



codling
wind park



Environmental Impact Assessment Report

Volume 4

Appendix 22.2
Representative Scenario
and Limits of Deviation
Assessment



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APPENDIX 22.2 REPRESENTATIVE SCENARIO AND LIMITS OF DEVIATION ASSESSMENT

1 Introduction

1. Complex, large-scale infrastructure projects with a terrestrial and marine interface such as the CWP Project, are consented and constructed over extended timeframes. The ability to adapt to changing supply chain, policy or environmental conditions and to make use of the best available information to feed into project design, promotes environmentally sound and sustainable development. This ultimately reduces project development costs and therefore electricity costs for consumers and reduces CO₂ emissions.
2. Case law recognises that the plans and particulars submitted with planning applications can allow for a certain limited flexibility, where this is applied reasonably and, in a context-specific way. In addition, section 287A of the Planning and Development Act (PDA) (as inserted by the Planning and Development, Maritime and Valuation (Amendment) Act 2022) has expanded the flexibility available and allows planning applications to be made and decided before the Applicant has confirmed certain details of the project.
3. Due to the complexity of the Codling Wind Park (CWP) Project, significant and rapid progression in wind farm technology development, potential changes in environmental conditions and in policy and legislation, the Applicant considers that consenting a degree of design flexibility is appropriate and legally compliant.
4. In this regard the approach to the design development of the CWP Project has sought to introduce flexibility where required to enable the best available technology to be constructed, whilst at the same time to specify project boundaries, project components and project parameters wherever possible, whilst having regard to known environmental constraints.

2 Approach to Presenting the Project Design

5. The approach to the design development of the CWP Project considers permanent infrastructure, temporary infrastructure and installation methods.
6. In general, the CWP Project has sought to specify the location, scale and extents of permanent and temporary infrastructure, however in some cases a degree of design flexibility is required. Subject to the detail concerned, this flexibility is presented in three ways:
 - **Options:** Consent is sought for up to two options for certain permanent infrastructure details and layouts, for example, wind turbine generator (WTG) Layout Option A (250 m rotor diameter) or WTG Option B (276 m rotor diameter). Each design option is described in detail in **Chapter 4 Project Description**, which provides the details associated with each option.
 - **Dimensional flexibility:** Dimensional flexibility is described as a limited parameter range i.e. upper (maximum) and lower (minimum) values for a given detail such as cable length.
 - **Locational flexibility:** Locational flexibility of permanent infrastructure is described as Limit of Deviation (LoD) from a specific point or alignment.
7. Installation methods for permanent infrastructure have been identified and described in full, however, as with the design of permanent infrastructure, a degree of flexibility is required as final decisions on

methods and techniques to be employed will not be made until the appointment of the primary contractors closer to the time of construction.

8. Where required, flexibility concerning installation methods is presented by means of options. The details associated with the installation methods are specified, where possible, or otherwise described as a limited parameter range i.e. upper (maximum) and lower (minimum) values for a given detail.

3 Representative Scenario Assessment

9. The CWP Project Environmental Impact Assessment Report (EIAR) will identify, describe and assess all of the likely significant effects of the proposed development on the environment. To achieve this for all options and dimensional flexibility, and at the same time to produce application documents that are concise and readable, each chapter of the EIAR will assess a selection of representative scenarios, rather than assessing every possible scenario. A “representative scenario” is a combination of options and dimensional flexibility that has been selected to represent all of the likely significant effects of the project on the environment. Some topics may require several representative scenarios to be identified to ensure all impacts are identified, described and assessed.
10. For Archaeological, Architectural and Cultural Heritage this analysis for the operation and maintenance (O&M) phase impacts is presented in
11. **Table 1.** This table identifies one or more representative scenarios for each impact with supporting text to demonstrate that no other scenarios would give rise to new or materially different effects; taking into consideration the potential impact of other scenarios on the magnitude of the impact or the sensitivity of the receptor(s) that is being considered.
12. Where the potential for a new or materially different impact is identified, then further representative scenarios must be assessed in full within the main chapter.
13. This is distinct from the approach to assessing locational flexibility, where differences in impacts are assessed in this Appendix. The difference in approaches arises because there is a much higher degree of confidence in the locations and alignments assessed in the main chapter than there is for the final options and dimensions.
14. Overall, this approach will ensure that the EIAR will identify, describe and assess:
 - Every impact type that could arise from the proposed development, taking account of the full range of options and dimensional flexibility;
 - Every materially different magnitude of impact that could arise from the proposed development within the proposed options and dimensional flexibility; and
 - Every materially different sensitivity of receptor that could arise from the proposed development within the proposed options and dimensional flexibility.

Table 1 Representative scenario assessment - operational phase impacts

Impact	Relevant project details			Representative scenario(s) and notes / assumptions	Rationale for representative scenario(s)	
Impact 3: Permanent disturbance to the setting of archaeological and architectural heritage sites directly linked to the coast, within the ZTV from offshore infrastructure (Options A and B). (Note – for all other O&M phase impacts there is one design / operation scenario as presented in EIAR Chapter 22 Archaeological, Architectural and Cultural Heritage)	Generating station Note – includes WTGs, IACs and interconnectors	WTG Option A	WTG Option B		Questions to demonstrate assessment has considered all scenarios	Response
	Permanent infrastructure			This impact relates to permanent disturbance to the setting of archaeological and architectural heritage sites directly linked to the coast, within the ZTV from offshore infrastructure (Options A and B) during the operation and maintenance phase.	1. Are there infrastructure layout options which may introduce new impacts? Note - this could be a new impact entirely or the introduction of an existing impact pathway to a new receptor.	1. N/A - both infrastructure options have been considered. 2. N/A - both infrastructure options have been considered. 3. N/A - both infrastructure options have been considered..
	Number of offshore turbines	75	60			
	WTGs rotor diameter	250	276			
	Hub height (m)	163	176			
	Tip height (m)	288	314			
	Offshore substation structures	WTG Option A	WTG Option B			
	Permanent infrastructure			The potential for both WTG Option A and WTG Option B to impact on individual sites/structures that are intrinsically linked to the coast as identified in the ZTV mapping) has been considered.	2. Are there infrastructure layout options which may introduce a materially different magnitude of impact (greater or lesser)? 3. Are there infrastructure layout options which may introduce a material change in the sensitivity of the receptor(s) (greater or lesser)?	
	Number of OSSs	3				
	Height of Topside above LAT (m)	55				
	Length of Topside (m)	45				
	Width of Topside (m)	35				

4 Limit of Deviation Assessment

15. As described in Section 1 of this document, locational flexibility of permanent and temporary infrastructure is described as a LoD from a specific point or alignment.
16. The project components for which a LoD has been defined are presented in **Table 2**. These are further described in EIAR Chapter 4 Project Description and have been presented on the planning drawings that accompany the planning application.

Table 2 Defined limits of deviation

Project component	LoD
Offshore project components	
WTGs	100 m from the centre point of each WTG location
WTG monopile locations	Same as WTGs
WTG monopile scour protection	Same as WTGs
OSSs	100 m from the centre point of each OSS location
OSS monopile locations	Same as OSSs
OSS monopile scour protection	Same as OSSs
IACs and interconnector cables	100 m either side of the preferred alignment of each IAC and interconnector cable 200 m from the centre point of each WTG location
Offshore export cables	250 m either side of the preferred alignment within the array site. The offshore export cable corridor (OECC) outside of the array site
Landfall	
TJBs	0.5 m either side (i.e. east / west) of the preferred TJB location
Landfall cable ducts (and associated offshore export cables within the ducts)	Defined LoD boundary with 30 – 55 m horizontal width
Intertidal cable ducts (and associated offshore export cables within the ducts)	The OECC
Intertidal offshore export cables (non ducted sections)	The OECC
Onshore substation	
Location of onshore substation revetment perimeter structure	Defined LoD for sheet piling at toe of the revetment with 0.5 – 1.0 m horizontal width

17. For the purposes of the EIAR, the main chapter for Archaeological, Architectural and Cultural Heritage assesses the specific preferred location for permanent infrastructure. However, this document

provides further analysis to determine if the proposed LoD for permanent infrastructure may give rise to any new or materially different effects, taking into consideration the potential impact of the proposed LoD on the magnitude of the impact.

18. For Archaeological, Architectural and Cultural Heritage this analysis for the O&M phase impacts is presented in **Table 3**.
19. Where the potential for a LoD to cause a new or materially different effect is identified, then this is noted in the tables below and is considered in full within the main chapter.

Table 3 Limit of deviation assessment - operational phase impacts

Impact	Relevant project element	Limit of deviation	Questions to demonstrate assessment has considered all scenarios	Response
Impact 3: Permanent disturbance to the setting of archaeological and architectural heritage sites directly linked to the coast, within the ZTV from offshore infrastructure (Options A and B).	Generating station Note – includes WTGs, IACs and interconnectors			
	WTGs	100m from the centre point of each WTG location	1. Does the proposed LoD (locational flexibility) introduce new impacts? (i.e. the introduction of an existing impact pathway to a new receptor). 2. Does the proposed LoD (locational flexibility) introduce a materially different magnitude of impact?	1. No, the implementation of the LoD would not introduce any new impacts that have not already been considered as part of the assessment.
	WTG monopile locations	Same as WTGs.		
	WTG monopile scour protection	Same as WTGs		2. No, the implementation of the LoD does not introduce any impacts that are different in magnitude than those that have already been considered as part of the assessment. This is because the scale of potential variation defined by the relevant LoD are small in comparison to the context and scale of the infrastructure within the setting of archaeological and architectural heritage sites, thus a slight variation in the location of the WTGs and OSSs would not be discernible.
	OSSs	100m from the centre point of each OSS location		
	OSS monopile locations	Same as OSSs.		
	OSS monopile scour protection	Same as OSSs.		