



Pennant Walters

GLANLLYNFI GARTH WIND FARM

Draft Environmental Statement

Chapter 17 - Inter-related Cumulative Effects



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17 Inter-related cumulative effects

17.1 Introduction

- 17.1.1. This chapter presents the assessment of the likely significant effects of the Proposed Development with respect to inter-related (intra-project) cumulative effects. Inter-related cumulative effects occur where effects arising as a result of the Proposed Development interact and may combine to result in a greater environmental effect on a specific receptor.
- 17.1.2. This ES chapter should be read in conjunction with the description provided in **Chapter 4: Development Description**, as well as the environmental topic chapters (see **Chapters 6 to 16**).
- 17.1.3. Potential inter-project cumulative effects arising from the combination of effects from the Proposed Development with similar topic-related effects generated by other developments are discussed in **Chapter 2: Approach to Environmental Impact Assessment** and assessed in **Chapters 6-16**.

Limitations and assumptions

- 17.1.4. The Draft Environmental Statement (ES) has been produced to fulfil the Applicant's consultation duties and enable consultees to develop an informed view of the likely significant effects of the Proposed Development.
- 17.1.5. The following limitations have impacted the assessment of likely significant inter-related cumulative effects of the Proposed Development:
- An assessment of the Forestry Access Track is yet to be undertaken, as the design is yet to be determined. Further details are provided in **Chapter 4: Development Description**.
 - An operational noise assessment is yet to be undertaken as part of the EIA. This is described further in **Chapter 13: Noise**;
 - An assessment of residential amenity effects is yet to be undertaken as part of the EIA. A Detailed Residential Visual Amenity Assessment (RVAA) will be undertaken as part of the Final ES. See **Chapter 6: Landscape and Visual Impact Assessment** for further details.
- 17.1.6. Please refer to **Section 17.11** for further information related to further work to be undertaken as part of the Final ES.

17.2 Relevant Legislation, planning policy and technical guidance

- 17.2.1. This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to inter-related cumulative effects. Further information on policies relevant to the Proposed Development is provided in **Chapter 5: Legislation and policy overview**.

Legislation

- 17.2.2. This assessment takes into account Paragraph 5 of Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017¹ which states that the “*The description of the likely significant effects on the factors specified in regulation 4(2) should cover 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.*”

Planning policy

- 17.2.3. A summary of the relevant national and local planning policy is given in **Table 17.1**.

Table 17.1 Planning policy relevant to the inter-related cumulative effects assessment

Policy	Policy Context
National Planning Policy	
Future Wales: The National Development Plan 2040 ²	Policy 18: Renewable and Low Carbon Energy Developments of National Significance outlines that proposals should consider the cumulative impacts of existing and consented renewable energy schemes. The Plan further states that “<i>Both within and outside Pre-Assessed Areas, communities should be protected from significant cumulative impacts to avoid unacceptable situations whereby, for example, smaller settlements could be potentially surrounded by large wind schemes</i>”.
Planning Policy Wales, Edition 12, Welsh Government (2024) ³	Chapter 5: Productive and Enterprising Places covers the economic components of placemaking. The chapter outlines that local planning authorities should, when formulating their renewable energy targets, “<i>take into account the cumulative impact of renewable and low carbon energy development and their associated infrastructure, for example grid connections</i>”.

¹ UK Government (2017). The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. (Online) Available at: <https://www.legislation.gov.uk/wsi/2017/567/contents> (Accessed July 2026).

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

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

Technical Guidance

17.2.4. A summary of other relevant information and guidance relevant to the assessment undertaken for inter-related cumulative effects is provided here:

- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)⁴ aims to help developers and consultants produce good quality EIA reports. Section 1.4.3 highlights the need to consider interactions between the different environmental aspects in a single project. It recommends using interactive matrices that consider the interactions of impacts assessed individually; and
- Guideline for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions⁵ sets out various tools that can be used for inter-related effects, guidance on the approach and assessment. Section 3 of the guidance outlines the tools that can be used for inter-related effects, which are: expert opinion, matrices, consultation and questionnaires, network and systems analysis and spatial analysis. These tools can be used in different combinations at different stages of the project. Section 7.7 of the guidance states the inter-related effects assessment can be within the individual aspect chapters or as its own standalone chapter (as in this Draft ES). Section 7.3.1 of the guidance states where the assessment cannot be qualitative, a qualitative assessment can be carried out.

17.3 Consultation and engagement

Overview

17.3.1. The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Chapter 2: Approach to Environmental Impact Assessment**.

Scoping Direction

17.3.2. A Scoping Direction was issued by Planning and Environmental Decisions Wales (PEDW), on behalf of the Welsh Ministers, on 12 June 2026. No comments on inter-related cumulative effects were raised in the Scoping Direction.

17.4 Data gathering methodology

17.4.1. The study area and data gathering exercises for the inter-related effects assessment are informed by those from each of the environment topic chapters (**Chapter 6 to Chapter 16**).

⁴European Commission (2017). Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). (Online) Available at: https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf (Accessed July 2026).

⁵ European Commission (1999). Guideline for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. (Online) Available at: <https://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf> (Accessed July 2026).

17.5 Overall baseline

- 17.5.1. The baseline for the assessment is as discussed within the individual topic chapters (Chapters 6-16).

17.6 Embedded measures

- 17.6.1. A range of environmental measures have been embedded into the development proposals as outlined in **Chapter 4: Development Description** and **Chapters 6-16** of this Draft ES.

17.7 Scope of the assessment

Spatial scope

- 17.7.1. The spatial study area is dependent on each receptor. To have a potential inter-related effect, a receptor or receptor group must be within the study area of more than one environmental topic. An illustrative example of this is described in **Graphic 17-1**; only the green receptors have the potential to experience inter-related effects as they are in the study area for environmental topic (aspect) 1 and environmental topic (aspect) 2.

Graphic 17-1 Illustrative example of the spatial scope and study area for an example receptor



- 17.7.2. The study area for each of the individual environmental topics (**Chapter 6 to Chapter 16**) relevant to this chapter have been informed through desk study and engagement with stakeholders.

Temporal scope

- 17.7.3. The temporal scope of the assessment of inter-related effects is the entire lifetime of the Proposed Development which therefore covers the construction, operation and maintenance and decommissioning periods.

Potential receptors

- 17.7.4. The most likely types of receptors where topic effects are likely to combine are those pertaining to the amenity of the human population. For example, the occupants of a residential property in close proximity to the Proposed Development might be subject to adverse effects in terms of noise or shadow flicker, as well as with regard to visual amenity, or any combination thereof, each of which, when assessed individually, may not be significant, but when assessed in combination the combined effects may be judged to be significant.
- 17.7.5. Consideration has also been given to the potential for inter-related cumulative effects on other environmental receptors. A review of the respective Draft ES chapters (**Chapters 6-16**) has been undertaken to identify where one non-human receptor may be affected by more than one environmental effect.

Landscape/Visual and Environment Receptors

- 17.7.6. Forty-nine locations have been considered in two or more of the following chapters:
- Chapter 6: Landscape and Visual Impact Assessment (LVIA);
 - Chapter 7: Historic Environment;
 - Chapter 12: Traffic and Transport; and
 - Chapter 16: Socio-economics.

Human/Residential Receptors

- 17.7.7. Fifteen receptor locations have been considered in two or more of the following chapters:
- Chapter 6: Landscape and Visual Assessment (LVIA);
 - Chapter 10: Water Environment;
 - Chapter 13: Noise and Vibration;
 - Chapter 14: Shadow Flicker; and
 - Chapter 15: Socio-economics.

Ecological Receptors

- 17.7.8. Five receptor locations have been considered in two or more of the following chapters:
- Chapter 8: Biodiversity;
 - Chapter 10: Water Environment; and

- Chapter 11: Ground Conditions.

17.7.9. All receptors considered in two or more Draft ES chapters are summarised in **Table 17.2**.

Table 17.2 Common receptors between Draft ES Chapters

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Landscape/Visual and Environmental Receptors											
Bridgend Circular Walk	✓	X	X	X	X	X	X	X	X	✓	X
Celtic Way	✓	X	X	X	X	X	X	X	X	✓	X
Cistercian Way (Wales),	✓	X	X	X	X	X	X	X	X	✓	X
Coed Morgannwg Way	✓	X	X	X	X	X	X	X	X	✓	X
Glamorgan Ridgeway Walk	✓	X	X	X	X	X	X	X	X	✓	X
Taith Fford Las Ogwr/ Ogwr Ridgeway Walk	✓	X	X	X	X	X	X	X	X	✓	X
Sky to Sea: Over the Bwlch	✓	X	X	X	X	X	X	X	X	✓	X
Sky to Sea: Through the Vale	✓	X	X	X	X	X	X	X	X	✓	X
St Illtyd's Walk	✓	X	X	X	X	X	X	X	X	✓	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bryngarw Country Park	✓	✓	X	X	X	X	X	X	X	✓	X
Coytrahen House – Registered Park and Garden	✓	X	X	X	X	X	X	X	X	✓	X
Newcastle Castle	✓	X	X	X	X	X	X	X	X	✓	X
Open Access Land within 10 km of the proposed turbines	✓	X	X	X	X	X	X	X	X	✓	X
Llangynwyd	✓	✓	X	X	X	X	X	X	X	✓	X
A4061	✓	X	X	X	X	X	✓	X	X	X	X
A4107	✓	X	X	X	X	X	✓	X	X	X	X
Bridleway RHI/10/4	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 56/9/4	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 56/8/1	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 23/25/6	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 23/31/1	✓	X	X	X	X	X	✓	X	X	✓	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway 23/30/1	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 56/6/1	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 23/20/6	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 23/2/2	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 23/1/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 23/12/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 23/70/1	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway 23/10/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath 23/8.Blngw/3	✓	X	X	X	X	X	✓	X	X	✓	X
Undefined 23/A.F.19/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/4/3	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/3/3	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/4/2	✓	X	X	X	X	X	✓	X	X	✓	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway MAE/28/3	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway GWV/30/5	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway GWV/45/3	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/37/3	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/37/2	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/59/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/4/2	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/29/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/28/2	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/28/3	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath MAE/36/1	✓	X	X	X	X	X	✓	X	X	✓	X
Footpath GWV/36/2	✓	X	X	X	X	X	✓	X	X	✓	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway GWV/30/3	✓	X	X	X	X	X	✓	X	X	✓	X
Bridleway GWV/30/1	✓	X	X	X	X	X	✓	X	X	✓	X
National Cycle Route 47	✓	X	X	X	X	X	✓	X	X	X	X
Human Receptors											
Bridgend	✓	X	X	X	X	X	X	X	X	✓	X
Maesteg	✓	X	X	X	X	X	X	X	✓	✓	X
Croeserw	✓	X	X	X	X	X	X	X	X	✓	X
Pont Rhyd-y-cyff;	✓	X	X	X	X	X	X	X	✓	X	X
Pontycymer and Blaengarw;	✓	X	X	X	X	X	X	X	✓	X	X
Pont-y-rhyl;	✓	X	X	X	X	X	X	X	✓	X	X
Bryn Llefrith Farm	X	X	X	X	X	X	X	✓	✓	X	X
Blaen-Cwmdu Farm	X	X	X	X	X	X	X	✓	✓	X	X
Brynrhug Farm	X	X	X	X	X	X	X	✓	✓	X	X
Cwrt-Y-Mwnwys Farm	X	X	X	X	X	X	X	✓	✓	X	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
2 Penybryn Bungalow	X	X	X	X	X	X	X	✓	✓	X	X
18 Garwfechan Road	X	X	X	X	X	X	X	✓	✓	X	X
Cynhordy Farm	X	X	X	X	X	X	X	✓	✓	X	X
Gelliheblig	X	X	X	X	X	X	X	✓	✓	X	X
Y Graig	X	X	X	X	X	X	X	✓	✓	X	X
Ecological Receptors											
Priority habitats, including: upland heathland; upland flushes, fens and swamps; lowland dry acid grassland; and small, mid altitude rivers on acidic geology	X	X	✓	X	✓	✓	X	X	X	X	X
Nant Gwyn Bach	X	X	X	X	✓	✓	X	X	X	X	X
Nant Cwm-du	X	X	X	X	✓	✓	X	X	X	X	X
Nant Cedfyrw	X	X	X	X	✓	✓	X	X	X	X	X
Swansea Carboniferous Coal Measures	X	X	X	X	✓	✓	X	X	X	X	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
groundwater body											

17.7.10. The receptors considered in this assessment are therefore:

Landscape/Visual and Environment Receptors:

- Bridgend Circular Walk (Landscape and Visual and Socio-economics)
- Celtic Way (Landscape and Visual and Socio-economics)
- Cistercian Way (Wales) (Landscape and Visual and Socio-economics)
- Coed Morgannwg Way (Landscape and Visual and Socio-economics)
- Glamorgan Ridgeway Walk (Landscape and Visual and Socio-economics)
- Taith Fford Las Ogwr/ Ogwr Ridgeway Walk (Landscape and Visual and Socio-economics)
- Sky to Sea: Over the Bwlch (Landscape and Visual and Socio-economics)
- Sky to Sea: Through the Vale (Landscape and Visual and Socio-economics)
- St Illtyd's Walk (Landscape and Visual and Socio-economics)
- Bryngarw Country Park (Landscape and Visual, Historic Environment, and Socio-economics)
- Coytrahen House – Registered Park and Garden (Landscape and Visual and Socio-economics)
- Newcastle Castle (Landscape and Visual and Socio-economics)
- Open Access Land within 10 km of the proposed turbines (Landscape and Visual and Socio-economics)
- Llangynwyd (Landscape and Visual, Historic Environment, and Socio-economics)
- A4061 (Landscape and Visual and Traffic and Transport)
- A4107 (Landscape and Visual and Traffic and Transport)
- Bridleway RHI/10/4 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath 56/9/4 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath 56/8/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/25/6 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/31/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/30/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 56/6/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/20/6 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/2/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath 23/1/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)

- Footpath 23/12/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath 23/70/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway 23/10/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath 23/8.Blngw/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Undefined 23/A.F.19/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/4/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/3/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/4/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway MAE/28/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway GWV/30/5 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway GWV/45/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/37/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/37/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/59/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/4/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/29/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/28/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/28/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath MAE/36/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Footpath GWV/36/2 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway GWV/30/3 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- Bridleway GWV/30/1 (Landscape and Visual, Traffic and Transport, and Socio-economics)
- National Cycle Route 47 (Landscape and Visual, Traffic and Transport, and Socio-economics)

Human/Residential Receptors:

- Bridgend (Landscape and Visual and Socio-economics)
- Maesteg (Landscape and Visual, Shadow Flicker and Socio-economics)

- Croeserw (Landscape and Visual and Socio-economics)
- Pont Rhyd-y-cyff (Landscape and Visual and Shadow Flicker)
- Pontycymer and Blaengarw (Landscape and Visual and Shadow Flicker)
- Pont-y-rhyl (Landscape and Visual and Shadow Flicker)
- Bryn Llefrith Farm (Noise and Vibration and Shadow Flicker)
- Blaen-Cwmdu Farm (Noise and Vibration and Shadow Flicker)
- Brynrhug Farm (Noise and Vibration and Shadow Flicker)
- Cwrt-Y-Mwnwys Farm (Noise and Vibration and Shadow Flicker)
- 2 Penybryn Bungalow (Noise and Vibration and Shadow Flicker)
- 18 Garwfechan Road (Noise and Vibration and Shadow Flicker)
- Cynhordy Farm (Noise and Vibration and Shadow Flicker)
- Gelliheblig (Noise and Vibration and Shadow Flicker)
- Y Graig (Noise and Vibration and Shadow Flicker)

Ecological Receptors:

- Priority habitats, including: upland heathland; upland flushes, fens and swamps; lowland dry acid grassland; and small, mid altitude rivers on acidic geology (Biodiversity, Water Environment and Ground Conditions)⁶
- Nant Gwyn Bach (Water Environment and Ground Conditions)
- Nant Cwm-du (Water Environment and Ground Conditions)
- Nant Cedfyw (Water Environment and Ground Conditions)
- Swansea Carboniferous Coal Measures groundwater body (Water Environment and Ground Conditions)

Likely significant effects

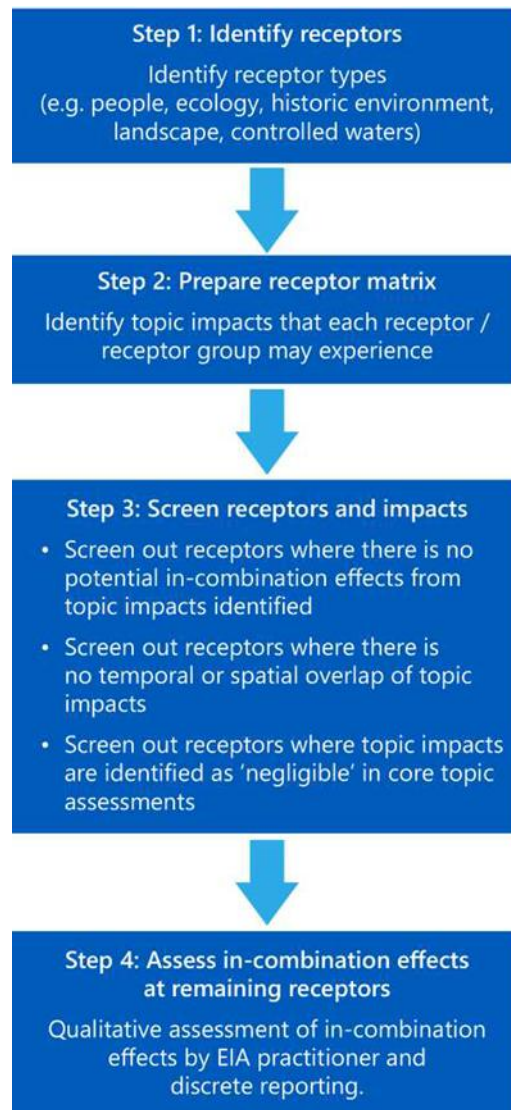
- 17.7.11. The purpose of EIA is to identify and assess any likely significant effects that are material to the decision-making process. In order to maintain proportionality, and in accordance with the EIA Regulations 2017, this assessment therefore concentrates on where significant inter-related cumulative effects are likely to arise between topics considered in this Draft ES.

⁶ Whilst Chapter 10: Water Environment and Chapter 11: Ground Conditions do not specifically identify priority habitats as receptors, they consider local water-dependent habitats (such as marshy grassland, wet heath and peaty habitats) and controlled surface waters. Therefore, it is considered that there may be some overlap in these receptors and are considered as a conservative approach.

17.8 Assessment methodology

- 17.8.1. National policy guidance requires that all relevant effects should be considered objectively. However, existing policy guidance presently fails to provide advice on how such an objective assessment should be carried out.
- 17.8.2. There is no established, robust methodology for quantitatively assessing complex cross-topic inter-related effects and assigning a level of significance to them, as methodologies and criteria vary across environmental aspects. Therefore, the assessment of inter-related effects between topics is qualitative, relying on professional judgement as to how individual effects would interact.
- 17.8.3. The methodology adopted for this assessment is summarised in **Graphic 17.2** and is outlined in detail in the remainder of this section.

Graphic 17.2 Illustrative example of the spatial scope and study area for an example receptor



- 17.8.4. Common receptors for environmental topics have been identified and consideration given to whether the topic effects on any common receptors are likely to combine. This has identified:
- The common receptor(s) from the individual topic assessments;
 - The impact source pathways that can affect the common receptor(s);
 - The potential effects on the identified common receptor(s); and
 - The inter-related effects across the construction, operation and maintenance and decommissioning phases where appropriate.
- 17.8.5. It should be noted that some elements of the assessment inherently consider inter-related effects. For example, biodiversity assessment of effects takes into account the potential for multiple impacts affecting particular features such as disturbance effects on faunal receptors resulting from noise and vibration, visual disturbance and lighting. Where this is the case, this is described within the individual environmental topic chapter.

17.9 Assessment of inter-related effects

Overview

- 17.9.1. The assessment of inter-related cumulative effects has focused on those receptors where potential significant effects have been predicted in respect of at least two or more topics and/or where the technical assessments have shown that potential individual effects are nearing the thresholds of established assessment criteria.
- 17.9.2. **Table 17.3** sets out where significant effects, or effects close to the threshold of significance, have been identified for each common receptor identified in **Table 17.2**.

Table 17.3 Common receptors and significance of identified effects

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Landscape/Visual and Environmental Receptors											
Bridgend Circular Walk	◆◆	X	X	X	X	X	X	X	X		X
Celtic Way	◆◆	X	X	X	X	X	X	X	X		X
Cistercian Way (Wales),	◆◆	X	X	X	X	X	X	X	X		X
Coed Morgannwg Way	◆◆	X	X	X	X	X	X	X	X		X
Glamorgan Ridgeway Walk	◆◆	X	X	X	X	X	X	X	X		X
Taith Fford Las Ogwr/ Ogwr Ridgeway Walk	◆◆	X	X	X	X	X	X	X	X		X
Sky to Sea: Over the Bwlch	◆◆	X	X	X	X	X	X	X	X		X
Sky to Sea: Through the Vale	◆◆	X	X	X	X	X	X	X	X		X
St Illtyd's Walk	◆◆	X	X	X	X	X	X	X	X		X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bryngarw Country Park	◆◆		X	X	X	X	X	X	X		X
Coytrahen House – Registered Park and Garden	◆	X	X	X	X	X	X	X	X		X
Newcastle Castle		X	X	X	X	X	X	X	X		X
Open Access Land within 10 km of the proposed turbines	◆◆	X	X	X	X	X	X	X	X		X
Llangynwyd	◆◆		X	X	X	X	X	X	X		X
A4061	◆◆	X	X	X	X	X		X	X	X	X
A4107		X	X	X	X	X		X	X	X	X
Bridleway RHI/10/4	◆◆	X	X	X	X	X		X	X		X
Footpath 56/9/4	◆◆	X	X	X	X	X		X	X		X
Footpath 56/8/1	◆◆	X	X	X	X	X		X	X		X
Bridleway 23/25/6	◆◆	X	X	X	X	X		X	X		X
Bridleway 23/31/1	◆◆	X	X	X	X	X		X	X		X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway 23/30/1	◆◆	X	X	X	X	X		X	X		X
Bridleway 56/6/1	◆◆	X	X	X	X	X		X	X		X
Bridleway 23/20/6	◆◆	X	X	X	X	X		X	X		X
Bridleway 23/2/2	◆◆	X	X	X	X	X		X	X		X
Footpath 23/1/1	◆◆	X	X	X	X	X		X	X		X
Footpath 23/12/1	◆◆	X	X	X	X	X		X	X		X
Footpath 23/70/1	◆◆	X	X	X	X	X		X	X		X
Bridleway 23/10/1	◆◆	X	X	X	X	X		X	X		X
Footpath 23/8.Blngw/3	◆◆	X	X	X	X	X		X	X		X
Undefined 23/A.F.19/1	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/4/3	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/3/3	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/4/2	◆◆	X	X	X	X	X		X	X		X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway MAE/28/3	◆◆	X	X	X	X	X		X	X		X
Bridleway GWV/30/5	◆◆	X	X	X	X	X		X	X		X
Bridleway GWV/45/3	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/37/3	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/37/2	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/59/1	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/4/2	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/29/1	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/28/2	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/28/3	◆◆	X	X	X	X	X		X	X		X
Footpath MAE/36/1	◆◆	X	X	X	X	X		X	X		X
Footpath GWV/36/2	◆◆	X	X	X	X	X		X	X		X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
Bridleway GWV/30/3	◆◆	X	X	X	X	X		X	X		X
Bridleway GWV/30/1	◆◆	X	X	X	X	X		X	X		X
National Cycle Route 47	◆	X	X	X	X	X		X	X	X	X
Human Receptors											
Bridgend	◆	X	X	X	X	X	X	X	X		X
Maesteg	◆◆	X	X	X	X	X	X	X			X
Croeserw	◆◆	X	X	X	X	X	X	X	X		X
Pont Rhyd-y-cyff;	◆◆	X	X	X	X	X	X	X		X	X
Pontycymer and Blaengarw;	◆◆	X	X	X	X	X	X	X		X	X
Pont-y-rhyl;	◆◆	X	X	X	X	X	X	X		X	X
Bryn Llefrith Farm	X	X	X	X	X	X	X			X	X
Blaen-Cwmdu Farm	X	X	X	X	X	X	X			X	X
Brynrhug Farm	X	X	X	X	X	X	X			X	X
Cwrt-Y-Mwnwys Farm	X	X	X	X	X	X	X			X	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
2 Penybryn Bungalow	X	X	X	X	X	X	X			X	X
18 Garwfechan Road	X	X	X	X	X	X	X			X	X
Cynhordy Farm	X	X	X	X	X	X	X			X	X
Gelliheblig	X	X	X	X	X	X	X			X	X
Y Graig	X	X	X	X	X	X	X			X	X
Ecological Receptors											
Priority habitats, including: upland heathland; upland flushes, fens and swamps; lowland dry acid grassland; and small, mid altitude rivers on acidic geology	X	X	◆◆	X			X	X	X	X	X
Nant Gwyn Bach	X	X	X	X			X	X	X	X	X
Nant Cwm-du	X	X	X	X			X	X	X	X	X
Nant Cedfyw	X	X	X	X			X	X	X	X	X
Swansea Carboniferous Coal Measures	X	X	X	X			X	X	X	X	X

Receptor	Ch 6: Landscape and Visual	Ch 7: Historic Env	Ch 8 Biodiversity	Ch 9: Ornithology	Ch 10: Water Env	Ch 11: Ground Con	Ch 12: Traffic & Transport	Ch 13: Noise	Ch 14: Shadow Flicker	Ch 15: Socio- economics	Ch 16: Other Issues
groundwater body											

- Key: Common receptors
- ◆: Effects close to significance threshold
 - ◆◆: Significant effects

Assessment

- 17.9.3. The technical assessments (**Chapters 6-16**) in the Draft ES have identified potential effects on common receptors as a result of the Proposed Development, as summarised in **Table 17.3**. The table shows that zero common receptors are anticipated to experience more than one significant effect or effect close to the threshold of significance.

17.10 Significance conclusion

- 17.10.1. The assessment of inter-related cumulative effects has considered whether any of the individual environmental topic effects resulting from the Proposed Development could combine to create effects that are significant, on common receptors between technical topics. The assessment focused on those receptors where significant effects have been predicted in respect of at least two or more topics and/or where the technical assessments have shown that potential individual effects are nearing the thresholds of established national criteria.

17.11 Further work to be undertaken

- 17.11.1. The assessment of inter-related cumulative effects will be revisited as part of the Final ES submission. A breakdown of the assessments to be undertaken in support of the Final ES, and subsequent limitations to this inter-related cumulative effects assessment is provided in **Section 17.1**.