FOREWIND

DOGGER BANK
TEESSIDE A & B

March
2014

Environmental Statement Chapter 4 Appendix A Cumulative Impact Assessment Strategy

Application Reference 6.4.1

Title:		Contract No. (if applicable)
Dogger Bank Teesside A & B Environmental Statement Chapter 4 Appendix A - Forewind Cumulative Impact Assessment Strategy - Offshore		Forewind
Document Number:	Issue No:	Issue Date:
F-OFC-CH-004 Appendix A	1	11-Oct-13

Status:

Issued for 1st. Technical Review	☐	Issued for PEI3	☐
Issued for 2nd. Technical Review	☐	Issued for Application Submission	☒

Prepared by: (Author from RH)	Checked by: (Forewind)
Rob Staniland	Julie Drew

Approved by:	Signature / Approval meeting	Approval Date:
Rob Staniland	Gareth Lewis	

Revision History

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
09-Jan-13	1	Issued for Approval			RS
24-Feb-2014	2	Updated for submission	JDM	JDM	GL

Contents

Table of Tables

Table of Figures

1. Introduction

1.1. Overview

1.1.1. The assessment of cumulative impacts arising as a result of offshore wind development is a key issue of concern for industry and stakeholders. Cumulative Impact Assessment (CIA) is a complicated process, with limited applicable guidance and few robust parameter specific thresholds against which assessment can be made. Cumulative impacts have been, at least to some extent, one of the major reasons that offshore wind farm applications have suffered extensive delays and, recently, rejection.

1.1.2. Forewind, along with the developers of the Hornsea and East Anglia zones, developed a broad strategy for CIA to support the Environmental Impact Assessment process for their initial project applications. For Forewind, the approach to CIA has evolved over time and has taken into account any guidance that has emerged since the start of the process.

1.1.3. This document sets out Forewind's proposed CIA strategy for projects within the Dogger Bank Zone. The strategy describes how Forewind intends to undertake cumulative impact assessments for projects which may be brought forward for development as the Zone Appraisal and Planning (ZAP) phase continues and explains how Forewind intends to incorporate the various degrees of available information into its assessment. This version of the CIA strategy has been updated since the submission of the first Dogger Bank application (referred to as Dogger Bank Creyke Beck) and has been used to inform the EIA process for the second phase of applications, covering Dogger Bank Teesside A & B.

1.1.4. The strategy only relates to the offshore components of the projects, within the Zone and Export Cable Corridor envelopes.

1.1.5. Forewind was party to the production of *Guiding Principles for Cumulative Effects Assessment*, funded by the Natural Environmental Research Council (NERC) and produced by RenewableUK. While not reproduced word for word in this strategy document, Forewind has followed the key aims of the Guiding Principles, which are:

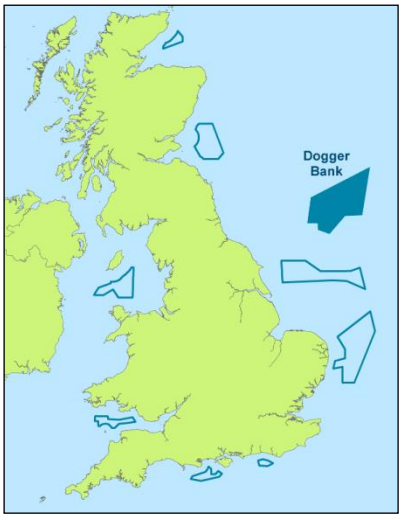
- to ensure that all stakeholders have the same expectations of the CIA process;
- to reduce uncertainty over the CIA process; and
- to promote streamlining of the consents process.

1.1.6. The Guiding Principles have been endorsed by the Offshore Renewable Energy Licensing Group (ORELG) in its role of "*seeking to deliver initiatives that drive forward industry best practice and promote a consistent and comprehensive approach to assessing impacts in the marine environment*". The Guidance was

led by a steering group comprising representatives from the industry, The Crown Estate, the Department of Energy and Climate Change (DECC) and Natural England and was developed over two workshops and rounds of comments which involved around 40 representatives from regulators, stakeholders, academia and the industry.

1.2. Background

1.2.1. In June 2008, The Crown Estate announced proposals for the third round (Round 3) of offshore wind farm leasing, following on from the 8 gigawatts (GW) planned from earlier United Kingdom (UK) offshore wind leasing programmes (namely, Rounds 1 and 2). Subsequent to this announcement, a Strategic Environmental Assessment (SEA) to examine the potential for 25GW of additional UK offshore wind was carried out.



1.2.2. Under the Round 3 process, nine development 'zones' were identified by The Crown Estate, with a combined target energy generation capacity of 25GW. On the 8th January 2010, following a competitive tender process, The Crown Estate announced the successful bidders for each of the Zones. Forewind Limited (Forewind) was awarded the development rights for the largest Zone; Dogger Bank. Forewind's commitment is to secure all the necessary consents for the construction and development of the Dogger Bank Zone.

1.2.3. The delivery strategy has been structured around the delivery of 9GW of offshore wind farm projects in the Zone by 2020. At the time of award of the site by The Crown Estate in 2010, it was believed that a capacity of 13GW might be achievable if the Zone was found to be completely developable with only limited constraints. In light of information (such as site survey data) that has been gathered over the course of the last three years, the organisation's current plan is to secure development consent for six projects, which have a total target installed capacity of 7.2 GW. . Forewind is now in the early Examination stages for two up to 1.2GW projects (jointly known as Dogger Bank Creyke Beck). In addition, Forewind is in the process of finalising applications for two projects, which together could have a generating capacity of up to 2.4GW (known as Dogger Bank Teesside A & B) and has commenced detailed environmental studies of the area of the zone expected to contain a further two projects with a combined 2.4GW capacity (referred to as Dogger Bank Teesside C & D). These projects are anticipated to be the subject of two consent applications made in 2014 and 2015 respectively. Any subsequent projects identified by Forewind as ZAP continues will be developed in accordance with the location and timing of applications dictated by the availability of connections to the National Grid.

1.3. Developing a CIA Strategy

1.3.1. In the past, offshore wind farm developers have undertaken cumulative impact assessments in accordance with the "building block" approach, which has involved the consideration of cumulative impacts associated with projects at more advanced or similar stages of development. This approach was developed in recognition of the fact that data and information relating to future developments was often not readily available in a format that would inform a robust assessment.

1.3.2. While the "building block" approach would allow for an assessment to be undertaken on the basis of known information and data, there has been some concern that the approach does not adequately consider the whole development potential of the Zone and the Round 3 plan in general. Forewind has, therefore, sought advice from various sources and taken the below into account.

1.3.3. In Advice Note 9 – Using the 'Rochdale Envelope', for example the Planning Inspectorate states –

1.3.4. "In assessing cumulative impacts, other major development should be identified…on the basis of those that are:

- under construction;
- permitted application(s), but not yet implemented;
- submitted application(s) not yet determined;
- projects on the Commission's Programme of Projects;
- identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited; and
- sites identified in other policy documents, as development reasonably likely to come forward."

1.3.5. Whilst this statement initially caused some concern across the industry about the potential forward temporal range of such an assessment it is worth noting that the same advice note also states –

1.3.6. "In preparing such information, it should not be forgotten that the purpose of an EIA is to inform the decision making process. The EIA should be clear and practical 'so that it assists, and not confuses, the decision making process."

1.3.7. This appears to be in line with CIA guidance issued by the European Commission in 1999, which stated CIA should cover: "impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project in question".

1.3.8. Further extracts from relevant guidance include -

- "An assessment specific development proposal should be limited to the effects of the proposal in combination with:
- existing development, either built or under construction;
- approved development, awaiting implementation; and
- proposals awaiting determination within the planning process, and thus for which design information is in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application." (Scottish Natural Heritage, 2005)

1.3.9. "The outermost limit for including projects in a cumulative assessment is speculative proposals where for example a formal scoping opinion has been provided and thus the principle of a proposal is within the public domain, and even then, only on certain occasions. Anything more speculative than that can at best only be treated as a material consideration, but even then only where the proposals are in the public domain and "well articulated in terms of location and scale" (Scottish Natural Heritage, 2005).

1.3.10. The following advice has been considered for geographical and temporal scale (taken from Hyder (1999) - Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions - produced for the EC):

1.3.11. Spatial Extent – Geographical boundaries will depend on:

- The nature of the project;
- The nature of the impacts;
- Sensitivity of the receiving environment;
- Availability of data; and
- Natural boundaries.

1.3.12. Temporal Extent – the guidance states:

1.3.13. "In setting the future time boundary it is suggested that in general, beyond 5 years there is too much uncertainty associated with most development proposals. It is therefore recommended that in the majority of cases the limit does not exceed 5 years into the future."

2. CIA Strategy

2.1. Forewind's approach to CIA

2.1.1. Forewind's CIA strategy is not intended to provide a methodology for undertaking the CIA for a particular parameter, but does identify those parameters and impacts of potential concern, the 'confidence' in the data and information available to Forewind and the scale at which the assessment is required to take place. Adopting this strategy, the 'confidence' in the data and information used to underpin the assessment will increase with time, as more of the Zone is surveyed and hence more robust data is obtained. Equally, information and data from other development programs (e.g. other Round 3 Zones) would be expected to be forthcoming, allowing for increasing assessment and decreasing appraisal with time.

2.1.2. As would be expected, during the timescale within which the Round 3 plan takes place, new development plans and proposals are likely to come forward that were not previously considered in the assessment process. Forewind will ensure that all projects for which information regarding location and scale exist, are incorporated into the assessment process. However, should new projects and plans arise within six months of the published target application date, it will not be possible to take them into account in the assessment.

2.1.3. In its simplest form, the strategy involves consideration of:

- Whether impacts on a receptor can occur on a cumulative basis between the wind farm project(s) subject to the application(s) and other wind farm projects, activities and plans in the Dogger Bank Zone (either consented or forthcoming); and
- Whether impacts on a receptor can occur on a cumulative basis with other activities, projects and plans outwith the Dogger Bank Zone (e.g. other offshore wind farm developments), for which sufficient information regarding location, scale and potential impacts exist.

2.1.4. The strategy recognises that data and information sufficient to undertake an assessment will not be available for all potential projects, activities, plans and/or parameters, and seeks to establish the 'confidence' that can be placed in the data and information available.

Defining 'Confidence' in the context of Forewind's CIA Strategy

2.1.5. Presenting confidence in the data and information being used to underpin CIA (and, indeed, EIA) is central to Forewind's strategy. Attempting to assess the cumulative impacts between the known Forewind projects and other speculative and, as yet, unknown projects with limited available data will result in an unrealistic impact (overly precautionary worst case) scenario, which Forewind

believes to be of little benefit to Forewind, as well as its stakeholders. While it is acknowledged that data can be manipulated and that highly precautionary assumptions could be made about the impacts that could arise from projects where no data or information is available, Forewind believes that such judgments fall within the remit of strategic assessments and should not be a requirement on individual project applications. As such, other plans, projects and activities, where uncertainty in detail is high and confidence in data is low are excluded from assessment.

2.1.6. A simple 'High', 'Medium' 'Low' and 'very low' ranking scale has been used to provide an overview of the confidence we have in the data and information that can be used to underpin impact assessment. The ranking is presented in **Table 2.1**.

Table 2.1 A ranking scale for assessing confidence in data and information

Data/information confidence	Types of data/information
High	Forewind's own quantitative, semi-quantitative or qualitative (i.e. characterisation) data that is considered suitable for informing the EIA (e.g. site specific benthic survey data) Peer reviewed and/or industry standard third party quantitative, semi-quantitative or qualitative data. Forewind's own project details and third party project details published in the public domain and confirmed as being 'accurate' by the developer.
Medium	Forewind's own less robust quantitative, semi-quantitative or qualitative data that is either a result of incomplete survey coverage (e.g. understanding of benthic habitats beyond the area surveyed at the time of assessment) or based on extrapolation across a wide area (e.g. underwater noise modeling). Third party data supplied to or obtained by Forewind that has not been subject to peer review and cannot be quality controlled by Forewind (e.g. survey data from other Round 3 developers). Peer reviewed and grey literature that is considered relevant, but either too old or not sufficient to inform assessment in its own right (e.g. European Seabirds at Sea data). Third party project details published in the public domain but not confirmed as being 'accurate'.
Low	There is a lack of robust data and information and/or data quality is outwith Forewind control. An example of this would be the presence of sediment bound contaminants beyond the area surveyed at the time of assessment. In such cases, precautionary worst cases are likely to be required.
Very Low	It is possible that a project/activity/plan could be developed in future, but no details or data is available (e.g. Round 3 projects that have not yet been identified/have had information published). In this case, a CIA would not be possible. It would only be possible to appraise the idea that something may happen in the future that could contribute to the overall cumulative impact. In such cases, the data/information should not be used in determining consent for a project.

CIA – A three step process

2.1.7. Using the above approach of assessing data and information confidence will allow Forewind to undertake the cumulative impact assessment as a three-step process as follows:

Screening

2.1.8. Within each EIA Chapter of Forewind's Environmental Statement (ES) (e.g. **Chapter 12 Marine and Intertidal Ecology** of the Dogger Bank Teesside A & B ES) an early screening process is presented. As part of this, the potential for impacts to occur on a cumulative basis is identified (at a Project(s), Zone and beyond the Zone level); the likely confidence in data and information to eventually inform CIA is appraised (as discussed in this document) and the other activities that could contribute to these impacts are identified. This provides Forewind and its stakeholders with a clear identification of the types of plans, projects and activities, at a broad industry level, that could contribute to cumulative impacts upon a parameter of study. Importantly, it also identifies where cumulative impacts are not anticipated, thereby screening them out from further assessment.

2.1.9. An example of this process (from **Chapter 12** of the Dogger Bank Teesside A & B ES) is provided in **Table 2.2**

Table 2.2 Potential cumulative impacts

Impact	Dogger Bank Zone and export cable corridor (within 1km)		Beyond 1km from the Dogger Bank Zone and export cable corridor		Rationale for where no cumulative impact is expected
	Potential for cumulative impact	Data confidence	Potential for cumulative impact	Data confidence	
Direct impact via habitat disturbance and/or loss (due to placement of project infrastructure)	Yes	High	Yes	Medium	N/A
Indirect impact via increased suspended sediment concentration and sediment deposition (construction phase)	Yes	Medium-High	Yes	Low-Medium	N/A
Direct impact via permanent habitat loss (presence of project infrastructure in operational phase)	Yes	High	Yes	Medium	N/A
Indirect impact via increased suspended sediment concentration and sediment deposition (via scour in operational phase)	Yes	Medium-High	Yes	Low	N/A

Impact	Dogger Bank Zone and export cable corridor (within 1km)		Beyond 1km from the Dogger Bank Zone and export cable corridor		Rationale for where no cumulative impact is expected
	Potential for cumulative impact	Data confidence	Potential for cumulative impact	Data confidence	
Direct impact via vessel activity (jacking-up and anchoring) in operational phase for operation and maintenance activities	Yes	High	Yes	Low-Medium	N/A
Direct impact of introduction of hard substrate leading to colonisation	Yes	High	Yes	Low-Medium	N/A

Appraisal of the 'CIA Project List'

2.1.10. The next step is to identify the individual plans, projects and activities within those broad industry levels that are to be included in the CIA. In accordance with the guidance received; both documented and through consultation, Forewind has generated a comprehensive list of national and international plans, projects and regulated activities that have the potential to contribute to cumulative impacts with projects in the Dogger Bank Zone. The CIA Project List is appraised based on the confidence Forewind has in being able to undertake an assessment from the information and data available and individual plans, projects and activities will be screened in or out. Where Forewind is aware that a plan, project or activity could take place in the future, but has no information on how the plan, project or activity will be executed, it is proposed that it is screened out of further assessment. An overview of the stages involved in identifying the CIA Project List is provided below.

2.1.11. The list is considered to be comprehensive and is likely to be overly conservative in terms of what is needed to undertake CIA for each parameter. However, adopting this approach allows Forewind to undertake an auditable process of scoping out plans, projects and activities on a parameter by parameter basis (based on the judgment of the contracted experts) and minimises the risk of missing something that may later be raised in consultation or during the examination phase.

2.1.12. As a starting point, the list comprised plans, projects and activities (both offshore and coastal) under the following topic areas:

- Designated sites (including Marine Conservation Zones);
- Aggregate extraction activity;
- Fisheries areas (where they can be defined);
- Linear infrastructure (Cables and pipelines inclusive of outfalls and Carbon Capture and Storage projects);

- Oil and Gas activity (existing, planned and licence blocks pending award, Underground Coal Gasification and activities licenced under PON14 applications);
- Marine disposal activity;
- Capital and Maintenance dredging;
- Shipping and Navigation (routes, anchorage etc.);
- Military sites and activities;
- Offshore wind farms (UK and International); and
- Other energy generation (e.g. marine renewables).

Stage 1

2.1.13. The CIA Project List was generated by undertaking an industry/development specific search on a country by country basis in the North Sea maritime area. The initial list included 1,665 projects, which was distributed to the Forewind Development Team and EIA parameter experts for review. This review phase identified those projects that would and would not have potential to result in a cumulative impact.

Stage 2

2.1.14. At the end of Stage 1, the CIA Project List was reduced to 831 projects, on the basis of 834 projects being adjudged to have no potential for cumulative impact for a number of reasons, including distance from Dogger Bank, programme for development and data/information confidence. During Stage 2, the remaining projects were appraised based on their planning/operational status. Existing and operational project information was collated for incorporation into the relevant 'existing environment' sections of the relevant EIA chapters. This reduced the overall CIA Project List to 669 projects.

Stage 3

2.1.15. Stage 3 involved collecting as much relevant data as possible for the 669 remaining projects. This included Scoping reports, Environmental Statements, information on project websites and direct contact with project developers. Whilst undertaking this data collection exercise, further projects were ruled out when it became apparent that the project was completed or was no longer being brought forward. An assessment of the collected information was also carried out to establish the 'confidence', as described in **Table 2.1**.

Stage 4

2.1.16. GIS data was collected in order to plot all locations in relation to the Dogger Bank Zone where information were available. Once developed, this information was again provided to the relevant EIA parameter experts and on this basis, projects were ruled in and out of the assessment phase, as reported in each relevant chapter of the ES. This is an amalgamation of the final three steps in the process outlined for Dogger Bank Creyke Beck (Forewind, 2013). In both

cases, this allowed an element of iteration in the final project list to allow for consideration of confidence in the relevant data on a topic specific basis.

Assessment

2.1.17. All projects, activities and plans with medium to high confidence data and/or project information are included in the CIA.

2.1.18. Projects or plans where there is high confidence in data and low confidence in information of the project/plan (or vice versa) will be considered on a case by case basis during the screening phase to determine whether confidence is high enough to include within the assessment and still provide a result which aids the decision making process.

2.1.19. The Forewind CIA Strategy is summarised in **Figure 2.1**.

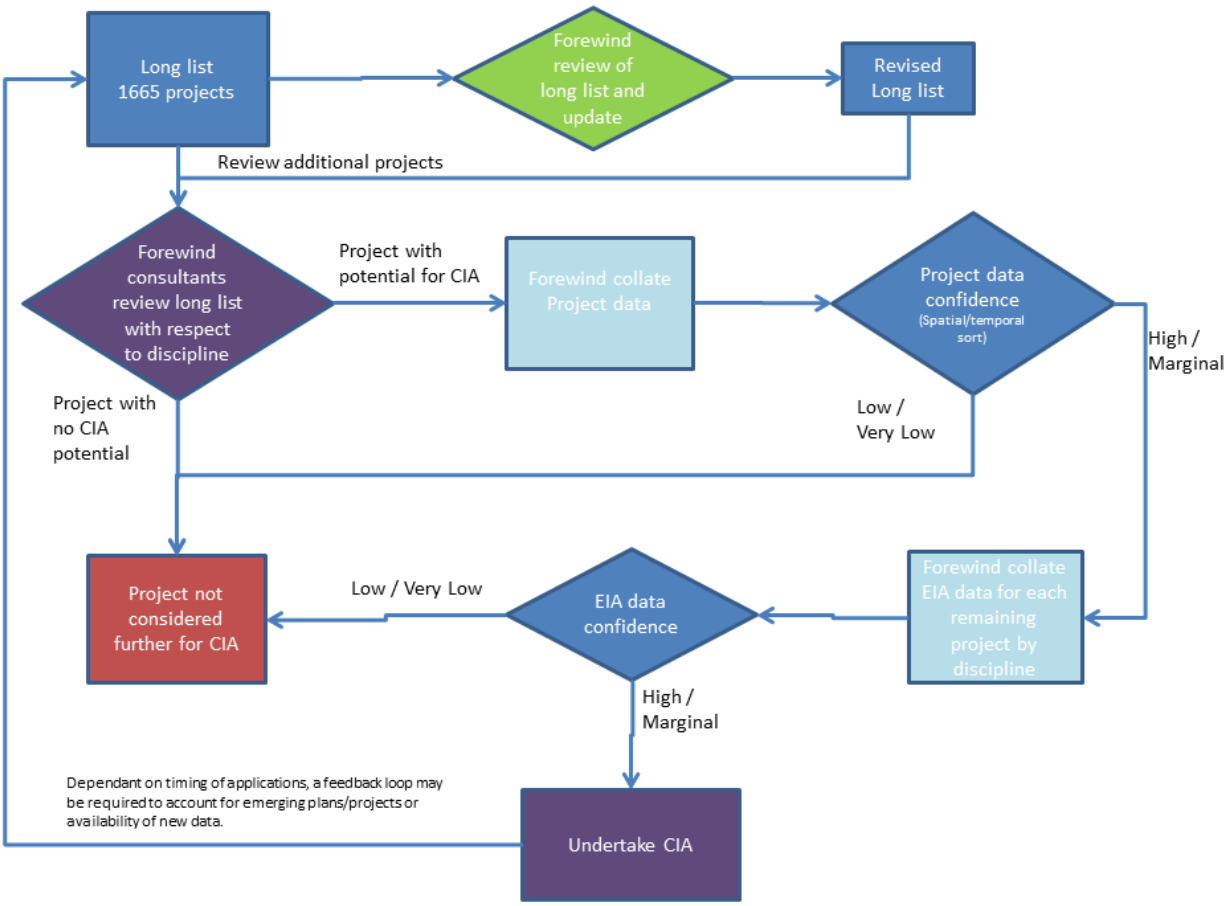


Figure 2.1 Flowchart representation of Forewind's CIA Strategy

3. References

Forewind, 2013. Dogger Bank Creyke Beck Environmental Statement, Chapter 4 EIA Process. Available for download at http://www.forewind.co.uk/downloads/dogger-bank-creyke-beck-downloads/application-documents.html

Hyder (1999) Guidelines for the assessment of indirect and cumulative impacts as well as impact interactions. European Commission.

Scottish Natural Heritage (2005) Cumulative effects of wind farms

