodology Overview. Available online: <https://naturalresources.wales/media/681752/landmap-methodology-overview-2017-eng.pdf> (accessed 14/08/2023)

<sup>21</sup> Natural Resources Wales (2016). Cultural Landscape, Geological Landscape, Historic Landscape, Landscape Habitats, Visual and Sensory LANDMAP Methodology 2016. Available online: <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/landmap-the-welsh-landscape-baseline/?lang=en> (accessed 14/08/2023)

<sup>22</sup> Natural Resources Wales (2016). LANDMAP – the Welsh landscape baseline. Available online: <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/landmap-the-welsh-landscape-baseline/?lang=en> (accessed 03/08/2023)

<sup>23</sup> Natural Resources Wales Guidance Note 46 (December 2021) Using LANDMAP in Landscape and Visual Impact Assessments. Available online: <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/using-landmap-in-landscape-and-visual-impact-assessments-gn46/?lang=en> (accessed 10/08/2023).

<sup>24</sup> Terminology as identified in NRW guidance.

<sup>25</sup> Landscape Institute (October 2015). Landscape Character Reading List Technical Information Note 05/2015. Available online: <https://landscapeinstitute.org/2016/01/TIN5-15LandscapeCharacterReadingList30-10-2015.pdf> (access 14/08/2023)

<sup>26</sup> Christine Tudor, Natural England (2014). An Approach to Landscape Character Assessment. Available online: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/691184/landscape-character-assessment.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf) (accessed 10/08/2023)

<sup>27</sup> NatureScot. Landscape Character Assessment. Available online: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment> (access 14/08/2023)

<sup>28</sup> Referenced on the NRW National Landscape Character Areas (NLCA) website: <https://naturalresources.wales/evidence-and-data/maps/nlca/?lang=en>

### Nationally designated landscapes

**7.18** The Scoping Corridor is located 270m to the north-west of the Bannau Brycheiniog (Brecon Beacons) National Park (BBNP) at its nearest point, as shown on **Figure 7.4**. Special qualities of the BBNP, as set out in the BBNP Management Plan (2010-2015)<sup>29</sup> include:

- *“Peace and tranquillity”;*
- *“Vitality and healthfulness”;*
- *“Sense of place and cultural identity”;*
- *“Sense of discovery”;*
- *“Sweeping grandeur and outstanding natural beauty”;*
- *“Contrasting patterns, colours, and textures”;*
- *“Diversity of wildlife and richness of semi-natural habitats”;*
- *“Rugged, remote and challenging”;*
- *“Enjoyable and accessible”;* and
- *“Intimate sense of community.”*

**7.19** The LVIA will consider the potential for the Project to affect the experience of these special qualities, and the overall purposes of the National Park designation.

### Locally designated landscapes

**7.20** Approximately 8km of the Scoping Corridor, between Cyngordy and Llandovery, is located within the Bran Valley Special Landscape Area (SLA), designated by Carmarthenshire County Council (CCC) in the Carmarthenshire Local Development Plan<sup>30, 31</sup>. Approximately 30km of the Scoping Corridor between Llandovery and Llanarthne is located within the Tywi Valley SLA. SLAs are shown on **Figure 7.5**. There are no SLAs in Powys.

**7.21** Other CCC SLAs within the provisional Study Area include the following:

- North Eastern Uplands SLA, located approximately 1.4km to the north of the Scoping Corridor at its nearest point;
- Cothi Valley SLA, located approximately 1.2km to the north of the Scoping Corridor at its nearest point;
- Carmarthenshire Limestone Ridge SLA, located 2.3km to the south of the Scoping Corridor at its nearest point; and
- Carmarthenshire Bay and Estuary SLA, located 0.8km to the west of the Scoping Corridor at its nearest point.

**7.22** Appendix 4 – Special Landscape Areas of the Carmarthenshire LDP (2014) sets out descriptions of the SLAs, although special qualities are not specifically identified. The LVIA will consider the potential for the Project to affect the landscape characteristics and qualities of these SLAs.

### Visual Baseline

**7.23** There are a large number of potentially highly sensitive visual receptors in the provisional study area including those listed below.

- Residents of the area, both within settlements<sup>32</sup> and throughout the study area. Settlements within the provisional study area include (but are not limited to) Frank’s Bridge, Hundred House, Builth Wells, Llanwrtyd Wells, Cyngordy,

<sup>29</sup> An update to the BBNP Management Plan for 2022-2027 is currently being prepared but has not yet been adopted.

<sup>30</sup> The Carmarthenshire Local Development Plan (2018-2033) is currently being prepared but has not yet been adopted.

<sup>31</sup> Carmarthenshire County Council (2014). Carmarthenshire Local Development Plan 2006-2021. Available at: <https://www.carmarthenshire.gov.wales/home/council-services/planning/planning-policy/local-development-plan-2006-2021/> (accessed 03/08/2023).

<sup>32</sup> As defined in the Powys County Council LCP (2011-2026) and Carmarthenshire County Council LDP (2006-2021).

Llandovery, Llanwrda, Llansadwrn, Llangadog, Ashfield, Felindre, Manordeilo, Cwmifor, Rhosmaen, Llandeilo, Pen-y-banc, Pentrefelin, Broad Oak, Llangathen, Cwrt-Henri and Llanarthne;

- People engaged in outdoor recreation such as those using National Trails and other promoted routes (such as the Celtic Way, Brecon Beacons Way, Cambrian Way, Wye Valley Walk, Heart of Wales Trail and Tywi Valley Path), Public Rights of Way (PRoW) and National Cycle Network (NCN) routes, or those at hill summits and promoted viewpoints;
- People at promoted tourist destinations and recreation areas such as Crychan Forest, Dinefwr Castle, Dryslwyn Castle, The National Botanic Garden and Paxton's Tower, where views of the surrounding area are an important contributor to visitor experience;
- People staying at campsites, caravan parks and other holiday accommodation; and
- People travelling along the road and rail network, including (but not limited to) the A481, A470, A483, A40 and Heart of Wales Railway Line, as well as a number of other major and minor roads within the Study Area.

**7.24 Table 7.1: Preliminary LVIA Viewpoints and Figures 7.9a-e: Visual Receptors and Preliminary Viewpoint Locations** set out a preliminary list of proposed representative viewpoints to be assessed in the LVIA. The viewpoint list will be built upon and/or amended following ZTV analysis and further engagement with consultees and will likely include up to 30 representative viewpoints.

**Table 7.1: Preliminary LVIA Viewpoints**

VP No.	Viewpoint Title	X	Y	Reason for selection
1	A44 south of Llandegley	315485	260106	Representative of views experienced by road users of the A44, looking south along the corridor.
2	NCN Route 825, Frank's Bridge	311682	258186	Representative of views experienced by cyclists travelling along the National Cycle Route 825 and road users travelling between Frank's Bridge and settlements further to the north.
3	Hundred House	311245	254472	Representative of views experienced by residential receptors, road users, users of common land and recreational receptors on NCN 825 within the Edw Valley.
4	Aberedw Hill PROW	308559	252617	Representative of views experienced by walkers along the public right of way as part of the Aberedw Hills, overlooking the Edw Valley.
5	Garth (local hill south-east of Builth Wells)	305315	250610	Representative of views experienced by recreational receptors accessing the local hill summit, located near the Wye Valley Walk to the south of Builth Wells.
6	Royal Welsh Showground	303735	251758	Representative of views experienced by those visiting or working at the Royal Welsh Showground and by road users travelling along the A470
7	Llewelyn Monument, Cilmeri	300091	251407	Representative of views experienced by visitors to the monument and nearby residential properties.

VP No.	Viewpoint Title	X	Y	Reason for selection
8	A843 north-east of Garth	296329	250109	Representative of views experienced by road users, people travelling on the railway and nearby residential receptors.
9	B4519 viewpoint, Epynt Moor	296350	246697	Representative of views experienced by walkers and road users from this marked viewpoint at the edge of Epynt Moor, looking down into the Irfon Valley.
10	Cefn-gorwydd	290163	245532	Representative of views experienced by people within this settlement.
11	Heart of Wales Trail, Llanwrtyd Wells	289074	246558	Representative of views experienced by users of this long-distance route and road users at the edge of the settlement.
12	Crychan Forest near Esgair Fwyog Car Park	283630	241214	Representative of views experienced by recreational receptors on the Heart of Wales Trail and within the Crychan Forest.
13	Cynghordy	280758	239829	Representative of views experienced by residential receptors and road users within the Bran Valley SLA.
14	Dolauhirion Bridge, Llandovery	276162	236095	Representative of views experienced by road users and local walkers at this listed bridge north of Llandovery, within the Tywi Valley SLA.
15	Llandovery Castle	276763	234234	Representative of views experienced by visitors to the castle, within the Tywi Valley SLA.
16	A40 near Manordeilo	267391	226510	Representative of views experienced by road users and nearby residential receptors within the Tywi Valley SLA.
17	Felindre	270460	227634	Representative of views experienced by the community of Felindre and walkers on the common, within the Tywi Valley SLA.
18	Carn Goch	269071	224329	Representative of views experienced by recreational receptors on the Heart of Wales Trail within the BBNP.
19	Dinefwr Castle ramparts	261144	221725	Representative of elevated views experienced by visitors to the castle/National Trust property, within the Tywi Valley SLA.
20	Dryslwyn Castle	255406	220405	Representative of views experienced by recreational receptors and visitors to the castle, within the Tywi Valley SLA.
21	Paxton's Tower	254093	219161	Representative of views experienced by recreational receptors and visitors to the

VP No.	Viewpoint Title	X	Y	Reason for selection
				National Trust property, within the Tywi Valley SLA.
22	A40 near Nantycaws	245566	218204	Representative of views experienced by road users and nearby residential receptors.
23	A484 south of Idole	241268	214744	Representative of views experienced by road users on the A484 close to the western end of the corridor.

### Future Baseline

**7.25** The LVIA will consider the cumulative effects of the Project in association with planned developments in the area. These will include wind farm proposals such as Nant Mithil Energy Park, and other proposed grid infrastructure.

**7.26** Projects will be included in the cumulative baseline where significant cumulative effects are considered to be likely, and where sufficient information is available to inform the assessment.

### Data Collation and Assessment Methodology

**7.27** Landscape and visual assessments are distinct, but interconnected, processes and the assessment will describe potential landscape and visual effects separately. The LVIA will consider potential effects on:

- Landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

### Legislation and Guidance

**7.28** The LVIA will be carried out in line with the following guidelines:

- Landscape Institute and the Institute of Environmental Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition ('GLVIA3');
- Landscape Institute (2019) Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment;
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals;
- Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19;
- NatureScot (2021) Assessing the cumulative impact of onshore wind energy developments<sup>33</sup>;
- Natural Resources Wales (undated) Using LANDMAP in Landscape and Visual Impact Assessments GN46;
- Scottish Natural Heritage (2017) Visual Representation of Wind Farms, Version 2.2; and
- The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with National Grid Company plc (NGC) 1992 and Scottish Hydro-Electric Transmission plc (SHETL) 2003 Notes).

### Data Collection- Desk Based

**7.29** The sources listed under the Information Sources section above will also be used for desk based data collection to inform the LVIA.

<sup>33</sup> As no guidance exists for assessing cumulative impact of overhead grid connections, this guidance is considered applicable given the similar nature of tall vertical infrastructure introduced by wind farms (wind turbines).

## Data Collection- Field Surveys

**7.30** Further to the extensive field work undertaken to inform the routeing stage, surveys will be undertaken during summer and winter months to fully understand the maximum level of visibility as part of the landscape and visual baseline. Visual site surveys will be undertaken for agreed viewpoints, which represent a variety of receptor types and at a range of distances from the Project. Further field work will be undertaken within the wider Study Area. Surveys will include viewpoint photography to assist in the creation of wireframes and photomontages. Where possible all viewpoint photography will be captured when trees are not in leaf (i.e., a worst case) (a list of indicative preliminary viewpoints can be found in **Table 7.1** and set out on **Figures 7.9a-e: Visual Receptors and Preliminary Viewpoint Locations**).

## Assessment Method

### Judging Levels of Effect and Significance

**7.31** Judging the significance of landscape and visual effects requires consideration of the nature of the receptor and the nature of the effect on the receptor. GLVIA3 states that the nature of receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. Sensitivity judgements would be recorded as high, medium or low. The nature of the impact on each receptor, commonly referred to as its magnitude, should be assessed in terms of size and scale; geographical extent; duration and reversibility. Magnitude of change would be recorded as high, medium, low or negligible.

**7.32** Judgements of sensitivity and magnitude are then combined to form a judgement regarding the overall significance of effect. Levels of landscape or visual effect would be categorised as major, moderate, minor or negligible / no effect. 'Moderate' and 'major' effects are considered significant in the context of the EIA Regulations. The nature of effects would be described as positive (beneficial), neutral or negative (adverse).

**7.33** This determination requires the application of professional judgement and experience to balance the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations. Judgements of the potential landscape and visual effects which may arise from the Project, either individually or cumulatively when considered in combination with other existing, consented or proposed developments, are made on a case by case basis.

### Residential Visual Amenity

**7.34** Residential properties within the Scoping Corridor are shown on **Figures 7.10a-e**. A key aim of the ongoing design of the Project will be to avoid the placement of individual structures in close proximity to dwellings. The routeing design stage for the Project seeks to avoid a 150m radius around all residential properties. Should the final alignment result in towers or other infrastructure closer to dwellings than this distance, a Residential Visual Amenity Assessment (RVAA) will be undertaken in accordance with the Landscape Institute's Technical Guidance Note<sup>34</sup>.

**7.35** For each property or group of properties within 150m of a tower, the RVAA will be informed by ZTVs, aerial photography, wirelines and fieldwork undertaken from publicly accessible locations within the vicinity to determine the scale of visual effects. Aspects such as successive effects and encirclement will be considered.

**7.36** The RVAA will aim to determine whether visual effects on the property are considered to breach the 'residential visual amenity threshold'.

**7.37** The methodology can be summarised as follows:

- Step 1: Identification of properties to be considered (defining the Study Area and scope);
- Step 2: Evaluation of baseline visual amenity from each property/ property group;
- Step 3: Assessment of likely change to visual amenity of properties; and

<sup>34</sup> Landscape Institute (2019) 'Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19'. Available at: <https://www.landscapeinstitute.org/technical-resource/rvaa> (accessed 03/08/2023).

- Step 4: Formation of the RVAA judgement (the Residential Visual Amenity Threshold), in line with RVAA Technical Guidance Note 2/19.

## Viewpoints and Visualisations

**7.38 Table 7.1: Preliminary LVIA Viewpoints and Figure 7.9a-e: Visual Receptors and Preliminary Viewpoint Locations** set out a list of indicative preliminary viewpoints to be used in the LVIA. Additional viewpoints will be required to inform the assessment. These will be selected based on the developed route and will be agreed through further consultation with Powys County Council, Carmarthenshire County Council and NRW. Should the final route alignment of the Project comprise sections of underground cabling, some viewpoints noted in **Table 7.1** may not be necessary to inform the assessment. The selection of the final viewpoints would be informed by the ZTV analysis, field work, desk-based research on access and recreation, tourism including popular vantage points, and by the distribution of the different groups of visual receptors.

**7.39** Wireframes and photomontages will be used to consider and illustrate changes to views during operation of the Project. Visualisations would be prepared in accordance with the Landscape Institute's TGN 06/19 Visual Representation of Development Proposals. A number of the viewpoint locations will be illustrated with photomontages. Photomontages show more detail than wireframes, including buildings, vegetation, colour, texture and lighting conditions.

## Likely Significant Effects

**7.40** Sources of effects during the construction of the Project include:

- Introduction of construction activity and vehicular/personnel movements along the OHL/UGC route and on local roads;
- Construction work associated with track upgrades and construction of temporary and new tracks;
- Construction of site compounds;
- Construction of tower foundations and towers;
- Conductor stringing;
- Excavation and backfilling of trenches for any sections of UGC;
- Introduction of tall vertical structures (steel lattice towers, Cable Sealing End Compounds); and
- Forestry and woodland felling.

**7.41** Sources of effects during the operation of the Project include:

- New 132kV overhead electricity transmission line (OHL) with associated L7 steel towers (pylons);
- Switching Station;
- Sections of UGC (if used);
- Cable Sealing End Compounds (CSEC) required to connect the OHLs to UGC (if used); and
- Long-term presence of open wayleaves through woodland and tree belts.

## Embedded and Standard Mitigation Measures

**7.42** Reflecting IEMA guidance on delivering proportionate EIA (IEMA 2017), the scope and assessment assumes that relevant embedded, standard and additional measures are in place.

**7.43** The mitigation of potential landscape and visual effects will be approached through the routeing, siting and design of the proposed route. The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with National Grid Company plc (NGC) 1992 and Scottish Hydro-Electric Transmission plc (SHETL) 2003 Notes) will be used to inform the siting and design process to minimise potential landscape and visual effects.



## Potential Effects Scoped into the Assessment

**7.44** Potentially significant landscape and visual effects that may arise during the construction and operation of the Project, and therefore scoped into the LVIA, are noted below.

### Landscape Effects

- Effects during construction on landscape character and locally designated landscapes;
- Effects during operation on landscape character and locally designated landscapes;
- Effects on the special qualities of the BBNP; and
- Cumulative landscape effects during operation with other existing or proposed developments.

### Visual Effects

- Effects on the views and visual amenity of people within settlements and communities, including effects on residential visual amenity;
- Effects on views experienced by walkers and cyclists using PROWs, NCN routes, promoted tourist and/or recreational routes, hill summits, visitors to promoted viewpoints/tourist destinations and recreation areas;
- Effects on people travelling along the road and rail network; and
- Cumulative visual effects associated with the Project seen in combined, successive or sequential views with other existing, consented or proposed developments.

## Potential Effects Scoped Out of the Assessment

**7.45** The following effects are unlikely to be significant, and so are proposed to be scoped out of the LVIA:

- Effects on receptors beyond 3km of the Project, with the exception of very high sensitivity receptors up to 5km from the Project; and
- Receptors that lie outside the zone of theoretical visibility of the project.

## Approach to Additional Mitigation

**7.46** The LVIA will inform modifications and refinements to the detailed design of the Project, including consideration of individual tower locations and a potential mix of technologies (e.g. overhead line or underground cable) during the design and assessment process, and the identification of any further appropriate mitigation measures to reduce potential residual effects.

**7.47** Due to the nature of overhead power lines, the Project is likely to give rise to effects on landscape and visual receptors that cannot be fully mitigated. In consultation with stakeholders, landscape enhancement measures will be developed where practicable to help to offset the effects of the Project.

## Proposed Scope of the EIA

**7.48** Table 7.2 provides a summary of the proposed scope of the EIA.

**Table 7.2: Proposed EIA Scope**

Matter	Scoped in/out	Justification
Landscape character (including project-specific local landscape character areas (LLCAs), which will be based on national and regional landscape	Scoped in	Direct effects on LLCAs that intersect with Proposed Development and indirect effects upon LLCAs in the Study Area from which potential visibility is indicated by Zone of Theoretical Visibility (ZTV) maps will be considered.



Matter	Scoped in/out	Justification
character areas and LANDMAP aspect areas)		
BBNP	Scoped in	Indirect effects on the special qualities of the BBNP will be considered. Theoretical inter-visibility with the Project would be described in the assessment and used as a means of identifying which special qualities require assessment if significant effects are deemed likely.
Bran Valley SLA	Scoped in	Direct effects on the key characteristics of this SLA will be considered.
Tywi Valley SLA	Scoped in	Direct effects on the key characteristics of this SLA will be considered.
North Eastern Uplands SLA	Scoped out	Given intervening distance significant effects are considered unlikely. Not considered further.
Cothi Valley SLA	Scoped out	Given intervening distance significant effects are considered unlikely. Not considered further.
Carmarthenshire Limestone Ridge SLA	Scoped out	Given intervening distance significant effects are considered unlikely. Not considered further.
Carmarthenshire Bay and Estuary SLA	Scoped out	Given intervening distance significant effects are considered unlikely. Not considered further.
Visual receptors within the 3km Study Area	Scoped in	Effects upon visual receptors within the Study Area, i.e. the people who may be affected by changes in views resulting from the Project will be considered. Theoretical inter-visibility with the Project would be described in the assessment and used as a means of identifying which visual receptors require assessment if significant effects are deemed likely.  A list of indicative preliminary viewpoints can be found in <b>Table 7.1: Preliminary LVIA Viewpoints</b> . Further consultation will be sought to agree viewpoint locations and visualisation types.
Residential visual amenity	Scoped in	A Residential Visual Amenity Assessment (RVAA) will be undertaken for all properties within a 150m radius from proposed permanent above-ground infrastructure.
Cumulative landscape and visual effects	Scoped in	The potential for significant cumulative landscape and/or visual effects with other operational, consented and proposed development of a similar type and scale will be considered. A list of developments to be considered in the CLVIA will be agreed with consultees through the EIA process.

#### Questions for Consultees

**Q7.1:** Is the proposed LVIA Study Area (3km buffer on either side of the nominal centre line of the final alignment and 1km buffer on either side of the nominal centre line of UGC sections) considered appropriate?

**Q7.2:** Is the proposed approach and scope for the assessment of effects on landscape character, based on a project-specific local landscape character assessment (drawing on LANDMAP), considered to be appropriate?

**Q7.3:** Is the proposed approach and scope for the assessment of visual effects appropriate?

**Q7.4:** Do consultees consider that the proposed viewpoints are appropriate to inform the visual assessment, subject to further viewpoints being agreed based on the developed route proposal, and that the suggested presentation of visualisations is appropriate?

**Q7.5:** Is the approach to inclusion of schemes within the cumulative assessment appropriate?

**Q7.6:** Is the approach to the assessment of effects on residential visual amenity appropriate?

**Q7.7:** Do consultees agree with the effects to be scoped out of the LVIA?

## Chapter 8

### Biodiversity

#### Introduction

**8.1** This Chapter sets out the proposed approach to the assessment of likely significant effects on ecology and ornithology (hereafter termed 'biodiversity') arising from the construction and operation of the Project.

**8.2** The assessment of effects on ecology and ornithology will be undertaken by competent experts at LUC.

#### Study Area

**8.3** The Study Area for biodiversity comprises the area that could be directly affected by the Project (assumed for the purpose of this chapter, as the Scoping Corridor) plus the following buffer zones (calculated from the Project with the Project and corresponding buffers being updated as the design progresses), in line with species specific best practice guidelines. Distances reflect approaches accepted in Habitat Regulation Assessment (HRA) terms as well as the circumstances of the OHL project.

#### Desk study

- Internationally designated areas: 5km for SAC; 10km for SPA; on terrestrial sites (SACs), impacts unlikely more than 5km away, but for SPAs where there may be complex flight lines to consider. These buffers are generally accepted in HRA terms;
- Nationally designated areas and non-statutory designated sites: 1km; these sites are numerous and 1km is a reasonable buffer to assess significance;
- Records of extant protected species (from 2002 onwards): 1km; and
- Areas of potentially nationally important peatland within the Scoping Corridor and up to 250m: based on NatureScot/SEPA guidance on Ground Water Dependent Terrestrial Ecosystems (adopted by WG), which correlate with avoidance distances and actual baseline survey methods.

#### Field studies

- Extended Phase 1 Habitat Surveys, with any habitats of Conservation Concern subject to National Vegetation Classification (NVC) surveys: up to 100m;
  - Ground Water Dependent Terrestrial Ecosystems (GWDTE): up to 250m;
  - Great crested newt *Triturus cristatus*: Habitat Suitability Index surveys will be undertaken of ponds within 500m;
  - Protected species: up to 200m<sup>35</sup> or wider in exceptional circumstances should survey data suggest that this is necessary;
  - Bird flight activity: within 500m; and
  - Breeding birds: 250m for lowland enclosed agricultural land; up to 500m for upland and unenclosed land.
- 8.4** For the purposes of this Scoping Report the Study Area for biodiversity is presented on **Figure 8.1**.

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<sup>35</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine (Version 1.2 Updated April 2022). Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf> (accessed 15/08/2023).

## Existing Conditions

### Information Sources

**8.5** The baseline has been informed by the following information sources, plus a limited amount of habitat and ornithological surveys undertaken to date:

- Aerial Photography, (Google Earth 2023) - Review of freely available aerial photography has allowed habitats within the Study Area to be assessed in a wider (landscape-scale) context; assessment and identification of potential ephemeral biodiversity receptors that may not be evident on the ground during the field survey (e.g. ephemeral ponds); identification of potential wildlife corridors or barriers to animal movements (e.g. road networks, built development and major watercourses); and a review of changes to habitats over time so that an assessment of reliability/longevity can be made.
- Aerial photography;
- NBN Atlas Wales (the country's largest collection of freely available biodiversity data<sup>36</sup>) and NRW's Protected areas of land and sea online database;
- Multi-agency Geographic Information for the Countryside (MAGIC) (2023) – The location of statutory designated sites for nature conservation,
- DataMapWales - Habitats of Principal Importance (Environment Wales Act 2016), Ancient Woodland, Peat Land Map of Wales and Habitat Networks.
- As some biodiversity receptors are not always apparent on aerial photographs, relevant OS mapping has been studied to identify ponds, issues and/ or drains.

### Baseline Conditions - Ecological

**8.6** Baseline ecological conditions to inform the design and assessment of the Project will be established through desk-based research and field studies.

**8.7** A preliminary desk study has been undertaken to provide information to inform this Scoping Report.

**8.8** The following international and national sites designated for nature conservation purposes potentially relevant to non-avian ecology, were identified within the relevant Study Area in relation to the Scoping Corridor. These are outlined in **Table 8.1** below. The distribution of recorded Priority Habitats is shown in **Figure 8.3**.

**Table 8.1: Internationally and Nationally Designated Sites Potentially Impacted**

Name of the Internationally and Nationally Designated Site	Notes
<b>Special Areas of Conservation (SAC) within 5km</b>	
River Wye/ Afon Gwy (Wales)	The Scoping Corridor crosses the Afon Gwy (River Wye) SAC and SSSI (and tributaries) in various places, and passes within 100 metres (m) of the SAC in other areas. The primary reasons for the SAC designation are watercourses of plain to montane levels, invertebrate and fish populations and otter <i>Lutra lutra</i> . In addition, transition mires and quaking bogs and allis shad <i>Alosa alosa</i> are qualifying features but not primary reasons for designation. Potential impacts include habitat loss, species impact, impact to connectivity and functional land and pollution issues.
Mynydd Epynt	SAC designated for its spring-fed wetland, bryophyte and fungi communities. No potential impact given distance.

<sup>36</sup> The database can be used with permission obtained accordingly

Name of the Internationally and Nationally Designated Site	Notes
Cwm Doethie – Mynydd Mallaen	SAC designated for old sessile oak woods with red kite amongst breeding bird assemblage. No potential impact given distance.
Cernydd Carmel	SAC designated for turlough with wetland vegetation. No potential impact given distance.
Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd	The Afon Tywi (River Tywi) SAC flows into the Bae Caerfyrddin ac Aberoedd (Carmarthen Bay and Estuaries) SAC, and therefore the Project, is hydrologically and ecologically connected to this SAC via its tributaries. This SAC is designated for its sandbanks, estuaries, mudflats, sandflats, large shallow inlets and bays, Atlantic salt meadows, plant communities, otter <i>Lutra lutra</i> , and fish populations. Potential impact via pollution.
Afon Tywi / River Tywi	Afon Tywi (River Tywi) SAC, SSSI and tributaries. The primary reasons for the SAC designation are its otter <i>Lutra lutra</i> , and fish populations. Potential impacts include habitat loss, species impact, impact to connectivity and functional land and pollution issues.
<b>Sites of Special Scientific Interest (SSSIs) within 1km</b>	
	There are 46 biological SSSIs within 1km of the Scoping Corridor many of which are component parts of the SACs listed above.

**8.9** A further 22 SSSIs designated for geological reasons lie within 1km of the Scoping Corridor.

**8.10** A total of 17 non statutory wildlife sites occur within 1km of the Scoping Corridor.

**8.11** In addition, a number of areas of ancient woodland also occur within 200m of the Scoping Corridor (see **Figure 8.2**) , comprising:

- 346 Ancient semi-natural woodlands (620 hectares (ha));
- 21 Ancient woodland site of unknown category (34ha);
- 58 Plantations on ancient woodland sites (90ha); and
- 127 Restored ancient woodland sites (194ha).

**8.12** The peat land map of Wales shows a number of peatlands – 17 blocks of various sizes occur within the Scoping Corridor, with other peatland areas within 1km. The main concentration of peatlands lies in the southern section towards Carmarthen (south of Nantycaws and north of Llanddarog) where nine blocks occur within the Scoping Corridor.

**8.13** The designated areas/sites to be assessed may require to be revised in line with the final design submitted as part of the application should there no longer be connectivity with these sites, and therefore the potential for effects.

**8.14** Habitat surveys of accessible parts of the Project have been undertaken during summer 2023. These surveys and a review of aerial photography indicates that the Study Area is dominated by intensively managed agricultural land, river and stream crossings and hedgerow/ scattered tree field boundaries. Localised stands of woodland are also present, plus large areas of Crychan Forest (predominantly commercial woodland). Small areas of lowland fens and reedbeds, plus various grassland habitats also occur in the Scoping Corridor. Whilst the majority of the areas are likely to be of limited ecological value in themselves; they may support a varied assemblage of protected species or species of conservation interest.

**Baseline Conditions – Ornithological**

**8.15** A comprehensive ornithological baseline to inform the design and assessment of the Project will be established through desk study and field surveys. Full details will be presented within the ES.

**8.16** The following designated sites occur within the Study Area for ornithology, as shown in **Table 8.2**. The distribution of recorded Priority Habitats is shown in **Figure 8.3**.

**Table 8.2: Internationally and Nationally Designated Sites Potentially Impacted.**

Name of the Internationally and Nationally Designated Site	Notes
<b>Special Protection Areas (SPA) within 10km</b>	
Elenydd-Mallaen SPA	Elenydd-Mallaen SPA qualifies by supporting internationally important populations of breeding red kite and merlin. Also important for a range of upland breeding species including chough, and breeding waders like golden plover and curlew.  Connectivity between the SPA species and the Project is not anticipated on distance grounds, with the SPA lying over 5km from the Scoping Corridor at its closest point and a lack of functionally linked land.
<b>Sites of Special Scientific Interest (SSSIs) within 1km</b>	
Afon Irfon	Afon Irfon supports a range of bird species associated with riparian habitats, including grey heron and kingfisher.
Afon Tywi / River Tywi	Afon Tywi / River Tywi supports an important breeding bird community, which includes mute swan, little ringed plover, kingfisher, and common sandpiper. In winter, the SSSI is used by waders like curlew, black-tailed godwit and oystercatcher, and formerly supported white-fronted geese.
Allt y Gaer	Allt y Gaer is a conifer plantation that supports a heronry of 45-50 pairs.
Colwyn Brook Marshes (North & South)	Colwyn Brook Marshes (North & South) supports birds including waterfowl, waders and raptors, which use the site for feeding and breeding.
River Wye (Tributaries) / Afon Gwy (Isafonydd)	River Wye (Tributaries) / Afon Gwy (Isafonydd) supports a range of breeding bird species including red-breasted merganser, goosander, little ringed plover, oystercatcher and kingfisher. In winter, supports wildfowl and wader species including migratory swans and waders.
River Wye (Upper Wye) / Afon Gwy (Gwy Uchaf)	See above.
Waen Rydd	Waen Rydd is a complex of damp grassland, marsh and wet heath that supports a good range of breeding birds including waders like snipe and curlew.

**8.17** Initial desk studies and preliminary vantage point (VP) watches have identified the presence of several bird species of nature conservation importance within and adjacent to the Scoping Corridor, including migratory wildfowl populations, birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 and birds from the UK and Welsh Red-lists of Birds of Conservation Concern.

**8.18** Bird flight activity by raptors in the breeding season has been identified through initial VP watches, including flights by red kite. No significant breeding wader areas have been identified to date.

**8.19** Some sections of the Scoping Corridor are adjacent to areas known to be used by wintering birds, including migratory wildfowl such as swans and ducks, waders and gulls.

### Future Baseline – Ecological and Ornithological

**8.20** The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the Project. Large parts of land within the Scoping Corridor are located on agricultural land. The ecological conditions are unlikely to change materially in the short term as current agricultural practices are likely to be maintained, therefore the future baseline is likely to be the similar to the current baseline. Where changes arise from other future developments these would be considered in the cumulative assessment of the ES, as appropriate.

## Data Collation and Assessment Methodology: Ecological

### Legislation and Guidance

**8.21** The ecological assessment will be carried out in cognisance of the following relevant legislation and standards:

- The Wildlife and Countryside Act 1981 (as amended);
- The Environment (Wales) Act 2016;
- The Conservation of Habitats and Species Regulations 2017 (as amended) (i.e. the “Habitats Regulations”);
- The Nature Recovery Plan 2020<sup>37</sup>;
- Planning Policy Wales: Technical Advice Note 5: Nature Conservation and Planning<sup>38</sup>;
- The Powys County Council Local Biodiversity Action Plan (LBA)<sup>39</sup>; and
- Priority Habitats and Species in Carmarthenshire<sup>40</sup>.

**8.22** The assessment will also have regard to the following guidance:

- Chartered Institute of Ecology and Environmental Management (CIEEM), Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine;
- Species specific survey guidelines as identified by CIEEM;
- Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and GWDTE;
- Guidance on bird survey methods to inform impact assessment<sup>41</sup>;
- Guidance on assessment and mitigation of impacts of overhead lines on birds<sup>42</sup>; and
- Guidance on biodiversity net benefit and resilience of ecosystems duty<sup>43</sup>.

### Ecological Receptors

**8.23** The ecological receptors that will be considered for assessment comprise:

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<sup>37</sup> Welsh Government (2020) The Nature Recovery Action Plan for Wales. Available at: <https://gov.wales/sites/default/files/publications/2020-10/nature-recovery-action-plan-wales-2020-2021.pdf> (accessed 15/08/2023).

<sup>38</sup> Welsh Government (2022) Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. Available at: <https://gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf> (accessed 15/08/2023).

<sup>39</sup> Powys Biodiversity Partnership (2002). Our Partnership with Nature: A Local Biodiversity Action Plan for Powys. Available at: <https://en.powys.gov.uk/article/2553/Local-Biodiversity-Action-Plan>

<sup>40</sup> Carmarthenshire Council. Biodiversity. Available at: <https://www.carmarthenshire.gov.wales/home/council-services/planning/biodiversity/#.Xh3vxtT7SHv> (accessed 15/08/2023).

<sup>41</sup> SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017 – Version 2. SNH, Battleby, UK.

<sup>42</sup> SNH (2016). Guidance: Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. SNH, Battleby, UK.

<sup>43</sup> Welsh Government. Biodiversity and resilience of ecosystems duty (section 6): guidance for public authorities. Available at: <https://www.gov.wales/biodiversity-and-resilience-ecosystems-duty-section-6-guidance-public-authorities> (accessed 15/08/2023).

- Statutory and non-statutory designated sites for nature conservation purpose (excluding ornithological designations);
- Habitats of conservation concern i.e. Ground Water Dependent Terrestrial Ecosystems (GWDTE), Welsh Priority Habitats<sup>44</sup>, Local Biodiversity Partnership Priority Habitats; and
- Protected species and notable species defined by: Conservation (Natural Habitats &c.) Regulations 1994 (as amended), Wildlife and Countryside Act 1981 (as amended), Badgers Act 1992 (as amended) and priority species included within the Welsh Priority Species, Local Biodiversity Partnership Priority Species.

### Data Collection- Desk Based

**8.24** A desk study will be undertaken to inform field surveys and identify existing features of potential ecological importance within the Study Area of the Project. The desk study will include searches of the following sources to identify existing records for designated sites, habitats and protected species:

- Biodiversity Information Service (BIS) for Powys and Brecon Beacons National Park;
- West Wales Biodiversity Information Centre;
- MAGIC: Nature on the Map;
- Natural Resources Wales (NRW): Designated Sites Search;
- National Biodiversity Network (NBN) Atlas; and
- Natural Resources Wales Ancient Woodland Inventory.

### Data Collection- Field Surveys

**8.25** Field surveys will be undertaken within the defined Study Area in line with best practice guidelines endorsed by NRW and CIEEM<sup>1</sup> and will include the following:

#### Habitat Surveys (April to September).

- Extended Phase 1 habitat survey, to record broad habitat types and their suitability to support protected species.
- If Habitats of Conservation Concern (including GWDTEs are identified during the Phase 1 habitat survey, National Vegetation Classification (NVC) survey will be undertaken to categorise the plant communities present.

#### Protected Species surveys

**8.26** Based on the results of the extended Phase 1 habitat survey protected species surveys are likely to be required, and are expected to be undertaken for the following receptors (where a specific survey season is recommended, this is provided in brackets):

- Badger *Meles meles*;
- Otter *Lutra lutra* ;
- Red squirrel *Sciurus Vulgaris* ;
- Pine marten *Martes martes* (Summer);
- Hazel dormouse *Muscardinus avellanarius* (April-November);
- Static detector bat surveys (spring, summer, autumn); and

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<sup>44</sup> Section 7 of NERC Act 2006. Welsh Government (WG) published a list of habitats and species in Wales that they consider are of key significance to sustain and enhance biodiversity the country. WG and other public bodies have a duty to take all reasonable steps to maintain and enhance these habitats and species [Environment (Wales) Act 2016]. This list (S7 list) is currently under review by WG and Natural Resources Wales.



- Habitat Suitability Index survey of ponds within 500m of the Project to assess their suitability for great crested newts *Triturus cristatus*.

### Approach to bat surveys and assessment

**8.27** The 2023 Bat Survey Guidelines<sup>45</sup> ('2023 Bat Guidelines') state in paragraph 6.3.3 that for large infrastructure projects 'a full suite of all survey types at every stage would be onerous and inefficient'. Reflecting the guidelines as well as established precedent elsewhere<sup>46</sup>, no bat roost surveys are proposed for individual trees to be removed during the construction phase as this would be considered a disproportionately high level of survey work relative to the value of the data they would yield.

**8.28** Paragraph 6.3.4 (and box 6.1) of the 2023 Bat Guidelines also highlight the fact that trees and woodland are a much more dynamic roosting environment for bats (than buildings) with roosts and potential roost features in trees appearing or disappearing over a period of several years. There is an expectation of multiple years between the completion of the ecology field surveys undertaken as part of the EIA and the commencement of the construction phase. However, static bat detectors will be deployed in suitable habitat within the Study Area. These will be supplemented by detailed forestry and woodland surveys of woodland blocks which will also provide an indication of bat suitability. Therefore, an understanding of the bat species, roost suitability and bat activity levels will be gained for the Project. This is considered sufficient baseline data to inform the EclA and all appropriate further surveys would be undertaken post consent and pre construction.

**8.29** This is considered a proportionate approach due to i) the low risk to bats from OHL infrastructure, and ii) the low likelihood of encountering rare bat species along the route in terms of roosting bats in trees/woodland. This is explained further below.

**8.30** There is a low risk to bats from OHL infrastructure compared to other linear projects. OHL infrastructure has less of an impact on bats than other linear infrastructure such as roads. Bats are impacted by roads in a number of ways - destruction, degradation and fragmentation of roosting, foraging and commuting habitat; mortality of bats through collision with vehicles; and disturbance from noise, lighting and air pollution associated with the road<sup>47</sup>. OHL schemes involve minimal land take so minimise habitat impact, have less impact on fragmentation of habitat corridors used by bats (such as hedges which are generally spanned), result in less bat mortality and have little or no noise, lighting or air pollution impacts. Thus the relevant guidance in the 2023 Bat Guidelines<sup>48</sup> on linear infrastructure projects should be viewed with this in mind.

**8.31** Recent research<sup>49</sup> on bats and high-voltage power lines found that under humid conditions light-tolerant (e.g. pipistrelle) and light-sensitive (e.g. barbastelle) bats were attracted to power for feeding on insect prey attracted to 'corona light'. However, it also found that high-flying and open-space foragers like noctule and Leisler's bats may avoid power lines owing to the physical structure (pylons and cables) of the power lines. These are two open-space forager species that forage at height and OHL may potentially represent obstacles for foraging/commuting.

**8.32** An Irish study<sup>50</sup> looking at hedgerow connections and bat feeding found that there was no significant association between likelihood of bat occurrence and distance from power lines of any voltage, concluding that 'power lines do not have a deterrent effect on the more common resident Irish bats while in flight'.

**8.33** There is a low likelihood of encountering rare bat species along the route in terms of roosting bats in trees/woodland. In relation to the impact of the OHL to bats roosting in trees and woodland, it is considered unlikely that any of the four rarer Habitats Directive Annex II bat species (greater horseshoe; lesser horseshoe, barbastelle; and Bechstein's) would be roosting in trees impacted by the scheme. Whilst the two species of horseshoe bat are likely present in this part of Wales, they do not roost

<sup>45</sup> Collins, J. (ed) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4<sup>th</sup> Edition). The Bat Conservation Trust, London

<sup>46</sup> For example, Kendoon to Tongland Reinforcement (60km strategic OHL upgrade Dumfries and Galloway), Erskine to Devol Moor OHL (15km grid connection in Central Scotland) and a further confidential OHL in Scotland.

<sup>47</sup> Bat Conservation Trust <https://www.bats.org.uk/about-bats/threats-to-bats/roads>

<sup>48</sup> J. Collins (Ed) 2023

<sup>49</sup> Acoustic activity of bats at power lines correlates with relative humidity: a potential role for corona discharges

Jérémy S. P. Froidevaux, Gareth Jones, Christian Kerbiriou and Kirsty J. Park  
Published: 15 March 2023 <https://doi.org/10.1098/rspb.2022.2510>

<sup>50</sup> EirGrid Evidence Based Environmental Studies Study 3: Bats

Literature review and evidence based field study on the effects of high voltage transmission lines on bats in Ireland December 2015

in trees. Bechstein's bat has a very restricted distribution<sup>51</sup> and neither this species of barbastelle bat<sup>52</sup> are usually found in this part of Wales based on existing distribution maps. Any impact on small numbers of other tree roosting bats are unlikely to meet the significance test of the EIA regulations, although legal compliance will be followed.

**8.34** Our proposed approach to bats, reflecting the stages of the Project are summarised as:

- Routeing stage: Data search for bat SACs; bat landscape features e.g. woodlands. Avoid where possible direct and indirect impact to both;
- Preferred route selection: Minimise tree loss (and loss of other bat foraging habitats). Minimise loss or disruption of potential roosting and commuting features. Data search, plus Extended Phase 1 habitat survey identifies bat roost and resource potential, as set out in 2023 Bat Guidelines;
- Detailed design, EclA and ES preparation: continue to minimise tree loss through detailed design/tower siting and static bat recorders will be deployed to classify bat activity levels of each woodland block directly impacted, spring, summer, autumn, apply methods established in 2023 Bat Guidelines. From this, likely roost activity can be inferred. This is considered sufficient to assess risk to bats for ES submission. The EclA will recognise that tree condition is dynamic and that the roost potential of trees will change between assessment and construction. Data presented in the ES, therefore, will not represent baseline at construction, thus pragmatism must be applied. The precautionary principle will be applied. Where data suggests maternity roost activity, roosts will be assumed and assessed as such. Similarly, this risk will be recognised in ES mitigation commitments. On-going liaison with NRW will be undertaken as bat data is analysed.
- Planning/ Licensing/ Delivery: Pre-commencement bat surveys can be conditioned. Detailed emergence/ activity surveys of any trees to be removed as part of mitigation package. Licensing if required.

#### Great crested newt

**8.35** Towers and associated works will be positioned to avoid waterbodies (ponds, ditches etc) and terrestrial habitat that would require great crested newt (GCN) survey. Presence/absence surveys for GCN may be triggered based on pond Habitat Suitability Index (HSI data), data search results and presence of suitable (connected) terrestrial habitat. In most cases, micro-siting of towers will avoid any impact. However, small amounts (judged by Ecologist and/or GCN licence habitat impact calculator) of terrestrial habitats impacted can be subject to habitat manipulation under ecological supervision (see reptiles). GCN become scarcer in West Wales and absent the in the far west of Wales – according to HSI the scheme is in zones B (marginal) and C (unsuitable for GCN). Works would be timed to avoid disturbance to hibernating GCN where surveys identify their presence.

#### Surveys scoped out

**8.36** Based on the findings of the desk based surveys, nature of the Project and potential for significant effects, the following surveys are not proposed to be undertaken (subject to results of extended Phase 1 Habitat Survey):

- **Water vole surveys.** Water vole *Arvicola amphibius* activity is mostly restricted to areas immediately adjacent to river banks and stream banks – the intention is for these to be spanned or cables out underground and thus remain unaffected by the construction and operation of the Project. Should this assumption change, the need for water vole surveys will be revisited.
- **Reptile surveys.** Surveys/impact can be avoided by use of 'habitat manipulation under ecological supervision'. This technique includes hand searching for reptiles in areas of suitable grassland/roughland habitat impacted by the Project (e.g. for tower bases, access, compounds etc), followed by a cutting of the vegetation down to 10cm, leaving for 24 hours (for reptiles to move into contiguous adjacent suitable habitat), then vegetation clearance/top soil removal. Should this technique not be appropriate, the need for reptile surveys will be revisited.
- **Invertebrate surveys.** Invertebrate populations unlikely to be impacted by cabling, towers, associated works.

<sup>51</sup> <https://cdn.bats.org.uk/uploads/pdf/Bechsteins-bat-species-account.pdf?v=1642079639>

<sup>52</sup> [https://cdn.bats.org.uk/uploads/pdf/About%20Bats/barbastelle\\_11.02.13.pdf?v=1541085170](https://cdn.bats.org.uk/uploads/pdf/About%20Bats/barbastelle_11.02.13.pdf?v=1541085170)

- **Fish and aquatic surveys.** Watercourses spanned and remain unaffected. Standard good practice measures will be in place for construction, to include pollution prevention.
- **Other mammals** (brown hare, hedgehog, harvest mouse). Impact not considered significant in EIA terms.

### Assessment Method

**8.37** Impact assessments presented within the ES will be undertaken in accordance with CIEEM guidance (2018, updated 2022).

**8.38** The approach to assessment will take account of existing guidance and published scientific literature, together with professional judgement and experience of undertaking EIA on similar developments.

**8.39** The ES will provide a detailed description of the existing baseline for terrestrial ecology within the Study Area, along with the assessment of the potential effects of the Project on the identified important ecological features, taking account of embedded and standard good practice measures to avoid and minimise significant impacts where possible.

**8.40** Relevant international, national and local legislation policy and guidance will be referenced to determine the importance (or 'sensitivity') of terrestrial ecological features. In addition, importance will also be determined using professional judgement, specialist consultation advice as appropriate and the results of baseline surveys and the importance of features within the context of the geographical area.

**8.41** Importance will not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

**8.42** The importance of ecological features will be defined in a geographical context from 'Local' to 'International' in line with CIEEM guidelines.

**8.43** The identification and characterisation of effects on ecological receptors will be undertaken in accordance with the CIEEM guidelines with reference to effect magnitude (e.g. proportion of a population affected), extent, duration and reversibility as appropriate. Effect magnitude will be considered alongside the likelihood of its occurrence to help make a judgement on the significance of effects.

**8.44** The evaluation of effects will consider how the conservation status of each habitat or species may be affected by the predicted magnitude and direction of effects arising from the Project. The maintenance of existing favourable conservation status for affected habitats and species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.

**8.45** Impacts will be considered during the construction and operational phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented (see embedded and standard good practice section below).

**8.46** The assessment will only assess in detail impacts upon important terrestrial ecological features i.e. those that are considered important and likely significantly affected by the Project. **Table 8.2** below sets out features proposed to be scoped in and out of the assessment.

**8.47** The effects of the Project will be assessed in isolation and in combination with other relevant large-scale developments within 5km of the Project as well as intra-project cumulative effects.

## Data Collation and Assessment Methodology: Ornithological

### Legislation and Guidance

**8.48** The ornithological assessment will be carried out in cognisance of the following relevant legislation and standards:

- The Wildlife and Countryside Act 1981 (as amended);
- The Environment (Wales) Act 2016;
- The Conservation of Habitats and Species Regulations 2017 (as amended) (i.e. the "Habitats Regulations");

- The Nature Recovery Plan 2020;
- Planning Policy Wales: Technical Advice Note 5: Nature Conservation and Planning;
- The Powys County Council Local Biodiversity Action Plan (LBA); and
- Priority Habitats and Species in Carmarthenshire.

**8.49** The assessment will also have regard to the following guidance:

- Chartered Institute of Ecology and Environmental Management (CIEEM), Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine;
- Species survey guidelines as identified by CIEEM (2018, amended 2022);
- Guidance on bird survey methods to inform impact assessment; and
- Guidance on assessment and mitigation of impacts of overhead lines on birds;.

### Ornithological Receptors

**8.50** The ornithological receptors that will be considered as part of the assessment are:

- Statutory designated sites where ornithology forms part of the qualifying interest;
- Bird species whose populations are likely to form part of the qualifying interest of statutory designated sites;
- Birds listed on Annex 1 of the EC Birds Directive and on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); and
- Birds listed on the Red-list of Birds of Conservation Concern (BoCC)<sup>53</sup> or the Red list Birds of Conservation Concern in Wales (BoCCW)<sup>54</sup>.

### Data Collection - Desk Based

**8.51** Desk studies will continue to inform the collation of baseline information. Data requests will be made to local biological records centres, and organisations likely to hold import bird records including the RSPB and the British Trust for Ornithology.

**8.52** The following key information sources have been consulted to inform Scoping:

- Multi-agency Geographic Information for the Countryside (MAGIC) (2023) <sup>55</sup> online application and NRW webpages<sup>56</sup> for information on designated sites; and
- NatureScot guidance (SNH 2016<sup>57</sup>) on bird survey, assessment and mitigation methods in relation to overhead lines.

### Data Collection - Field Surveys

In accordance with NatureScot guidance adopted by NRW (SNH, 2017), one full year of ornithological surveys will be completed, in addition to preliminary VP surveys undertaken to date. NatureScot guidance<sup>59</sup> states:

#### 4.1 Survey period

*Power companies in Scotland currently consult extensively and iteratively in order to identify economically and technically feasible routes for transmission lines which minimise impacts on the environment, landscape and local*

<sup>53</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.

<sup>54</sup> Johnstone, I.G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. & Taylor, R.C. (2022). Birds of Conservation Concern Wales 4: the population status of birds in Wales. *Milvus*, 2: 1-34.

<sup>55</sup> Defra. Magic Map. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> (accessed 15/08/2023).

<sup>56</sup> NRW. Protected areas of land and seas. Available at: <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/?lang=en> (accessed 15/08/2023).

<sup>57</sup> SNH. (2016). Guidance: Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. SNH. Battleby, UK.

*communities. Given this, we consider that one year of relevant bird survey work is appropriate for proposed transmission power line developments.*

**8.53** The following field surveys will be undertaken:

- Flight Activity Surveys (a minimum of 20 vantage point locations will be used);
- Breeding Bird Survey (BBS) comprising up to four visits to key open ground habitats that are likely to support populations of nature conservation importance; and
- Breeding raptor and owl surveys.
- Nightjar surveys.

**8.54** Field surveys will use standard survey methodologies, including raptor survey methods specified in Hardey et al. (2013)<sup>58</sup>. Flight activity surveys will comprise timed watches from VPs, based on the methods described by Band et al. (2007)<sup>59</sup>.

**8.55** Ornithology field surveys to inform the baseline for assessment will run from September 2023 to August 2024.

### Assessment Method

**8.56** The ES will provide a detailed description of the existing baseline ornithological features, along with an assessment of the potential effects of the Project on the important ornithological features present, taking account of mitigating measures to avoid and reduce significant effects where appropriate.

**8.57** Impact assessments presented within the ES will be undertaken in accordance with CIEEM guidance (2019)<sup>60</sup>. The approach to assessment will take account of existing guidance and published scientific literature in relation to avian ecology and bird-powerline interactions, alongside professional judgement and experience of OHL EIA.

**8.58** Effects will be considered during the construction and operational phases and will be assessed on the basis that a clearly defined range of appropriate avoidance buffers and standard good practice measures are implemented (see section below). Effects on birds could arise because of habitat loss, disturbance, displacement, collision mortality and electrocution.

### Determining Importance

**8.59** Relevant international and national legislation, policy and guidance will be referenced to determine the Nature Conservation Importance (NCI) of ornithological features. In addition, species' sensitivity to potential effects from OHL developments will be taken into account by considering aspects like their behaviour and capacity for habituating to the presence of OHL infrastructure.

### Identification and Characterisation of Effects

**8.60** The identification and characterisation of effects on important ornithological features will be undertaken in accordance with the CIEEM guidelines (2018, amended 2022) with reference to effect magnitude (e.g. proportion of a population effected), extent, duration and reversibility as appropriate. Effect magnitude will be considered alongside the likelihood of its occurrence to help make a judgement on the significance of effects. Where appropriate and where supporting information is available, this approach may be supported by population models which will explore a range of scenarios to help understand the likely response of populations to potential effects arising from the Project.

**8.61** Professional judgement will be used to consider effect significance on each ornithological feature, with effects on species' populations evaluated with reference to appropriate regional or national spatial units.

<sup>58</sup> Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) Raptors: a field guide to survey and monitoring. Third Edition. The Stationary Office, Edinburgh.

<sup>59</sup> Band, W., Madders, M. & Whitfield, D.P. (2007) Developing field and analytical methods to assess avian collision risk at wind farms. In de Lucas, M., Janss, G.F.E. and Ferrer, M. (Eds.) Birds and Wind Farms: Risk assessment and Mitigation, pp. 259 - 275. Quercus, Madrid.

<sup>60</sup> CIEEM. Guidelines for ecological impact assessment in the UK and Ireland. Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1.pdf> (accessed 15/09/2023).

## Significant Effects

**8.62** The evaluation of effects will consider how the conservation status of each species may be affected by the predicted magnitude and direction of effects arising from the Project. The maintenance of existing favourable conservation status for affected species, at the appropriate geographic scale, will be a key judgement for evaluating effect significance.

## Presentation of Sensitive Information

**8.63** Sensitive information as it relates to ornithology will be presented within a confidential appendix to the ES.

## Likely Significant Effects

### Embedded and standard mitigation measures

#### Ecological

**8.64** The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ecological features resulting from the Project will continue to form part of the iterative design process.

**8.65** Ecological baseline data will be used to inform the iterative design process. Full details of the scheme's design evolution and embedded mitigation measures in relation to ecology will be detailed within the ES. This will include the specification of any species-specific buffers as necessary.

**8.66** There will be a particular focus on avoiding direct impacts on the sites designated for nature conservation purposes (i.e. described above) and significant impacts on protected species and habitats of conservation concern.

**8.67** Further consideration of micro-siting of towers and the location of other infrastructure may be required in the design and construction process to avoid or minimise disturbance effects on protected and notable species.

**8.68** To comply with relevant nature conservation legislation, suitable buffers will be included around breeding or resting/roosting locations for protected or notable species, as defined by best practice. Where appropriate, protected species licencing will be sought to enable works that would otherwise be unlawful, in line with licence conditions and supporting Species Protection Plans (SPPs).

**8.69** The following standard good practice mitigation measures are assumed to be in place for the purposes of the assessment:

- Reinstatement of habitats to pre-construction conditions where possible;
- Careful timing of activities and other construction measures such as ramping of trenches to avoid effects on protected species;
- The production of Species Protection Plans (SPPs) where appropriate, which may include the rigors of the species licencing process. The species licensing process requires detailed and targeted mitigation, and if necessary biodiversity compensation;
- The development and application of a Construction Environment Management Plan (CEMP), which will set out guidance on compliance with nature conservation legislation and policy;
- Production of a Pollution Prevention Plan (PPP) as part of the CEMP and adherence to Guidelines on Pollution Prevention (GPPs), which will significantly reduce the likelihood and severity of pollution events and associated impact to water ecology;
- Update pre-construction protected species surveys to be completed to confirm the status of protected species prior to works commencing; and
- The appointment of an Ecological Clerk of Works (ECoW) to advise, monitor and report on compliance with relevant legislation, policy and project specific mitigation during construction.



## Ornithology

**8.70** The adoption of embedded mitigation measures to avoid or minimise adverse effects upon ornithological features resulting from the Project will continue to form part of the iterative design process.

**8.71** Where required, suitable species-specific buffers around sensitive ornithological sites may be incorporated in the design process. Full details of scheme design and embedded mitigation measures in relation to ornithology will be detailed within the ES.

**8.72** A Bird Protection Plan (BPP) will be prepared to ensure legislative compliance and accordance with current good practice guidance. This will be incorporated into any CEMP and overseen by an ECoW.

**8.73** The assumption is that the clearance of vegetation likely to support breeding birds will aim to be avoided during the bird breeding season (March to August inclusive). Where this would be required, an ECoW will undertake a disturbance risk-assessment as part of the BPP and will supervise the work to ensure that disturbance is avoided or minimised. Where active nests are discovered, suitable no disturbance buffers will be maintained until chicks have fledged. Where possible, scheduling construction and maintenance activities outside certain periods will be proposed for seasonally sensitive species.

## Potential Effects Scoped into the Assessment

### Ecological

**8.74** The assessment will consider the following potential effects:

- Direct and indirect effects on statutory designated areas for nature conservation purposes as a result of construction phase of the Project (i.e. SACs and SSSIs);
- Direct and indirect effects arising from permanent loss and/or fragmentation during the construction phase of the Project on habitats of conservation concern;
- Direct and indirect effects during construction of the Project on sheltering or foraging of non-avian protected and notable species; and
- Habitat Regulations Assessment (HRA)

**8.75** A separate HRA Screening and Appropriate Assessment Report (if required) will be produced in parallel with the ES to assess Likely Significant Impacts on European Wildlife Sites (SACs, SPAs) and potential sites.

## Potential Effects Scoped Out of the Assessment

### Ecological

**8.76** The following effects are proposed to be scoped out of full assessment:

- Direct and indirect effects on statutory designated areas for nature conservation purposes as a result of the operation of the Project on the basis that there will be limited land take and minimal ongoing disturbance following construction.
- Direct and indirect effects arising from permanent loss and/or fragmentation during operation of the Project on habitats of conservation concern on the basis that there will be no additional (to construction effects) habitat loss or fragmentation as a result of operation. Potential impacts will be managed through implementation of a Habitat Protection Plan, which will include pre-works checks and, if necessary, timing restrictions and buffer distances around habitats of conservation concern.
- Direct and indirect effects arising from temporary habitat loss and/or fragmentation (i.e. habitats that are not of conservation concern) as a result of construction and operation of the Project on the basis that the scale of temporary habitat loss will be insubstantial relative to the surrounding landscape and micro-siting will be employed during construction if required.
- Direct and indirect effects as a result of the operation of the Project on non-avian protected and notable species on the basis that potential impacts will be managed through implementation of a SPP, which will include pre-works checks and, if necessary, timing restrictions and buffer distances and protected species licencing to ensure legal compliance.

**8.77** While the effects above are scoped out because they are not likely to be significant in EIA terms, the need to ensure compliance with international and national nature conservation legislation still applies. GGC will therefore comply with all relevant legislation in advance of any construction work and the presence and potential presence of protected species along the route will need to be established and appropriate avoidance, mitigation and enhancement measures implemented accordingly. This may need to be in accordance with any European Protected Species licence granted separate to the DNS process by NRW.

### Potential Effects Scoped into Assessment

#### Ornithological

**8.78** The construction and operation of the Project has the potential to cause significant effects on birds. These may arise due to:

- Direct loss of habitat arising from temporary land take during construction and permanent habitat losses to accommodate the infrastructure of the Project;
- Indirect habitat loss arising from disturbance if birds are displaced from nesting, foraging or roosting habitats during the construction phase of the Project;
- Mortality from collision with the wires of the OHL; and
- Cumulative effects arising from any of the above combined with effects from other proposed or existing developments in the same geographic area which act on the same regional bird populations.

**8.79** The potential for each effect varies between species and species-groups and, therefore, a species-specific assessment will take place using information from baseline studies and knowledge of how different species may be affected. For example, the risk of collision varies for different species due to their biometrics and flight behaviour and is further modified by habitat and topography.

**8.80** The assessment will only assess in detail effects upon important ornithological features, where these features, principally species, are known to be susceptible to the effects likely to arise from the construction and operation of the Project. This will include species defined as having high or moderate nature conservation interest, where individuals of these species make substantial use of airspace and habitats surrounding the Project for breeding, roosting, or foraging.

### Potential Effects Scoped Out of Assessment

#### Ornithological

**8.81** The following potential effects are proposed to be scoped out of full assessment:

- Electrocutation - electrocution on OHLs is possible either where a bird can touch a conductor while it is perched on an earthed tower, touch a conductor and the earth wire simultaneously or touch two conductor wires simultaneously. The design and configuration of the wires and towers of modern OHLs means that none of these scenarios are possible as the gaps between the conductors and the perch points would be greater than the wingspan of perching bird species likely to be encountered in this area.
- Operational disturbance - the OHL (and UGC where proposed) would require only occasional site visits either on foot or in vehicles for maintenance activities. While the Project may also result in disturbance arising from low-level noise and visual effects associated with the wires and towers, the magnitude of these potential impacts is considered too low to cause significant effects on bird populations.
- Effects on non-sensitive populations - a detailed assessment of bird populations that are present but sufficiently widespread, unthreatened and resilient to the potential effects arising from the Project will not be undertaken. Full justification for Scoping out certain populations will be provided in the ES, where relevant.



## Approach to Additional Mitigation

### Ecological

**8.82** Where effects are assessed as being significant, within the context of the EIA regulations, mitigation measures will be identified and agreed in consultation with relevant stakeholders. All mitigation measures will be developed on the basis of robust science, drawing on current and emerging good practice, and its likely efficacy and success will be considered.

### Ornithological

**8.83** Mitigation measures will be proposed to off-set any predicted significant effects.

**8.84** Mitigation measures may include: Further location- or species-specific buffers or timing restrictions to avoid disturbance to sensitive bird species; and installing line markers or 'bird diverters' as appropriate to reduce collision risk.

### Benefit for Biodiversity

**8.85** Field data will be collected in a way that enables a biodiversity net gain assessment to be made (utilising UK habitat classification and condition assessment and mapping). The Project will follow the Welsh Net Biodiversity Benefit (NBB) and DECCA framework approach, however the England Defra Metric 4 will be used to provide a measurable net gain (unless and until NRW/Welsh Government provide a revised net gain tool in due course). as the project will follow the DECCA five attributes of ecosystem resilience:

- Diversity: maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions and interactions that deliver services and benefits.
- Extent: incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance.
- Condition: The condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc.
- Connectivity: This refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within and between ecosystems, building on existing connectivity.
- Aspects of ecosystem resilience (adaptability, recovery and resistance): ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience.

**8.86** Biodiversity enhancements that achieve net biodiversity benefit will be considered following (i.e. additionally to) implementation of the stepwise approach of firstly avoiding, then minimising, mitigating and as a last resort compensating for, adverse impacts on the environment in a development. This process is detailed in Planning Policy Wales (para. 6.4.21, p. 142).as the step wise approach<sup>61</sup>. Consideration of placemaking and other benefits (e.g. health, well being, climate adaptation, access to green space etc) to make a genuine contribution to ecosystem resilience will be considered at this stage.

**8.87** Habitat creation and/or long term management arrangements to enhance existing habitats, to improve biodiversity and the resilience of ecosystems will also be an important potential tool for securing a new benefit to biodiversity.

## Proposed Scope of the ES

**8.88** Table 8.3 provides summary of ecology and ornithology surveys proposed to be scoped in/out of the EIA.

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<sup>61</sup> Planning Policy Wales (PPW) 10: para 6.4.21.

Table 8.3: Proposed ES Scope

Matter	Scoped in/out	Justification
International and national sites designated for biodiversity.	Construction – in. Operation – out.	Direct and indirect effects on statutory designated areas for nature conservation purposes as a result of construction phase of the Project (i.e. SACs and SSSIs) where the design is unable to avoid potential impact to these sites.  A HRA will be undertaken to determine any significant effects, including an assessment of any 'functionally linked land'.
Local (statutory) sites designated for biodiversity and ancient woodlands.	Construction – in. Operation – out.	Direct and indirect effects on local statutory designated areas for nature conservation purposes as a result of construction phase of the Project, where the design is unable to avoid potential connectivity with these sites.
Habitats on Welsh list, GWDTEs	Construction – in. Operation – out.	Direct and indirect effects arising from permanent loss and/or fragmentation during the construction phase of the Project on habitats of conservation concern.
Breeding, wintering/passage birds	Construction – in. Operation – in.	Effects on breeding and wintering/passage bird populations could occur because of disturbance and/or displacement during construction and as a result of collision mortality during the operational phase of the Project.
Bat activity, hazel dormouse, otter, red squirrel, pine marten, great crested newt (GCN), vascular and non-vascular plants, and invasive non native species.	Construction – in. Operation – out.	Direct and indirect effects during construction of the Project on sheltering or foraging of non-avian protected and notable species.  Bat activity transect surveys required where there is a high impact on bat feeding habitat e.g. where route crosses through woodland and wooded river banks.  For GCN, towers and associated works will be micro-sited to avoid waterbodies (ponds, ditches etc) and habitat that would require GCN survey. Small amounts of terrestrial habitats impacted can be subject to habitat manipulation under ecological supervision (see reptiles). GCN become scarcer as you travel west through Wales and absent the in the far west of Wales – according to Habitat

Matter	Scoped in/out	Justification
		Suitability Index (HSI) <sup>62</sup> the Scoping Corridor is in zones B (marginal) and C (unsuitable for GCN).
Invertebrates, fish, brown hare, harvest mouse, hedgehog, fungi	Construction – out Operation – out	Impacts not expected to be significant in ES terms.
Bats - roosting	Construction – out Operation – out	<p>Detailed surveys of trees to be felled is seen as mitigation, as bat roost potential of trees likely to change between planning and construction.</p> <p>No bat roost surveys are proposed to inform the ES for individual trees to be removed during the construction phase, as this would be an unreasonably high level of survey work to carry out given the amount of forestry to be affected. There is an expectation of a minimum three years between the completion of the ecology field surveys and the commencement of the construction phase. However, static bat detectors will be deployed in suitable habitat within the Study Area and these will be supplemented by data search information and habitat assessment for bats. See above. Therefore, an understanding of the bat species and activity levels will be gained for the project. This is considered sufficient baseline data to inform the ES and as stated in Paragraphs 8.27 to 8.34 above, appropriate surveys would be undertaken prior to construction.</p>
Badger	Construction – out Operation – out	Impact not considered to be significant in ES terms. Where badger setts occur in vicinity of proposed tower base or associated works/compound/switching station, micro-siting will be proposed to retain badger setts – these cases may require walkover badger survey.
Water vole	Construction – out Operation – out	Impact not considered to be significant in ES terms. Water vole activity mostly restricted to areas close to river banks and stream banks – these should be spanned and remain unaffected. A walkover for water vole signs will be included as part of otter survey above if required.
Reptiles	Construction – out	Impact not considered to be significant in ES terms. Impact can be avoided by

<sup>62</sup> Amphibian and Reptile Groups of the United Kingdom, ARG UK Advice Note 5. Great Crested Newt Habitat Suitability Index May 2010, Accessed at: <https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file> (accessed 15/08/2023).

Matter	Scoped in/out	Justification
	Operation – out	use of 'habitat manipulation under ecological supervision'. This technique includes hand searching for reptiles in areas of suitable grassland/roughland habitat impacted by the scheme (e.g. for tower bases, access, compounds etc), followed by a cutting of the vegetation down to 10cm, leaving for 24 hours (for reptiles to move into contiguous adjacent suitable habitat), then vegetation clearance/top soil removal.

#### Questions for Consultees

**Q8.1: Do consultees agree that the scope of desk studies and ecological baseline surveys proposed are sufficient and proportionate to inform the design and assessment of the Project?**

**Q8.2: Do consultees agree with the assessment method (including scoped in/scoped out effects)?**

**Q8.3 Do consultees hold any data sets that could be made available to inform the assessment?**

**Q8.4 Do consultees agree with the proposed bat surveys and the approach to the assessment?**

## Chapter 9

# Historic Environment

### Introduction

**9.1** This chapter sets out the proposed approach to the assessment of likely significant effects on the historic environment<sup>63</sup> during construction and operation of the Project.

**9.2** In line with Welsh policy definitions of the historic environment, this chapter uses the following definition of the historic environment:

**9.3** *“All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed”*<sup>64</sup>.

**9.4** Historic assets are the components of the historic environment and buildings, monuments, sites, places, areas or landscapes that are identified as having heritage interest, or significance. Significance derives from inherent qualities of historic asset, such as its age, composition and historical associations. It can also derive in part from its setting and how this forms, or enables understanding of, other aspects of its significance.

### Study Area

**9.5** The Study Area for the historic environment topic at scoping comprises the area that may be directly physically affected by the Project (the Scoping Corridor) plus a 3km Study Area (hereafter ‘the Scoping Study Area’) to provide context and identify historic assets likely to experience effects related to setting change. These are shown on **Figure 9.1**.

### Existing Conditions

#### Information Sources

**9.6** The following sources of information have been reviewed during desk-based research to inform this Scoping Report:

- Data on designated historic assets in the Scoping Study Area.<sup>65</sup>
- Dyfed Archaeological Trust (DAT) and Clwyd Powys Archaeological Trust (CPAT) Historic Environment Record (HER) data for the Scoping Study Area;
- Published information on registered historic landscapes available on the DAT website<sup>66</sup>;
- Historic and current Ordnance Survey mapping;
- Recent digital aerial photography (available via Google Earth); and
- Initial findings of other topics (e.g. Landscape and Visual Amenity, Hydrology, Hydrogeology and Geology).

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<sup>63</sup> The Welsh policy terminology ‘historic environment’ equates to the EIA Regulations terminology ‘archaeology and cultural heritage’.

<sup>64</sup> Welsh Government 2017 Technical advice note (TAN) 24: the historic environment. Available at: <https://www.gov.wales/technical-advice-note-tan-24-historic-environment> (accessed 08/08/2023).

<sup>65</sup> Spatial data for these has been sourced from MapDataWales, Available at: <https://datamap.gov.wales/search/?limit=20&offset=0>. With the exception of Conservation Areas, which are maintained by the LPA, all designated asset data originates from Cadw. (accessed 08/08/2023).

<sup>66</sup> Dyfed Archaeological Trust. Available at: [https://dyfedarchaeology.org.uk/HLC/HLC\\_Towy/Towyvalleymap.htm](https://dyfedarchaeology.org.uk/HLC/HLC_Towy/Towyvalleymap.htm) and <https://dyfedarchaeology.org.uk/HLC/Myddfai/Myddfaisummary.htm> (accessed 08/08/2023).

## Baseline Conditions

### Archaeological and Historical Context to the Study Area

**9.7** The following designated historic assets are wholly or partly within the Scoping Study Area:

- 110 scheduled monuments.
- 685 listed buildings:
  - 7 Grade I
  - 54 Grade II\*
  - 624 Grade II
- 6 conservation areas.
- 9 registered historic parks and gardens.
- Two registered historic landscapes:
  - Towy Valley Landscape of Outstanding Historic Interest (LOHI);
  - Myddfai and Black Mountain LOHI.
- 12693 HER entries (4587 from the CPAT HER; 8106 from the DAT HER).

**9.8** The Project commences in the Mid-Wales uplands, at the western edge of Radnor Forest, before running south-west towards Builth Wells, Cyngordy and through Dyffryn Tywi Valley near Llanymddyfri and Llandeilo before terminating to the south of Carmarthen. As the Project traverses a wide range of different landscapes and land-uses, there are a broad range of historic assets of all periods within the Scoping Study Area. Specific assets are referred to, where relevant, in the following contextual overview of the Scoping Study Area and Scoping Corridor.

### General Overview

**9.9** The landscape appears to have been exploited since prehistory. Neolithic and Bronze Age funerary and ritual activity is relatively well-documented in the form of extant standing stones, stone circles, ring rows and burial mounds (barrows and cairns). The burial mounds are located on ridges of high ground within and around the Scoping Study Area particularly in the upland area at the northern and eastern parts of the Scoping Study Area. The stone circles tend to be at slightly lower altitudes and near to watercourses. Many of the prehistoric ritual and funerary features are scheduled monuments and these include Cwm Maerdy standing stone<sup>67</sup> and the Fedw stone circle<sup>68</sup>, both located on the uplands at the northern end of the Scoping Corridor.

**9.10** Evidence for Iron Age activity mainly comes from defensive enclosures located on the higher ridges and hilltops within the Scoping Study Area. They include several large hillforts such as Carn Goch<sup>69</sup>, Caer Einon<sup>70</sup>, Graig Camp<sup>71</sup> and Grongaer<sup>72</sup>. An earthwork enclosure (Cwm-Bran Camp) is recorded within the Scoping Corridor, located on a hilltop approximately 650m west of Llanwrda<sup>73</sup>.

**9.11** The Tywi Valley has acted as a transport corridor for centuries, with the use of the river as a major communication route, defended by forts, placed in strategic locations on high ground overlooking the valley. As such, surviving patterns of routeways and defensive forts are key features in the landscape. Two Roman roads run through the Scoping Study Area, both connect the Roman fort at Llanymddyfri<sup>74</sup> to other forts and have sections which are scheduled monuments. The Scoping Corridor crosses

<sup>67</sup> Scheduled Monument (SM) No. RD113.

<sup>68</sup> SM No. RD027

<sup>69</sup> SM No. CM037

<sup>70</sup> SM No. RD014

<sup>71</sup> SM No. RD112

<sup>72</sup> SM No. CM082

<sup>73</sup> SM No. CM171

<sup>74</sup> SM No. CM188

the road which leads northward from the Llanymddyfri fort to Pumpsaint<sup>75</sup> near Dolauhirion. The Scoping Corridor also crosses sections of the Roman road between the forts at Llanymddyfri and Castell Collen (north of Llandrindod Wells) around Crychan Forest and Llandeilo. Evidence of a smaller Roman fort 'overseeing' this Roman road is recorded within the Scoping Corridor at Abererbwll<sup>76</sup> on the western edge of Crychan Forest. Further Roman forts lie within the Scoping Study Area at Caerfyrddin<sup>77</sup>, forming one of the largest Roman forts and town in Wales, and at Llanymddyfri<sup>78</sup> and Llandeilo<sup>79</sup> located approximately 500m and 800m respectively to the south of the Scoping Corridor.

**9.12** Evidence for early medieval activity within the Scoping Study Area mainly comes from placenames. The Scoping Study Area contains numerous names with the prefix "Llan" which indicates the presence of an early Christian church site and associated settlement. Whilst many of these developed into villages in the medieval period, some, such as Llandeilo and Llanymddyfri, grew to become towns and market centres. Several of the settlements in the Scoping Study Area retain churches which are largely or substantially medieval in date. Most of these are listed at high grades (Grade I or II\*) to reflect the survival of extensive medieval fabric. Other evidence for medieval activity comes from remains of ridge and furrow earthworks and field systems, demonstrating the use of these areas for farming. A key theme throughout history is the use of the higher ground and strategic 'pinch points' such as river crossings, for defence. This continued into the medieval period with castles constructed on high ground overlooking the passes and river crossings. The majority of the surviving castles are scheduled monuments, and they include Colwyn Castle<sup>80</sup>, Castell Llanfair-ym-Muallt<sup>81</sup>, Castell Meurig<sup>82</sup> and Castell Dryslwyn<sup>83</sup>. Caerfyrddin also had a major castle and became the key town and market centre in the region.

**9.13** Most listed buildings and HER entries are of post-medieval date. Activity of this period is recorded in most parts of the Scoping Study Area but is much less common in forestry and upland areas. This largely reflects the focus of farming and settlement in the lowlands and lower levels of activity in the uplands with them reserved for transhumance<sup>84</sup> during this period. Evidence for farming within the Scoping Study Area includes numerous farmsteads and farmhouses, many of which are listed buildings, and earthwork and structural remains of farming. These latter include ridge and furrow earthworks and field systems, sheepfolds and water management features (such as ponds). There are also many quarries of post-medieval date throughout the Scoping Study Area, reflecting the importance of, and ready access to, building stone during this period.

**9.14** In addition to farming, the wealthy estates around the section of the Twyi Valley in the Scoping Study Area followed the later post-medieval trend for developing country houses set in parklands. The majority of those in the Scoping Study Area are 18th century and later in date and typically include a central mansion and service buildings set within an informal landscape parkland. The majority of the parkland buildings are listed buildings and most of the parklands are registered historic parks and garden. They registered historic parks and garden include; Aberglasney, Plas Dinefwr<sup>85</sup>, located immediately east of Llandeilo, Middleton Hall<sup>86</sup> (now the National Botanic Garden of Wales) and Paxton's Tower<sup>87</sup>, located approximately 1.5 km south of Llanarthne. There are also some smaller parklands, such as that at Garth, where the house and parkland buildings are listed buildings but the associated parkland is not designated.

**9.15** Few designated historic assets and HER entries relate to modern (20th century and later) activity. Those that are present include war memorials (all Grade II listed buildings), military installations and modern infrastructure such as railway and road construction. Abermarlais Camp<sup>88</sup>, a Second World War army camp used initially for British troops and later for United States troops, lies within the Scoping Corridor approximately 2km north-west of Llangadog.

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<sup>75</sup> SM No. CM366

<sup>76</sup> SM No. CM373

<sup>77</sup> SM No. CM234

<sup>78</sup> SM No. CM188

<sup>79</sup> SM No. CM367

<sup>80</sup> SM No. RD035

<sup>81</sup> SM No. BR031

<sup>82</sup> SM No. CM099

<sup>83</sup> SM No. CM030

<sup>84</sup> Seasonal movement of livestock to upland summer pastures and the small settlements, known as 'hafodydd' or 'hafodau' (summer farms), used to house the farmers and stewards and associated activities.

<sup>85</sup> PGW(Dy)12(CAM)

<sup>86</sup> PGW(Dy)4(CAM)

<sup>87</sup> PGW(Dy)49(CAM)

<sup>88</sup> DAT HER Primary Record Number (PRN) 105978

## Registered Historic Landscapes

**9.16** The two registered historic landscapes, Towy Valley LOHI and Black Mountain and Mynydd Myddfai LOHI represent areas in which the historic landscape (i.e. the landscape which exists at present and the historic process responsible for this) is considered to possess a degree of coherence and significance warranting inclusion on the Register of Historic Landscapes in Wales. Whilst both have evidence of human activity stretching back millennia, the Towy Valley LOHI is primarily a lowland, farming landscape and the Black Mountain and Mynydd Myddfai LOHI is an upland landscape more closely associated with sporadic and seasonal use in the recent past. Many of the key characteristics of the LOHIs are recognised as historic assets in their own right. These span historic rural settlements (conservation areas and listed buildings), high-status designed landscapes (registered historic parks and gardens) and prehistoric ritual and defensive features (scheduled monuments).

**9.17** Each LOHI is divided into historic landscape areas (HLCAs) based upon key characteristics. The Towy Valley LOHI has # HLCAs within the Scoping Corridor and # HLCAs within the Scoping Study Area. The Black Mountain and Mynydd Myddfai LOHI has # HLCAs within the Scoping Corridor and # HLCAs within the Scoping Study Area.

## Future Baseline

**9.18** Future baseline relates to likely changes to the baseline between now and construction of the Project which will be considered in the assessment for this topic.

**9.19** Whilst no significant changes to the historic environment baseline are anticipated, the following may occur:

- Further historic assets are discovered.
- The status of some historic assets changes, i.e. assets currently non-designated may become designated and vice versa.
- Historic assets may become better understood due to advances in knowledge and/or technology.
- The condition of assets may change due to climate change and/or changes in rural land management regimes in the post-Brexit subsidy environment.
- Some assets may be damaged or destroyed by forces related to climate change (e.g. peatland wildfires, erosion associated with increased frequency and severity of cloudburst events).

**9.20** The ES will address this uncertainty over baseline with appropriate post-scoping consultation with relevant consultees to establish cut-off dates for baseline data gathering and realistic future baseline scenarios to be assessed.

## Data Collation and Assessment Methodology

### Legislation, Policy and Guidance

**9.21** The assessment of effects of the Project on the historic environment will be carried out in accordance with the principles contained within the following documents:

- Welsh Government (2021) Planning Policy Wales (PPW);
- Welsh Government (2017) Technical advice note (TAN) 24: the historic environment;
- Cadw (2011) Conservation Principles for the sustainable management of the historic environment in Wales;
- Cadw (2017) Setting of Historic Assets in Wales;
- Cadw (2017) Heritage Impact Assessment in Wales;



- Cadw, Countryside Council for Wales (CCW)<sup>89</sup> and Welsh Assembly Government (WAG)<sup>90</sup> (2007) Guide To Good Practice On Using The Register Of Landscapes Of Historic Interest In Wales In The Planning And Development Process (2nd edition) (hereafter 'ASIDOHL2');
- Chartered Institute for Archaeologists (CIfA) (2017) Standard and guidance for historic environment desk-based assessment; and
- IEMA, CIfA and IHBC (2021) Principles of Cultural Heritage Impact Assessment in the UK.

### Proposed Study Area

**9.22** . The proposed extent of the Study Area will allow the historic environment specialist assessors to identify assets and develop an appropriate understanding of their context and significance. It covers the extent over which the LVIA assessors, at time of preparation of the Scoping Report, consider significant visual effects possible so is adequate for assessing effects arising from change in the setting of historic assets.

**9.23** As the iterative design process continues, the Scoping Corridor will be refined to comprise the proposed alignment of all infrastructure required for the operation of the Project as well as the temporary infrastructure required for construction of the Project. Whilst the study areas used for the EIA will be realigned to match any refinements in the Project extent, it is proposed that they remain as the area that may be directly physically affected by the Project and a 3km buffer used to provide context for understanding and to identify assets susceptible to effects related to setting change.

### Data Collection- Desk Based

**9.24** The sources listed under the Information Sources section above will also be used for baseline information to inform the historic environment assessment within the EIA. It will also use the Project ZTV/s to assist in identification of assets which may be susceptible to effects related to setting change. Additional information will be collated via desk-based assessment including use of readily accessible documentary evidence<sup>91</sup> with primary archival research where necessary. The assessment will be informed by targeted walkover survey which will cover infrastructure locations and historic assets likely to experience effects related to setting change. Should any hitherto unidentified historic assets be identified during the walkover survey an appropriate record (i.e. location, extent, apparent form of and significance of asset) will be made. A photographic record will be made of the walkover and site visits and a selection of images utilised in the baseline reporting.

**9.25** The results of the assessment process will be reported as a Historic Environment Desk-based Assessment (HEDBA). This will cover:

- Baseline context for assets, including appropriate archaeological and historical background;
- Identification of assets susceptible to effects – commentary on their heritage significance, including contribution of setting
- Likely effects to assets as a result of:
  - Direct physical effects;
  - Change in setting.

**9.26** The HEDBA will include information derived from asset-specific assessment as necessary. The following studies are likely to be required:

- ASIDOHL2; and
- Geophysical survey.

**9.27** The ES chapter will include an appropriate summary of the conclusions of the HEDBA, plus any other supporting surveys/studies, and detail the likely significant effects of the Project.

<sup>89</sup> This government agency no longer exists and its functions are now part of Natural Resources Wales (NRW). NRW no longer retain a remit to comment on registered historic landscapes within historic environment assessment, this responsibility lies with Cadw as historic environment advisor to WG.

<sup>90</sup> Now Welsh Government/Llywodraeth Cymru.

<sup>91</sup> Sources available online or through subscriptions such as historic mapping and Tithe Award information.

## ASIDOHL2

**9.28** An ASIDOHL2 report will be prepared in line with the guidance for this assessment process (Cadw, CCW and WAG 2007). This will cover effects to the registered historic landscape/s traversed by the Project. At the time of Scoping Report preparation, the Project directly interacts with two registered historic landscapes: the Tywi Valley LOHI and a section of the northern part of the Black Mountain and Mynydd Myddfai LOHI. The ASIDOHL2 report will cover those registered historic landscapes the Project directly interacts with (i.e. would physically have infrastructure within).

## Data Collection- Field Surveys

**9.29** It is expected that some form of geophysical survey will be required to inform the EIA, both to aid design evolution and to provide appropriate baseline information in the Environmental Statement (ES). It is not possible at this stage to determine exactly where each survey would be required without further baseline research. It is proposed that geophysical survey be deployed in areas where permanent infrastructure is proposed and there is either a heightened level of potential for hitherto unrecorded buried archaeological remains or where there are known archaeological remains whose extent is unclear. Should the Project design include areas of undergrounding, this will result in larger areas needing to be surveyed.

**9.30** Further consultation will be undertaken with Cadw, Dyfed Archaeological Trust and Clwyd Powys Archaeological Trust, as appropriate, post-scoping to establish the scope and extent of the survey that would be required.

## Assessment Method

**9.31** In historic environment policy and guidance, the significance, hereafter referred to as 'heritage significance' to disambiguate from the EIA concept of 'significance', of a historic asset comprises a series of qualities, known as 'heritage values'. The heritage significance of assets will be articulated using the heritage values in Conservation Principles (Cadw 2011). Explanation of heritage significance will include assessment and discussion of whether and how an asset's setting contributes to its heritage significance and allows this to be appreciated.

## Importance

**9.32** Whilst heritage values help describe the heritage significance of assets, they do not articulate the relative importance of assets. For the purposes of the ES, the 'importance' of assets will be ascribed using the following criteria, informed by the designation criteria and the Research Framework for the Archaeology of Wales:

- High – historic assets of national significance. This will comprise designated historic assets and non-designated assets of demonstrably equivalent significance;
- Medium – historic assets of regional significance. Identified with reference to regional priorities from the Research Framework for the Archaeology of Wales; and
- Low – historic assets of local significance.

**9.33** All effects will be assessed in terms of the way in which the Project will, either physically or through change in setting, affect the heritage significance of the historic asset. This will be articulated with reference to the Conservation Principles heritage values. In articulating effects, a judgement will be made on the level of harm or benefit a historic asset will experience as a result of the Project, supported by an appropriate narrative linking this to how the asset will have its heritage significance changed. Assessment of effects related to setting change will be undertaken using the staged approach laid out in the Cadw setting guidance. In articulating effects, a clear statement will be made as to whether the effect is considered to be significant in EIA terms, i.e. constitutes a significant environmental effect. As there is currently no relevant sector guidance covering what constitutes significant environmental effect, this judgment will be made based on the level of direct physical and other effects to each asset. Although this will be evaluated on an asset-by-asset basis it is expected that an effect to an asset of at least regional significance which results in either its total removal or very much reduces its heritage significance will be a significant effect. This does not rule out significant effects arising as a result of other levels of effect to assets of lower levels of importance. The potential for such effects to be significant effects will be kept under review during the course of the EIA.

**9.34** There is no industry-wide accepted methodology for the assessment of cumulative effects to historic assets within EIA. The assessment of cumulative effects will review the agreed list of cumulative schemes for the Project and identify whether any

further effects (i.e. effects that will not be caused solely by the Project itself) will arise. This assessment will be undertaken and articulated in the same terms as the assessment of the effects of the Project in its own right.

## Likely Significant Effects

### Embedded and Standard Mitigation Measures

**9.35** In the first instance the Project will seek to avoid and minimise effects by design. This will primarily be achieved by close involvement of topic specialists in the design process so issues are highlighted at an early stage and design interventions can be made to avoid or minimise harm to assets. Topic specialist will also input to the CEMP to design realistic control measures to avoid incidental damage to historic assets during the construction period.

**9.36** Where interaction of the Project and historic assets cannot be completely avoided, good practice and additional mitigation measures to prevent, reduce, and/or where possible offset these effects will be proposed.

### Potential Effects Scoped into the Assessment

**9.37** At this stage, the following potential effects, including cumulative effects, appear to have potential to arise as a result of the Project so are scoped in:

- direct physical effects to historic assets within the Project arising during the construction period; and
- effects related to setting change for assets within the Study Area during the operational period.

### Potential Effects Scoped Out of the Assessment

**9.38** On the basis of the work undertaken to date, the professional judgement of the assessment team and experience from other similar projects and consultation responses, it is proposed that the following effects can be scoped out due to the design evolution process and implementation of the above standard good practice construction measures:

- Direct physical effects during operation and maintenance (since physical effects will only occur during construction).
- Direct physical effects to assets beyond the Project during operation and maintenance.
- Direct physical effects to assets beyond the land required for construction during the construction period.
- Effects related to setting change for assets during the construction period.

## Approach to Additional Mitigation

**9.39** Owing to the nature of the Project, it is envisaged that additional mitigation is likely to focus on addressing direct effects to historic assets, particularly those to below-ground historic assets (archaeological features and deposits). The approach to mitigation will be guided by industry common practice and appropriate procedures as laid out in the relevant ClfA standards and guidance documents and consultation with the relevant historic environment advisory body (e.g. CPAT, DAT).

## Proposed Scope of the ES

**9.40 Table 9.1** provides a summary of the proposed scope of the Environmental Statement.

**Table 9.1: Proposed EIA Scope**

Matter	Scoped in/out	Justification
Direct physical effects to historic assets within the Project arising during the construction period	Scoped In	Potential for Likely Significant Effects
Effects related to setting change for assets within the	Scoped In	Potential for Likely Significant Effects

Matter	Scoped in/out	Justification
Study Area during the operational period		
Direct physical effects during operation	Scoped Out	Direct physical effects will only occur during construction
Direct physical effects to assets beyond the Proposed Development footprint	Scoped Out	There will be no direct physical effects to assets beyond the Proposed Development Footprint as direct physical effects can only occur within the areas where construction will take place.
Effects related to setting change for assets during the construction period	Scoped Out	Construction will not require long- term fixed infrastructure, such as cranes, so any associated change in setting is unlikely to result in significant effects to historic assets.

#### Questions for Consultees

**Q9.1:** Do consultees consider the Study Area appropriate?

**Q9.2:** Are there any other relevant consultees who should be consulted about this topic?

**Q9.3:** Are consultees aware of any other supplementary guidance of relevance to assessment of effects to historic assets?

**Q9.4:** Is the approach to the assessment of effects, including those effects scoped in and out and the cumulative assessment, appropriate?

**Q9.5:** Is the approach to surveys, including geophysical survey, considered appropriate?

# Chapter 10

## Traffic and Transport

### Introduction

**10.1** This chapter sets out the proposed approach to the assessment of likely significant effects of the construction and operation of the Project on Traffic and Transport.

### Study Area

**10.2** The Study Area for Traffic and Transport comprises the area directly affected by the Project and will be finalised and presented in the ES once the proposals have been progressed and tower locations have been identified. The Study Area will include those transport links where the Project is predicted to generate a significant increase in traffic flows. For the purpose of this chapter, the Study Area is assumed to be the Scoping Corridor, plus those transport links that provide access to the Strategic Road Network.

**10.3** As the iterative design process continues, the Study Area will be refined to comprise the proposed alignment of all infrastructure required for the operation of the Project as well as the temporary use of infrastructure required for construction of the Project.

### Existing Conditions

#### Information Sources

**10.4** The following sources of information have been reviewed during desk-based research to inform this Scoping Report:

- OS Mapping including OS Open Roads to inform the type of roads within the Study Area;
- Railway line information; and
- Powys and Carmarthenshire Adopted Highways data.

#### Baseline Conditions

**10.5** Across the length of the Study Area there are a number of A Roads which interact with it, these are:

- A44: the A44 is a single carriageway running between Oxford in southern England to Aberystwyth in west Wales. The A44 changes between 30mph, 40mph, 50mph and national speed limits across its length;
- A481: the A481 is a single carriageway in Powys County Council, connecting with the A483 and leading into the A44. This is a short road approximately 10 miles in length with a speed limit varying from 40mph to national speed limit;
- A470: the A470 is a single carriageway running between Cardiff in the south and Llandudno in the north of Wales. This is Wales' longest road, with a 26 mile stretch from Cardiff Bay to Merthyr Tydfil being dual carriageway. The A470 speed limit varies between 30mph, 40mph, 50 mph and national speed limit restrictions across its length;
- A483: is a single carriageway (with dual carriageway sections along the length) which runs from Swansea in Wales to Chester in England. The speed limit varies between 30mph and national speed limit across its length;
- A40: the A40 runs from London in England to Goodwick in Wales. Much of the length within Wales is a single carriageway, with the majority of the length within England being superseded by motorways such as the M40. The speed limit varies between 30mph, 40mph, 50 mph and national speed limit restrictions across its length;
- A4069: the A4069 is a single carriageway and runs between Llandovery and Gwaun-Cae-Gurwen in Wales. The speed limit varies between 40mph and national speed limit; and

- A48: the A48 is classified as a dual carriageway and runs between the A40 at Highnam, England to the A40 in Carmarthen, Wales. There is a section of the A48 which is classified as a motorway, between St Mellons (Cardiff) and the M4 junction towards Newport. The speed limit varies between 30mph, 40mph, 50mph and national speed limit restrictions.

**10.6** There are numerous B and unclassified roads across the Study Area, as well as a railway track, which the Project interacts with in four locations.

**10.7** There are two National Cycle Routes within the Study Area, routes 43 and 47, which are minor roads that are considered suitable for cycling. Work is also underway on the Towy Valley Path which will cross the scoping corridor towards the southern end.

**10.8** The key Traffic and Transport sensitive receptors are likely to be:

- Residents;
- Workplaces;
- Vulnerable groups of people such as elderly, children, or disabled;
- Sensitive locations such as churches, hospitals, schools and historical buildings;
- Pedestrians;
- Cyclists;
- Open spaces and recreational sites; and
- Tourist and visitor attractions.

### Future Baseline

**10.9** The EIA Guidelines for Traffic and Movement highlight that derived forecasts of traffic growth need to be utilised to derive the future year baseline traffic conditions.

**10.10** Future baseline traffic flows will be derived using TEMPRO traffic growth factors.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**10.11** Relevant guidance specific to the assessment of Traffic and Transport that will inform the assessment comprises of :

- General approaches and guidance outlined in Chapter 5: Planning Policy Context;
- Environmental Assessment of Traffic and Movement (IEMA, July 2023) guidance document;
- WelTAG 2017;
- Mid Wales Joint Local Transport Plan 2015; and
- Joint Transport Plan for South West Wales 2015-2020.

### Data Collection- Desk Based

**10.12** The baseline assessment will be informed by a desk study which will utilise the following data sources:

- Identification of existing traffic monitoring locations and data sources to determine existing and future baseline traffic flows. The Department for Transport has a network of annual Count Points that provide baseline traffic data, with several in place along the A44, A481, A483 and A40. Local Authorities may also hold traffic data for local roads;
- Accident data for up to five years will be reviewed where necessary at locations agreed with the local highways authority;
- The existing road network, where access is required for the construction of the Project will be examined and described, including the existing access arrangements; and

- Any sensitive receptors at and along the access to all locations affected by the development traffic will be identified, described and mapped with particular reference to those impacted by an increase in vehicle movements on pedestrian amenity such as access to schools, nursing homes, healthcare and residential areas.

### Data Collection- Field Surveys

**10.13** It is not anticipated that any field surveys will be needed due to making use of the publicly available data. The major roads in the vicinity of the Project benefit from a high level of existing Department of Transport data.

**10.14** However if particularly sensitive locations are identified as the Project progresses, which could require more detail assessment, location-specific Automatic Traffic Counts (ATC) can be commissioned. These record vehicle flows, classifications and speeds over a period of seven days. The surveys must be undertaken during 'neutral' operation periods (March through November, excluding August, and avoiding holidays/local half-terms/abnormal conditions).

### Assessment Method

**10.15** A staged approach will be followed for the assessment as follows:

- Identify up to date guidance, standards and methodologies for traffic flow prediction/mitigation;
- Assess the impact of the Project on the existing road and junction network at or immediately surrounding the proposed construction access arrangements;
- Assess the effect of the Project on the local public transport network;
- Consider and advise on the potential traffic implications arising from temporary access locations;
- Assess the impacts of the proposals on sensitive receptors;
- Identification of mitigation measures as appropriate; and
- Identification of any effects remaining after mitigation measures have been applied. The magnitude and significance of any of these 'residual effects' will be clearly presented.

**10.16** The potential impacts will be assessed against the following categories defined in the IEMA guidance:

- Severance of communities
- Road vehicle driver and passenger delay
- Non-motorised user delay
- Non-motorised amenity
- Fear and intimidation on and by road users
- Road user and pedestrian safety
- Hazardous/large loads

### Likely Significant Effects

**10.17** This section sets out the likely significant effects of the Project on Traffic and Transport. This assumes that relevant embedded mitigation measures are in place before assessing the impacts.

### Embedded and Standard Mitigation Measures

**10.18** Reflecting IEMA guidance on delivering proportionate EIA (IEMA 2017), the scope and assessment assumes that relevant embedded, standard and additional measures are in place. These would include:

- A Construction Environmental Management Plan (CEMP) will be developed and included alongside the ES. This will support the planning application and will be implemented so that likely significant effects on the environment during the construction phase of the Project are avoided, minimised or mitigated; and

- An Outline Construction Traffic Management Plan (CTMP) which will also form part of the mitigation for the Project. This will outline construction vehicle routing for access and egress the site to test and establish that the local infrastructure can absorb the construction traffic and minimise traffic congestion.
- Where possible the detailed design process would minimise the volume of material to be imported to site to help reduce HGV numbers;
- A site worker transport and travel arrangement plan, including transport modes to and from the worksite (including pick up and drop off times);
- Specific training and disciplinary measures to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Appropriate traffic management measures to avoid conflict with general traffic, subject to the agreement of local highways authorities;
- Typical measures would include HGV turning and crossing signs and/ or banksmen at the site access and warning signs; and
- The provision of updates relating to traffic movements associated with vehicles accessing the site on the project website/Twitter feed and or a newsletter.

### Potential Effects Scoped into the Assessment

#### Construction

**10.19** The primary Traffic and Transport likely significant impacts associated with the Project would be as a direct result of increased traffic flows on the surrounding roads, being used by HGVs and construction workers. The likely significant effects on the sensitive receptors would be included in the assessment of construction traffic. This is where the flows generated by the Project have increased the baseline traffic and HGV flows by 30% or 10% in sensitive areas, such as SSSIs or AONBs (as determined by the IEMA 2023 Guidance Document).

**10.20** As construction traffic will be temporary and may route via the strategic road network, it could cause severance in places on the network through increase difficulty for pedestrians crossing, giving rise to likely adverse significant effects.

**10.21** Construction traffic has the potential to increase driver and bus delays due to increased road usage from the construction vehicles, as well as increasing journey times for pedestrians and cyclists due to the closure of routes to facilitate the construction of the Project. These can result in potential adverse significant effects.

**10.22** Additionally, construction traffic is made up of a quantity of HGVs which could have an adverse impact on other highway users in the area, increasing fear and intimidation as defined in the IEMA guidance.

### Potential Effects Scoped Out of the Assessment

#### Operation and Decommissioning

**10.23** It is proposed that all effects of the operational and decommissioning phase of the Project are scoped out. This is because these phases are unlikely to cause significant effects. Any operational traffic would be limited to routine maintenance and inspection activities, which would be less than the 30% (or 10% in sensitive areas) baseline criteria.

### Approach to Additional Mitigation

**10.24** Throughout the EIA process any additional mitigation measures will be development depending on the level of likely significant effects of the Project on the sensitive receptors.

**10.25** There is no mitigation proposed for the operational or decommissioning phases of the Project as there are unlikely to be any significant effects.



## Proposed Scope of the EIA

**10.26 Table 10.1** provides a summary of the proposed scope of the EIA.

**Table 10.1: Proposed EIA Scope**

Matter	Scoped in/out	Justification
Construction effects on severance	Scoped In	Any construction traffic will be temporary and will be expected to route via the strategic road network for the majority of the journeys. Therefore this could cause severance in places on the network.
Construction effects on driver and bus delay	Scoped In	Due to increased construction traffic, this has the potential to increase congestion and delays on the local road networks.
Construction effects on pedestrian and cyclist delay	Scoped In	There could be the closure and/or diversion of pedestrian and cycling routes to facilitate construction. This would lead to increased journey times and delays for any users.
Construction effects on amenity, fear and intimidation	Scoped In	A proportion of HGV's would be used during construction which could have an adverse impact on the experience of the other highway users in the area.
Construction effects on accidents and safety	Scoped In	The construction traffic will have a proportion of HGVs, with frequent and temporary changes to the road network to facilitate the construction. This could lead to an increase in the number of road traffic accidents in the area.
Operational effects on traffic and transport	Scoped Out	Any traffic and transport impacts associated with the operational phase of the Project will be limited to routine maintenance and repair. Therefore it is proposed that all likely significant effects during the operational phase are scoped out.

### Questions for Consultees

**Q10.1** Is the proposed field survey methodology acceptable, in the event they are necessary?

**Q10.2:** Are the proposed matters to be scoped out acceptable?

# Chapter 11

## Noise and Vibration

### Introduction

**11.1** This chapter sets out the proposed approach to the assessment of likely significant effects of noise and vibration associated with the construction and operation of the Project.

### Study Area

**11.2** For the purposes of scoping, the Scoping Corridor shown on **Figure 1.2** has been used as the study area.

### Existing Conditions

#### Information Sources

**11.3** The baseline assessment has been informed by a desk based study using the following information sources:

- OS mapping.
- OS residential data to inform the location of sensitive receptors including residential dwellings, schools, and healthcare facilities.
- Welsh Government Noise and Soundscape Action Plan. 2018-2023.

#### Baseline Conditions

**11.4** The Project covers an approximate length of 96km and commences in the Mid-Wales uplands, at the western edge of Radnor Forest, before running south-west towards Builth Wells, Cynghordy and through Dyffryn Tywi Valley near Llanymddyfri and Llandeilo before terminating to the south of Carmarthen.

**11.5** The existing baseline noise environment within and around the Scoping Corridor is mostly characterised by 'natural' sources such as wind disturbed vegetation or animals, with some varying contribution from anthropogenic sound sources such as road traffic, trains in some cases, and agricultural activity. In particular, the Scoping Corridor includes A-roads, such as the A48 or A40, which will generate relatively high levels of road traffic noise in their vicinity. There are no Noise Action Planning "priority areas" identified in strategic noise mapping exercises as those where dwellings are exposed to particularly high noise levels.

**11.6** No significant baseline sources of vibration are generally likely to be present within and around the Scoping Corridor and baseline vibration levels are therefore considered to be negligible in most cases<sup>92</sup>. This is in any case not relevant to the assessment of the Project based on the methodology described below based on assessment against fixed thresholds.

#### Future Baseline

**11.7** Environmental noise and vibration levels in the area are likely to remain largely similar to those currently experienced in the short term, with the exception of any other major developments which would affect these levels.

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<sup>92</sup> Some perceptible vibration may be perceptible within 50 m from some train lines for example or other localised sources.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**11.8** In addition to the general approach and guidance outlined in Chapter 4 (EIA Approach and Method), the assessment of noise and vibration effects will have regard to the following guidance documents:

- Planning Policy Wales (PPW, 2021)<sup>93</sup>.
- Technical Advice Note (Wales) 11: Noise (TAN 11, 1997)<sup>94</sup>.
- Noise and soundscape action plan 2018 to 2023 (2018)<sup>95</sup>.
- Revised planning guidance in relation to air quality, noise and soundscape, draft for consultation (2022)<sup>96</sup>.
- Draft Noise and Soundscape Plan for Wales 2023-2028 (2023)<sup>97</sup>.
- British Standard 5228:2009 (Amendment, 2014) Code of practice for noise and vibration control on construction and open sites. Noise. Part 1: Noise (BS 5228-1) and Part 2: Vibration (BS 5228-2)<sup>98</sup>.
- Design Manual for Roads and Bridges, LA 111 Noise and vibration<sup>99</sup>.
- Minerals Technical Advice Note (Wales) 1 (2004)<sup>100</sup>.

**11.9** In Wales, there are two legislative instruments which address the effects of environmental noise with regard to construction noise, vibration and nuisance; the Environmental Protection Act 1990 (EPA) and the Control of Pollution Act 1974 (CoPA). The EPA defines the powers for local authorities to investigate and control statutory nuisance from noise. The CoPA provides two means of controlling construction noise and vibration. Section 60 provides a Local Authority with the power to impose at any time operating conditions on a development site. Section 61 allows a developer to negotiate a set of operating procedures with a Local Authority prior to commencement of site works. Notwithstanding these powers, the aim of the planning system is to minimise and control construction and operational noise levels where it is appropriate and necessary to do so.

**11.10** For detailed guidance on construction noise and its control, Annex B of TAN 11 refers to British Standard BS 5228. BS 5228-1 provides guidance on a range of considerations relating to construction noise including the legislative framework, general control measures, example methods for estimating construction noise levels and example criteria which may be considered when assessing effect significance. Similarly, BS 5228-2 provides general guidance on legislation, prediction, control and assessment criteria for construction vibration.

**11.11** Welsh planning guidance on surface mineral extraction provides guidance that is relevant to the types of mineral extraction activity associated with site construction works and borrow pit excavation. Reference should be made to Minerals Technical Advice Note (Wales) 1: Aggregates (MTAN1). BS 5228-1 and BS 5228-2 also provide guidance relating to surface mineral extraction including the assessment of noise and vibration impacts associated with quarry blasting.

### Data Collection- Desk Based

**11.12** A desk study will be undertaken to identify any sensitive noise receptors and their proximity to any proposed construction works. The sensitive receptors will comprise residential dwellings, as well as schools and healthcare facilities (if relevant), as referenced in TAN 11. Commercial and industrial receptors are not referenced as noise-sensitive in TAN 11 as they are of lower

<sup>93</sup> Welsh Government, Planning Policy Wales, Edition 11, February 2021.

<sup>94</sup> Welsh Government, Planning Guidance (Wales), Technical Advice Note (Wales) 11, Noise, 1997.

<sup>95</sup> Welsh Government, Noise and soundscape action plan 2018 to 2023, December 2018.

<sup>96</sup> Welsh Government, Revised planning guidance in relation to air quality, noise and soundscape, "Technical Advice Note 11: Air Quality, Noise and Soundscape", draft for consultation (2022).

<sup>97</sup> Welsh Government, Draft Noise and Soundscape Plan for Wales 2023-2028, draft for consultation, June 2023.

<sup>98</sup> British Standards Institute, BS 5228:2009-A:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' and Part 2: Vibration'.

<sup>99</sup> Transport Wales. 'Design Manual for Roads and Bridges, LA 111 Noise and vibration', revision 2 (2020).

<sup>100</sup> Welsh Government, Minerals Planning Policy (Wales), Minerals Technical Advice Note (Wales) 1: Aggregates, National Assembly for Wales, 2004.

sensitivity to noise and vibration; therefore, they are unlikely to experience significant adverse effects from the Project and are not proposed to be considered in the ES.

**11.13** The Study Area for potential construction noise effects will be 500 m from the proposed works: beyond this distance, no significant effects are expected (based on guidance of BS 5228-1, the type of activities potentially involved and the experience of the design team of similar projects).

**11.14** Construction vibration effects would be more localised, and the study area would be restricted to receptors within 100 m of relevant activities, as levels would reduce to imperceptible levels beyond this distance based on the guidance of BS 5228-2 and LA111.

### Data Collection- Field Surveys

**11.15** It is not considered necessary to undertake a survey of baseline noise or vibration levels as a basis of quantifying the effects of noise or vibration associated with the construction of the Project. This is because the assessment will be based on fixed thresholds, derived from the guidance referenced in the guidance section above, on the basis of the largely rural nature of the Scoping Corridor.

**11.16** As the potential for significant operational noise effects from the proposed overhead line (or other Project components) is also considered unlikely and is proposed to be scoped out (as detailed below in paragraphs 11.31-11.34), it is not proposed to undertake any baseline background noise monitoring to inform a detailed operational noise assessment.

### Assessment Method

**11.17** The assessment of the magnitude of change for construction noise and vibration will compare predicted levels with standard guideline levels, as well taking into account the potential duration and nature of the different activities. For noise, these guidelines thresholds will be determined from guidance in Annex E of BS 5228-1, taking into account the generally rural character of the area. For vibration, reference will be made to guidance in Annex B of BS 5228-2. Predictions will follow the methodology of BS 5228 based on reference emission data for different activities (for noise and vibration). If the potential for significant effects is identified, suitable mitigation measures will be determined.

**11.18** The analysis of the potential impacts of rock extraction from borrow pits (should this be required) by means of blasting operations will be made in accordance with MTAN1 and BS 5228.

## Likely Significant Effects

### Embedded and Standard Mitigation Measures

**11.19** The design of the Project will seek to avoid proximity to settlements where possible as these are sensitive to noise and vibration. Further embedded measures would be incorporated in the final design of the Project to maximise distance to dwellings where it is possible and appropriate to do so.

### Construction

**11.20** The management of noise and vibration from construction activities would be included in the Construction Environmental Management Plan (CEMP), described in Chapter 3 (Project Description), which will include measures including:

- Restrictions on core working hours; and
- Standard good practice measures such as use of Best Practical Means to reduce disturbance associated with noise and vibration during construction as far as reasonably practicable, with reference to relevant guidance in BS 5228 (parts 1 and 2).

**11.21** In addition, construction traffic (including heavy vehicle movements in particular) would be managed and restricted to certain hours as part of the measures implemented through the Construction Traffic Management Plan (CTMP).

**11.22** The planning submission will be accompanied with outline versions of the CEMP and CTMP with the final versions of both management plans secured through planning conditions.

## Operation

**11.23** The design and selection of components for the overhead lines and switching station would conform with standard industry best practice to minimise the potential from any noise generation. Noise generated by any faulty components would be identified and cleaned or replaced as required as part of maintenance activities.

## Potential Effects Scoped into the Assessment

### Noise from Construction Activities

**11.24** In assessing the effects of construction noise associated with the construction of the overhead line or underground cabling and associated ancillary works, it is accepted that the associated works, which are linear in the geographical extent, are of a temporary nature. The noise generated by construction activities associated with these works will quickly diminish as construction progresses, moving the activity further away from noise-sensitive locations within a relatively short period of time, **Chapter 3** identifies the expected construction periods associated with OHL and UGC infrastructure. These activities are therefore unlikely to be associated with significant effects due to their limited extent in terms of duration.

**11.25** However, other activities such as construction of the switching station, and quarrying of borrow pits may need to be undertaken for a more sustained period in a particular location, which could be associated with potential significant noise effects.

**11.26** Working hours may also include some weekend periods (Saturday afternoons and Sundays) to minimise the overall duration of the construction programme. Furthermore, if required trenchless techniques (for example, Horizontal Directional Drilling) may be used for the underground cabling to cross obstacles like roads, railways, service connections or watercourses: this may require drilling to continue outside of standard working hours for safety or operational reasons.

**11.27** Some of the construction works could therefore lead to significant adverse noise effects and this will be scoped in, with the assessment focusing on potentially significant activities. The need for any specific additional mitigation and management measures which may be required will be identified.

### Vibration from Construction

**11.28** The nature and duration of most of the works likely to be required for the Project are such that the risk of significant effects relating to ground borne vibration are generally very low. However, construction of the switching station may include works (such as piling) which could be more sustained in duration and potentially associated with significant vibration effects. This will therefore be scoped in.

**11.29** Blasting may also be required as part of quarrying at borrow pits as part of the Project, which can be associated with air overpressure and vibration generation. The potential associated vibration effects would be assessed in line with MTAN1 as well as BS 5228-2.

## Potential Effects Scoped Out of the Assessment

### Noise and Vibration from Construction Traffic

**11.30** Construction work locations associated with the Project will be accessed by different access points which will be spread along the Project area and will be geographically separate. As a result, the construction traffic movements will be distributed over the existing road network and proposed access tracks throughout the construction programme. As such, any increase in traffic associated with these works is unlikely to be sustained in such a way that it would represent a significant noise effect<sup>101</sup>. Occasional momentary vibration can arise when heavy vehicles pass dwellings at very short separation distances, but this is not sufficient to constitute a risk of significant effects. It is therefore proposed to scope out this aspect of the assessment.

### Operational and Maintenance Noise

**11.31** Under dry weather conditions, 132kV overhead line generally do not produce any audible noise. But in wet weather, the presence of protrusions on the conductor surface (such as water droplets) can cause electric fields to propagate in the air (so-

<sup>101</sup> Guidance in DMRB suggests that significant effects would arise for a short-term increase in traffic noise of more than 3 dB, which would generally require a doubling in traffic levels (on roads that already carry substantial traffic) which is unlikely to occur for any sustained period.

called 'corona discharge') which can be a source of noise, albeit at relatively low level. The generation of this noise is minimised as part of modern overhead transmission line design. However, during wet weather conditions, increased baseline noise levels are generally experienced.

**11.32** Based on experience from the EIA team of 132kV overhead lines, levels of noise from this type of overhead line, even during worst-case conditions (wet weather), are very low (less than 20 dB(A)) and not significant. If required and included within the Project, underground cables would not produce any noise during operation. On this basis, it is proposed to scope out the assessment of operational noise from the overhead lines and potential underground cables.

**11.33** The proposed switching station would comprise equipment such as circuit breakers and switches which would not produce noise during most operational conditions (in which these breakers and switches would not operate). It would not include transformers or other substantial outdoor noise-generating plant and would therefore have negligible operational noise emissions. Some maintenance activities may produce noise, but this would be for very limited periods and unlikely to be associated with any significant effects.

**11.34** It is therefore proposed to scope out operational and maintenance noise. Specific measurements of baseline background noise levels will therefore not be required (as set out above).

#### Noise and Vibration from Operational and Maintenance Traffic

**11.35** Levels of traffic during the operational phase, associated with maintenance activities, would be sporadic and likely to be associated with negligible noise or vibration effects. It is therefore proposed to scope this out.

#### Operational Vibration

**11.36** None of the infrastructure which forms part of the Project during operation is likely to generate anything other than negligible levels of vibration during operation. Some maintenance activities, such as drilling and vehicle movements may produce vibration, but this would be localised, very low level and for very limited periods and unlikely to be associated with any significant effects. It is therefore proposed to scope this aspect out.

### Approach to Additional Mitigation

**11.37** Where potentially significant noise effects are identified, measures to prevent, reduce and where possible offset these adverse effects will be proposed. The mitigation measures proposed will draw on guidance and best practice and will be appropriate to the nature and significance of the effect identified.

**11.38** Possible additional mitigation measures may include:

- Application for prior consent under section 61 of the Control of Pollution act;
- Additional localised restrictions on working hours in certain cases; and
- Localised screening or management.

### Proposed Scope of the ES

**11.39** Table 11.1 provides a summary of the proposed scope of the Environmental Statement.

Table 11.1: Proposed ES Scope

Matter	Scoped in/out	Justification
Noise and vibration from construction activities.	Scoped in	Some activities may be associated with significant effects if not suitably managed.
Noise and vibration from	Scoped out	Construction traffic movements will be distributed over the existing road network and unlikely to be sustained in any particular area.

Matter	Scoped in/out	Justification
construction traffic.		
Operational and maintenance noise	Scoped out	Noise from overhead lines, underground cabling (if required) and switching station likely to be negligible.
Operational and maintenance vibration	Scoped out	No sources of vibration are proposed.
Operational and maintenance vibration	Scoped out	Sporadic maintenance traffic only.

#### Questions for Consultees

**Q11.1: Are you satisfied with the proposed scope of the assessment in terms of noise and vibration?**

**Q11.2: Do you agree that no specific baseline noise or vibration monitoring would be required?**

# Chapter 12

## Water Resources

### Introduction

**12.1** This chapter sets out the proposed approach to the assessment of likely significant effects of the construction and operation of the Project on Water Resources.

**12.2** The chapter will consider the likely effects on:

- Hydrology including Main Rivers and Ordinary Watercourses;
- Flood risk from all sources including the Project;
- Drainage with due regard to the Sustainable Drainage System (SuDS) hierarchy and water quality;
- Hydrogeology including groundwater abstractions;
- Public and private water supplies; and,
- Groundwater Dependant Terrestrial Ecosystems (GWDTEs).

**12.3** There are interrelationships related to the potential effects on Water Resources. Therefore, please also refer to the following chapters:

- **Chapter 8:** Biodiversity.
- **Chapter 14:** Ground Conditions.

### Study Area

**12.4** The study area comprises the area that could be directly affected by the Project (assumed for the purpose of this chapter, as the Scoping Corridor) with a 250 metre buffer within which potential effects may occur. Specific features of interest that lie outside of the buffer zone may be included where required for example, if there is a particular hydraulic catchment of interest. The study area is presented on **Figure 12.1**.

**12.5** As the iterative design process continues, the Scoping Corridor will be refined to comprise the proposed alignment of infrastructure required for the operation of the Project as well as the temporary infrastructure required for construction of the Project. The study area for the EIA will therefore comprise a 250m buffer around the final infrastructure layout.

### Existing Conditions

#### Information Sources

**12.6** The work to date has been based on desk based information including:

- Ordnance Survey mapping (contemporary<sup>102</sup> and historical<sup>103</sup>);
- Natural Resources Wales (NRW) mapping and Water Watch Wales data<sup>104</sup>;

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<sup>102</sup> Ordnance Survey, 2023

<sup>103</sup> Landmark Information Group data, 2023

<sup>104</sup> Natural Resource Wales, 2023. Available at:

[https://maps.cyfoethnaturiolcymru.gov.uk/Html5Viewer/Index.html?configBase=https://maps.cyfoethnaturiolcymru.gov.uk/Geocortex/Essentials/REST/sites/Flood\\_Risk/viewers/Flood\\_Risk/virtualdirectory/Resources/Config/Default&layerTheme=0](https://maps.cyfoethnaturiolcymru.gov.uk/Html5Viewer/Index.html?configBase=https://maps.cyfoethnaturiolcymru.gov.uk/Geocortex/Essentials/REST/sites/Flood_Risk/viewers/Flood_Risk/virtualdirectory/Resources/Config/Default&layerTheme=0) (accessed 24/08/2023).



- British Geological Survey (BGS) mapping<sup>105</sup>;
- Aerial imagery<sup>106</sup>; and,
- Local and County Authority Data requested under Freedom of Information Requests.

### Baseline Conditions

**12.7** The Scoping Corridor crosses a varied landscape including upland plateau areas and lower lying valley systems.

**12.8** The Scoping Corridor interacts with several NRW modelled flood zones associated with a number of Main Rivers and smaller/ ordinary watercourses, namely the:

1. River Towy;
2. River Dulas;
3. Afon Sawdde;
4. Afon Bran, and;
5. River Wye.
6. and smaller tributaries associated with these watercourses.

**12.9** These watercourses fall within the Wye, Usk and Towy Catchments as defined by NRW with the rivers designated as Special Areas of Conservation (SACs). Each river is also classified by NRW in accordance with the Water Framework Directive (River Basin Management Plan) for their chemical and ecological status. Key drivers across all watercourses include nutrients (phosphate), morphology and ecological species presence. The majority of the watercourses are deemed to have a 'good' chemical status but with opportunities needing to be taken to improve the ecological status from 'moderate' to 'good'.

**12.10** The majority of the Scoping Corridor lies within Flood Zone 1 (the lowest risk zone that is mapped) and is therefore at a very low risk of flooding from rivers. However, some sections of the Scoping Corridor lie within Flood Zones 2 and 3. The flood zones are shown on **Figure 12.1**.

**12.11** The Scoping Corridor is largely located within rural areas where properties will include private water supplies from both surface and groundwater resources. In urban and semi-rural settings, it is likely that potable water from public supplies is the primary source. Based on the variable topography and hydrogeological conditions it is likely that groundwater dependent terrestrial ecosystems (GWDTEs) may be present within the Scoping Corridor.

**12.12** Based on the setting and existing conditions, there are no formal drainage arrangements which will interact with the Project and surface water runoff will be via greenfield mechanisms.

### Future Baseline

**12.13** The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the Project in the ES.

**12.14** With regard to flood risk and drainage, future baseline conditions would be forecast by NRW, drawing on current best practice guidelines taking into account the likely impacts of climate change on rainfall intensities and where applicable peak river flows.

**12.15** The assessment will consider the future scenario with respect to climate change resilience in regards to flood risk and managing surface water runoff.

**12.16** The implementation of future cycles of WFD management plans driving future improvements in the ecological and chemical quality of water bodies would also be considered. However, under the 'do nothing scenario' based on current and

<sup>105</sup> VGS. GeoIndex Onshore. Available at: <https://mapapps2.bgs.ac.uk/geoindex/home.html? ga=2.183061094.1727182461.1607682458-1383460590.1607682458> (accessed 24/08/2023).

<sup>106</sup> Google Earth, 2023

future predicted agricultural practices together with future development, there is a likelihood that water quality in the identified watercourses will deteriorate due to the influx of nutrients (phosphate) from farming activities.

**12.17** There are no further foreseeable significant changes in future baseline anticipated in relation to Water Resources, either prior to, or during, the construction and operational phases.

**12.18** It is assumed that other subsequent proposed developments would be appropriately permitted and operated to prevent the creation of potentially adverse effects.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**12.19** The assessment will be carried out according to the principals contained within the following legislation:

- The EU Water Framework Directive (2007/60/EC);
- Groundwater Directive (2006/118/EC);
- Land Drainage Act 1991;
- Water resources Act 1991;
- Water Environment Regulations 2017;
- Flood Risk Regulations 2009 and,
- Groundwater (England and Wales) Regulations 2009.

**12.20** The assessment will be carried out in accordance with the principles contained within the following guidance documents:

- Countryside Council for Wales (CCW) Guidance note Assessing the impact of wind farm developments on peatlands in Wales. 2010<sup>107</sup>;
- Scottish Environmental Protection Agency (SEPA): Peatland development documents (in the absence of Welsh guidance)<sup>108, 109</sup>
- Planning Policy Wales Technical Advice Note 15: Development and Flood Risk. 2004;
- NRW Flood estimation: technical guidance Reference number: GN008. 2017;
- Welsh Government Statutory standards for sustainable drainage systems – designing, construction, operation and maintaining surface water drainage systems. 2018;
- UK Water Quality (Water Supply) Regulations 2000;
- Environment Agency. 2018 – The Environment Agency’s approach to groundwater protection;
- CIRIA Report C532 – Control of Water from Construction Sites; and
- CIRIA Report C692 – Environmental Good Practice Onsite. 3<sup>rd</sup> Ed. 2010

### Additional Data Collection- Desk Based

**12.21** In addition to the desk based data collated to date and noted above, the baseline conditions will be identified using a review of available desk based information including;

- Flood model data from NRW;

<sup>107</sup> Areas of peat have been mapped within the study area, this guidance helps define best practice to development where areas of peat are potentially present.

<sup>108</sup> Sepa. Renewable. Available at: <https://www.sepa.org.uk/environment/energy/renewable/> (accessed 28/08/2023).

<sup>109</sup> Scottish guidance included in the absence of any current NRW guidance (new guidance is anticipated from NRW in 2023)

- Drainage and flood data from Local Authority Surface Water Management Plans and Strategic Flood Risk Assessments;
- Data defining surface water catchment areas and hydrological properties (e.g. rainfall, slopes, and soil permeability) from the Flood Estimation Handbook webservice<sup>110</sup>
- NRW flood risk data<sup>111</sup>;
- WFD Cycle 3 data<sup>112</sup>.

### Additional Data Collection- Field Surveys

**12.22** Field surveys will be guided by initial desk-based research and will include a targeted walkover survey of water resource/hydrological features in the proposed location of ground based infrastructure to identify potential impacts to sensitive water resources such as private water supplies and GWDTEs.

### Assessment Methodology

**12.23** The assessment will be undertaken in accordance with the methodology set out in Chapter 4 and the assessment will be based on experience and professional judgement, guided by criteria which will be set out in the ES. Likely significant effects, in the context of the EIA Regulations 2017 would be effects of moderate or major significance.

### Likely Significant Effects

**12.24** This section sets out the likely significant effects of the Project on Water Resources.

### Embedded and Standard Mitigation Measures

**12.25** Reflecting IEMA guidance on delivering proportionate EIA (IEMA 2017), the scope and assessment assumes that relevant embedded and standard good practice applied measures will be in place. The overriding design principle for the Project will be to seek to avoid or minimise impacts on sensitive water resources receptors.

**12.26** Where possible, towers and the switching station will be positioned to avoid impacts on watercourses, PWSs, GWDTEs and other water resources. They will also be positioned to be outside of Flood Zone 2 or 3 where possible.

**12.27** For areas of the Project within Flood Zones 2 and 3 a Flood Risk Assessment will be carried out to assess risks to the Project from flooding sources and will contain appropriate mitigation measures. Where required, this will include a surface water drainage strategy to meet the requirements of Statutory Standards for sustainable drainage systems.

**12.28** A Foundation Works Risk Assessment will be undertaken for permanent ground based infrastructure to understand potential impacts on hydrogeology including GWDTEs and PWSs (where it has not been possible to avoid through design). Where required, this will include suitable mitigation measures to minimise potential effects.

**12.29** The construction of the Project will be managed by use of the CEMP. This document will set out the requirements of all contractors working on the Project in adhering to environmental statutory requirements, guidance and best practice. The requirements of the CEMP have been assumed as applied mitigation within the assessment of effects during site construction. The CEMP will include the following measures Water Resources:

- Management of surface water during the construction phase, including attenuation and settlement of surface water to reduce silt loads entering waterbodies;
- Proper storage and use of oils, fuels and construction chemicals;
- Provision of Site-worker accommodation and sanitation facilities;
- A construction phase surface water management plan; and,

<sup>110</sup> Flood Estimation Handbook and Flood Studies Report. Available at: <https://www.ceh.ac.uk/services/flood-estimation-handbook> (accessed 28/08/2023).

<sup>111</sup> NRW. Flood Map for Planning/ Development Advice Map. Available at: <https://naturalresources.wales/flooding/flood-map-for-planning-development-advice-map/?lang=en> (accessed 28/08/2023).

<sup>112</sup> NRW. Water Watch Wales Map Gallery. Available at: <https://waterwatchwales.naturalresourceswales.gov.uk/en/> (accessed 28/8/2023).

- Management and removal of waste materials.

**12.30** Works within or in close proximity to watercourses will be undertaken in accordance with relevant consents/ permits including Ordinary Watercourse Consent/ Flood Risk Activity Permit.

### Potential Effects Scoped into the Assessment

**12.31** This section sets out the likely significant effects of the Project on Water Resources. It assumes that the relevant embedded (design measures), standard measures and the expected mitigation for any other consents or permits are in place before assessing the effects.

**12.32** This is in accordance with guidance from IEMA as part of preparing a proportional assessment (IEMA, 2022) as set out above.

### Drainage with Due Regard to the SuDS Hierarchy and Water Quality

#### Construction

**12.33** Good practice standard mitigation measures within the outline CEMP will minimise the risk of pollution to hydrology, hydrogeology (including PWSs) and land drainage receptors during construction by removing the pathway between the source and the receptors for most of the working environment.

**12.34** The most sensitive sites regarding pollution risk are where works involve watercourse crossings by underground cable and/or where ground based infrastructure (e.g. towers, substations etc) are located in close proximity to watercourses. The potential risk may be reduced for crossings where trenchless techniques are used and eliminated where the cable is overhead. In addition, works within watercourses and the construction of access tracks across watercourses, will be undertaken with the conditions set out within the consents and permits from the relevant authorities (e.g. Flood Risk Activity Permit or Ordinary Watercourse Consent). With the implementation of standard mitigation measures, no likely significant effects are anticipated and therefore it is proposed to drainage and water quality out of the ES during the construction phase.

**12.35** The switching station design shall include a formal drainage strategy in accordance with the latest climate change predictions, the SuDS hierarchy and will be subject to the SuDS Approving Body (SAB) agreement.

#### Operation

**12.36** During operation of the Project, pollution impact pathways to surface watercourses are not considered to be present as land will be reinstated following completion of the construction phase and there will be no operational discharges. Physico-chemical elements supporting WFD water body status will therefore be safeguarded.

**12.37** All maintenance activities will be undertaken in accordance with best practice and manufacturers requirements. Therefore, no likely significant effects on water quality including groundwater and, where present, PWSs are anticipated, and it is proposed that this aspect is scoped out of the ES.

### Hydrology including Main Rivers and Ordinary Watercourses

#### Construction

**12.38** Based on the nature of the Project, during its construction there would be no large scale consumptive water uses and no effects on the downstream continuity of flow in watercourses. The potential for likely significant effects on existing water interests including PWSs is therefore considered to be negligible and no significant effects on hydrology are anticipated. Therefore, it is proposed to scope this aspect out of the ES.

**12.39** During construction of the Project, there would be potential for temporary physical disturbance to watercourses. Where possible, such potential impacts will be designed out and where unavoidable, impacts would be short-term in duration. In addition, works within watercourses and the construction of access tracks across watercourses, will be undertaken with the conditions set out within the consents and permits from the relevant authorities (e.g. Flood Risk Activity Permit or Ordinary Watercourse Consent). With the implementation of standard mitigation measures, no likely significant effects are anticipated and therefore it is proposed to scope this out of the ES.

### Operation

**12.40** Due to the nature of the Project, there will be no significant effects on existing water interests including PWSs when the project is operational. Therefore, it is proposed to scope out this aspect from the ES.

### Flood Risk from all Sources

#### Construction

**12.41** As described in the Existing Conditions section, whilst most of the Scoping Corridor area is at low risk of flooding from rivers and the sea (Flood Zone 1), parts of the Scoping Corridor includes watercourses with relatively extensive floodplains including the River Towy, River Dulas, Afon Sawdde, Afon Bran and River Wye. During the construction phase there is the potential for the Project to increase flood risk through the formation of compounds, storage of materials and other temporary works e.g. construction of access tracks and temporary watercourse crossings.

**12.42** The Project will be accompanied by a Flood Risk Assessment (FRA) which is considered to be standard mitigation and best practice on a project of this scale. The FRA will assess potential flood risk from all sources and provide suitable mitigation where required. In addition, the project shall consider the presence of flood zones in relation to the siting of towers, compounds, switching station etc and will be undertaken with the conditions set out within consents and permits from the relevant authorities (e.g. Flood Risk Activity Permit or Ordinary Watercourse Consent), where required. Notwithstanding the above, at present, with the potential for a temporary loss of floodplain storage and/or impediment to flood flows. Flood risk from rivers and the sea during construction is proposed to be scoped into the assessment.

#### Operation

**12.43** During operation the majority of land required for construction phase will be restored and therefore, potential impacts on rivers and their floodplains across the Project are likely to be limited. Permanent infrastructure along the route will include towers and the switching station with the former considered to be water compatible (subject to mitigation as identified in the FRA) and the latter, if required, sited such that it is outwith any Flood Zones or placed in Flood Zone 1). Based on the limited presence of ground based infrastructure (i.e. towers and the switching station), it is proposed to scope this out of the ES.

### Hydrology, GWDTEs, PWSs and Groundwater Abstractions

#### Construction

**12.44** During the construction phase there is the potential for the alteration of groundwater flows and aquifer properties including from the introduction of foundations including piles. This may impact sensitive receptors including GWDTEs and water abstractions including PWSs.

**12.45** It is proposed to scope construction effects upon hydrogeology and water abstractions out of the ES, as no sensitive receptors are known to be present that could be impacted by the Project. Should further information become available during the preparation of the ES, then this will be assessed accordingly.

#### Operation

**12.46** Based on the nature of the Project, permanent infrastructure will be relatively limited e.g. tower foundations and the switching station. However, the placement of foundations and other below ground requirements may have a permanent effect on groundwater flows and/or levels. Therefore, in the absence of further data and assessment, the potential effects on hydrogeology and water abstractions including associated sensitive receptors as identified above is proposed to be scoped in during operation.

### Approach to Additional Mitigation

**12.47** No additional mitigation is considered likely to be required.

## Proposed Scope of the ES

**12.48 Table 12.1** provides a summary of the proposed scope of the Environmental Statement.

**Table 12.1: Proposed ES Scope**

Matter	Scoped in/out	Justification
Flood Risk	Construction – In Operation – Out	Significant effects covered by embedded mitigation in the form of appropriate Flood Risk Assessments for infrastructure. However potential significant effects may remain with loss of floodplain during construction
Hydrology	Construction – Out Operation – Out	If works are required within or in close proximity to watercourses additional consent/ permits will be required.
Water quality including drainage	Construction – Out Operation – Out	Embedded mitigation and design will prevent significant effects to sensitive receptors.
Hydrogeology and water abstractions	Construction – In Operation – In	Potential temporary and permanent significant effects to sensitive receptors including important water resources and GWDTEs.

### Questions for Consultees

**Q12.1:** We have assumed that infrastructure to support the transmission (towers etc) will be deemed as water compatible or if not, as essential infrastructure. Please could you confirm that this approach is acceptable?

**Q12.2:** Given the very localised nature of proposed permanent ground based infrastructure e.g. towers, we assume that formal drainage arrangements will not be required with incidental water returned to ground adjacent to the structure. Please could you confirm that this approach is acceptable?

**Q12.3** Are you in agreement that the proposed desk and field surveys are sufficient for the purposes of the EIA?

# Chapter 13

## Ground Conditions, Geology and Hydrogeology

### Introduction

**13.1** This chapter sets out the proposed approach to the assessment of likely significant effects of the construction and operation of the Project on Ground Conditions.

**13.2** The chapter will consider the potential effects on:

- Geology including Regionally Important Geo-conservation Sites (RIGS);
- Mineral reserves;
- Land instability and mining
- Peat; and,
- Contaminated land including landfills.

**13.3** There are interrelationships related to the potential effects on Water Resources, Hydrology, Flooding and Drainage. Therefore, please also refer to the following chapters:

- **Chapter 12:** Water Resources
- **Chapter 14:** Soils and Agriculture

### Study Area

**13.4** The study area comprises the area directly affected by the Project (assumed for the purpose of this chapter, as the Scoping Corridor) with a 250 metre buffer within which effects may occur. The study area is presented on **Figure 13.1**.

**13.5** As the iterative design process continues during the EIA, the Scoping Corridor will be refined to comprise the proposed alignment of infrastructure required for the operation of the Project as well as the temporary infrastructure required for construction of the Project. The study area for the EIA will therefore comprise a 250m buffer around the final infrastructure layout included within the application.

### Existing Conditions

#### Information Sources

**13.6** The work to date on the Scoping Corridor has been based on desk based information including:

- Ordnance Survey mapping (contemporary<sup>113</sup> and historical<sup>114</sup>);
- NRW Data on active<sup>115</sup> and historic<sup>116</sup> landfills;
- Peatlands of Wales data<sup>117</sup>;

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<sup>113</sup> Ordnance Survey, 2023

<sup>114</sup> Landmark Information Group data, 2023

<sup>115</sup> NRW. Find details of permitted waste sites. Available at: <https://naturalresources.wales/evidence-and-data/maps/find-details-of-permitted-waste-sites/?lang=en> (accessed 28/08/2023).

<sup>116</sup> Data Map Wales. Historic Landfill Sites. Available at: [https://datamap.gov.wales/layers/inspire-nrw:NRW\\_Historic\\_Landfill\\_Sites](https://datamap.gov.wales/layers/inspire-nrw:NRW_Historic_Landfill_Sites) (accessed 28/08/2023).

<sup>117</sup> Data Map Wales. Peatlands of Wales Map. Available at: <https://datamap.gov.wales/maps/peatlands-of-wales-maps/> (accessed 28/08/2023).

- BGS Mineral Map of Wales<sup>118</sup>;
- British Geological Survey (BGS) including Coal Authority mapping<sup>119</sup>;
- Aerial imagery<sup>120</sup>;
- Data on local RIGS, where available; and,
- Planning data.

### Baseline Conditions

**13.7** The Scoping Corridor covers a wide range of geological environments, typified by superficial deposits of alluvium and glacial till especially within valley lows and a variety of bedrock conditions typically found in raised areas of the Scoping Corridor. Peat is also shown to be mapped within areas of the Scoping Corridor.

**13.8** The Scoping Corridor does not fall within a Coal Authority designated Development High Risk Area.

**13.9** Within the Scoping Corridor, numerous features are present which may interact with the Project leading to a potentially significant effect on sensitive receptors. This includes:

- Gwernargllwydd Cutting RIGS in Fronddyrys;
- Sand and gravel mineral deposits particularly within river valleys;
- Peat deposits including notable deposits around Crychan forest, Llangadog, Allt Y Rhos Woodland, Afon Ffinnant and Cynghordy;
- Active quarries including Llanelwedd Quarry, extractions around Llandovery.
- Potential igneous resource (dolerite) at Llansaintfread;
- Geological Conservation Review (GCR) sites at Llanelwedd Quarry and along the River Irfon;
- Landfills noted around Builth Wells, Llanfechan, Llandovery, Nant-Y-Caws and Cilmerly;
- Mass movement deposits (landslides) around Cilmerly, the Afon Dulas and Tirabad

### Future Baseline

**13.10** The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the Project in the EIA.

**13.11** There are no foreseeable significant changes anticipated in relation to Ground Conditions either prior to, or during, the construction and operational phases. It is assumed that all other proposed developments would be appropriately permitted and operated to prevent the creation of potentially adverse ground conditions.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**13.12** The assessment will be carried out according to the principals contained within the following legislation:

- Environmental Protection Act 1990;
- Environment Act 1995;
- Control of Pollution Act 1974;

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<sup>118</sup> BGS. The Mineral Resources Map of Wales. Available at:

<https://www2.bgs.ac.uk/mineralsuk/download/wales/TheMineralResourceMapsofWales.pdf> (accessed 28/08/2023).

<sup>119</sup> BGS. GeoIndex Onshore. Available at: [https://mapapps2.bgs.ac.uk/geoindex/home.html?\\_ga=2.183061094.1727182461.1607682458-1383460590.1607682458](https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.183061094.1727182461.1607682458-1383460590.1607682458) (accessed 28/08/2023).

<sup>120</sup> Google Earth, 2023



- Environmental Permitting Regulations (2016).

**13.13** The assessment will be carried out in accordance with the principles contained within the following documents:

- Countryside Council for Wales (CCW) Guidance note Assessing the impact of wind farm developments on peatlands in Wales. 2010;
- Planning Policy Wales Minerals Technical Advice Notes 1&2: Aggregates and Coal 2004 & 2009;
- Environment Agency. 2018 – The Environment Agency’s approach to groundwater protection
- CIRIA Report C532 – Control of Water from Construction Sites; and,
- CIRIA Report C692 – Environmental Good Practice Onsite. 3rd Ed. 2010

#### Data Collection- Desk Based

**13.14** The baseline conditions will be identified using a review of available desk based information including;

- Commercial Envirocheck report for the Scoping Corridor;
- BGS 1:50,000 and, where available, 1:10,000 scale geological mapping together with published boreholes, mineral sites, mass movement data and sheet memoirs<sup>121</sup> ;
- BGS mining data including data from the Coal Authority<sup>122</sup>;
- Soils data set<sup>123</sup> ;

#### Data Collection- Field Surveys

**13.15** Field surveys will be guided by initial desk-based research and will include:

- Visual walkover survey of the Study Area to confirm the presence of key features including mineral sites, landfills, RIGS/ exposures and other potential elements of note;
- Geomorphological walkover to consider potential slope stability risks; and,
- Peat surveys including probing to understand the presence of and spatial extent of peat deposits where indicated on the Peatland map for Wales which will be used to inform the design of the Project (with the objective being to avoid placing infrastructure on peatland) and if required, a soils management strategy to appropriately mitigate potential impacts to peat resources identified within study area.

#### Assessment Method

**13.16** The assessment will be undertaken in accordance with the overarching methodology set out in Chapter 4 and the assessment will be based on experience and professional judgement, guided by criteria which will be set out in the ES. Likely significant effects, in the context of the EIA Regulations 2017 would be effects of moderate or major significance.

**13.17** The baseline information will be assessed in accordance with the methodology within the Land Contamination Risk Management Guidance<sup>124</sup> to identify potential source-pathway-receptor linkages and inform a risk-based assessment of the effects of the Project in relation to Ground Conditions. This risk based assessment will be based on the matrix outlined in CIRIA C552 (CIRIA, 2001) and assume a reasonable worst case regarding the likely ground conditions determined from the desk study information.

**13.18** Where this risk based approach identifies a very low or low risk rating, these areas will not be taken forward for further assessment on the basis that significant effects are unlikely to occur.

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<sup>121</sup> BGS. GeoIndex Onshore. Available at: [https://mapapps2.bgs.ac.uk/geoindex/home.html?\\_ga=2.183061094.1727182461.1607682458-1383460590.1607682458](https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.183061094.1727182461.1607682458-1383460590.1607682458) (accessed 28/08/2023).

<sup>122</sup> BGS. Coal Authority. Available at: <https://mapapps2.bgs.ac.uk/coalauthority/home.html> (accessed 28/08/2023).

<sup>123</sup> Soils data set. Available at: <https://www.landis.org.uk/soilsdata/> (accessed 28/08/2023).

<sup>124</sup> Gov.UK. Land contamination risk management. Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> (accessed 29/08/2023),

## Likely Significant Effects

**13.19** This section sets out the likely significant effects of the Project on Ground Conditions.

### Embedded and Standard Mitigation Measures

**13.20** Reflecting IEMA guidance on delivering proportionate EIA (IEMA 2017), the scope and assessment assumes that relevant embedded, standard and additional measures are in place. These will be set out in detail with an Appendix to the ES and will include a Construction Environment Management Plan (CEMP).

**13.21** The construction of the Proposed Development will be managed by use of the CEMP. This document sets out the requirements of all contractors working on the Project in adhering to environmental statutory requirements, guidance and best practice. The requirements of the CEMP have been assumed as embedded standard good practice mitigation within the assessment of effects during construction. The CEMP will include the following measures relevant to Ground Conditions:

- Management of soils including, if required, a materials management plan;
- Proper storage and use of oils, fuels and construction chemicals;
- Provision of Site-worker accommodation and sanitation facilities;
- Management and removal of waste materials.

**13.22** A Preliminary Risk Assessment (Desk Study) will be undertaken for the Scoping Corridor including consideration of all topics covered in this Chapter including:

- Geology (including RIGS/GCR sites);
- Peat;
- Mineral reserves, mining and landfills;
- Contaminated land; and,
- Land instability.

**13.23** The Desk Study will utilise all existing and proposed available data and consider potential risks to sensitive receptors in accordance with the methodology outline in CIRIA C552.

**13.24** As part of the detailed pre-construction design, a suitable environmental and geotechnical site investigation will be undertaken in accordance with current best practice including BS5930<sup>125</sup>, BS10175<sup>126</sup> and Eurocode 7<sup>127</sup> which will inform, if required, a site remediation strategy, slope stability assessments and piling risk assessments where appropriate.

**13.25** Where required, a geo-conservation strategy will be undertaken for RIGS/ GCR sites to understand potential effects on them together with potential mitigation and/or betterment (e.g. improved access) which may be delivered by the Project.

**13.26** Where potential contaminated land (including landfills) is recorded which may interact with the Project, a remediation/ risk management strategy will be produced and implemented detailing the proposed measures required to ensure the Project does not impact sensitive receptors including human health and the wider environment.

### Construction Effects

**13.27** The following sections set out the likely significant effects of the Project on Ground Conditions. It assumes that the relevant embedded (design measures) and standard mitigation measures outlined above have been implemented. This is in accordance with guidance from IEMA as part of preparing a proportional assessment (IEMA, 2022).

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<sup>125</sup> BS 5930:2015+A1:2020

<sup>126</sup> BS 10175:2011+A2:2017

<sup>127</sup> Eurocodes: Building the future. Available at: <https://eurocodes.jrc.ec.europa.eu/EN-Eurocodes/eurocode-7-geotechnical-design> (accessed 28/08/2023).

### Land Instability and Mining

**13.28** Ground stability in relation to site specific ground conditions and geohazards including mining will be considered within the engineering design of the Project. The Project, and design of structures, will include (in accordance with best practice and industry guidance) suitable consideration of site-specific ground conditions, potential ground instability and geohazard risks such that new infrastructure would not be adversely affected and would not generate any significant effects. In addition, the Coal Authority have confirmed that none of the scoping corridor falls within their Development High Risk Area. Therefore, Land Instability and Mining is proposed to be scoped out of the ES.

### Peat

**13.29** The Unified Peat Map of Wales and BGS data indicate the presence of numerous potential peat deposits within and in close proximity to the Scoping Corridor. As the Project design evolves, suitable peat surveys will be undertaken and the findings used to inform the design of the Project. However, the potential for significant effects on peat cannot be ruled out at this scoping stage. Therefore, peat is proposed to be scoped into of the EIA during the construction phase.

### Geology Including RIGS / GCR Sites

**13.30** There are three sites of geological importance within or in close proximity to the Scoping Corridor. Due to the limited spatial extent of these sites and their locations within existing/ former quarries and along the River Irfon valley system potential effects are considered unlikely. However, where required, the standard mitigation measures noted above will take into account the proposed design and, if required, recommend proportionate mitigation measures. Therefore, sites of geological importance are proposed to be scoped out of the EIA.

### Mineral Reserves

**13.31** The Scoping Corridor crosses a number of existing mineral extraction sites (mainly for sand and gravel) and potential mineral sites/ mineral safeguarding areas. At present, the available data for mineral safeguarding areas is limited and as a result the potential for significant effects cannot be ruled out. Therefore, it is proposed to scope mineral reserves (active and proposed) into the EIA during the construction phase.

### Contaminated Land Including Landfills

**13.32** There is the potential for existing contamination/ landfill to be encountered within the Scoping Corridor and therefore significant effects to arise during the construction phase from exposure of sensitive receptors (including human health, the wider environment or controlled waters) to existing contamination through ground disturbance and mobilisation.

**13.33** Further assessment of the Scoping Corridor is identified within the standard mitigation section above which will identify, investigate and assess potential sources of contamination, and potential source-pathway-receptor linkages. Therefore, the potential for existing contamination/ landfills to give rise to significant effects is proposed to be scoped into the EIA during construction.

### Operational effects

#### Mineral reserves

**13.34** The Scoping Corridor crosses a number of existing mineral extraction sites (mainly for sand and gravel) and potential mineral sites/ mineral safeguarding areas. At present, the available data for mineral safeguarding areas is limited and as a result the potential for significant effects cannot be ruled out. Therefore, it is proposed to scope mineral reserves (active and proposed) into the ES during the operational phase<sup>128</sup>.

**13.35** Based on the standard/ embedded mitigation measures outlined and the Proposed Development (narrow transmission corridor) there are no other potential operational effects proposed to be scoped into the ES.

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<sup>128</sup> A further review will be undertaken once the design (tower locations and associated temporary infrastructure) is known as it may be possible to scope out operational effects pending the outcome of the construction effects on mineral reserves (to avoid double counting).

## Approach to Additional Mitigation

**13.36** No additional mitigation is proposed at this stage. Where significant effects on Ground Conditions have not been avoided during design and the implementation of standard good practice measures, additional geographic/receptor specific measure will be identified to avoid/reduce likely significant effects.

## Proposed Scope of the ES

**13.37 Table 13.1** provides a summary of the proposed scope of the Environmental Statement.

**Table 13.1: Proposed ES Scope**

Matter	Scoped in/out	Justification
Land instability and mining	Construction – Out Operation – Out	Significant effects covered by standard / embedded mitigation including desk based surveys and Scoping Corridor walkover. Project is outside of Coal Mining Development High Risk Areas.
Peat	Construction – In Operation – Out	Peat is considered within the desk and field based surveys identified as standard/ embedded mitigation. However, potential significant effects may remain if peat cannot be avoided during design.
RIGS/GCR sites	Construction – Out Operation – Out	RIGS/ GCR sites are within the Scoping Corridor but in discrete areas. Embedded/ standard mitigation measures included will allow for potential significant effects to be mitigated as the design evolves.
Mineral reserves	Construction – In Operation – In	Existing mineral sites and significant potential reserves exist within the Scoping Corridor. Whilst further assessment will be undertaken as identified in the standard/ embedded mitigation, the potential for significant effects (sterilisation) cannot be ruled out at this stage.
Contaminated land including landfills	Construction – In Operation – Out	Potential contaminated land and existing (active and former) landfills are present within the Scoping Corridor. Whilst further assessment will be undertaken as identified in the standard/ embedded mitigation, the potential for significant effects cannot be ruled out at this early stage.

### Questions for Consultees

**Q13.1:** Please confirm what dataset(s)/ policy document(s) are available to ensure that our assessments are as robust as possible (including any site identified, prioritised or proposed to be investigated under Part IIa of the Environmental Protection Act.?

**Q13.2:** Confirmation that the desk and field surveys are sufficient for the purposes of the EIA.

**Q13.3:** Do you consider the potential effects to be scoped in and out to be appropriate to inform a proportional assessment?

# Chapter 14

## Soils and Agriculture

### Introduction

**14.1** This chapter sets out the proposed approach to the assessment of likely significant effects of the construction and operation of the Green Gen Towy Usk Project on soils and agriculture. The assessment of effects upon Peat will be covered in **Chapter 13: Ground Conditions**.

### Study Area

**14.2** The study area for agriculture and soils comprises the area which could be directly affected by the Project. This is assumed for the purpose of this chapter to be the Scoping Corridor.

**14.3** As the iterative design process continues, the Scoping Corridor will be refined to comprise the proposed alignment of all infrastructure required for the operation of the Project as well as the temporary infrastructure required for construction of the Project.

**14.4** The Scoping Corridor presented in **Figure 14.1** is sufficient and appropriate for the purposes of identifying the approach to be taken to the assessment of likely significant effects of the Project on soils and agriculture.

### Existing Conditions

#### Information Sources

**14.5** The following sources of information have been reviewed during desk-based research to inform this Scoping Report:

- British Geological Survey (BGS) online mapping for bedrock and superficial geology.
- OS mapping and aerial photography with respect to current land use.
- Soilscales online mapping with respect to the soil types within the Scoping Corridor.
- The Predictive Agricultural Land Classification Map 2 ('ALC2') with respect to the potential location of Best and Most Versatile (BMV) Agricultural Land.

#### Baseline Conditions

##### Soils

**14.6** There are a range of localised soil types within the Scoping Corridor; however, the predominant soils are slowly permeable seasonally wet acid loamy and clayey soils which have impeded drainage, interspersed with freely draining acid loamy soils over rock which are freely draining. Both of these soil types have low fertility with a predominant land cover of rough grazing and grassland<sup>129</sup>.

**14.7** Soilscales mapping indicates that other soil types within the Scoping Corridor also include:

- Freely draining floodplain soils;
- Loamy and clayey floodplain soils with naturally high groundwater;
- Blanket bog peat soils;

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<sup>129</sup> Cranfield Soil and Agrifood Institute, Soilscales online map . Available at: <https://www.landis.org.uk/soilscales/> (accessed 20/08/2023).

- Slowly permeable wet very acid upland soils with a peaty surface;
- Freely draining slightly acid but base rich soils; and
- Freely draining acid loamy soils over rock.

### Agricultural Land Classification

**14.8** ALC2 predicts the majority of land within the Scoping Corridor to be of grade 3b or below (not BMV land). BMV land is, however, predicted to be present within the Scoping Corridor in the vicinity of Builth Wells (grade 2 and 3a); from the vicinity of Llandovery to the vicinity of Llandeilo (grade 3a with small areas of grade 2); the vicinity of Llanarthne (grade 3a); and to the south of Carmarthen (grade 3a). Overall, there is approximately 2,143 ha of BMV land within the Scoping Corridor (this represents approximately 15.8% of the total area within the Scoping Corridor).

### Land Use

**14.9** Aerial photography, OS mapping and preliminary field surveys of accessible areas indicate the agricultural land use within the Scoping Corridor to be predominantly grazing.

### Future Baseline

**14.10** Climate change is considered unlikely to result in substantive changes to soils and ALC grades within the Study Area within the timeframe for the construction of the Project<sup>130</sup> based upon the criteria set out in the ALC Guidelines (MAFF, 1988). It is considered that the baseline with respect to ALC grades will remain the same within this timeframe.

**14.11** Over the longer term, climate change is acknowledged to be one of the key pressures that soils in the UK are facing (IEMA, 2022), with changes in temperature and rainfall and increased frequency of extreme weather events over the operational lifetime of the Project being likely to affect Wales' soil hydrology, carbon sequestration and emissions, nutrient cycling and biodiversity. Farming practices and agricultural systems will change in response to such effects, with it being difficult in consequence to predict the implications for ALC grades.

**14.12** Adaptations within farming practices and agricultural systems are likely to overcome some of these changes in conditions e.g. through crop changes. It is therefore difficult to predict changes in ALC grades.

**14.13** There is potential for land use within individual landholdings to change within the future baseline. Information will be sought from land agents and landowners regarding any likely or planned changes.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**14.14** Relevant guidance specific to the assessment of soils and agriculture that will inform the assessment comprises:

- A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022);
- Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land MAFF (1988);
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites Defra (2009);
- Welsh Government. Agricultural Land Classification Guidance and Services (web link: <https://gov.wales/agricultural-land-classification>);
- The Second State of Natural Resources Report (SoNaRR) Assessment of the achievement of sustainable management of natural resources: Land use and soils Natural Resources Wales (2020); and
- National Highways (2020). Design Manual for Roads and bridges 9BMRB) LA112: Population and human health.

<sup>130</sup> Construction is anticipated to commence late 2026/early 2027

### Data Collection- Desk Based

**14.15** The sources listed under the Information Sources Section above will also be used for baseline information to inform the Soils and Agriculture assessment within the EIA. The following datasets will also be used:

- Climate data sets from the National Soils Resources Institute at Cranfield University (NSRI), this will be used to inform the requirement for ALC grade surveys;
- Soil Site Reports from NSRI will be used to inform baseline conditions.

### Data Collection- Field Surveys

**14.16** A detailed review of the Welsh Government Predictive ALC map will be undertaken to inform the scope of ALC surveys required to inform the design and assessment of the Project as part of the EIA. Soil surveys will be undertaken where the Project may potentially interact with land predicted to be BMV land (Grades 1 – 3a) according to ALC2.

**14.17** The Welsh Government's Land Quality and Advice Service (LQAS) will be consulted prior to surveys commencing with respect to the proposed survey methodology. A factual survey report will be produced which will form an Appendix to the ES chapter.

### Assessment Method

**14.18** The assessment of the impacts will be undertaken in accordance with IEMA Guidance, "A New Perspective on Land and Soil in Environmental Impact Assessment" published in 2022.

**14.19** The baseline information collected will be used to assess the sensitivity of soils in relation to the ecosystem services and agricultural land potential they offer and there will be engagement with relevant disciplines to ensure the reported assessment of impacts aligns across all relevant EIA chapters.

**14.20** Judging the significance of the Soils and Agricultural effects requires an assessment of the sensitivity of the baseline environment. The sensitivity will be assessed in relation to the susceptibility of the receptor to change relative to the soil resource and its functions. The magnitude of potential effects will then take into consideration the size and scale of effects; geographical extent; duration and reversibility.

**14.21** The assessment of sensitivity and magnitude will then be combined to form a judgement regarding the overall significance of effect. This will be categorised as major, moderate, minor or negligible/ no effect. 'Moderate' and 'major' effects are considered significant in the context of the EIA Regulations. The nature of effects would be described as positive (beneficial), neutral or negative (adverse).

**14.22** The rationale for corridor, route alignment and tower position selection and the interaction with BMV land will be presented within the Design Evolution and Alternatives chapter of the ES and used to inform the assessment of effects on soils and agriculture.

## Likely Significant Effects

### Embedded and standard mitigation measures

**14.23** Reflecting IEMA guidance on delivering proportionate EIA (IEMA 2017), the scope and assessment assumes that relevant embedded, standard and additional measures are in place. These will be set out in detail with an Appendix to the ES and will include:

- An iterative design process that will continue to seek to avoid/minimise effects on sensitive soils and Best and Most Versatile agricultural land.
- A range of standard measures adopted for the duration of the construction phase of the Project. This could include for example a CEMP which would be produced prior to any construction works being carried out. There would be measures in place to manage disruption to soil with the main works contractor undertaking site inspections to check these standards are being conformed to. Any earthworks and stockpiled soil would be protected by covering, seeding or using water suppression if needed.



**14.24** Soil management measures will be detailed in a Soil Resources Plan, which could include the following:

- Details on the type of soil resource present;
- Details on how the topsoil and subsoil would be stripped and stockpiled, including calculations on the volume and type of soils effected;
- Details of the suitable conditions and techniques for soils handling e.g. avoiding handling of waterlogged soil;
- Indicative soil storage locations with details on size, location, construction and management of the stockpiles;
- Details on how the soil stockpiles would be designed, this would include consideration of the site conditions and the nature/ composition of the soil;
- Specific management plans relating to sensitive soils affected;
- Protective surfacing where soil stripping can be avoided, this would be based on the sensitivity of the environment and the proposed works;
- The approach to the reinstating and restoration of the soil that has been compacted and removed including the techniques to use and aftercare programme; and
- Any details for measures needed for soil restoration if required.

**14.25** This plan would provide clear principles by which it will be ensured that land required temporarily for construction would be returned to its original state and condition.

### Potential Effects Scoped into the Assessment

#### Construction

**14.26** During the construction phase there would be the potential loss of BMV Land from agricultural productivity. There would also be temporary disturbance to the soils from construction of the accesses to the tower locations for installation or, if undergrounding is required, due to the excavation and soil stripping for underground cable trenches, and construction compounds. As the iterative design of the Project is evolving such that the final location of permanent and associated temporary infrastructure is not known, whilst the design will seek to avoid/minimise effects on soils and agriculture, significant effects cannot be ruled out, so this topic is proposed to be scoped into the ES.

**14.27** Impacts on soil function and quality will occur once construction activities commence. It is considered likely that these impacts will be temporary. Although soil handling measures would be implemented via a Soil Management Plan during construction, the range of functions and quality will however be different to those present prior to construction, and as such, impacts on soil health and soil function are scoped into the ES.

#### Operation

**14.28** During the operation of the Project there would be permanent loss of areas of agricultural land and soil ecosystems. The impact of this on agricultural land grade will be fully assessed and this is proposed to be scoped into the ES.

### Potential Effects Scoped Out of the Assessment

#### Operation

**14.29** Maintenance and repair works that may result in the disturbance to soils during operation would be undertaken in accordance with standard good practice soil handling methods (see above). Therefore, no likely significant effects are expected and it is proposed to scope this matter out of the ES.

### Proposed Scope of the ES

**14.30** Table 14.1 provides a summary of the proposed scope of the Environmental Statement.



**Table 14.1: Proposed ES Scope**

Matter	Scoped in/out	Justification
Temporary loss of agricultural land, (including BMV land during construction)	Scoped in	There will be soils and ALC surveys carried out in areas where permeant infrastructure and sections of haul route and stripping for cable installation are proposed. The temporary land use will be reinstated after the construction phase is completed.
Permanent loss of agricultural (including BMV land) during operation	Scoped in	The permanent loss of BMV land would be fully assessed.
Effects upon soil ecosystem services during construction	Scoped in	An Outline soil Management Plan will be developed and submitted with the planning application to guide the detailed design and to reduce impact on soil function and quality. Impacts on soil function will occur once construction activities commence. A detailed Soil Management Plan will be developed prior to construction and following the evolution of the design.
Effects upon soil ecosystem services during operation	Scoped out	Operational effects in this respect are predicted to be limited and not significant, subject to re-instatement of land requirement for temporary works according to the Soil Resources Plan.

#### Questions for Consultees

**Q14.1: Are the proposed matters to be scoped out acceptable?**

# Chapter 15

## Air Quality

### Introduction

**15.1** This Chapter sets out the proposed approach to the assessment of likely significant effects upon air quality arising from the construction and operation of the Project.

### Study Area

**15.2** The study area for Air Quality comprises the area directly affected by the Project (assumed for the purpose of this chapter, as the Scoping Corridor). The Scoping Corridor is within the administrative boundaries of Powys County Council and Carmarthenshire County Council.

**15.3** Should traffic flows exceed the IAQM screening criteria, the study area would be extended to comprise an area within 200m of the roads which exceed the criteria in accordance with the Design Manual for Roads and Bridges (DMRB) LA105.

### Existing Conditions

#### Information Sources

**15.4** The following sources of information have been reviewed during desk-based research to inform this Scoping Report:

- Powys County Council, Air Quality Progress Report 2022<sup>131</sup>
- Carmarthenshire County Council Air Quality Progress Report 2018<sup>132</sup>
- Defra AQMA Dataset.

#### Baseline Conditions

**15.5** As a requirement of the Environment Act 2021 local authorities are required to report to Defra on local air quality and local air quality management schemes. If compliance to the objectives are not predicted to be met, the local authorities are required to declare the area as an Air Quality Management Area. There are three Air Quality Management Areas (AQMA) within Carmarthenshire and none in Powys.

**15.6** The closest AQMA to the Scoping Corridor is Llandeilo AQMA. This has been declared due to exceedance of the annual mean Air Quality Strategy (AQS) objective for nitrogen dioxide. Most of the town centre of Carmarthen has also been declared an AQMA for nitrogen dioxide.

#### Future Baseline

**15.7** Background air pollutant concentrations are currently available using 2018 base year for projections (Defra, 2021). These are predicted to improve over time due to reductions in emissions resulting from:

- Reductions in transport emissions resulting from improvements in fuel efficiency and uptake in low emission vehicles
- General reduction in the use of fossil fuels

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<sup>131</sup> Powys. Air Quality. Available at: <https://en.powys.gov.uk/article/7201/Air-Quality> (accessed 21/08/2023).

<sup>132</sup> Carmarthenshire County Council 2018 Air Quality Progress Report. Available at: <https://www.carmarthenshire.gov.wales/media/1219553/2018-annual-progress-report-ccc.pdf?v=201908091655110000> (accessed 21/08/2023)>

- Reductions in pollutant emissions from agricultural sources due to improvements in management envisaged in the 2019 Clean Air Strategy (Defra, 2019)
- Improved emission standards for Non-Road Mobile Machinery and static generators.

## Data Collation and Assessment Methodology

### Legislation and Guidance

**15.8** In addition to the general approach and guidance outlined in Chapter 4 (EIA Approach and Method), the assessment of effects upon Air Quality will have regard to the following guidance documents:

- Guidance on the Assessment on Dust from Demolition and Construction V2.1 (Institute of Air Quality Management (IAQM), 2023);
- Guidance on air quality management: Local Air Quality Management Technical Guidance (TG22, 2022); and
- Land Use Planning and Development Control: Planning for Air Quality (IAQM, 2016)

### Data Collection- Desk Based

**15.9** The baseline assessment will be informed by a desk based study using the following information sources:

- National Atmospheric Emissions Inventory;
- The Defra Archive;
- Local Authority Records.

### Data Collection- Field Surveys

**15.10** It is not envisioned that any site-based surveys will be needed due to the freely available data obtained by the Local Authorities.

### Assessment Method

**15.11** Construction dust impacts would be assessed qualitatively in accordance with the methodology contained within the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction V1.1 (2014). Following assessment of construction dust impacts, appropriate dust mitigation measures would be proposed to manage adverse air quality impacts and reduce potential impacts to an acceptable level.

**15.12** At this stage it is not anticipated that construction vehicle numbers would exceed the criteria outlined in the Environmental Protection UK (EPUK) and IAQM guidance document "Land-Use Planning & Development Control: Planning for Air Quality" (2017), and could therefore be scoped out. If the criteria are exceeded then further assessment will be undertaken. In the event of this sensitive receptors within 200m of the affected road network would be considered. Beyond this distance concentrations are expected to have dispersed to concentrations equivalent to background levels and would not be assessed<sup>133</sup>.

**15.13** The screening criteria are:

- A change in Light Duty Vehicle flows of more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA or more than 500 AADT elsewhere; and
- A change in HDV (>3.5 tonnes) flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere.

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<sup>133</sup> As is consistent with guidance within LA105 published by National Highways

## Likely Significant Effects

### Embedded and Standard Mitigation Measures

**15.14** A range of standard measures would be adopted throughout the construction phase including secured through the adoption of a CEMP and CTMP:

- Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable;
- Plant and construction vehicles will conform to relevant applicable standards for the vehicle type as follows:
  - Euro 4 (NOx) for petrol cars, vans and minibuses
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses
  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist AIL)
- Vehicles will be maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so;
- Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited;
- Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits;
- Earthworks and stockpiled soil will be protected (to avoid dust generation) by covering, seeing or using water suppression where appropriate; and
- Bonfires and the burning of waste material will be prohibited.

### Potential Effects Scoped into the Assessment

**15.15** It is proposed to scope in construction traffic if a threshold is met for the assessment guidance from IAQM 2017. This is because during construction there is the potential to change the traffic flows on the local road networks.

**15.16** Construction delivery vehicles emit exhaust gases containing NOx, NO and particulate matter pollutants. The exact number of towers and their location is yet to be determined, however the length of construction duration is unlikely to be longer than one month at each tower construction area. It is therefore unlikely that the delivery of materials will lead to significant effects upon air quality in rural locations, but construction vehicles could generate emissions from delivering materials along key access roads (which include the A483 in Llandeilo) and these emissions could affect sensitive receptors.

**15.17** If the relevant thresholds (paragraph 15.13) are not met it is proposed to scope construction traffic out of the ES.

**15.18** Good practice measures stipulated in the relevant guidance held within the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction V1.1 (2014), will seek to ensure that no significant dust effects will occur. Until the construction areas are finalised, however, and the impacts considered, the effects of construction dust are proposed to be scoped into the assessment.

### Potential Effects Scoped Out of the Assessment

#### Construction

**15.19** Assessment of Non-Road Mobile Machinery (NRMM) emissions is proposed to be scoped out of the air quality assessment due to the temporary and transient nature of their use and the low background concentrations. Significant effects of NRMM emissions are considered unlikely with incorporation of best practice measures (CoCP) and compliance with NRMM standards.

## Operation

**15.20** There will be no significant impacts on air quality during operation due to the project being a static structure which does not have any associated emissions. There will be travel to the site for maintenance purposes, but these will be very limited in nature, unlikely to require heavy equipment, and will therefore have insignificant effects upon air quality. Therefore this topic is proposed to be scoped out of the ES.

## Approach to Additional Mitigation

**15.21** Drawing upon measures detailed in the IAQM guidance additional mitigation will be proposed and secured through the CEMP as appropriate following the outcome of the assessment.

## Proposed Scope of the ES

**15.22** Table 15.1 provides a summary of the proposed scope of the Environmental Statement.

Table 15.1: Proposed ES Scope

Matter	Scoped in/out	Justification
Construction dust	Scoped In	The construction areas are not yet confirmed or their proximity to sensitive receptors
Construction plant and equipment	Scoped out	Emissions from plant are unlikely to be concentrated in an area for a significant period of time or be emitted in an area with existing poor air quality. This is therefore proposed to be scoped out.
Construction traffic	Scoped In (if the screening criteria is met or exceeded)	There is the potential for deterioration in the local air quality for human and ecological receptors. If the criteria is not met this proposed to be scoped out.
Operational vehicle emissions	Scoped out	No likely significant effects are expected due to the lower number of vehicle movements.

### Questions for Consultees

**Q15.1: Are the proposed matters to be scoped out acceptable?**

# Chapter 16

## Cumulative Effects

### Introduction

**16.1** This chapter sets out the proposed approach to the assessment of likely significant cumulative effects of the Project. **Chapters 7-15** include a brief description of the interrelationships between the standalone environmental topics.

**16.2** Cumulative effects are defined in the Design Manual for Roads and Bridges (DMRB)<sup>134</sup> guidance (LA104) as “*Impacts that result from incremental changes caused by other present or reasonably foreseeable actions together with the project*”.

**16.3** There are two types of cumulative effects; intra-project and inter-project effects defined as follows:

- Intra-project effects: relate to effects to a receptor from within the Project only e.g. the impact of residential visual amenity changes alongside the impact of noise from the construction and operation of the Project on a residential property.
- Inter-project effects: relate to the effects of the Project alongside the effects of other developments within the Study Area. E.g. the construction traffic of the Project in combination with the construction traffic of wind farms in the Study Area may lead to a temporary increase in traffic on the local road network.

### Study Area

**16.4** The Study Area for the assessment of both intra and inter-project effects is defined by the study areas of each of the individual environmental topics covered in **Chapters 7-15**.

### Legislation and Guidance

**16.5** The EIA Regulations require that an EIA “*must identify, describe and assess in an appropriate manner, in light of the circumstances relating to the proposed development, the direct and indirect significant effects of the proposed development including, where the proposed development will have operational effects) on the factors specified in paragraph (3) and the interaction between those factors*”<sup>135</sup>.

**16.6** The EIA Regulations<sup>136</sup> (Schedule 4, Paragraph 5) require that the ES should consider the “direct effects and any indirect secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.”

**16.7** The following guidance has informed the methodology for the assessment:

- European Commission DG XI Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (May 1999)<sup>137</sup>;
- LA 104, Environmental assessment and monitoring, National Highways, August 2020;
- International Association for Impact Assessment (IAIA) Cumulative Effects Assessment Fast Tips (October 2017)<sup>138</sup>; and

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<sup>134</sup> LA 104 Environmental assessment and monitoring, National Highways, August 2020

<sup>135</sup> The factors listed in paragraph 3 are human beings, fauna and flora, soil, water, air, climate and the landscape, material assets, and cultural heritage.

<sup>136</sup> The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Schedule 4- Information for inclusion in environmental statements

<sup>137</sup> Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. Available at: <https://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf> (accessed 15/09/2023).

<sup>138</sup> Cumulative Effects Assessment. Available at: [https://www.iaia.org/uploads/pdf/Fastips\\_16%20Cumulative%20Effects%20Assessment\\_1.pdf](https://www.iaia.org/uploads/pdf/Fastips_16%20Cumulative%20Effects%20Assessment_1.pdf) (accessed 15/09/2023).

- Impact Assessment Outlook Journal, Demystifying Cumulative Effects (2020)<sup>139</sup>.

**16.8** There is currently no standard approach on the assessment of intra-project effects which is attributed to the complex nature and difficulty of undertaking such an assessment. An appropriate approach is therefore proposed in Paragraphs 1.13 to 1.17.

**16.9** In the absence of DNS specific guidance, Advice Note Seventeen (Planning Inspectorate 2019)<sup>140</sup> provides some guidance on how to structure the assessment of inter-project effects.

## Data Collection- Desk Based

### Intra-Project Effects

**16.10** The desk-based data collection to assess intra-project effects will be completed by the environmental topic specialists as outlined in their individual chapters.

### Inter-Project Effects

**16.11** To identify cumulative developments within the Study Area the following data sources will be used:

- Large development projects; i.e. those that are listed on the Welsh Government Planning Casework portal<sup>141</sup> and the Development of National Significant Applications<sup>142</sup> website;
- Nationally Significant Infrastructure Projects (NSIPs) listed on the Planning Inspectorate's Programme of Projects
- Committed development data will be obtained from both Carmarthenshire and Powys County Council;
- Local Development Plan data will be obtained from Carmarthenshire and Powys County Council; and
- OS mapping will be used to inform the baseline and confirm the status of consented developments.

**16.12** The final list of developments for inclusion within the inter-project cumulative assessment will be agreed with Carmarthenshire and Powys County Councils and PEDW.

## Assessment Method

### Intra-Project Effects

**16.13** Each topic within the EIA will identify the likely inter-actions between the topic and other topics on a receptor and identify the potential for cumulative impacts from intra-project effects.

**16.14** A checklist matrix will be used to scope-in receptors that are expected to experience multiple effects, the matrix will visually identify relationships between project impacts and environmental components.

**16.15** An individual receptor, e.g. protected species or people, will be identified for each topic to represent areas that are the most sensitive to impact interactions.

**16.16** The predicted significance of intra project effects upon the receptors identified will be determined based on professional judgement considering the extent to which a single receptor may be affected as a result of a combination of different effects due to the construction and operation of the Project. Where the same receptor is identified in two or more ES chapters it will be assessed for intra project cumulative effects.

**16.17** Where significant cumulative effects are identified upon a single receptor, additional mitigation measures and monitoring requirements will be outlined as required.

<sup>139</sup> IEMA Impact Assessment Outlook Journal, Volume 7: July 2020. Demystifying Cumulative Effects. Thought pieces from UK practice.

<sup>140</sup> National Infrastructure Planning. Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects, published August 2019 (Version2).

<sup>141</sup> Welsh Government Planning casework. Available at: <https://planningcasework.service.gov.wales/> (accessed 15/09/2023).

<sup>142</sup> Welsh Government Developments of national significance (DNS): applications. Available at: <https://www.gov.wales/developments-national-significance-dns-applications> (accessed 15/09/2023).

### Inter-Project Effects

**16.18** The assessment will consider the cumulative effects arising from the construction and operation of the Project in combination with other developments within the Study Area.

**16.19** To ensure a robust assessment, a 'cut-off' date will be agreed with PEDW at which time only those developments will fall within the following list will be included in the cumulative assessment:

- Existing projects, will be included as part of the baseline (and already assessed through each topics primary assessment).
- Projects that are under construction.
- Consented projects that have not yet been built but that have been granted consent within the last 5 years (or shorter should their planning permission expire before 5 years).
- Projects submitted to planning within the 12 months prior to the ES being written that have not yet been determined.
- Other projects that have been submitted for scoping to PEDW where the design is sufficiently progressed to inform a robust assessment (to be agreed with the LPAs and PEDW).
- Sites allocated within the relevant local authorities development plan.

**16.20** Following the collation of a list of cumulative projects in the Study Area the projects would be assessed relative to a threshold criteria to determine if the development has the potential to give rise to significant effects in combination with the Project.

**16.21** Professional judgement will be used to apply the threshold criteria to determine if the development should be scoped in or scoped out of the assessment. The criteria for including development projects will review temporal scope, the scale and nature of the development and the sensitivity of the receiving environment.

**16.22** The developments that are considered to potentially give rise to significant effects when in combination with the Project will then be assessed. The assessment will evaluate and outline the likely significant inter-project effects that may arise from the Project. The results of the assessment will be presented in a table format. The significance and magnitude of impact will be determined according to the criteria set out within the environmental topic chapters.

### Proposed Scope of the ES

**16.23** Table 16.1 provides a summary of the proposed scope of the Environmental Statement in relation to cumulative effects.

Table 16.1: Proposed EIA Scope

Matter	Scoped in/out	Justification
Intra-project effects during construction and operation	Scoped in	There is the potential for significant effects arising between environmental topics on the same receptors.
Inter-project effects during construction and operation	Scoped in	There is the potential for significant effects to arise due to the development of multiple projects within the Study Area.

#### Questions for Consultees

**Q16.1:** Do you agree with the proposed approach to the cumulative assessment of both inter-project and intra-project effects?



## **Appendix A**

### **Competent Experts Information**

## Appendix A- Competent Expert Details

Table 1.1: Competent Expert Details

Chapter	Qualification / Expertise of Person Responsible
<b>Chapters 1-6: Introductory Chapters</b> (prepared by LUC)	<p>The Scoping Report was overseen by <b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> Kate is a Director of Environmental Planning and has over 20 years of professional EIA experience, specialising in integrated environmental design and EIA of major infrastructure projects, including overhead transmission lines. Kate has extensive experience of the routeing, scoping and EIA stages of grid connection projects as well as being able to deliver high quality Environmental Statements. Her recent grid experience involves over 12 OHL transmission projects for SP Energy Networks and the SP Manweb Mid Wales Connections project in Powys, Wales. Kate has been involved in the Towy Usk Project since its inception, overseeing the routeing stage. Kate has also recently provided expert EIA witness services at an inquiry for a transmission project.</p> <p><b>James Hopkins BA (Hons) MA PGCert MRTPI</b> is an Associate with LUC with 13 years' experience as a planning and renewable energy development specialist. James worked for over seven years in the renewable energy sector as a planner and project manager, during which time he managed and provided planning and other project support for onshore wind, associated grid and energy storage projects across England, Scotland and Wales. Since James joined LUC in 2019, he has transferred his insights and skills gained working on the developer side of renewables projects to managing the delivery of EIA services to the sector. James is a highly skilled EIA and development project manager, adept at coordinating teams of technical specialists, evaluating and prioritising environmental constraints information, communicating with clients and stakeholders, and developing deliverables that meet expectations and regulatory requirements.</p>
<b>Chapter 7: Landscape and Visual Amenity</b> (prepared by LUC)	<p><b>Paul Macrae MA Hon CMLI</b> is a Chartered Landscape Architect with twenty years' experience in a range of landscape planning and assessment projects. Paul's work has included a wide range of landscape and visual impact assessments for major infrastructure projects and renewable energy developments, from initial feasibility through to evidence at Examination. He has undertaken routeing studies for overhead power lines and for underground pipelines. His recent work includes the routeing for the Towy Usk project, as well as routeing work for National Grid's Humber Trent GREEN project, and SSEN's Tealing to Kintore Reinforcement. Paul has also led LVIA for a number of DCO schemes for major offshore wind farms, including onshore grid connections and substations. Paul has extensive knowledge of landscape character assessment, and of the application of character assessment to issues including green belt, landscape protection, and development planning. Paul has prepared strategic landscape sensitivity studies for a range of purposes, and at a range of scales, across the United Kingdom.</p>
<b>Chapter 8: Biodiversity</b> (prepared by LUC)	<p><b>Niall Machin</b> is Director of Ecology at LUC with over 30 years experience in ecology, ornithology and sustainability. He had worked on large scale infrastructure projects including energy, rail and port developments, including Welsh wind farm schemes for LUC. He has particular expertise in ecological assessment, ornithology and Habitat Regulations Assessment. He has appeared as expert ecology witness at a number of public inquiries, most recently for the Transpennine Route Upgrade for Network Rail. Niall sits on the CIEEM England Policy Board.</p> <p><b>Iain MacKenzie BSc MSc MCIEEM</b> is an Associate Director of Ecology. Iain has over 20 years of professional ecological experience and has managed the ornithological components of more than 25 wind farm developments and eight OHL projects. A recognised ornithological expert, Iain is regularly called upon on to design and oversee complex ornithological</p>

Chapter	Qualification / Expertise of Person Responsible
	surveys and undertake Ornithology Impact Assessments for large-scale projects. He is particularly adept in identifying key issues and managing consultation with stakeholders.
<b>Chapter 9: Historic Environment</b> (prepared by LUC)	<b>Melissa Conway BA (Hons) MA MCIfA</b> is an experienced historic environment consultant with a strong track record in development assessments, setting, historic characterisation, strategic planning, landscape survey and heritage asset management. This is underpinned by particular skills in landscape analysis, aerial photography, setting and GIS (ArcGIS and MapInfo). She has particular experience of renewables (wind and solar), transport schemes, housing, commercial premises, urban renewal, ports and major infrastructure schemes. Since 2014 she has undertaken expert witness work on wind energy and housing schemes. Her experience spans the UK and she has particular knowledge of Wales's historic environment from work on renewables developments and on road schemes as well as the routing stage of the Towy Usk Project.
<b>Chapter 10: Traffic and Transport</b> (prepared by LUC)	<b>Neil McAlpine BA (Hons) MSc</b> has worked within transport planning and engineering sector for almost 20 years in both the academic and consultancy sectors. Neil expanded his academic knowledge base into practical examples by specialising in development planning, urban design and appraisal. Neil has particular expertise in assessing how transport interacts with the surrounding environment and minimising the impact of traffic on all road users with emphasis on the most vulnerable. Neil has undertaken EIA and planning assessment for on and offshore windfarms, battery storage units, solar farms, sub stations as well as residential and mixed use development in both the urban and rural environment. Neil is a successful project manager and director working in both the public and private sector having managed and lead teams throughout the UK, Middle East and Asia.
<b>Chapter 11: Noise and Vibration</b> (prepared by Hoare Lea)	<b>Peter Tallantyre</b> is an experienced Noise and Vibration Consultant with over 26 years of experience within consultancy. Peter has worked on a wide range of Noise and Vibration projects, including Residential / Industrial, Mineral Extraction and Processing (including blast vibration) / Open Cast Coal Mining, Oil and Coal Bed Methane drilling, Renewable Energy, Energy from Waste Facilities, Waste Management (Waste Technology Parks and Landfill Sites), Construction and Demolition projects, Explosive demolition, Recreational activities, Commercial developments, and Road and Rail Infrastructure Schemes. Peter has extensive experience of 3-dimensional computer noise Modelling. Peter is an accomplished Team Manager having managed Acoustics Teams at some of the largest consultancies within the UK, managing the Arcadis team for nearly 7 years. Peter has significant experience of environmental noise and vibration working in the industry for over 26 years. Peter has worked on the DCO applications for a number of major infrastructure projects. His key experience includes noise assessments for residential and mixed use developments, transport schemes, including road and rail infrastructure projects, and construction noise assessments in support of planning applications and EIAs. Peter also acted as Technical Lead on Acoustics for Sections of the detailed design of High Speed 2 (HS2) and for the Lower Thames Crossing DCO.
<b>Chapter 12: Water Resources</b> (prepared by Yellow Sub Geo)	<b>Gareth Owen</b> has twenty years' experience in providing geological and hydrogeological investigations and assessments, supporting a wide range of projects. He has a solid background in geology and specialises in the detailed assessment of environmental impact of development. He has supported many developments through the EIA process, on sites across England and Wales. Gareth's particular strength lies in the ability to translate technical information into the language of EIA, on subjects including ground conditions, land quality, geomorphology, hydrology, flooding, and water resources. Gareth has project managed technical topic area input to numerous EIAs for windfarms across mid and south Wales and has recent experience of delivering similar services under DNS applications for large-scale solar in Wales. Gareth and his team are currently working on the nearby Nant Mithil windfarm project, and the associated off-site works and grid

Chapter	Qualification / Expertise of Person Responsible
	connection projects. Gareth is also currently leading his team on two other similar projects in Mid and South Wales. Gareth has experience as environmental regulator for Powys, as part of his role as Earth Science Officer for CCW (now part of NRW).
<b>Chapter 13: Ground Conditions, Geology and Hydrogeology</b> (prepared by Yellow Sub Geo)	<b>Gareth Owen</b> , as above.
<b>Chapter 14: Soils and Agriculture</b> (prepared by Arcadis)	<b>Bruce Lascelles</b> is Director of Sustainable Land Management at Arcadis and the current Past President of the British Society of Soil Science, with over 30 years' experience. Bruce has a degree and PhD in Soil Science and following a period of undertaking research on various aspects of soils (particularly on soil erosion) became a consultant where he has worked on aspects of the inter-relationships between the physical environment and plant and animal communities (including the development of habitat creation and restoration techniques), the impact on soils and hydrology from land use change and on surveying and mapping soil and land use types across the UK. Bruce has led the Agricultural and Soils topic on a wide range of projects, including major energy production and transmission projects covering extensive land areas. Bruce is currently leading this topic on a number of schemes for National Grid, including Bramford to Twinstead Reinforcement, East Anglia GREEN and Humber Trent GREEN.
<b>Chapter 15: Air Quality</b> (prepared by Arcadis)	<b>Hannah Dennett</b> Hannah is a Chartered Air Quality Specialist with over 18 years' experience in the environmental profession. Hannah has an excellent range of skills and knowledge through the involvement in air quality projects both as individual commissions and as part of Environmental Impact Assessments (EIAs) for public and private sector clients. Hannah has experience in numerous air quality assessments, including assessments for complex EIAs for an array of developments, ranging from Nationally Significant Infrastructure Projects (NSIPs), to large infrastructure projects, to mixed use developments of various scales. She has worked on numerous National Grid projects including Richborough Connection Project and Feeder 9 Gas Pipeline Project, and is currently involved in the North Humber to High Marnham Reinforcement project, the South East Anglia (SEA) Link project and the Humber Low Carbon Pipeline (HLCP) project.
<b>Chapter 15: Intra-Project Effects</b> (prepared by LUC)	<b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> and <b>James Hopkins BA (Hons) MA PGCert MRTPI</b> , as above.

## **Appendix B**

### **Proposed Structure of the ES**

# **Towy Usk OHL ES Structure**

## **Non-Technical Summary**

### **Chapter 1: Introduction**

- Purpose of the ES
- The Applicant
- Background and Needs Case
- Legislative Requirements for EIA
- Responsibilities for the ES
- Structure of the ES

### **Chapter 2: Main Alternatives Considered**

- Overview of Routeing Methodology
- Proposed Route
- Modifications to Scheme Design During EIA

### **Chapter 3: Project Description**

- Description of the Proposed Route
- Overhead Line Infrastructure
- Underground Cabling Infrastructure
- Switching Station Infrastructure
- Construction Methods
- Operation and Maintenance
- Embedded Mitigation Measures

### **Chapter 4: The Environmental Impact Assessment**

- Introduction
- The EIA Process
- Scope of the EIA

### **Chapter 5: Planning Policy Context**

- Introduction
- Planning Policy Context

**Chapters 6 to 15: Landscape and Visual Impact Assessment; Ecology; Ornithology; Historic Environment; Traffic and Transport; Noise and Vibration; Water Resources, Ground Conditions, Soils and Agriculture; Air Quality; Other EIA topics.**

Each chapter will include:

- Introduction
- Assessment Methodology
- Existing Conditions

- Modification to Development Design
- Micrositing
- Embedded Mitigation and Good Practice Measures
- Assessment of Construction Effects
- Assessment of Operational Effects
- Cumulative Effects
- Mitigation and Future Monitoring
- Residual Effects
- Summary of Significant Effects

## Chapter 16: Summary of Significant Effects

### Figures

### Appendices

## **Appendix C**

### **List of Proposed Consultees**



## List of Potential Consultees

**The following consultees will be contacted by PEDW in relation to the scope of the EIA:**

- Welsh Government (Soil Policy & Agricultural Land Use Planning Unit/ Department for Climate Change)
- Natural Resources Wales (NRW)
- Powys County Council (PCC)
- Carmarthenshire County Council (CCC)
- Transport Directorate of the Welsh Government
- Hafren Dyfrydwy
- Dŵr Cymru Welsh Water
- Mid and West Wales Fire and Rescue Service
- South Wales Fire and Rescue Service
- Bannau Brycheiniog National Park Authority
- Cadw

**The following consultees will be contacted in relation to the provision of information to inform the EIA:**

- Local authority conservation advisory staff:
  - Powys County Council; and
  - Carmarthenshire County Council
- Archaeological advisors to the local authority;
  - Clwyd Powys Archaeological Trust; and
  - Dyfed Archaeological Trust
- Regionally Important Geological Site groups
- Royal Society for the Protection of Birds (RSPB)
- Wildlife Trusts
- Curlew Wales Partnership
- Raptor Groups
- Woodland Trust
- North and Mid Wales Trunk Road Agent (NMWTRA)
- South Wales Trunk Road Agent (SWTRA)
- National Botanic Garden of Wales
- Ministry of Defence (MOD)
- National Grid Electricity Transmission

## Appendix D

### Figures