codling wind park

Environmental Impact Assessment Report

Volume 4

Appendix 18.1 Cumulative Effects Assessment


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Abbreviations

Abbreviation	Term in Full
CEA	Cumulative Effects Assessment
CWP	Codling Wind Park
CWPL	The developer, Codling Wind Park Limited
DAS	Dumping at Sea
DPC	Dublin Port Company
EDF	Électricité de France
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
FOS	Fred. Olsen Seawind
IAC	Inter-array cables
MAC	Maritime Area Consent
NISA	The North Irish Sea Array Wind Farm
O&M	Operations & Maintenance
OECC	Offshore Export Cable Corridor
ORESS	Offshore Renewable Electricity Support Scheme
OSS	Offshore Substation Structure
OWF	Offshore Wind Farm
PINS	Planning Inspectorate
SID	Strategic Infrastructure Development
TV	Television
WTG	Wind Turbine Generator

Definitions

Glossary	Meaning
the Applicant	The developer, Codling Wind Park Limited (CWPL).
array site	The red line boundary area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the Offshore Substation Structures (OSSs) are proposed.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure and any associated temporary works.
Codling Wind Park Limited (CWPL)	A joint venture between Fred. Olsen Seawind (FOS) and Électricité de France (EDF) Renewables, established to develop the CWP Project.
decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life.
Environmental Impact Assessment (EIA)	A systematic means of assessing the likely significant effects of a proposed project, undertaken in accordance with the EIA Directive and the relevant Irish legislation.
Environmental Impact Assessment Report (EIAR)	The report prepared by the Applicant to describe the findings of the EIA for the CWP Project.
inter-array cables (IACs)	The subsea electricity cables between each WTG between and the OSSs.
Maritime Area Consent (MAC)	A Maritime Area Consent (MAC) provides State authorisation for a prospective developer to undertake a maritime usage and occupy a specified part of the maritime area. A MAC is required to be in place before planning consent can be sought.
O&M phase	This is the period of time during which the CWP project will be operated and maintained.
offshore development area	The total footprint of the offshore infrastructure and associated temporary works, including the array site and the OECC.
offshore export cable corridor (OECC)	The area between the array site and the landfall, within which the offshore export cables will be installed, along with cable protection and other temporary works for construction.
offshore infrastructure	The permanent offshore infrastructure, comprising of the WTGs, IACs, OSSs, interconnector cables, offshore export cables and other associated infrastructure such as cable and scour protection.
offshore substation structure (OSS)	A fixed structure located within the array site, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
operations and maintenance (O&M) activities	Activities (e.g., monitoring, inspections, reactive repairs, planned maintenance) undertaken during the O&M phase of the CWP Project.

APPENDIX 18.1 CUMULATIVE EFFECTS ASSESSMENT

1 Introduction

1. Codling Wind Park Limited (hereafter 'the Applicant') is proposing to develop the Codling Wind Park (CWP) Project, which is located in the Irish sea approximately 13–22 km off the east coast of Ireland, at County Wicklow.

2. The Environmental Impact Assessment Report (EIAR) for the CWP Project provides the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects resulting from the CWP Project, as required by the European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the EIA Directive). These provisions are transposed into Irish legislation in Part X of the Planning and Development Act 2000, as amended, and in Part 10 of the Planning and Development Regulations 2001, as amended.

3. A fundamental component of the EIA is to consider and assess the potential for cumulative effects of the project with other projects, plans and activities (hereafter referred to as 'other development').

4. The Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022) defines cumulative effects as:

> *'The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.*
>
> *While a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or insignificant), result in a cumulative impact that is collectively significant. For example, effects on traffic due to an individual industrial project may be acceptable; however, it may be necessary to assess the cumulative effects taking account of traffic generated by other permitted or planned projects.'*

5. This appendix presents the findings of the Cumulative Effects Assessment (CEA) for material assets: marine infrastructure, which considers the residual effects presented in **Chapter 18 Material Assets - Marine Infrastructure** alongside the potential effects of other proposed and reasonably foreseeable development. Cumulative effects are considered in this document across the construction and operation and maintenance phases of the CWP Project.

6. The detail and scope of the decommissioning works for the CWP Project will be determined by the relevant legislation and guidance at the time of decommissioning. Project alone impacts during the decommissioning phase of the CWP Project are assessed in **Chapter 18 Material Assets - Marine Infrastructure**. It is anticipated that the impacts will be no greater than those identified for the construction phase, and therefore no separate assessment of cumulative impacts during the decommissioning phase is presented within this CEA.

2 CEA methodology

2.1 Guidance

7. This section summarises the approach to the assessment of cumulative effects for the CWP Project. Further details on the approach to the CEA is provided in **Appendix 5.1 Cumulative Effects Assessment Methodology**.

8. The principal guidance document that has informed the approach to the CEA is the Planning Inspectorate (PINS) for England 'Advice Note 17: Cumulative Effects Assessment' (PINS, 2019), which provides a four-stage process for the assessment of cumulative effects which has been applied here.

9. This guidance has been applied for a number of both offshore wind farm (OWF) and non-OWF projects in the UK and is considered to provide developers with a structured approach to assessing cumulative effects. The guidance is also regularly applied in Ireland for large scale projects, noting that there is no single, industry standard approach to CEA in Ireland which often varies between projects.

10. In developing the CEA methodology, EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022) and Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999) has also been considered.

2.2 Consultation

11. There was no specific feedback received from stakeholder and regulators relevant to the CEA during the consultation processes. All stakeholder and regulator feedback that is relevant to the project alone for material assets: marine infrastructure is described in **Section 18.2** in **Chapter 18 Material Assets - Marine Infrastructure**.

2.3 Identification of 'other development'

12. Stage 1 of the process involved establishing the long list of other developments with the potential to result in cumulative effects with the CWP Project. This included all projects that result in a comparative effect that is not intrinsically considered as part of the existing environment and is not limited to other OWF projects.

13. The long list of other development (presented in EIAR **Chapter 5, Appendix 5.1 Cumulative Effects Assessment Methodology**) was then subject to additional screening criteria to establish a short list of other development for each topic. It should be noted that the approach to the CEA attempts to incorporate an appropriate level of pragmatism. Only projects which are well described and sufficiently advanced, with sufficient detail available with which to undertake a meaningful and robust assessment, have been screened into the CEA.

14. In accordance with PINS Advice Note 17, each development considered alongside the CWP Project as part of the CEA has been assigned to a tier, reflecting their current status in the planning and development process.

15. The purpose of the tiered approach is to give consideration to the level of certainty that a cumulative project will be built and therefore contribute to cumulative effects. For example, there can be greater certainty that other development approved and under construction are likely to contribute to cumulative effects, whereas other development at early phases of development (i.e., pre-planning) are less likely to proceed to construction and contribute to cumulative effects. Furthermore, sufficient detail about these projects is unlikely to be available with which to undertake a detailed cumulative assessment.

16. The proposed tiering structure is presented in **Table 1** and described in more detail in **Appendix 5.1 Cumulative Effects Assessment Methodology**. The tiers are listed in descending order of level of detail likely to be available (and, correspondingly, certainty of effects arising).

Table 1 Tiered structure for other development considered for CEA (modified from PINS Advice Note 17 (PINS, 2019))

Tier	Description
Tier 1	• Under construction; • Permitted applications, but not yet implemented; • Offshore applications submitted six months or more in advance of the CWP Project planning application, but not yet determined; and • Onshore applications submitted six months or more in advance of the CWP Project planning application, but not yet determined.
Tier 2a	• Offshore projects in receipt of a Maritime Area Consent (MAC) and an Offshore Renewable Electricity Support Scheme (ORESS) contract.
Tier 2b	• Offshore projects in receipt of a Maritime Area Consent (MAC); • Offshore Projects in the public domain where an EIA scoping report has been issued; and • Onshore Projects in the public domain where an EIA scoping report has been issued.
Tier 3	• Projects in the public domain where an EIA scoping report has not been issued; or • Projects that have been identified in the relevant development plans and programmes, which set the framework for future development consents / approvals, where such development is reasonably likely to come forward.

3 CEA impact screening

17. The first step in the CEA for material assets: marine infrastructure is the identification of which residual impacts assessed for the CWP Project alone have the potential for a cumulative impact with other development (described as 'impact screening'). This screening exercise is set out in **Table 2** below.

18. Only potential impacts assessed in Chapter 18 Material Assets: Marine Infrastructure as ['not significant'] or above are included in the CEA (i.e., those assessed as 'imperceptible' are not taken forward as there is no potential for them to contribute to a cumulative effect).

Table 2 Impacts relevant to the CEA for material assets: marine infrastructure

Impact	Potential for cumulative effect	Rationale
Construction		
Direct effects on marine infrastructure	Yes	The increased potential for direct and indirect effects on existing marine infrastructure / assets is considered with other projects.
Indirect effects on marine infrastructure	Yes	
Operation & Maintenance		
Direct effects on marine infrastructure	Yes	

Impact	Potential for cumulative effect	Rationale
Indirect effects on marine infrastructure	Yes	The increased potential for direct and indirect effects on existing marine infrastructure / assets is considered with other projects.
Interference with signals to and from existing television (TV) and radio transmitters and receivers	Yes	OWF developments only. The increased number of WTGs in the area provide increased interference opportunities, thus increasing opportunities for disturbance. The potential for interface with signals is therefore considered cumulatively.
Decommissioning		
Direct effects on marine infrastructure	The detail and scope of the decommissioning works for the CWP Project will be determined by the relevant legislation and guidance at the time of decommissioning. Project alone impacts during the decommissioning phase of the CWP Project are assessed in **Chapter 18 Material Assets - Marine Infrastructure**. It is anticipated that the impacts will be no greater than those identified for the construction phase, and therefore no separate assessment of cumulative impacts during the decommissioning phase is presented within this CEA.	
Indirect effects on marine infrastructure		

4 CEA 'other development' screening

19. The second step in the CEA for material assets: marine infrastructure is the identification of the other development that may result in cumulative effects for inclusion in the CEA (described as 'project screening'). This information is set out in **Table 3** below, together with a consideration of the relevant details of each development, including the tier (see **Table 1**), proximity to the CWP Project development area and a rationale for including or excluding from the assessment**.**

20. The other developments included in the table below are taken from the long list of other developments presented in **Appendix 5.1 Cumulative Effects Assessment Methodology**. Information gathering for the other development screened in at Stage 2 of the CEA, along with a greater understanding of the potential effects of the CWP Project, has enabled further refinement of the short list. Effects associated with the other indicated developments will be assessed by using the publicly available data. The assessment assumes similar receptors as recorded for both the CWP Project and Dublin Array baseline as outlined in **Chapter 18 Material Assets - Marine Infrastructure**, the results of which were reflective of the existing knowledge of material assets: marine infrastructure.

21. Modelling was undertaken to identify the greatest extent of potential sediment plumes dispersion, level of dispersion above background levels (mg/l) and accumulated level of deposited material (the modelling is presented in **Appendix 6.3 Marine Geology, Sediments and Coastal Processes Modelling Report**). The modelling identified that the greatest direction and distance of dispersion of disturbed material was 9–10 km to the east (from the point of release). There are no onshore wind development proposals or developments present within 10 km of the landfall locations to be considered within the CEA. Impacts associated with coastal non-wind developments within 10 km of the CWP Project area have been included where relevant, owing to the potential impacts on material assets: marine infrastructure.

22. In summary, the following other developments will be assessed for potential cumulative effects with the CWP Project in relation to material assets: marine infrastructure:

- Sunrise Offshore Wind Farm – Site Investigations (CEA-2744);
- Banba Wind Offshore Wind Farm – Site Investigations (CEA-2746);
- Dublin City Council – Environmental survey and ground investigation (CEA-2996);
- Wicklow Sea Offshore Wind Farm – Site Investigations (CEA-2747);
- RWE Renewables – Dublin Array OWF (CEA-0037Off);
- Sure Partners Limited / SSE Renewables – Arklow Bank Phase 2 OWF (CEA-0004);
- Malahide Marina Village Ltd – Dredge Disposal (CEA-0138);
- Wicklow County Council – Wicklow Port Dredging (CEA-1355);
- Eirgrid plc – East-West Interconnector (CEA-0196);
- Kish Offshore Wind Limited & Bray Offshore Wind Limited – ORE O&M Base (CEA-2979);
- Hibernian Wind Power – Kilmichael Point (CEA-2756);
- Dún Laoghaire Harbour Company now Dún Laoghaire-Rathdown County Council (DLRCC) – Mooring Maintenance (CEA-0198);
- Dublin Port Company (DPC) – Site Investigations (CEA-2727);
- DPC – Dredge Disposal (CEA-0206 – CEA-0210);
- MaresConnect Electricity Interconnector – Site Investigation (CEA-1359);
- DPC – Maintenance Dredging in Dublin Port (CEA-0191);
- DPC – MP2 Project (CEA-1323);
- DPC – MP2 Jetty development (CEA-1328);
- DPC – 3FM Project (CEA-1348);
- DPC – Alexandra Basin Redevelopment (CEA-0203);
- Dublin City Council – Grand Canal Storm Water Outfall Extension (CEA-1329);
- Statkraft Ireland – North Irish Sea Array OWF (CEA-0094);
- America Europe Connect Ltd – CeltixConnect 2 (CEA-0195);
- Rockabill Cable Systems Ltd – Rockabill Subsea Cable (CEA-2732);
- SSE Renewables – Braymore Wind Park now Setanta Wind Park – Geophysical, Geotechnical and Environmental Site Investigation (CEA-2742);
- Codling Wind Park Limited – Site Investigations (CEA-2748);
- Sure Partners Limited – Arklow Bank Wind Park – Survey (CEA-2752);
- Sure Partners Limited – Arklow Bank Wind Park Phase 2 – Site Investigations (CEA-2753);
- Statkraft Ireland – North Irish Sea Array – Site investigations for Export Cable Route (CEA-2751); and
- MaresConnect Electricity Interconnector – Site Investigation (CEA-2749).

Table 3 Summary of other developments screened into the CEA for material assets: marine infrastructure

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
Sunrise Offshore Wind Farm Site Investigations (CEA-2744)	0	2	1	No	The development is in the early planning stage. Inadequate information is available for appropriate screening into the CEA.
Banba Wind Offshore Wind Farm Site Investigations (CEA-2746)	0	0	1	No	The development is in the early planning stage. Inadequate information is available for appropriate screening into the CEA.
Dublin City Council – Environmental survey and ground investigation (CEA-2996)	1.5	35	1	No	The application is yet to be assessed. Inadequate information is available for appropriate screening into the CEA.
Wicklow Sea Offshore Wind Farm Site Investigations (CEA-2747)	2	11	1	No	The development is in the early planning stage. Inadequate information is available for appropriate screening into the CEA.
RWE Renewables – Dublin Array OWF (CEA-0037)	2.781	2	2a	Yes	The Dublin Array OWF development is north of the array site and within the study area for the CWP Project development. The material assets: marine infrastructure baseline conditions identified for the CWP Project study area as outlined in **Chapter 18 Material Assets - Marine Infrastructure** is assumed the same or similar for Dublin Array

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
					development. The Dublin Array Scoping Report (SLR Consulting Ireland and GoBe Consultants Ltd, 2020) details a desk-based review of the baseline environment for 'offshore infrastructure (material assets) and other marine users' for the Dublin Array development, and as such cumulative effects can be assessed.
Sure Partners Limited / SSE Renewables – Arklow Bank Phase 2 OWF (CEA-0004Off)	9.788	9.9	2b	Yes	The Arklow Bank Phase 2 OWF development is south of the CWP Project with a spatial overlap of both study areas. The Arklow Bank Wind Park 2 EIA Scoping Report (GoBe Consultants Ltd, 2023) details a desk-based review of the baseline environment for 'infrastructure and other users (material assets)' for Arklow Bank Phase 2 development, and as such cumulative effects can be assessed.
Malahide Marina Village Ltd – Dredge disposal (CEA-0138)	12	12	1	Yes	The Malahide Marine Water Injection Dredging development is north of the CWP Project development, it involves the disposal of 99,000 tonnes over a period of 7 years. The EPA Dumping at Sea (DAS) permit (Ref: S0031-01) was issued on 4 January 2019. The Foreshore licence application (Ref: FS006731) was submitted in 2018 with no marine infrastructure information; in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
Wicklow County Council – Wicklow Port Dredging (CEA-1355)	12.9	14.2	1	Yes	The Foreshore licence application (Ref: FS007583) was submitted in 2023 with no marine infrastructure information; in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
Eirgrid Plc – East-West	22	20	1	No	The Project construction phase is complete, the cable is not anticipated to interact with the CWP Project during operation.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
Interconnector (CEA-0196)					
Kish Offshore Wind Limited & Bray Offshore Wind Limited – ORE O&M Base (CEA-2979)	23	1	3	No	The development is assessed as part of RWE Renewables – Dublin Array OWF (CEA-0037), and inadequate information is available for more detailed screening.
Hibernian Wind Power – Kilmichael Point (CEA-2756)	25	34.5	1	No	The development is in the early planning stage. Inadequate information is available for appropriate screening into the CEA.
Dún Laoghaire Harbour Company now Dún Laoghaire-Rathdown County Council (DLRCC) – Mooring Maintenance (CEA-0198)	25.5	1.6	1	No	No construction works associated with the development are anticipated to impact on marine infrastructure.
Dublin Port Company (DPC) Site Investigations (CEA-2727)	29	0.2	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
DPC – Dredge Disposal (CEA-0206–CEA-0210)	30	0.5	1	Yes	The development is assessed as part of Dublin Port Company – Maintenance Dredging in Dublin Port.
MaresConnect Electricity Interconnector Site Investigation (CEA-1359)	30	9.5	3	No	The development is in the early planning stage. Inadequate information is available for appropriate screening into the CEA.
DPC Maintenance Dredging in Dublin Port (CEA-0191)	31.6	0.35	1	Yes	DPC need to carry out regular maintenance dredging of the navigation channel, basins and berthing pockets in order to maintain their advertised charted depths and hence provide safe navigation for vessels to and from the port. Maintenance dredging campaigns are required approximately every 18 months but may need to be carried out more regularly as a result of extreme weather events causing excessive siltation in the channel. Foreshore application in respect of maintenance dredging at various locations in Dublin Port for the years 2022 to 2029. The Foreshore licence application (Ref: FS007132) was submitted in 2021 with no marine infrastructure information; in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative assessment. as per CEA, will be undertaken due to the proximity of the development and similarity of effects.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
DPC – MP2 Project (CEA-1323)	31.6	0	1	Yes	The MP2 Project is the second major capital development project from Dublin Port's Masterplan 2040, for a 15-year permission for phased development works within existing port lands in the north eastern part of the port estate. The Foreshore licence application (Ref: FS006893) was submitted in 2020 with no marine infrastructure information; in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
DPC – MP2: Jetty development (CEA-1328)	32.1	4	1	Yes	The DPC MP2 Jetty development involves the construction of a new Ro-Ro Jetty (Berth 53), the reorientation of the already consented Berth 52, the lengthening of Berth 50A, the redevelopment of Oil Berth 3, the construction of passenger terminal buildings and a heritage zone, dredging and ancillary site works. The MP2 Jetty development is located within the study area for the CWP Project. No information on offshore marine infrastructure was submitted as part of the EIA for the planning application (RPS, 2020). However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
DPC – 3FM Project (CEA-1348)	32.6	0	1	Yes	DPC has already secured development permission for two existing Masterplan Projects – the Alexandra Basin Redevelopment (ABR) Project in 2015 and the Masterplan 2 (MP2) Project in 2020. The DPC 3FM project is the third and final Strategic Infrastructure Development (SID needed to complete the development of Dublin Port and bring it to its ultimate and final capacity by 2040.The 3FM project

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
					is needed to deliver the capacity objectives of the Dublin Port Masterplan 2040. The project is intended to provide the additional infrastructure for freight required in the unitised modes (Roll-on / roll-off (Ro-Ro) and Lift-on / lift-off (Lo-Lo)). Key components of this project will include: • Southern port access road (SPAR); • Ro-Ro terminal; • Waterside turning circle; • Container terminal; • Provision for utilities; and • Maritime village. No information on offshore marine infrastructure was available as part of the public pre-application consultation process (DPC, 2023). However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
DPC – Alexandra Basin Redevelopment (CEA-0203)	34	0	1	Yes	This application is for DPC maintenance dredging requirements to be carried out in 2020 and 2021. The Foreshore licence application (Ref: FS006980) was submitted in 2019 with no marine infrastructure information; in the absence of data the cumulative effects cannot be quantitatively assessed. However, a non-quantitative assessment, as per CEA, will be undertaken due to the proximity of the development and similarity of effects.
Dublin City Council – Grand Canal	34.2	1.7	1	Yes	The Grand Canal Storm Water Outfall Extension development involves the construction of pipework, transition chambers, floating platforms

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
Storm Water Outfall Extension (CEA-1329)					and new outfall structure to the River Liffey, including all ancillary site works. The Grand Canal Storm Water Outfall Extension EIAR (Barry & Partners, 2022) details a desk-based review of the baseline environment for 'material assets' for the development, and as such cumulative effects can be assessed.
Statkraft Ireland – North Irish Sea Array OFW (CEA-0094)	40.78	23	2a	Yes	The North Irish Sea Array Wind Farm (NISA) is an offshore wind energy project being proposed off the coast of counties Dublin, Meath and Louth. The proposed NISA offshore development area covers an area of over 226.9 km^2. The development area spans 31 km north-south and 14 km east-west at its widest point. At its closest location, near Rush in Co. Dublin, the extent of the site boundary is 7.3 km from land. The northeast corner of the development site lies directly on the 12 nm foreshore area limit. The EIA Scoping Report (Arup, 2021) identified 'Infrastructure and Other Users' baseline for the development, and as such cumulative effects can be assessed.
America Europe Connect Ltd – CeltixConnect 2 (CEA-0195)	41	10	1	No	The Project construction phase is complete, the cable is not anticipated to interact with the CWP Project during operation.
Rockabill Cable Systems Ltd – Rockabill Subsea Cable (CEA-2732)	42	17	1	No	The Project construction phase is complete, the cable is not anticipated to interact with the CWP Project during operation.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
SSE Renewables – Braymore Wind Park now Setanta Wind Park Geophysical, Geotechnical and Environmental Site Investigation (CEA-2742)	53	27	3	No	The site investigation campaigns are not expected to impact on the marine infrastructure.
Codling Wind Park Limited – Site Investigations (CEA-2748)	0	0	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.
Sure Partners Limited – Arklow Bank Wind Park – Survey (CEA-2752)	9	17	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.
Sure Partners Limited – Arklow Bank Wind Park Phase 2 – Site Investigations (CEA-2753)	9	17	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.
Statkraft North Irish Sea Array (NISA) Site Investigations	45	27	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.

Development	Distance from the array site (km)	Distance from the export cable corridor	Tier	Included in the CEA (Yes / No)	Rationale
for Export Cable Route (CEA-2751)					
MaresConnect Electricity Interconnector Site Investigation (CEA-2749)	30	9.5	1	No	The site investigation campaigns are not expected to impact on the marine infrastructure.

5 Assessment of cumulative effects

23. The potential for cumulative effects of the CWP Project for all impacts (discussed below) has been considered with the following other developments, as follows:

- Dublin Array OWF (CEA-0037);
- Arklow Bank Phase 2 OWF (CEA-0004Off);
- Malahide Marina Village Ltd – Dredge Disposal (CEA-0138);
- Wicklow Port – Dredging (CEA-1355);
- DPC – Maintenance Dredging / Alexandra Basin Redevelopment (CEA-0206–CEA-0210, CEA-0203 & CEA-0191);
- DPC – MP2 Project / MP2: Jetty Development (CEA-1323 & CEA-1328);
- Dublin Port Company – 3FM Project (CEA-1348);
- Dublin City Council – Grand Canal Storm Water Outfall Extension (CEA-1329); and
- North Irish Sea Array OWF (CEA-0094).

5.1 Construction phase

5.1.1 Cumulative Impact 1: Direct effects on marine infrastructure

24. It is recognised that in addition to the CWP Project, other projects and activities included for assessment of cumulative impacts, particularly other offshore wind farms, could result in additional direct effects on marine infrastructure.

25. For Tier 1 projects, the construction of the CWP Project has the potential to result in damage to existing cable infrastructure where these occur within the offshore export cable corridor (OECC) and array site, as a result of cable snagging during seabed preparation or installation works. It is also possible for the routing of the OECC to compromise maintenance access for the owner or operator if the OECC routing ran parallel or near-parallel to an existing operational cable, but the OECC was designed to avoid this and to approach existing cables from a perpendicular direction. Also, it should be noted, that the same factors and obligations with regards to marine infrastructure applied to the CWP Project would also apply to other projects / activities. As such, there are anticipated to be no significant cumulative effects with CWP Project cumulatively with Tier 1 projects.

26. For Tier 2a and 2b projects, most of the infrastructure that CWP Project could affect are too far from the above other developments to be directly affected, and as such there will be no cumulative effects in the majority of cases. Where there is infrastructure that may be affected by cumulative direct effects, it is expected that other developments are applying similar or equivalent mitigations in order to reduce potential for direct effects as far as reasonably practicable. The likelihood of damage to any given cable as a direct result of the CWP Project is low as it has been designed to limit the potential for interactions with existing cables (please refer to **Chapter 4 Project Description** for more details). With mitigation, the risk of direct damage from the project alone was considered imperceptible, and the risk posed by other projects is expected to be equivalent.

27. As described in the impact assessment section (**Section 18.10**) of **Chapter 18 Material Assets - Marine Infrastructure**, the sensitivity for subsea utilities (cables and pipelines) and other infrastructure is high. The cumulative magnitude of impact has been assessed as low; hence, the cumulative effect of direct effects is **Moderate**, and therefore, not significant. The cumulative risk for Tier 2a and Tier 2b projects is considered as remaining **Moderate** during the construction phase; the same conclusion being drawn for Tier 1, Tier 2a, and Tier 2b combined.

28. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP Project cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b and Tier 3 combined.

5.1.2 Cumulative Impact 2: Indirect effects on marine infrastructure

29. There could be potential for construction activities at the CWP Project and other projects, particularly other offshore wind farms, to result in additional indirect effects on marine infrastructure, namely increases in suspended sediment concentration (SSC). Sediment plume modelling suggests no increases in SSC extending beyond 9–10 km (see **Appendix 6.3 Marine Geology, Sediments and Coastal Processes Modelling Report**) from CWP Project activities. As such, there is no potential for cumulative effects from increased SSC beyond this distance.

30. For Tier 1 projects in the area of effect, the duration of any impact is short (no more than three years in duration), and elevated levels of SSC and associated deposition will not persist for this entire period, instead acting as discreet events throughout the construction phase. It is recognised that some areas may see repeated increases in SSC and deposition within the construction period. In the context of installed infrastructure or other ongoing activities, the levels of deposition predicted are negligible and will not affect in any way the operability of any other activity or infrastructure. As such, there are anticipated to be no significant cumulative effects between CWP Project and Tier 1 projects.

31. As the activities planned for the CWP Project are typical of offshore wind farm installation, it is expected that other Tier 2a and 2b projects, such as Dublin Array and Arklow Bank 2, will have comparable levels of impact which are highly unlikely to reach levels that would affect in any way the operability of any other activity or infrastructure. As such, there are anticipated to be no significant cumulative effects between CWP Project and Tier 1, 2a and 2b projects.

32. As described in the impact assessment section of the CWP Project, the sensitivity for cables / pipelines, power plants' discharge channel, oil and gas exploration areas and marine aggregate / disposal areas receptors is low. Primary mitigation measures will apply to avoid or otherwise reduce adverse impacts on existing marine infrastructure, and it is expected that other projects will also apply similar or comparable measures to reduce impacts where relevant and reasonably practicable. The magnitude of impact is therefore negligible for all receptors; and the cumulative direct effects are **Imperceptible**, and therefore not significant.

33. There are no Tier 3 project of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects between CWP Project and Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b and Tier 3 combined.

5.2 Operation and maintenance

5.2.1 Cumulative Impact 1: Direct effects on marine infrastructure

34. It is recognised that in addition to the CWP Project, other projects and activities included for assessment of cumulative impacts, particularly other offshore wind farms within Tier 2a and Tier 2b, could result in additional direct effects on marine infrastructure. The O&M activities (such as repair work) during the O&M phase of the CWP Project have the potential to result in damage to existing cable infrastructure where these occur within the CWP Project, as a result of cable snagging during repair works, or through increased vessel traffic. Also, it should be noted that the same factors and

obligations with regards to marine infrastructure applied to the CWP Project would also apply to other projects / activities.

35. The cumulative effect during operation and maintenance of the projects in the vicinity of the CWP Project on this impact is expected to be lower than that presented during construction, due to an extent limited by physical presence of infrastructure, and management measures will have been established and adjusted to during the construction phase.

36. The sensitivity of receptors is considered to be consistent with that assessed during construction and is high for the subsea utilities (cables and pipelines) and other infrastructure receptors. The magnitude has been assessed as low. Therefore, the significance of effect from the direct effects on marine infrastructure from the O&M of the CWP Project cumulatively with the other projects in the vicinity is **Moderate** for the respective receptors, which is not significant.

37. As such, it is concluded that for the CWP Project and Tier 1 projects, the direct effects on marine infrastructure will be not significant. The same conclusion is drawn for the CWP Project and Tier 1 projects combined with Tier 2a and Tier 2b projects. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects of CWP Project cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b and Tier 3 combined.

5.2.2 Cumulative Impact 2: Indirect effects on marine infrastructure

38. There could be potential for O&M activities at the CWP Project and other projects, particularly other offshore wind farms within Tier 2a and Tier 2b, to result in additional indirect effects on marine infrastructure. The O&M activities (such as repair work) during the O&M phase of the CWP Project has the potential to result in indirect effects on marine infrastructure, through the increase in suspended sediment concentrations resulting in associated deposition.

39. Whilst the relative increase in the marine infrastructure resulting from the CWP Project in conjunction with other projects is recognised, indirect effects are expected to be lesser in magnitude than that described for construction activities, due to the reduced scale of seabed works during the O&M phase. Therefore, with the appropriate adherence to the primary mitigation measures that would also apply to other wind farm projects, the magnitude of the effect is considered to be low.

40. As discussed in the construction phase, the sensitivity to interference is considered to be low for cables / pipelines, oil and gas exploration areas and marine aggregate / disposal areas receptors. This, in combination with the negligible magnitude of the effect, results in a cumulative impact of **Imperceptible** adverse significance.

41. As such, it is concluded that for the CWP Project and Tier 1 projects, the indirect effects on marine infrastructure will be not significant. The same conclusion is drawn for the CWP Project and Tier 1 projects combined with Tier 2a and Tier 2b projects. There are no Tier 3 projects of relevance, or for which there is adequate information to undertake a meaningful assessment. As such, there are anticipated to be no significant cumulative effects with CWP cumulatively with Tier 3 projects; the same conclusion being drawn for Tier 1, Tier 2a, Tier 2b and Tier 3 combined.

5.2.3 Cumulative Impact 3: Interference of television and radio reception

42. The magnitude of this impact arising from the CWP Project has been assessed as nil (no impact). Therefore, the significance of effect from the operation of the CWP Project cumulatively with the other projects in the vicinity is **Nil** for the respective receptors, which is not significant.

6 CEA summary

43. This CEA, which supports **Chapter 18 Material Assets - Marine Infrastructure**, has assessed the potential cumulative effects on marine infrastructure from the construction and operation and maintenance phases of the CWP Project alongside other developments.

44. In summary, the CEA for material assets: marine infrastructure does not identify any significant cumulative effects resulting from the CWP Project alongside other developments.

7 References

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50. European Commission (2014). Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

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