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Environmental Statement

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10. Intra-project Cumulative Effects

10.1. Introduction

10.1.1. This chapter presents the assessment of the likely significant effects of the Proposed Development with respect to intra-project cumulative effects. Intra-project 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.

10.1.2. This ES chapter should be read in conjunction with the description provided in **Chapter 5: Project Description**, as well as the environmental topic chapters (see **Chapters 6 to 11**).

10.1.3. Potential inter-project cumulative effects arising from the combination of effects from the Proposed Development with similar topic-related effects generated by other cumulative developments are discussed in the environmental topic chapters (Chapters **6** to **11**).

10.2. Limitations and Assumptions

10.2.1. The following limitations have impacted the assessment of likely significant intra-project cumulative effects of the Proposed Development:

- 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** for further details.

10.2.2. Further topic-specific limitations are reported within the relevant technical chapters of the ES.

10.2.3. Please refer to **paragraph 10.12.1** for further information related to further work to be undertaken as part of the Final ES.

10.3. Relevant Legislation, Planning Policy and Technical Guidance

10.3.1. This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to intra-related cumulative effects. Further information on policies relevant to the Proposed Development are provided in **Chapter 2: Approach to the EIA** and the individual environmental topic chapters.

Legislation

10.3.2. This assessment takes into account Paragraph 5 of Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017[1] which states that "*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

10.3.3. A summary of the relevant national and local planning policy is given in **Table 10.1**.

Table 10.1 - Planning policy relevant to the intra-related cumulative effects assessment

Policy	Policy Context
National Planning Policy	
Future Wales: The National Development Plan 2040[2]	Policy 18 outlines that proposals should consider the cumulative impacts of existing and consented renewable energy schemes.
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, "*take into account the cumulative impact of renewable and low carbon energy development and their associated infrastructure, for example grid connections*".
Local Planning Policy	
Vale of Glamorgan Local Development Plan 2011-2026[4]	Policy MD19 outlines that the cumulative impacts will be an important consideration in assessing proposals for the generation of low carbon and renewable energy.

Technical Guidance

10.3.4. A summary of other relevant information and guidance relevant to the assessment undertaken for intra-project cumulative effects is provided here:

[1] UK Government (2017) The Town and Country Planning (environmental Impact Assessment) (Wales) Regulations 2017.
[2] Welsh Government (2021) Future Wales: The National Plan 2040.
[3] Welsh Government (2024) Planning Policy Wales: Edition 12.
[4] Vale of Glamorgan Council (2017). Vale of Glamorgan Local Development Plan 2011-2026. Available at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP/LDP-Adoption/Adopted-LDP-Written-Statement-June-2017-final-interactive-web-version.pdf (Accessed: October 2026).

- 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)[5] 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
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions[6] sets out various tools that can be used for intra-project cumulative effects, guidance on the approach and assessment. Section 3 of the guidance outlines the tools that can be used for intra-project cumulative 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-project cumulative effects assessment can be within the individual aspect chapters of as its own standalone chapter (as in this ES). Section 7.3.1 of the guidance states where the assessment cannot be qualitative, a qualitative assessment can be carried out.

10.4. Consultation and Engagement

Overview

10.4.1. 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 the EIA**.

Scoping Opinion

10.4.2. A Scoping Opinion was issued by the Vale of Glamorgan Council (herafter, the 'Council') on 7 October 2026. The Scoping Report identified the potential for intra-project cumulative effects arising from the interaction between landscape and visual effects and noise effects. The Council provided comments on this matter through the Scoping Opinion and agreed with the proposed approach to assessing these intra-project cumulative effects.

[5] European Commission: Directorate-General for Environment, COWI, Milieu, Lantieri, A., Lukacova, Z., McGuinn, J. et al. (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).
[6] European Commission: L. J. Walker, J. Johston (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.

10.5. Data Gathering Methodology

10.5.1. The study area and data gathering exercises for the intra-project cumulative effects assessment are informed by those from each of the environment topic chapters (**Chapter 6** to **Chapter 11**).

10.6. Overall Baseline

10.6.1. The baseline for the assessment is as discussed within the individual topic chapters (**Chapter 6** to **Chapter 11**).

10.7. Embedded measures

10.7.1. A range of environmental measures have been embedded into the development proposals as outlined in **Chapter 5: Project Description** and **Chapter 6** to **Chapter 11** of this ES.

10.8. Scope of the Assessment

Spatial Scope

10.8.1. The spatial study area is dependent on each receptor. To have a potential intra-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 Figure 1; only the green receptors have the potential to experience intra-related effects as they are in the study area for environmental topic (aspect) 1 and environmental topic (aspect) 2.

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



10.8.2. The study area for each of the individual environmental topics (**Chapter 6** to **Chapter 11**) relevant to this chapter have been informed through desk study and engagement with stakeholders.

Temporal Scope

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

Potential Receptors

10.8.4. 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 and visual amenity, each of which when assessed individually may not be significant, but when assessed in combination the combined effects may be judged to be significant.

10.8.5. Consideration has also been given to the potential for intra-related cumulative effects on other environmental receptors. A review of the respective ES chapters (**Chapter 6** to **Chapter 11**) has been undertaken to identify where one non-human receptor may be affected by more than one environmental effect.

Landscape / Visual and Environment Receptors

10.8.6. Five locations have been considered in two or more of the following chapters/technical reports:

- Chapter 6: Landscape and Visual;
- Chapter 8: Noise and Vibration; and
- Chapter 11: Other Environmental Effects (Glint and Glare).

Human / Residential Receptors

10.8.7. Seven receptor locations have been considered in two or more of the following chapters/technical reports:

- Chapter 6: Landscape and Visual;
- Chapter 8: Noise and Vibration; and
- Chapter 11: Other Environmental Effects (Glint and Glare).

10.8.8. Three receptor locations have been considered in two or more of the following chapters:

- Chapter 7: Biodiversity; and
- Chapter 11: Other Environmental Effects (Hydrology, Hydrogeology and Geology).

10.8.9. All receptors considered in two or more ES chapters are summarised in **Table 10.2.**

Table 10.2 - Common receptors between ES Chapters

Receptor	Landscape and Visual (Chapter 6)	Biodiversity (Chapter 7)	Noise and Vibration (Chapter 8)	Historic Environment (Chapter 9)	Glint and Glare (Chapter 11)	Hydrology, Hydrogeology and Geology (Chapter 11)
Landscape/Visual and Environmental Receptors						
Wales Coast Path	✓	X	✓	X	X	X
Fort Road	✓	X	X	X	✓	X
St Mary's Well Bay Road	✓	X	X	X	✓	X
Lavernock Road (B4267)	✓	X	X	X	✓	X
Cosmeston Active Travel Route	✓	X	X	X	✓	X
Human Receptors[7]						
Sutton Farm, Fort Road	X	X	✓	X	✓	X
Ty'r Orsaf, Fort Road	X	X	✓	X	✓	X
Dros-y-Mor	X	X	✓	X	✓	X

[7] RVAA not yet undertaken – As part of the final ES, the RVAA will be presented and the receptors considered as part of this intra-project cumulative effects assessment.

Receptor	Landscape and Visual (Chapter 6)	Biodiversity (Chapter 7)	Noise and Vibration (Chapter 8)	Historic Environment (Chapter 9)	Glint and Glare (Chapter 11)	Hydrology, Hydrogeology and Geology (Chapter 11)
The Vineyard, Lavernock Road	X	X	✓	X	✓	X
Baruch, Fort Road	X	X	✓	X	✓	X
The Bay Caravan Park	✓	X	✓	X	✓	X
Marconi Holiday Village	✓	X	✓	X	✓	X
Ecological Receptors						
Severn Estuary SAC, SPA and Ramsar Site	X	✓	X	X	X	✓
Cosmeston Lakes	X	✓	X	X	X	✓
Lavernock Point Wildlife Trust Reserve	X	✓	X	X	X	✓

10.8.10. The receptors considered in this assessment are therefore:

Landscape / Visual and Environment Receptors:

- Wales Coast Path
- Fort Road
- St Mary's Well Bay Road
- Lavernock Road (B4267)

Human / Residential Receptors:

- Sutton Farm, Fort Road
- Ty'r Orsaf, Fort Road
- Dros-y-Mor
- The Vineyard, Lavernock Road
- Baruch, Fort Road
- The Bay Caravan Park
- Marconi Holiday Village

Ecological Receptors

- Severn Estuary SAC, SPA and Ramsar Site
- Cosmeston Lakes
- Lavernock Point Wildlife Trust Reserve

Likely Significant Effects

10.8.11. 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 intra-related cumulative effects are likely to arise between topics considered in this ES.

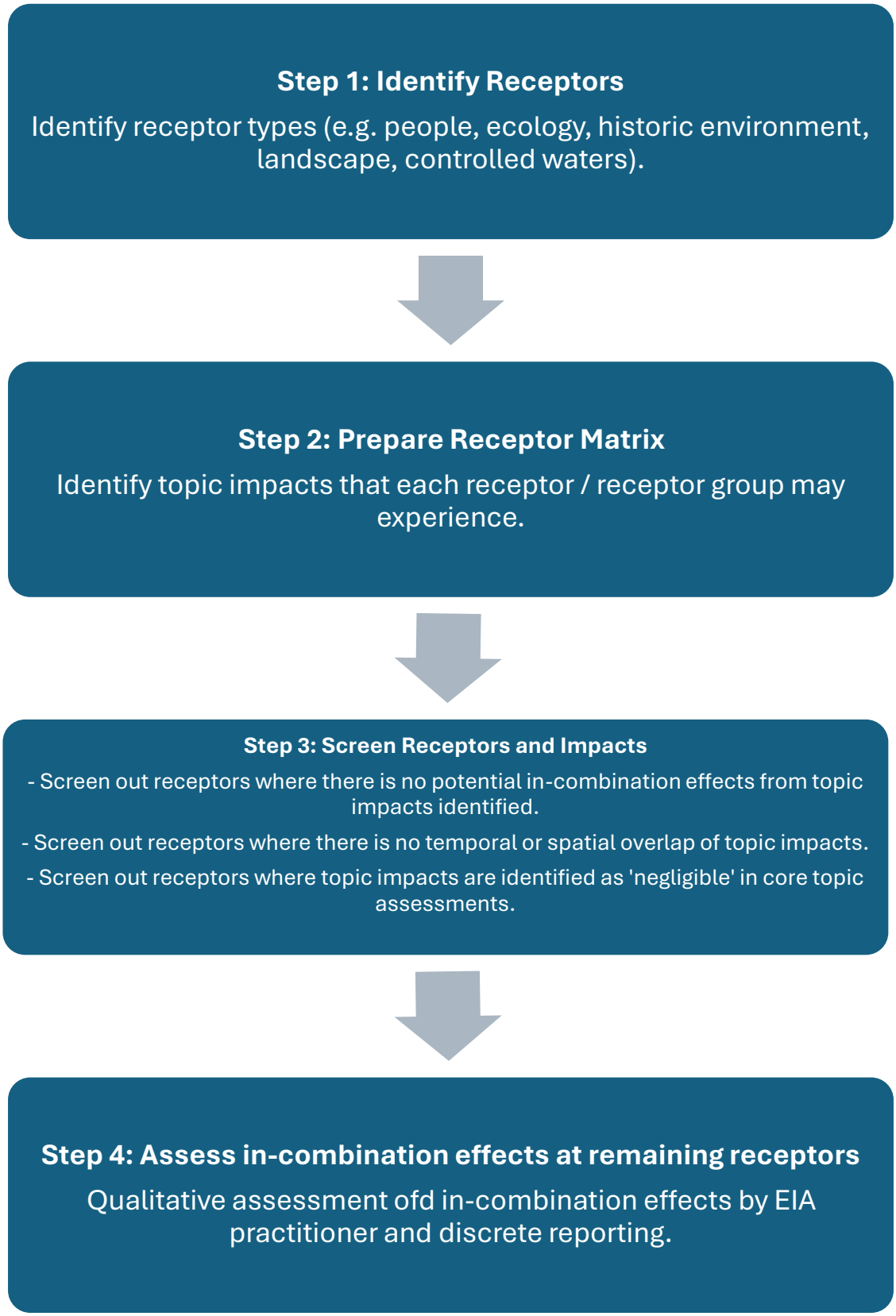
10.9. Assessment Methodology

10.9.1. 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.

10.9.2. There is no established, robust methodology for quantitatively assessing complex cross-topic intra-related effects and assigning a level of significance to them, as methodologies and criteria vary across environmental aspects. Therefore, the assessment of intra-related effects between topics is qualitative, relying on professional judgement as to how individual effects would interact.

10.9.3. The methodology adopted for this assessment is summarised in Figure 2 and is outlined in detail in the remainder of this section.

Figure 2 - Illustrative example of the spatial scope and study area for an example receptor



10.9.4. 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 intra-related effects across the construction, operation and maintenance and decommissioning phases where appropriate.

10.9.5. It should be noted that some elements of the assessment inherently consider intra-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. Where this is the case, this is described within the individual environmental topic chapter.

10.10. Assessment of intra-related effects

Overview

10.10.1. The assessment of intra-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.

10.10.2. **Table 10.3** sets out where significant effects, or effects close to the threshold of significance, have been identified for each common receptor identified in **Table 10.2**.

Table 10.3 - Common receptors and significance of identified effects

Key	Common Receptors		Effects close to significance threshold	◆	Significant effects	◆◆

Receptor	Landscape and Visual (Chapter 6)	Biodiversity (Chapter 7)	Noise and Vibration (Chapter 8)	Historic Environment (Chapter 9)	Glint and Glare (Chapter 11)	Hydrology, Hydrogeology and Geology (Chapter 11)
Landscape/Visual and Environmental Receptors						
Wales Coast Path	◆	X		X	X	X
Fort Road		X	X	X	◆	X
St Mary's Well Bay Road	◆◆	X	X	X		X
Lavernock Road (B4267)		X	X	X		X
Cosmeston Active Travel Route		X	X	X		X
Human Receptors[8]						
Sutton Farm, Fort Road	X	X	◆	X		X
Ty'r Orsaf, Fort Road	X	X	◆	X		X
Dros-y-Mor	X	X		X		X

[8] RVAA not yet undertaken – As part of the final ES, the RVAA will be presented and the receptors considered as part of this intra-project cumulative effects assessment.

Receptor	Landscape and Visual (Chapter 6)	Biodiversity (Chapter 7)	Noise and Vibration (Chapter 8)	Historic Environment (Chapter 9)	Glint and Glare (Chapter 11)	Hydrology, Hydrogeology and Geology (Chapter 11)
The Vineyard, Lavernock Road	X	X		X		X
Baruch, Fort Road	X	X		X		X
The Bay Caravan Park		X	◆	X		X
Marconi Holiday Village		X		X		X
Ecological Receptors						
Severn Estuary SAC, SPA and Ramsar Site	X		X	X	X	
Cosmeston Lakes	X		X	X	X	
Lavernock Point Wildlife Trust Reserve	X		X	X	X	

Assessment

10.10.3. The technical assessments (**Chapters 6-11**) in the ES have identified potential effects on common receptors as a result of the Proposed Development, as summarised in **Table 10.3.** The table shows that zero common receptors are anticipated to experience more than one significant effect or effect close to the threshold of significance.

10.11. Significance conclusion

10.11.1. The assessment of intra-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.

10.11.2. As summarised in **Table 10.3,** no common receptors are anticipated to experience more than one significant effect, or multiple effects which together could result in a significant cumulative effect. It is therefore concluded that no significant intra-related cumulative effects are predicted as a result of the Proposed Development.

10.12. Further work to be undertaken

10.12.1. The assessment of intra-related cumulative effects will be revisited as part of the final ES submission and will take into consideration additional assessments to be undertaken (i.e. RVAA).