



codling
wind park



Cumulative Effects Assessment (CEA) Report

Part 1

Introduction and Methodology



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Abbreviations

Abbreviation	Term in Full
AA	Appropriate Assessment
CEA	Cumulative Effects Assessment
CEFA	Centre for Environment, Fisheries and Aquaculture Science
CES	Crown Estate Scotland
CIA	Cumulative Impact Assessment
CWP	Codling Wind Park
CGNS	Celtic & Greater North Seas
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
GIS	Geographic Information System
HWM	High Water Mark
ICES	International Council for the Exploration of the Sea
JNCC	Joint Nature Conservation Committee
MAC	Maritime Area Consent
MAP	Maritime Area Planning
MHW	Mean high water
MMMU	Marine Mammal Management Unit
NSIP	Nationally Significant Infrastructure Projects
NPF	National Planning Framework
NIS	Natura Impact Statement
NMPF	National Marine Planning Framework
NSTA	North Sea Transition Authority
OTI	Onshore Transmission Works
OWF	Offshore wind farm
PINS	Planning Inspectorate
TCE	The Crown Estate
UKHO	UK Hydrographic Office
ZoI	Zone of influence
ZTV	Zone of theoretical visibility

1 INTRODUCTION

1.1 Background

1. Codling Wind Park Ltd., a joint venture project between EDF Renewables and Fred. Olsen Seawind, is proposing to develop the Codling Wind Park (CWP) Project, a proposed offshore wind farm (OWF) located in the Irish Sea approximately 13–22 km off the east coast of Ireland, at County Wicklow.
2. On Friday 6th September 2024 Codling Wind Park Ltd. (referred to hereafter as the 'Applicant') applied for planning permission to An Bord Pleanála (now An Coimisiún Pleanála (and referred to hereafter as the Commission)) under Section 291 of the Planning and Development Act 2000, as amended, for the construction, operation and decommissioning of the CWP Project. Lodgement of the planning application initiated an eight week consultation period, formally commencing 23rd September 2024 and ending 18th November 2024. During this period the planning application, including the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS), were made available for inspection by the general public.
3. On 1st August 2025, having reviewed the application documentation, including the EIAR, Appropriate Assessment (AA) Screening Report and the NIS, the Commission issued a Further Information Request (FIR) in relation to the CWP Project.
4. In Item 5 of the FIR, the Commission requested the submission of a revised and standalone cumulative assessment:

'The Commission notes that cumulative assessment is addressed under each topic specific chapter in the EIAR, as well as in an appendix to each topic-specific chapter and Appendix 5.1.

The Marine Institute in their observation raises concerns in relation to the cumulative effects assessment noting that holistic integrated assessments are required at a site, regional and ecosystem level, and that monitoring for realised impacts should be available for incorporation into future cumulative impact assessments. The Commission notes the cumulative assessment details that have been submitted and that the approach adopted has been informed by 2019 UK guidance which was in place at the time of lodgement of the current application. The applicant is advised that the UK guidance has been updated, namely Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK, September 2024 (NSIP, 2024).

The applicant is requested to revise the submitted cumulative assessment in line with NSIP (2024) and submit a standalone document to clearly demonstrate the CEA conclusions. In the interests of consistency and transparency, the applicant is requested to complete the assessment in accordance with the templates provided in the NSIP (2024), namely "Appendix 1: Matrix 1 – Identification of 'other development' for CEA" and "Appendix 2: Matrix 1 – Assessment matrix" (see attached Appendix B).

This assessment should include each of the Irish Sea Phase 1 ORE Projects, namely (Oriel WF (ABP-319799-24), Arklow WF (ABP-319864-24), North Irish Sea Array (ABP-319866-24), and Dublin Array WF (ABP-321992-25), as well as the Dublin Port 3FM project and all other relevant projects in the International Council for the Exploration of the Sea (ICES) Celtic Sea and Greater North Sea ecoregions, regardless of project type. It is further requested that the applicant confirm that the now published documentation pertaining to the Irish Sea Phase 1 ORE projects, which have all been submitted to the Commission for planning consent since this application was submitted, have been fully incorporated into the cumulative effects assessment.

In accordance with the NSIP (2024) tiered approach, it is requested that the subject proposal and each of the Irish Sea Phase 1 ORE projects and the Dublin Port 3FM project be classified under Tier 1 (“Other existing and, or approved development submitted applications under the Planning Acts or other regimes but not yet determined”). The applicant is requested to update the application documentation, where relevant.

In the interests of comprehensiveness and for ease of reference, the applicant is strongly encouraged to liaise with the other Irish Sea Phase 1 ORE Project applicants and Dublin Port in the preparation of the above assessment and drafting of the tables attached in Appendix B.’

1.2 Purpose of this document

5. This document responds to Item 5 of the Commission’s FIR by providing a revised, standalone **Cumulative Effects Assessment (CEA) Report** for the CWP Project.
6. The structure of the **CEA Report** is outlined in **Table 1-1** below, including confirmation of the EIAR documents that are superseded by this report.

Table 1-1 Structure of the CEA Report

CEA Report	Content	Supersedes
Part 1 (this document)	Section 1: Introduction to the CEA with details on relevant legislation and guidance Section 2: CEA methodology and approach	EIAR Volume 4, Appendix 5.1 Cumulative Effects Assessment Methodology
Part 2	Sections 3 - 16: CEAs for offshore topics (Chapters 6 to 18 of the EIAR / EIAR Addendum)	EIAR Volume 4, Appendix 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1, 13.1, 14.1, 15.1, 16.1, 17.1 and 18.1
Part 3	Sections 19 - 32: CEAs for onshore topics (Chapters 19 to 32 of the EIAR / EIAR Addendum)	EIAR Volume 4, Appendix 19.1, 20.1, 21.1, 22.1, 23.1, 24.1, 25.1, 26.1, 27.1, 29.1 and 31.1

7. The **CEA Report** presents cumulative assessments for each of the EIA topics, and it has been developed in accordance with the guidance on Nationally Significant Infrastructure Projects (NSIP): Advice on Cumulative Effects Assessment (Planning Inspectorate (PINS), 2024), hereafter referred to as the ‘PINS CEA Guidance (2024)’.
8. In summary, this document (Part 1):
 - Identifies the key legislation, policy and guidance relevant to cumulative assessment, with reference to the latest updates in guidance and approaches;
 - Details relevant consultation that has informed the scope of and approach to the CEA; and
 - Provides details on the methodology for the CEA and explains the stages of the CEA process. This includes the approach to developing the long and short list of other development that have been considered within the CEA and presented in **Appendix 1**.
9. Part 2 and Part 3 of the **CEA Report** detail the cumulative assessments undertaken for each of the EIA topics. Project alone residual effects are assessed alongside the effects of the other development, confirmed in the final short lists. Proposed mitigation measures needed to address significant cumulative effects are also identified.

10. It should be noted that an in-combination assessment has been undertaken as part of the **Appropriate Assessment Screening** and **Natura Impact Statement (NIS)**, comprising the examination of possible effects on Natura 2000 sites from the CWP Project alone and in-combination with other plans and projects. There are elements of the approach to CEA that are mirrored by the in-combination assessment for the NIS process, but there are also some differences, including the screening impact ranges that are applied for certain receptors.
11. **Volume 6, In-combination Assessment** of the NIS details the methodology that has been applied for the in-combination assessment, supported by the **NIS Addendum** prepared in response to the Commission's FIR. More specifically:
 - NIS Addendum Volume 2 - SAC In-combination Assessment; and
 - NIS Addendum Volume 3 - SPA In-combination Assessment.

1.3 Legislation, Policy and Guidance

1.3.1 Legislation and Policy

12. The EIAR has been prepared to comply with the requirements of the EIA Directive. In relation to the assessment of cumulative effects, Annex IV of the EIA Directive specifies that a description of the likely significant effects of a project on the environment should be provided, including an assessment of:

“...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;...”
13. The assessment of cumulative effects between projects is a key consideration that is referenced within each of the key national policy documents relevant to the CWP Project. This includes the National Planning Framework (NPF) (Government of Ireland, 2018),¹ the National Marine Planning Framework (NMPF) (Government of Ireland, 2021) and the Offshore Renewable Energy Development Plan (DECC, 2014).
14. For example, in relation to air quality, the NMPF states that proposals ‘must demonstrate that they have considered the interaction between sectors, particularly in relation to indirect and cumulative consequences on air pollution’.
15. Further detail where relevant is provided in EIAR, **Volume 3, Chapter 2 Policy and Legislative Context** and within each of the topic specific EIAR chapters.

1.3.2 Guidance

16. The Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (DCCAE and SEAI, 2017) references a number of principles to evaluate cumulative effects, which are taken from the Guiding Principles for Cumulative Impact Assessments in Offshore Wind Farms, (Renewable UK, 2013). These principles are presented in **Table 1-2** with a description on how these have been considered in the CEA methodology for the CWP Project.

¹ On 20 June 2023, Government gave approval to commence the process of undertaking the First Revision of the NPF. This revision process is ongoing with consultation expected in summer 2024.

Table 1-2 Principles for the CEA (Renewable UK, 2013)

Principles of Cumulative Effects Assessment	How these principles have been addressed
A clear and transparent collaborative approach should be established between stakeholders.	Each topic specific section of the CEA (Part 2 and Part 3 of the CEA Report) provides a summary of the key issues raised and responded to during the stakeholder consultation process relevant to the CEA.
Clearly identified spatial and temporal boundaries should be linked to the baseline.	Topic-specific screening ranges have been applied in the CEA (see Table 2-5), which correspond to the maximum extent of effects for a given topic / receptor. These screening ranges have been applied to establish a shortlist of other development for each topic to ensure that the CEA is proportionate. The CEA methodology (see Section 2) also considers the potential for temporal overlap between effects.
A realistic project design envelope should be used.	The project design approach for the CWP Project is described in EIAR Volume 3, Chapter 4 Project Description. Publicly available project design information associated with other development has also been used to inform each stage of the CEA.
Other plans (e.g. development plans, local area plans, marine spatial planning (MSP) plans, grid plans) or projects (e.g. those with consent) on which there is sufficient information should be referenced.	The approach to establishing the relevant other development(s) is set out within Section 2 .
Share information between projects.	The Applicant has undertaken extensive engagement with other projects to better understand the potential for cumulative effects. More detail on engagement relevant to the cumulative effects is provided within each topic specific section of the CEA (Part 2 and Part 3 of the CEA Report).
Assessments should be proportionate to risks; they should focus on key effects and receptors, and/or sensitive pressures emanating from the project (e.g. pressure/effect linkages with birds, European sites and visual/landscape effects)	A proportionate approach has been adopted whereby project/plan screening is undertaken using precautionary effect-receptor pathways to identify projects/plans that may result in cumulative impacts on the same receptor(s). Projects/plans are then considered in a manner which is proportionate to the level of confidence in the given project/plan – where certainty and available information is robust a full assessment is carried out, where certainty that the project/plan may come forward is low a proportionate level of assessment is undertaken. The first step in the CEA for each topic is the identification of which residual impacts assessed for the CWP Project alone have the potential for a cumulative impact with other development.

Principles of Cumulative Effects Assessment	How these principles have been addressed
Mitigation and monitoring plans should be informed by the assessment of cumulative effects.	Mitigation and monitoring requirements for each topic are also presented, taking into account the significance of any cumulative effects.

17. The principal guidance document that has informed the approach to the updated CEA is the PINS CEA Guidance (2024) which provides guidance on a staged process that can be used for CEAs for NSIPs, as defined by the UK Planning Act 2008. The guidance document supersedes the PINS 'Advice Note 17: Cumulative Effects Assessment' (PINS, 2019) which was used as the principal guidance document for the planning application CEA.
18. The PINS CEA Guidance (2024) (and its predecessor) has been applied for a number of OWF and non-OWF projects in the UK and provides developer 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. In adopting this approach, it allows a comparable cross jurisdictional approach from which to understand better the potential cumulative effects.
19. In developing the CEA methodology, the Environmental Protection Area (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) have also been considered.

1.4 Consultation

20. Consultation with statutory and non-statutory organisations is a key part of the EIA process. A summary of consultation is presented in the **Schedule of Pre-Application Consultations** (see **Planning Documents** submitted with the planning application in September 2024). The key elements included EIA scoping, consultation events and ongoing topic specific meetings with key stakeholders.
21. **Appendix B Schedule of Post Application Consultations** of the **FIR Response Document** provides an overview of consultation undertaken by the Applicant since the CWP Project planning application was submitted to inform the FIR response.
22. The CEA for each EIA topic (**Part 2** and **Part 3** of the **CEA Report**) provides a summary of the key issues raised and responded to during the stakeholder consultation process relevant to the CEA.

2 CEA METHODOLOGY

2.1 Overview

23. The 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*” and specifies the need to consider cumulative effects within the EIAR. However, the guidance document does not provide a process for identifying other development which may lead to cumulative effects.
24. To support the identification of developments, the PINS CEA Guidance (2024) has therefore been used as it details a four-step process for the identification of other relevant projects and the assessment of cumulative effects. **Table 2-1** summarises the stages and activities involved in the CEA process based on the guidance.

Table 2-1 Stages and activities involved in the CEA process (PINS CEA Guidance (2024))

CEA Stage	Description
Stage 1: Establishing the long list of other development	In order to establish the relevant other development(s) the applicant should determine a precautionary Zone of Influence (Zol) for each environmental aspect considered within the EIAR. The Zol analysis, supported by Geographic Information System (GIS) software, is documented (i.e. table of topics and Zols) and presented as part of the CEA. PINS CEA Guidance (2024) provides a template (Matrix 1 of Appendix 1) to document this information. The long list of other developments is established from a desk study of relevant data sources, including local planning authority websites, development plan documents and other relevant online sources to identify other developments within the Zol. The availability of information necessary to conduct the CEA will depend on the current status of the other development. The applicant should clearly state any assumptions or limitations in relation to the data collected. It is recommended that tiers are used to assign a level of certainty to the other development, reflecting the availability of detail and information available for the assessment.
Stage 2: Establish the topic specific short lists of other development	Following Stage 1, applicants should apply threshold criteria to the long list in order to establish a shortlist of other development and to ensure that the CEA is proportionate. The criteria should ensure that only other development which is likely to result in a significant cumulative effect is taken forward to the assessment stage.
Stage 3: Information gathering	Stage 3 of the CEA process requires the applicant to gather information on each of the ‘other development’ shortlisted at Stage 2. The information captured should include but not be limited to: - Proposed design and location information; - Proposed programme of construction, operation and decommissioning; and - Environmental assessments that set out baseline data and effects arising from the other development.

CEA Stage	Description
Stage 4: Assessment	The applicant should assess the cumulative effects of the proposed project with the other development identified in Stages 1-3 of the process outlined above. The assessment should be undertaken to an appropriate level of detail, commensurate with the information available at the time of assessment. Information on some proposals may be limited, and such gaps should be acknowledged within the assessment. The assessment will move from a more qualitative to a more quantitative assessment as the availability and/or certainty of information increases. Any uncertainty in the assessments should be clearly documented.

25. The following sections set out the CWP Project approach to completing Stages 1 to 3 of the PINS CEA Guidance (2024), including the development of the long list, tiering of projects and the development of the topic-specific short lists.

2.2 Stage 1: Establishing the long list of other development

2.2.1 Background

26. The long list of other developments has been established from a desk study of relevant data sources, including local planning authority websites, development plan documents and other relevant online sources to identify other developments within the ZOI for each environmental aspect considered within the EIAR.
27. As requested in Item 5 of the Commission's FIR, Matrix 1 from the PINS CEA Guidance (2024) has been used as a template to develop the long list of other development, applying a systematic approach to the identification of other development for inclusion in the CEA. The CEA long list of other development(s), both onshore and offshore, is presented in **Appendix 1**.
28. The long list for the purposes of the **CEA Report** was established following receipt of the Commission's FIR on 1st August 2025. This involved updating the original long list for the planning application CEA to account for the time that had elapsed since the long list for the planning application CEA was established.
29. It should be noted that the desk study to inform the long list of other development was completed on 11th November 2025. It is necessary to have a cut off point for this exercise to allow time for the CEA shortlists to be established and assessments to be undertaken and finalised prior to submission. This is acknowledged in the latest PINS CEA Guidance (2024) and was discussed and agreed at a meeting between ACP and the Applicant on 5th November 2025.
30. The following sections define the search area extents that have been applied in developing the longlist of other development for both offshore and onshore development. A rationale for the long list search area extents for offshore and onshore developments is provided in **Section 2.2.2** and **Section 2.2.3**, respectively.
31. The criteria for other offshore development (below Mean High Water (MHW)) and other onshore development (above MHW) are defined separately. This relates to the potential for much wider impact ranges in the marine environment, however it is important to note that for each EIA topic (EIAR **Volume 3, Chapters 6 - 32**) the CEA will consider the potential for cumulative effects with all other development included in the long list, above and below MHW. This is to ensure that potential cumulative effects

from other onshore development to offshore receptors (such as ornithological receptors) are identified and assessed. Likewise, onshore receptors (such as residential receptors) potentially effected by onshore infrastructure may also experience effects from other offshore development (i.e. visual effects from other offshore renewable energy developments).

32. Planning consents granted within the last five years, or applications that have been made and have yet to be determined have been considered. Relevant unimplemented developments with permissions greater than ten years have also been considered.

2.2.2 Offshore development

33. For other development seaward of MHW, the long list has been produced based on the extent of three different ecosystem boundaries, which were used as the basis of the search areas for different types of offshore development. These were selected based on the Zols for each offshore EIA topic, to ensure consistency across topics and to reflect established marine ecological and management frameworks. These search areas are listed below (in ascending order of size) and illustrated in **Plate 1**.

- International Council for the Exploration of the Sea (ICES) Ecoregion subsection 7a;
- ICES Ecoregion section Celtic Sea (which incorporates 7a); and
- Joint Nature Conservation Committee (JNCC) Celtic & Greater North Seas (CGNS) Marine Mammal Management Unit (MMMU).

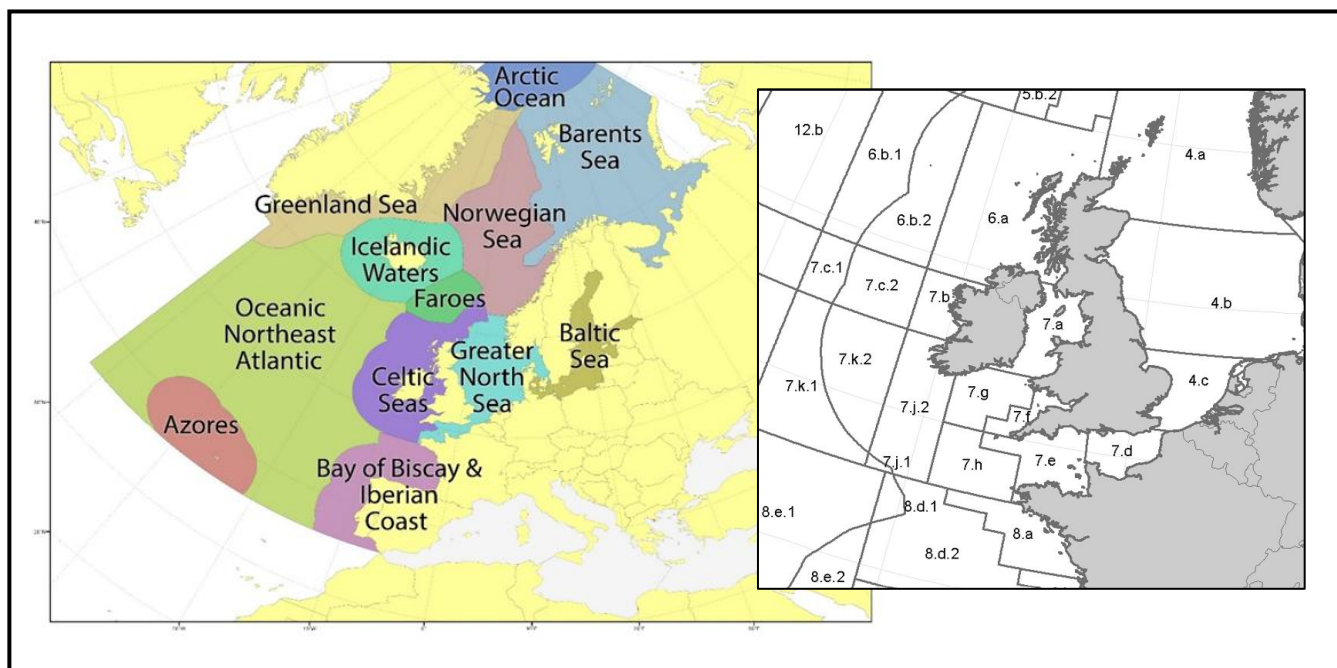


Plate 1 CEA long list search areas

34. Within the long list (**Appendix 1**), offshore projects, plans and activities have been split into the following types or sectors:
- Offshore Wind;
 - Other Offshore Energy;
 - Aggregates;
 - O&G Infrastructure,

- O&G Pipelines;
- Subsea Cables;
- Disposal;
- Dumping at Sea
- Carbon Capture and Storage
- Shipping and Ports
- Aquaculture;
- Coastal Assets
- Survey; and
- Future Leasing Round or Plans.

35. The CEA long list has been developed based on consideration of the scale of the projects, plans and activities, and the potential for them to give rise to cumulative effects with the CWP Project.
36. Following an initial screening process using the topic specific Zols, it was identified that the only type or sector with potential for cumulative impacts out with the ICES Ecoregion section Celtic Sea was Offshore Wind. As such, the long list for Offshore Wind extends to the boundaries of the JNCC CGNS MMMU. For other types or sectors, the boundaries of the ICES Ecoregion subsection 7a or ICES Ecoregion section Celtic Sea (which incorporates 7a) were used to as boundaries for the search.
37. This reflects the anticipated scale of impacts associated with each project type / sector, and the likelihood of these project types interacting with EIA receptors that are also affected by the CWP Project. Projects that did not fall within the three search areas (**Plate 1**) were not considered further.
38. Due to the nature of the CWP Project, the projects, plans and activities identified are predominately marine projects that are present beyond the High Water Mark (HWM), where there is the potential for them to impact on marine receptors. However, as noted in the section above, the CEAs for offshore EIA topics will consider the potential for cumulative effects with all other development included in the long list, including coastal assets such as Dublin Port 3FM Project.
39. Projects, plans and activities were identified through a GIS study of the data sources set out in **Table 2-2** and a desktop study of the data sources set out in **Table 2-3**.

Table 2-2 GIS data sources used to establish the CEA long list

Type of Developments	GIS Data Source
Aggregate Production Areas	The Crown Estate (TCE)
Disposal Sites	Centre for Environment, Fisheries and Aquaculture Science (Cefas)
Dumping at Sea Boundaries	EPA
Carbon Capture and Storage (CCS) Areas	TCE
O&G Surface Features	North Sea Transition Authority (NSTA)
O&G Subsurface Features	NSTA
O&G Pipelines	NSTA
Ports	World Ports Index (WPI)
Subsea Cables	Kingfisher Information Service – Offshore and Renewable Cable Awareness project (KIS-ORCA) / GoBe Compiled Dataset
Offshore Wave Site Agreements	TCE / Crown Estate Scotland (CES)

Offshore Tidal Site Agreements	TCE / CES
Offshore Wind Farms (OWFs)	TCE / CES / European Marine Observation and Data Network (EMODnet) / Irish OWFs digitised (4C Offshore)
Shipping	UK Hydrographic Office (UKHO)
Aquaculture	Department of Agriculture, Food and the Marine
Recreation – Water sports	Marine Irish Digital Atlas

Table 2-3 Desktop online information sources used to establish the CEA long list

Type of Developments	Online Information Source	Author
Aggregate Production Area	Irish Sea Marine Aggregates Initiative - Dataset - data.gov.uk	Marine Institute
	https://epawebapp.epa.ie/terminalfour/DaS/index.jsp	EPA
	https://gis.epa.ie/EPAMaps/AAGeoTool	EPA
Dumping at Sea	https://epawebapp.epa.ie/terminalfour/DaS/index.jsp	EPA
Disposal Sites	https://gis.epa.ie/EPAMaps/	EPA
	https://marinescotland.atkinsgeospatial.com/nmpi/	Marine Scotland
Carbon Areas	https://opendata-thecrownestate.opendata.arcgis.com/	TCE
	https://infrastructure.planninginspectorate.gov.uk/	UK Planning Inspectorate Website
	https://www.ccstlm.com/site/system/resources/interfaces/The East Irish Sea CCS Cluster Summary Brochure2728.pdf?id=16	Eunomia Research & Consulting Ltd
O&G	https://www.gov.ie/en/publication/10d43-acreage-reports-and-concession-maps/#2022	Irish Government
	https://www.arcgis.com/apps/webappviewer/index.html?id=cb3474a78df24139b1651908ff8c8975	NSTA
	https://www.gov.ie/en/policy-information/bf1b50-oil-and-gas-exploration-and-production/	Irish Government
	https://www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines	UK Government
	https://www.gov.ie/en/foreshore-notice/	Irish Government
	https://marinescotland.atkinsgeospatial.com/nmpi/	Marine Scotland
Subsea Cables	https://kis-orca.org/map/	KIS-ORCA
	https://www.gov.ie/en/foreshore-notice/	Irish Government
	https://www.submarinecablemap.com/	TeleGeography

Type of Developments	Online Information Source	Author
	https://www.maritimeregulator.ie/	Maritime Area Regulatory Authority (MARA)
OWFs	https://www.gov.ie/en/collection/f2196-foreshore-applications-and-determinations/	Irish Government
	https://tethys.pnnl.gov/	Tethys (Pacific Northwest National Laboratory (PNNL))
	https://www.4coffshore.com/windfarms/ireland/	4C Offshore
	https://kis-orca.org/map/	KIS-ORCA
	https://www.maritimeregulator.ie/	MARA
	Individual project websites	Variable
Other Offshore Energy	https://tethys.pnnl.gov/	
	https://www.maritimeregulator.ie/	MARA
	Individual project websites	Variable
Aquaculture	https://www.gov.ie/en/collection/d8ea9-aquacultureforeshore-licence-applications	Irish Government
	https://www.gov.ie/en/collection/794ef-marine-finish-licences/	Irish Government
	https://www.gov.ie/en/collection/ae2ab-shellfish-licences/	Irish Government
	https://www.maritimeregulator.ie/	MARA
Coastal Assets	https://www.gov.ie/en/collection/f2196-foreshoreapplications-and-determinations/	Irish Government
	https://myplan.ie/national-planning-application-mapviewer/	Department of Housing, Local Government and Heritage (DHLGH)
	DHLGH website – Foreshore Applications	DHLGH
	Individual county council application websites	Variable
	https://www.pleanala.ie/en-ie/case-search	ACP
	https://www.water.ie/projects/	Irish Water
	https://www.housing.gov.ie/planning/environmentalassessment/environmental-impact-assessmenteia/eia-portal	DHLGH
	https://data.gov.ie/dataset/national-planningapplications	DHLGH
	Marine Licence applications for England, Wales and Scotland	Marine Management Organisation (England), Natural

Type of Developments	Online Information Source	Author
		Resources Wales and Marine Directorate (Scotland)
Surveys	https://www.maritimeregulator.ie/applications/	MARA
Planning Applications	https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1	DHLGH
	https://www.water.ie/projects/?map=our-projects&id=884	Irish Water
	https://www.pleanala.ie/en-ie/map-search	ACP
	County council maps	Variable

2.2.3 Onshore development

40. For other development landward of HWM, the long list has been produced based on a 2 km buffer (search area) from the onshore development area, which corresponds to the maximum anticipated Zol for the onshore transmission infrastructure (OTI). This Zol relates to the maximum distance over which the onshore substation may theoretically be visible with other developments, and therefore the distance over which cumulative effects could occur.
41. This buffer takes account of the findings from the planning application CEA, specifically **EIAR Volume 4, Appendix 23.1 Cumulative Effects Assessment** (now superseded by **CEA Report Part 3**), which concluded that developments involving construction beyond 1 km of the onshore development area would have limited potential for significant cumulative effects due to the surrounding built form in the wider Dublin Area. On this basis, the original 5 km long list search area has been reduced to 2 km.
42. The 2 km buffer was applied to identify other onshore development with the potential to produce cumulative effects with the CWP Project across the full range of EIA topics. Individual topics use refined ranges depending on topic specific criteria at Stage 2.
43. Other development within the 2 km search area have been identified through a desktop study using the following data sources:
 - Dublin City Council Planning Portal;
 - An Bord Pleanála Planning Portal;
 - EIA Portal²;
 - National Planning Application Database; and
 - Developer and project proponent websites.
44. The types of onshore development considered for the above-mentioned search area are listed below.
 - Onshore energy generation infrastructure;
 - Waste development;
 - Building and/or housing developments, where the number of houses to be provided is ten or more, including all development of multi-storey apartment blocks;

² The EIA Portal is an online map-based website that provides users with access to applications for development consent accompanied by an Environmental Impact Assessment Report made since 16 May 2017
<https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1>

- Other development, including the provision of a building or buildings where the floor space to be created by the development is 1,000 m² or more;
- Installation or upgrade of roads and / or railways; and
- Installation or upgrade of cables and pipelines (onshore).

2.2.4 Tiered Approach

45. In accordance with PINS CEA Guidance (2024), each development in the long list of projects has been assigned to a tier, reflecting their current status in the planning and development process.
46. The tiering structure is described in **Table 2-4**. The tiers are listed in descending order of level of detail available (and, correspondingly, certainty of effects arising).
47. In line with PINS CEA Guidance (2024), an assessment is provided for all Tier 1 and Tier 2 other development, where sufficient information exists within the public domain to undertake a meaningful assessment. For other development falling into Tier 1 and 2 the Applicant has undertaken quantitative assessment where possible and a semi-quantitative/qualitative assessment where adequate information to undertake a meaningful quantitative assessment is not available.
48. As highlighted in **Table 2-4**, each of the Irish Sea Phase 1 OWF Projects and the Dublin Port 3FM project are classified under Tier 1, as requested in item 5 of the Commission's FIR.
49. For other development falling into Tier 3, the Applicant has undertaken a qualitative assessment where sufficient information exists, although this is inherently at a very high level due to the uncertainty in the proposed development and the likely low confidence in the information available.

Table 2-4 Tiered structure for developments considered for CEA (modified from PINS CEA Guidance (2024))

Tier	Description
Tier 1	• Constructed projects with a continuing effect • Projects under construction. • Permitted applications but not yet implemented. • Offshore applications submitted six months or more in advance of the CWP Project submission of further information but not yet determined. This includes the other Phase 1 Projects. • Onshore applications submitted six months or more in advance of the CWP Project submission of further information but not yet determined. This includes the DPC 3FM Project.
Tier 2	• Offshore projects in receipt of a Maritime Area Consent (MAC). • Offshore projects in the public domain where an EIA scoping report has been issued. • 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. • 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.

2.3 Stage 2: Establishing the topic specific short lists

50. As set out in PINS CEA Guidance (2024), the criteria used to determine whether to include or exclude a development from further assessment should address the following:
- Temporal scope: The applicant may wish to consider the relative construction, operation and decommissioning programmes of the development identified in the long list, together with the relevant project programme, to establish whether there is overlap and any potential for interaction.
 - Location, scale and nature of development: The applicant may wish to consider whether the scale and nature of the development identified in the long list are likely to interact with the proposed project.
 - Other factors: The applicant should consider whether there are any other factors, such as the nature and/ or capacity of the receiving environment that would make a significant cumulative effect with more or less likely and may consider utilising a source-pathway receptor approach to inform the assessment.
51. It is important to note that professional judgement may also be used to supplement the threshold criteria in order to include or exclude development from the short list, as is commonly applied to major developments in Ireland and in the UK.
52. Taking the above guidance into consideration, the following steps of the source-pathway receptor approach (adapted from GoBe, 2022) were applied to identify a short list of development for each EIA topic:

Step 1 - Is the other development part of the existing baseline environment?

- Yes – screened out.
 - Yes, and has an ongoing effect – proceed to Step 2.
 - No – proceed to Step 2.
53. For the purposes of Stage 2 screening within the CEA process for the CWP Project, all projects, plans and activities that were built and operational at the time of the CWP Project data collection (field surveys etc.) have been screened out of the CEA. This is because the effects of these projects have already been captured within the site-specific surveys and/or desk based data collection, and hence their effects have already been accounted for within the baseline assessment. The exclusion of built and operational projects that were in place at the time of data collection/survey in this way avoids the double counting that would occur if projects were to be included within both the baseline and the CEA.
54. The exception to this is where projects have an ongoing impact, and this is addressed by the screening criterion 'part of the baseline but has an ongoing impact' (see **Appendix 1**).

Step 2 – Is there sufficient data available to undertake a meaningful assessment, either quantitatively or qualitatively?

- No – Very limited data are available for the project in question but on the basis of the data available no likely potential for significant cumulative effects (screened out).
 - No - Project in question is at an early stage and will be subject to detailed future assessment that will take account of the CWP Project (screened out).
 - Yes – proceed to Step 3.
55. In line with the RenewableUK Cumulative Impact Assessment (CIA) Guidelines for offshore wind farms (RenewableUK 2013), 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 included in the CEA.

Step 3 – Is there potential for physical overlap between effects?

- No – Screened out.
- Yes – proceed to Step 4.

56. The ability for impacts arising from the CWP Project to overlap with those from other projects, plans and activities has been assessed on a receptor basis for each topic. This means that, in most examples, an overlap of the physical extents of the impacts arising from the two (or more) projects, plans and activities must be established for a cumulative impact to arise. For example, for a cumulative sedimentation impact to be established between the CWP Project and another project, it must be established that the extent of sediment release from both projects has the potential to overlap and may affect a receptor at a single physical place.
57. Exceptions to this exist for certain mobile receptors that may move between, and be subject to, two or more separate physical extents of impact from two or more projects. For example, marine mammals may be affected by noise impacts from the CWP Project, as well as those from other projects where noise impact extents do not directly overlap with those from the CWP Project. Furthermore, individual receptors from the same population may be subject to physically separate impacts occurring at the same time while the population is separated, leading to an effect upon the population as a whole. Where relevant, these potential eventualities have been noted in the relevant sections of the **CEA Report**.
58. To inform this part of the screening process, the topic-specific impact screening ranges presented in **Table 2-5** have been applied to the long list of projects.

Table 2-5 Topic-specific screening ranges applied to the long list of projects

EIA Topic	Screening range	Rationale
Marine Geology, Sediments and Coastal Processes	30 km from the array site and offshore export cable corridor (OECC).	Based on the tidal excursion distance during the spring tidal phase, which is 15 km. This distance is derived from the analysis of data which has been produced by the modelling performed to date. This value is doubled to establish a screening range to identify other developments to be screened into the CEA short list.
Marine Water Quality	40 km from the array site and OECC.	Increases in suspended sediment concentration (SSC) has the largest Zol for potential impacts from the array site and OECC, which has been determined by physical processes assessment presented in the Marine Geology, Sediments and Coastal Processes (MGSCP) Chapter of the EIAR. Maximum extent of effect for MGSCP has been identified

EIA Topic	Screening range	Rationale
		through site specific modelling and reference to other project modelling to establish a screening range to identify other developments to be screened into the CEA shortlist.
Subtidal and Intertidal Ecology	48 km from the array site and OECC.	Increases in SSC has the largest Zol for potential impacts from the array site and OECC, which has been determined by the physical processes assessment. Maximum extent of effect for MGSCP has been identified through site specific modelling and reference to other project modelling to establish a screening range to identify other developments to be screened into the CEA shortlist.
Fish, Shellfish and Turtle Ecology	54 km from the array site, or for piling induced underwater noise impacts, all other projects which may undertake piling within the National Study Area (ICES division 27.7.a).	Noise from pile driving has the largest zone of effect of the potential impacts from the array site on fish, shellfish and turtle ecology from OWFs.
	30 km from the array site and OECC.	Increases in SSC has the largest Zol for potential impacts from the array site and OECC, which has been determined by physical processes modelling. Maximum extent of effect for MGSCP is defined as one tidal excursion ellipse (15 km), doubled to establish a screening range to identify other developments to be screened into the CEA shortlist.
Ornithology	For offshore ornithological receptors 509 km from the array site. For intertidal receptors within the South Dublin Bay Area the Zol was defined as within the South Dublin Bay part of the South Dublin Bay and River Tolka Estuary SPA.	The offshore ornithological receptors the Zol was defined as the area encompassed by the maximum of the mean-max foraging range (plus one standard deviation) of all receptors considered within CEA. For the key offshore ornithology receptors considered in CEA gannet has the largest foraging range at 509 km (Woodward et al., 2019) and thus this distance was used to define the Zol for all receptors.

EIA Topic	Screening range	Rationale
	For the terrestrial and estuarine / Liffey receptors, maximum disturbance distance of 300 m	For the terrestrial and estuarine / Liffey receptors, the Zol was defined based on a precautionary maximum disturbance distance of 300 m as outlined by Cutts et al. (2013)
Marine Mammals	Offshore wind farms: Entire species management unit. All other offshore projects: OSPAR Region III: Celtic Seas	Noise from pile driving has the largest Zol for potential impacts on marine mammals from OWFs. The Zol has been identified through site specific modelling and reference to other project modelling, and reference to 26 km which is the recommended effective deterrence range for pile driving (monopiles; JNCC, 2020). Due to the mobile nature of marine mammals, and in order to take a precautionary approach to assessment, other development has been considered at a management unit scale which ensures all potential contemporary sources of noise at a management unit level are considered.
Commercial Fisheries	181 km from the array site and 190 km from the OECC.	Dependent on the receptor in question (whelks and crab & lobster fisheries), in line with the minimum distance from the furthest landing port (Helvick) in the Irish Sea area.
Offshore Bats	All offshore windfarms between Ireland and Wales Other developments within 10 km of the CWP Project development (including cable route)	While all offshore windfarms between Ireland and Wales have been included within the assessment, other developments have been included within 10 km of the CWP Project development (including cable route) due to the low potential for impacts on offshore bat species (this includes all aquaculture proposals).
Marine Archaeology & Cultural Heritage	2 km based on expert opinion	Screening range will be dependent on the archaeological receptor in question. Assessment work ongoing to establish maximum extent of effect.

EIA Topic	Screening range	Rationale
Seascape, Landscape and Visual Impacts	50 km from the array site	Based on the maximum extent of the array site Zone of theoretical visibility (ZTV).
Shipping and Navigation	50 nautical miles (nm)	Local routing is currently largely defined by the shallow banks within the 10nm study area defined for the Navigation Risk Assessment. However, a wider threshold is necessary for cumulative routing impacts noting that offshore structures further afield could result in vessels shifting where they transit relative to the local area and its navigational features. The 50 NM radius fulfils this, noting it is a standard value for cumulative shipping and navigation assessment screening.
Aviation, Military and Radar	N/A	Any potential effects to aviation and radar receptors are considered to be localised to within the footprint of the CWP Project array site.
Material Assets: Marine Infrastructure	30 km from the array site and OECC.	Increases in SSC has the largest Zol for potential impacts from the array site and OECC, which has been determined by physical processes modelling. Maximum extent of effect for MGSCP is defined as one tidal excursion ellipse (15 km), doubled to establish a screening range to identify other developments to be screened into the CEA shortlist.
Land Soils and Geology	2 km from the onshore development area boundary	Screening range aligned with Institute of Geologists Ireland (IGI) guidelines (IGI 2013) & relates to consideration of baseline conditions & appropriate study areas.
Hydrology and Hydrogeology	2 km from the onshore development area boundary	Screening range aligned with IGI guidelines & relates to consideration of baseline conditions & appropriate study areas.
Onshore Biodiversity	350 m from the onshore development area boundary	Based on the impact range for air quality effects.
Onshore Archaeological, Architectural and Cultural Heritage	500 m from the onshore development area boundary	Screening range aligned with study area for the onshore assessment. At distances beyond 500 m from the onshore transmission

EIA Topic	Screening range	Rationale
		infrastructure (OTI) works, no significant cumulative effects are expected to occur.
Landscape and Visual Impacts	5 km from the onshore development area boundary	Based on the maximum extent of the onshore substation ZTV.
Noise and Vibration	250 m from the onshore development area boundary	At distances beyond 250 m from the OTI works, construction noise levels are expected to be in line with or below ambient noise levels. Therefore no significant cumulative effects are expected to occur beyond this distance.
Air Quality	350 m from the onshore development area boundary	It is considered that any effects from the CWP Project beyond this distance would be imperceptible and therefore no significant cumulative effects are expected to occur beyond this distance.
Material Assets - Built Services	50 m from the onshore development area boundary	Any potential effects to material assets are considered to be localised to within the footprint of the CWP Project and would only act cumulatively with other development in close proximity (i.e. <50 m from the OTI works)
Traffic and Transport	2 km from the onshore development area boundary	Based on the traffic and transport study area and the proposed access routes identified within this.
Climate	N/A	The greenhouse gas assessment is inherently cumulative as it compares anticipated project emissions to national targets.
Population and Human Health	OTI impacts: 500 m from the onshore development area boundary	For the OTI, the potential effects on population relate to how the local community and local population may be affected. It is considered that any negative effects would be limited to the closest human receptors (i.e. <500 m from the OTI works).
	Array site impacts: 500 m + elevated viewing points/walking trails which are within the ZTV but further than 500m from the coastline.	For offshore infrastructure, it is considered that impacts on local population could only be felt where the communities could visually see the WTGs. The ZTV defines this area, however the CEA screening range is refined further to 500m from the coastline as it is

EIA Topic	Screening range	Rationale
		considered that any views of the WTGs beyond this distance are unlikely to affect a person's enjoyment of an amenity or tourist attraction. The exception would be elevated viewing points or walking trails where a person's view of the seascape could be affected by the WTGs.
Waste & Resource Management	N/A	The assessment will be informed with regional data on waste. The applicable region is the Eastern Midlands Waste Region (EMWR).

59. It should be noted that the topic specific screening ranges presented in **Table 2-5** represent the maximum extent of effects for the CWP Project, which does not account for differences in effect ranges for different environmental receptors. This is considered within the CEA for each EIA topic (**Part 2** and **Part 3** of the **CEA Report**).

Step 4 – Is there potential for temporal overlap between effects?

- No – Screened out; and
 - Yes – Screened into topic specific short list.
60. In order for a cumulative effect to arise from two or more projects, a temporal overlap of impacts arising from each must be established. Some impacts are active only during certain phases of development, such as piling noise during construction. Such a consideration is particularly important for receptors such as marine mammals, where the overlap of impacts during construction, such as noise from the piling activities of several large offshore developments, may be important. The anticipated construction, operational and decommissioning periods for projects, plans and activities within the CEA long list have been obtained from publicly available planning documents (e.g. Scoping Reports, EIARs etc.). The details provided represent the current understanding of programmes of development though it is recognised that these programmes may be subject to change.

Construction programme assumptions for other Phase 1 Project

61. In relation to Step 4 above, the Applicant notes that the construction programme for the CWP Project has been updated to reflect the anticipated delay to the start of construction as a result of the Commission's FIR and other relevant factors. The updated programme has been accounted for in the Applicant's CEA, in particular the consideration of temporal overlap for construction phase effects at Stage 2 screening.
62. At the time of undertaking the CEA the published construction programmes for each of the Irish Sea Phase 1 OWF Projects were reviewed, however it was noted that the published programmes did not account for similar delays as a result of similar FIRs issued to these projects by the Commission.
63. Therefore, for the purposes of updating the CEAs in line with Commission's FIR, the Applicant has adopted the following precautionary assumptions regarding potential offshore construction phase overlap between the CWP Project and the other east coast Phase 1 Projects:

- A 12-month delay to the published construction programmes is assumed for all other Phase 1 Projects;
- There is potential for offshore construction phase overlap between CWP, Arklow, Dublin Array and NISA;
- The offshore construction phases for CWP and Oriel will not overlap; and
- The CWP Project will complete offshore piling concurrently with Dublin Array only.

Table 2-6 Construction programme assumptions for the Phase 1 OWF Project.

Key: Planning (orange), Construction (light blue), Operation (dark blue)

	2026	2027	2028	2029	2030	2031	2032	2033	2034
CWP					Onshore	Offshore Piling	Off- & onshore	Off- & onshore	
Arklow				Offshore Piling					
NISA				Offshore Piling					
Oriel			Offshore Piling						
Dublin Array					Offshore Piling	Offshore Piling	Offshore Piling		

2.4 Stages 3 and 4: Information Gathering and Assessment

64. Following on from Stage 2 of the CEA, information gathering (Stage 3) has been undertaken for other development screened into the CEA.
65. Information gathered at Stage 3 is primarily desk-based and draws on publicly available sources, including planning applications and consent documentation, EIARs, monitoring reports, project websites and relevant regulatory or industry datasets. Where appropriate, professional judgement has been applied by topic specialists to interpret available information in the context of potential cumulative interactions.
66. This information has been used to inform the CEA for each topic (Stage 4), presented in **Part 2** and **Part 3** of the **CEA Report**. These assessments have been undertaken by the technical specialists responsible for the primary assessment of the CWP Project.

APPENDIX 1 CEA LONG LIST AND SCREENING MATRICES

Table 1 Project Phases Key

	Not yet/no longer operational
	Abandoned/Not in use
	Construction
	Operation and Maintenance/Active
	Decommissioning
	Unknown/Not defined as of 18th November 2024

Table 1 Long list screening criteria

a	Included as part of the topic baseline and hence not considered within the cumulative impact assessment: Screened out of the assessment.
b	Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment: Screened into the assessment.
c	Potential cumulative impact exists: Screened into the assessment.
d	No temporal overlap, nor potential for sequential cumulative effect: Screened out of the assessment.
e	No physical effect-receptor overlap: Screened out of the assessment.
f	Low data confidence: Screened out of the assessment.
g	No effect- no receptor pathway: Screened out of the assessment.

[illegible]

Offshore Cumulative Effects Assessment Matrix - Aquaculture - ICES Ecoregion section Celtic Sea

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Offshore Cumulative Effects Assessment Matrix - Oil and Gas Surface and Subsurface Infrastructure - IC23 Evaluation sub-section 7a

Other Development Details										Phases of Other Developments in relation to the construction phase of the Proposed Development (identified in red)														Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Stage 15	Stage 16	Stage 17	Stage 18	Stage 19	Stage 20	Stage 21	Stage 22	Stage 23	Stage 24	Stage 25	Stage 26	Stage 27	Stage 28	Stage 29	Stage 30	Stage 31	Stage 32	Stage 33	Stage 34	Stage 35	Stage 36	Stage 37	Stage 38	Stage 39	Stage 40	Stage 41	Stage 42	Stage 43	Stage 44	Stage 45	Stage 46	Stage 47	Stage 48	Stage 49	Stage 50	Stage 51	Stage 52	Stage 53	Stage 54	Stage 55	Stage 56	Stage 57	Stage 58	Stage 59	Stage 60	Stage 61	Stage 62	Stage 63	Stage 64	Stage 65	Stage 66	Stage 67	Stage 68	Stage 69	Stage 70	Stage 71	Stage 72	Stage 73	Stage 74	Stage 75	Stage 76	Stage 77	Stage 78	Stage 79	Stage 80	Stage 81	Stage 82	Stage 83	Stage 84	Stage 85	Stage 86	Stage 87	Stage 88	Stage 89	Stage 90	Stage 91	Stage 92	Stage 93	Stage 94	Stage 95	Stage 96	Stage 97	Stage 98	Stage 99	Stage 100	Stage 101	Stage 102	Stage 103	Stage 104	Stage 105	Stage 106	Stage 107	Stage 108	Stage 109	Stage 110	Stage 111	Stage 112	Stage 113	Stage 114	Stage 115	Stage 116	Stage 117	Stage 118	Stage 119	Stage 120	Stage 121	Stage 122	Stage 123	Stage 124	Stage 125	Stage 126	Stage 127	Stage 128	Stage 129	Stage 130	Stage 131	Stage 132	Stage 133	Stage 134	Stage 135	Stage 136	Stage 137	Stage 138	Stage 139	Stage 140	Stage 141	Stage 142	Stage 143	Stage 144	Stage 145	Stage 146	Stage 147	Stage 148	Stage 149	Stage 150	Stage 151	Stage 152	Stage 153	Stage 154	Stage 155	Stage 156	Stage 157	Stage 158	Stage 159	Stage 160	Stage 161	Stage 162	Stage 163	Stage 164	Stage 165	Stage 166	Stage 167	Stage 168	Stage 169	Stage 170	Stage 171	Stage 172	Stage 173	Stage 174	Stage 175	Stage 176	Stage 177	Stage 178	Stage 179	Stage 180	Stage 181	Stage 182	Stage 183	Stage 184	Stage 185	Stage 186	Stage 187	Stage 188	Stage 189	Stage 190	Stage 191	Stage 192	Stage 193	Stage 194	Stage 195	Stage 196	Stage 197	Stage 198	Stage 199	Stage 200	Stage 201	Stage 202	Stage 203	Stage 204	Stage 205	Stage 206	Stage 207	Stage 208	Stage 209	Stage 210	Stage 211	Stage 212	Stage 213	Stage 214	Stage 215	Stage 216	Stage 217	Stage 218	Stage 219	Stage 220	Stage 221	Stage 222	Stage 223	Stage 224	Stage 225	Stage 226	Stage 227	Stage 228	Stage 229	Stage 230	Stage 231	Stage 232	Stage 233	Stage 234	Stage 235	Stage 236	Stage 237	Stage 238	Stage 239	Stage 240	Stage 241	Stage 242	Stage 243	Stage 244	Stage 245	Stage 246	Stage 247	Stage 248	Stage 249	Stage 250	Stage 251	Stage 252	Stage 253	Stage 254	Stage 255	Stage 256	Stage 257	Stage 258	Stage 259	Stage 260	Stage 261	Stage 262	Stage 263	Stage 264	Stage 265	Stage 266	Stage 267	Stage 268	Stage 269	Stage 270	Stage 271	Stage 272	Stage 273	Stage 274	Stage 275	Stage 276	Stage 277	Stage 278	Stage 279	Stage 280	Stage 281	Stage 282	Stage 283	Stage 284	Stage 285	Stage 286	Stage 287	Stage 288	Stage 289	Stage 290	Stage 291	Stage 292	Stage 293	Stage 294	Stage 295	Stage 296	Stage 297	Stage 298	Stage 299	Stage 300	Stage 301	Stage 302	Stage 303	Stage 304	Stage 305	Stage 306	Stage 307	Stage 308	Stage 309	Stage 310	Stage 311	Stage 312	Stage 313	Stage 314	Stage 315	Stage 316	Stage 317	Stage 318	Stage 319	Stage 320	Stage 321	Stage 322	Stage 323	Stage 324	Stage 325	Stage 326	Stage 327	Stage 328	Stage 329	Stage 330	Stage 331	Stage 332	Stage 333	Stage 334	Stage 335	Stage 336	Stage 337	Stage 338	Stage 339	Stage 340	Stage 341	Stage 342	Stage 343	Stage 344	Stage 345	Stage 346	Stage 347	Stage 348	Stage 349	Stage 350	Stage 351	Stage 352	Stage 353	Stage 354	Stage 355	Stage 356	Stage 357	Stage 358	Stage 359	Stage 360	Stage 361	Stage 362	Stage 363	Stage 364	Stage 365	Stage 366	Stage 367	Stage 368	Stage 369	Stage 370	Stage 371	Stage 372	Stage 373	Stage 374	Stage 375	Stage 376	Stage 377	Stage 378	Stage 379	Stage 380	Stage 381	Stage 382	Stage 383	Stage 384	Stage 385	Stage 386	Stage 387	Stage 388	Stage 389	Stage 390	Stage 391	Stage 392	Stage 393	Stage 394	Stage 395	Stage 396	Stage 397	Stage 398	Stage 399	Stage 400	Stage 401	Stage 402	Stage 403	Stage 404	Stage 405	Stage 406	Stage 407	Stage 408	Stage 409	Stage 410	Stage 411	Stage 412	Stage 413	Stage 414	Stage 415	Stage 416	Stage 417	Stage 418	Stage 419	Stage 420	Stage 421	Stage 422	Stage 423	Stage 424	Stage 425	Stage 426	Stage 427	Stage 428	Stage 429	Stage 430	Stage 431	Stage 432	Stage 433	Stage 434	Stage 435	Stage 436	Stage 437	Stage 438	Stage 439	Stage 440	Stage 441	Stage 442	Stage 443	Stage 444	Stage 445	Stage 446	Stage 447	Stage 448	Stage 449	Stage 450	Stage 451	Stage 452	Stage 453	Stage 454	Stage 455	Stage 456	Stage 457	Stage 458	Stage 459	Stage 460	Stage 461	Stage 462	Stage 463	Stage 464	Stage 465	Stage 466	Stage 467	Stage 468	Stage 469	Stage 470	Stage 471	Stage 472	Stage 473	Stage 474	Stage 475	Stage 476	Stage 477	Stage 478	Stage 479	Stage 480	Stage 481	Stage 482	Stage 483	Stage 484	Stage 485	Stage 486	Stage 487	Stage 488	Stage 489	Stage 490	Stage 491	Stage 492	Stage 493	Stage 494	Stage 495	Stage 496	Stage 497	Stage 498	Stage 499	Stage 500	Stage 501	Stage 502	Stage 503	Stage 504	Stage 505	Stage 506	Stage 507	Stage 508	Stage 509	Stage 510	Stage 511	Stage 512	Stage 513	Stage 514	Stage 515	Stage 516	Stage 517	Stage 518	Stage 519	Stage 520	Stage 521	Stage 522	Stage 523	Stage 524	Stage 525	Stage 526	Stage 527	Stage 528	Stage 529	Stage 530	Stage 531	Stage 532	Stage 533	Stage 534	Stage 535	Stage 536	Stage 537	Stage 538	Stage 539	Stage 540	Stage 541	Stage 542	Stage 543	Stage 544	Stage 545	Stage 546	Stage 547	Stage 548	Stage 549	Stage 550	Stage 551	Stage 552	Stage 553	Stage 554	Stage 555	Stage 556	Stage 557	Stage 558	Stage 559	Stage 560	Stage 561	Stage 562	Stage 563	Stage 564	Stage 565	Stage 566	Stage 567	Stage 568	Stage 569	Stage 570	Stage 571	Stage 572	Stage 573	Stage 574	Stage 575	Stage 576	Stage 577	Stage 578	Stage 579	Stage 580	Stage 581	Stage 582	Stage 583	Stage 584	Stage 585	Stage 586	Stage 587	Stage 588	Stage 589	Stage 590	Stage 591	Stage 592	Stage 593	Stage 594	Stage 595	Stage 596	Stage 597	Stage 598	Stage 599	Stage 600	Stage 601	Stage 602	Stage 603	Stage 604	Stage 605	Stage 606	Stage 607	Stage 608	Stage 609	Stage 610	Stage 611	Stage 612	Stage 613	Stage 614	Stage 615	Stage 616	Stage 617	Stage 618	Stage 619	Stage 620	Stage 621	Stage 622	Stage 623	Stage 624	Stage 625	Stage 626	Stage 627	Stage 628	Stage 629	Stage 630	Stage 631	Stage 632	Stage 633	Stage 634	Stage 635	Stage 636	Stage 637	Stage 638	Stage 639	Stage 640	Stage 641	Stage 642	Stage 643	Stage 644	Stage 645	Stage 646	Stage 647	Stage 648	Stage 649	Stage 650	Stage 651	Stage 652	Stage 653	Stage 654	Stage 655	Stage 656	Stage 657	Stage 658	Stage 659	Stage 660	Stage 661	Stage 662	Stage 663	Stage 664	Stage 665	Stage 666	Stage 667	Stage 668	Stage 669	Stage 670	Stage 671	Stage 672	Stage 673	Stage 674	Stage 675	Stage 676	Stage 677	Stage 678	Stage 679	Stage 680	Stage 681	Stage 682	Stage 683	Stage 684	Stage 685	Stage 686	Stage 687	Stage 688	Stage 689	Stage 690	Stage 691	Stage 692	Stage 693	Stage 694	Stage 695	Stage 696	Stage 697	Stage 698	Stage 699	Stage 700	Stage 701	Stage 702	Stage 703	Stage 704	Stage 705	Stage 706	Stage 707	Stage 708	Stage 709	Stage 710	Stage 711	Stage 712	Stage 713	Stage 714	Stage 715	Stage 716	Stage 717	Stage 718	Stage 719	Stage 720	Stage 721	Stage 722	Stage 723	Stage 724	Stage 725	Stage 726	Stage 727	Stage 728	Stage 729	Stage 730	Stage 731	Stage 732	Stage 733	Stage 734	Stage 735	Stage 736	Stage 737	Stage 738	Stage 739	Stage 740	Stage 741	Stage 742	Stage 743	Stage 744	Stage 745	Stage 746	Stage 747	Stage 748	Stage 749	Stage 750	Stage 751	Stage 752	Stage 753	Stage 754	Stage 755	Stage 756	Stage 757	Stage 758	Stage 759	Stage 760	Stage 761	Stage 762	Stage 763	Stage 764	Stage 765	Stage 766	Stage 767	Stage 768	Stage 769	Stage 770	Stage 771	Stage 772	Stage 773	Stage 774	Stage 775	Stage 776	Stage 777	Stage 778	Stage 779	Stage 780	Stage 781	Stage 782	Stage 783	Stage 784	Stage 785	Stage 786	Stage 787	Stage 788	Stage 789	Stage 790	Stage 791	Stage 792	Stage 793	Stage 794	Stage 795	Stage 796	Stage 797	Stage 798	Stage 799	Stage 800	Stage 801	Stage 802	Stage 803	Stage 804	Stage 805	Stage 806	Stage 807	Stage 808	Stage 809	Stage 810	Stage 811	Stage 812	Stage 813	Stage 814	Stage 815	Stage 816	Stage 817	Stage 818	Stage 819	Stage 820	Stage 821	Stage 822	Stage 823	Stage 824	Stage 825	Stage 826	Stage 827	Stage 828	Stage 829	Stage 830	Stage 831	Stage 832	Stage 833	Stage 834	Stage 835	Stage 836	Stage 837	Stage 838	Stage 839	Stage 840	Stage 841	Stage 842	Stage 843	Stage 844	Stage 845	Stage 846	Stage 847	Stage 848	Stage 849	Stage 850	Stage 851	Stage 852	Stage 853	Stage 854	Stage 855	Stage 856	Stage 857	Stage 858	Stage 859	Stage 860	Stage 861	Stage 862	Stage 863	Stage 864	Stage 865	Stage 866	Stage 867	Stage 868	Stage 869	Stage 870	Stage 871	Stage 872	Stage 873	Stage 874	Stage 875	Stage 876	Stage 877	Stage 878	Stage 879	Stage 880	Stage 881	Stage 882	Stage 883	Stage 884	Stage 885	Stage 886	Stage 887	Stage 888	Stage 889	Stage 890	Stage 891	Stage 892	Stage 893	Stage 894	Stage 895	Stage 896	Stage 897	Stage 898	Stage 899	Stage 900	Stage 901	Stage 902	Stage 903	Stage 904	Stage 905	Stage 906	Stage 907	Stage 908	Stage 909	Stage 910	Stage 911	Stage 912	Stage 913	Stage 914	Stage 915	Stage 916	Stage 917	Stage 918	Stage 919	Stage 920	Stage 921	Stage 922	Stage 923	Stage 924	Stage 925	Stage 926	Stage 927	Stage 928	Stage 929	Stage 930	Stage 931	Stage 932	Stage 933	Stage 934	Stage 935	Stage 936	Stage 937	Stage 938	Stage 939	Stage 940	Stage 941	Stage 942	Stage 943	Stage 944	Stage 945	Stage 946	Stage 947	Stage 948	Stage 949	Stage 950	Stage 951	Stage 952	Stage 953	Stage 954	Stage 955	Stage 956	Stage 957	Stage
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