

East Anglia TWO Offshore Windfarm

Chapter 5 EIA Methodology

Preliminary Environmental Information
Volume 1

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Glossary of Acronyms

CIA	Cumulative Impact Assessment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
ETG	Expert Topic Group
ICES	International Council for the Exploration of the Seas
LEP	Local Enterprise Partnership
PEIR	Preliminary Environmental Information Report
SoCC	Statement of Community Consultation
UNECE	United Nations Economic Commission for Europe

5 Environmental Impact Assessment Methodology

5.1 Introduction

1. This chapter describes the methodology used throughout the Preliminary Environmental Information Report (PEIR) assessment chapters for the proposed East Anglia TWO project.
2. The Environmental Impact Assessment (EIA) will consider all relevant topics covered under the three general areas of physical environment, biological environment and human environment.
3. The EIA will be carried out in accordance with the Planning Act 2008 and the Infrastructure Planning (EIA) Regulations 2017 (the EIA Regulations) (see **Chapter 3 Policy and Legislative Context**). Furthermore, the approach to the EIA and the production of this PEIR closely follows relevant guidance including:
 - Planning Inspectorate Advice Notes;
 - Advice Note Three: EIA consultation and notification (The Planning Inspectorate 2017);
 - Advice Note Seven: Environmental Impact Assessment, Preliminary Environmental Information, Screening and Scoping (The Planning Inspectorate 2017a);
 - Advice Note Nine: Rochdale Envelope (The Planning Inspectorate 2018)
 - Advice Note Ten: Habitat Regulations Assessment (The Planning Inspectorate 2017b);
 - Advice Note Twelve: Transboundary impacts and process (The Planning Inspectorate 2018a); and
 - Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate 2015).
 - Overarching National Policy Statements for Energy EN-1, Renewable Energy Infrastructure EN-3, and Electricity Networks Infrastructure EN-5 (Department of Energy and Climate Change (DECC) 2011, 2011a, 2011b);
 - Assessment of the environmental impact of offshore wind-farms (OSPAR Commission, 2008)
 - Relevant guidance issued by other UK Government and non-governmental organisations; and
 - Receptor-specific guidance documents.

4. This PEIR also gives due regard to the requirements of the Marine and Coastal Access Act 2009 and the Habitats Regulations (i.e. the Habitats and Species Regulations 2017 and Conservation of Offshore Marine Habitats and Species Regulations 2017).
5. The proposed East Anglia TWO project and proposed East Anglia ONE North project are being developed in parallel but they will be submitted as two separate DCO applications. The assessment presented in this PEIR will assess the impacts of the proposed East Anglia TWO project alone and, through the use of appropriate assessment scenarios, cumulatively with the proposed East Anglia ONE North project.
6. Details of these scenarios are described in **section 5.7.1**.

5.2 Requirement for EIA

7. The EIA framework is set out within European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the EIA Directive)). The EIA Directive is transposed into English law for Nationally Significant Infrastructure Projects (NSIPs) by the EIA Regulations which set out the requirements for EIA. The EIA process includes collation of data required to identify and assess the potential effects of a development and the identification of any significant adverse impacts and any measures envisaged to avoid, prevent or reduce and, if possible, offset, such impacts.
8. The primary objective of an EIA, as described in Article 2 of the Directive, is that “Member States shall adopt all measures necessary to ensure that, before development consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects on the environment”.
9. The EIA process and its preliminary findings are reported within this PEIR, which has been produced to support consultation under Section 42 of the Planning Act 2008. Feedback from this consultation will be taken into consideration and where relevant, will be used to inform the final design of the proposed East Anglia TWO project and the scope of the final impact assessment in the Environmental Statement (ES), which will be submitted to the Planning Inspectorate along with supplementary documents as part of the Development Consent Order (DCO) application.
10. The purpose of the ES (and this PEIR) is to inform the decision-maker, stakeholders and all interested parties of any significant effects that would result from the project during its construction, operation and (where relevant) decommissioning.

5.3 Consultation on Approach and Methodology

11. Consultation is a key driver of the EIA process, and continues throughout the lifecycle of a project, from its initial stages through to consent and post-consent. Consultation has been carried out in accordance with the Statement of Community Consultation (SoCC) which explains how the Applicant consults local communities about its plans to develop the proposed East Anglia TWO project. Ongoing public consultation has been conducted through various means including (but not exclusively limited to):

- Community feedback reports shared with all registered participants, key local and community stakeholders, and on the proposed East Anglia TWO project website;
- Phase 1 consultation (October / November 2017) with statutory consultees and the public;
- Phase 2 consultation (March 2018) with statutory consultees and the public;
- Phase 3 consultation (June / July 2018) with statutory consultees and the public;
- Phase 3.5 consultation (October / November 2018 and including four community engagement events held in October 2018) with statutory consultees and the public;
- Parish Council briefings;
- Direct discussions with landowners;
- Newsletters distributed throughout the onshore substation(s) site selection study area;
- Dedicated project e-mail address and freepost address to assist local communities in contacting the Applicant;
- Provision of a dedicated proposed East Anglia TWO project website; and
- Regular and targeted discussion with regulators and other stakeholder bodies through various means including over 30 Expert Topic Group (ETG) meetings, as detailed in **section 5.3.3**

12. Full details of the proposed East Anglia TWO project consultation process will be presented in the Consultation Report, which will be submitted as part of the DCO application.

5.3.1 Scoping

13. A request for a scoping opinion was submitted to the Planning Inspectorate in November 2017 which outlined the proposed East Anglia TWO project and described broadly the impacts to be assessed as part of the EIA and methodology for these assessments.

14. A formal Scoping Opinion (Planning Inspectorate 2017) was received in December 2017. The Scoping Opinion collated comments from consultees and highlights where there is agreement on what could be scoped in or out of the EIA. One topic was scoped out entirely, Offshore Air Quality, and particular impacts within topics have been scoped out as detailed in the Planning Inspectorate’s Scoping Opinion and presented within each relevant technical chapter (chapters 7 - 30). Topic specific points from the Scoping Opinion are referenced in the relevant consultation tables within the topic chapters (chapters 7-30).
15. Feedback received through this process has been considered in preparing incorporated into the PEIR where appropriate and this chapter will be updated following the next stage of consultation for the final assessment submitted with the Development Consent Order (DCO) application.
16. **Table 5.1.** provides a summary of those consultation responses that have been received with regards to the approach to the EIA and Methodology.

Table 5.1 Consultation Responses

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
Natural England	08/12/2017 Scoping Response	It is proposed to assess impacts associated with the construction, operation and decommissioning of EA2 by identifying the sensitivity of each receptor and the magnitude of each effect and combining both metrics together through a matrix analysis to determine impact significance. Effect magnitude will be defined via the extent, duration, frequency and change relative to the baseline, and receptor sensitivity will be determined through the adaptability/tolerance, recoverability and value/importance of each receptor. We advise that the ES should include a clear description of how each of the categories for extent, duration and frequency are defined and similarly for the sensitivity categories of vulnerability, recoverability and value. The ES should also include a description of how the various combinations of frequency, duration, extent and reversibility of effects have been combined to reach the final prediction of effect magnitude. Similarly, a discussion should be included as to how the various combinations of receptor sensitivity, probability of interaction and magnitude of effect have been combined to reach the final determination of impact significance. The magnitude and sensitivity scores which contribute to the final impact assessment	A description of the approach to the assessment of impacts (including frequency, duration, extent, reversibility, sensitivity and magnitude) is described within this chapter. This approach is applied through all technical chapters, and where a different approach is applied, this is clearly stated within the respective chapter. Additionally, all data sources, uncertainty and where expert judgement has been applied are clearly stated within each chapter.

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		should be presented for each of the receptors included in the assessment. This should be supported by appropriate references to scientific literature. Where conclusions are based on expert judgements this should be clearly described and discussed in the text. Furthermore, we highlight the importance and difficulty of establishing the uncertainty associated with data. The level of uncertainty/confidence associated with each significance assessment should be discussed based on the nature of evidence used and how this evidence was used to determine impact significance. There might be effects or receptors for which the proposed assessment approach may not be suitable. This should be assessed on an effect/receptor basis. Where a different approach is chosen this should be clearly justified and the approach fully explained within the application.	
The Planning Inspectorate	20/12/2017 Scoping Response	Where parameters are applied the Applicant should ensure that each aspect chapter of the ES sets out the worst case scenario in relation to the specific assessment being undertaken and that this is explained. The worst case scenario will not necessarily be the same for each assessment.	Each technical chapter outlines the realistic worst case scenario that has been assessed specific to each receptor/impact which can differ across topics. A table of the relevant worst case scenario is provided in each technical chapter.
The Planning Inspectorate	20/12/2017 Scoping Response	The Inspectorate welcomes the Applicant's intent to include a summary of the matters proposed to be scoped in and out for each relevant aspect assessed in the ES.	Acknowledged
The Planning Inspectorate	20/12/2017 Scoping Response	Where relevant, the ES should provide reference to how the delivery of measures proposed to prevent/minimise adverse effects is secured through DCO requirements (or other suitably robust methods) and whether relevant consultees agree on the adequacy of the measures proposed.	Measures proposed to prevent / minimise adverse effects have been or will be agreed with relevant consultees through the expert topics groups (ETGs) and these measures are discussed in each relevant chapter. The final ES will clearly detail how these

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
			measures are secured through DCO requirements.
The Planning Inspectorate	20/12/2017 Scoping Response	<p>The Inspectorate recommends that in order to assist the decision-making process, the Applicant uses tables:</p> <p>(a) to demonstrate how the assessment has taken account of this Opinion;</p> <p>(b) to identify and collate the residual effects after mitigation for each of the aspect chapters, including the relevant interrelationships and cumulative effects;</p> <p>(c) to set out the proposed mitigation and/or monitoring measures including cross-reference to the means of securing such measures (eg a DCO requirement);</p> <p>(d) to describe any remedial measures that are identified as being necessary following monitoring; and</p> <p>(e) to identify where details in the Habitats Regulation Assessment (HRA) report (where relevant), such as descriptions of European sites and their locations, together with any mitigation or compensation measures, are to be found in the ES.</p>	Tables have been used throughout the PEIR to present responses to Scoping Opinions, residual effects after mitigation, interrelationships, cumulative effects and proposed mitigation. These are outlined in each technical chapter. Details from the draft Report to Inform the HRA (where relevant) have been drawn into each technical chapter.
The Planning Inspectorate	20/12/2017 Scoping Response	The ES should include details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Noted, any difficulties are clearly stated where appropriate.
The Planning Inspectorate	20/12/2017 Scoping Response	The level of information provided in the aspects chapters on the assessment study area(s) varies, and is very limited in some chapters. The ES must clearly identify and justify the extent of the study area for each assessment.	Noted, each technical chapter includes detailed justification on the extent of the study area for each assessment.
The Planning Inspectorate	20/12/2017 Scoping Response	The Inspectorate notes that for particular aspects detailed information on the proposed methodology and potential impacts is contained within the Method Statements (MS) of the Scoping Report at Appendices 2.1 – 2.6 and in Appendix 4.1. The Inspectorate expects	Each technical chapter includes detailed information on the specific

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		that such information will be updated as necessary and included within the respective aspect chapters of the ES.	methodology applied and potential impacts.
The Planning Inspectorate	20/12/2017 Scoping Response	The ES should include a description of the baseline scenario with and without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Baseline scenarios are clearly stated within each technical chapter.
The Planning Inspectorate	20/12/2017 Scoping Response	The ES should contain the timescales upon which the surveys which underpin the technical assessments have been based. For clarity, this information should be provided either in the introductory chapters of the ES (with confirmation that these timescales apply to all chapters), or in each aspect chapter.	Timescales of all surveys undertaken to inform assessments are included in respective technical chapters.
The Planning Inspectorate	20/12/2017 Scoping Response	The Inspectorate expects the ES to include a chapter setting out the overarching methodology for the EIA, which clearly states which effects are 'significant' and 'non-significant' for the purposes of the EIA. The Inspectorate notes that, in addition to definitions of receptor sensitivity and effect magnitude, a number of the MSs [Method Statements], for example Fish Ecology and Ornithology, state that the 'value' of a receptor may also be considered in the assessment, and provide definitions of a range of values. However, it is not clear how these will influence the assessment of significance. The ES should explain for each aspect chapter how receptor value is determined and how it is used in the assessment of significance. Any departure from the methodology should be described in individual aspect assessment chapters.	These details are provided throughout this chapter. In addition, each technical chapter explains how specific receptor values are determined and used in assessment of significance.
The Planning Inspectorate	20/12/2017 Scoping Response	The EIA Regulations require an estimate, by type and quantity, of expected residues and emissions. Specific reference should be made to water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases, where relevant. This information should be provided in a clear and consistent fashion and may be	These details are included in chapters 19 Ground Conditions and Contamination, 20 Air Quality, 21 Water Resources and Flood Risk and 22 Land Use in relation

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		integrated into the relevant aspect assessments.	to all phases of development.
The Planning Inspectorate	20/12/2017 Scoping Response	Any mitigation relied upon for the purposes of the assessment should be explained in detail within the ES. The likely efficacy of the mitigation proposed should be explained with reference to residual effects. The ES should also address how any mitigation proposed is secured, ideally with reference to specific DCO requirements or other legally binding agreements.	Where relevant, each technical chapter includes embedded mitigation in the initial assessment of impact as well as an assessment of the post-mitigation residual impact. A Schedule of Mitigation (offshore and onshore) will be provided as part of the DCO application, which will detail how mitigation will be secured.
The Planning Inspectorate	20/12/2017 Scoping Response	Paragraph 183 of the Scoping Report states that a number of documents that form part of the DCO application will also support the ES, and will include information on proposed mitigation. The Inspectorate requires that any measures proposed to mitigate the assessed effects identified in the ES should be described in the relevant aspect chapters of the ES.	Noted. Measures proposed to mitigate the assessed effects are included in relevant technical chapters.
The Planning Inspectorate	20/12/2017 Scoping Response	The ES should include a description of the potential vulnerability of the Proposed Development to risks of major accidents and/or disasters, including vulnerability to climate change, which are relevant to the Proposed Development. Relevant information available and obtained through risk assessments pursuant to European Union legislation, such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness	These details are addressed within section 6.9 of Chapter 6 Project Description.

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		for and proposed response to such emergencies.	
The Planning Inspectorate	20/12/2017 Scoping Response	Paragraph 180 of the Scoping Report states that major accidents and disasters will be considered in the EIA in the context of how the Proposed Development is designed and the measures in place in case of emergency, for example, in relation to pollution prevention and response. The EIA should also identify if the Proposed Development itself has the potential to cause major accidents or disasters during construction, operation or decommissioning.	Noted, this is presented in Chapter 6 Project Description and where relevant details are addressed within technical chapters.
The Planning Inspectorate	20/12/2017 Scoping Response	Schedule 4 Part 5 of the EIA Regulations requires a description to be provided in an ES of the likely significant transboundary effects. The Inspectorate notes that the Applicant has indicated in the Scoping Report whether the Proposed Development is likely to have significant impacts on another European Economic Area (EEA) State. It is stated in paragraph 178 of the Scoping Report that transboundary effects are not relevant to onshore aspects. It should be clarified in the ES that this is the Applicant's conclusion in relation to the Proposed Development rather than a general principle in respect of potential transboundary effects.	Given that the geographical footprint of onshore construction impacts from this project are highly localised (see Chapters 18 – 27) and that there are no emissions such as gases or waste fluids associated with operation which could cause indirect far-field impact there is no pathway for transboundary effects from the onshore elements.
The Planning Inspectorate	20/12/2017 Scoping Response	Regulation 32 of the EIA Regulations inter alia requires the Inspectorate to publicise a DCO application on behalf of the SoS if it is of the view that the proposal is likely to have significant effects on the environment of another EEA state, and where relevant, to consult with the EEA state affected.	Noted
The Planning Inspectorate	20/12/2017 Scoping Response	The Inspectorate considers that where Regulation 32 applies, this is likely to have implications for the examination of a DCO application. The Inspectorate notes that paragraph 178 of the Scoping Report states that transboundary impacts are to be considered on a 'topic by topic' basis. The ES should clearly assess whether the Proposed Development has the potential for significant	Transboundary impacts are discussed in detail in each relevant technical chapter.

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		transboundary effects and if so, what these are and which EEA States would be affected.	
The Planning Inspectorate	20/12/2017 Scoping Response	A reference list detailing the sources used for the descriptions and assessments must be included in the ES.	A reference list is provided at the end of each technical chapter.
The Planning Inspectorate	20/12/2017 Scoping Response	In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to information about the presence and locations of rare or sensitive species such as badgers, rare birds and plants, where disturbance, damage, persecution or commercial exploitation may result from publication of the information. Where documents are intended to remain confidential the Applicant should provide these as separate paper and electronic documents with their confidential nature clearly indicated in the title, and watermarked as such on each page. The information should not be incorporated within other documents that are intended for publication or which the Inspectorate would be required to disclose under the Environmental Information Regulations 2014.	Noted, any confidential information will be clearly labelled as such.
Natural England	08/12/2017 Scoping Response	In accordance with the 2017 Habitats Regulations 63 (2) and 2017 Offshore Habitat Regulations anyone applying for development consent for an NSIP must provide the competent authority with such information as may reasonably be required “for the purposes of the assessment” or “to enable them to determine whether an appropriate assessment is required”. NE advises that this information should therefore be provided and appraised as part of the PEI process.	A draft Report to Inform the HRA is provided as part of the PEIR which will be updated prior to the submission of the application based upon comments received during the section 42 consultation.
RSPB	20/12/2017 Scoping Response	We are therefore grateful for the constructive pre-application discussions with ScottishPower Renewables so far, and will continue discussions with a view to resolving any concerns, and ensuring that robust evidence is submitted so that the potential environmental impacts can be properly understood and evaluated.	Noted

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
Natural England	08/12/2017 Scoping Response	We note that the information and detail provided is limited and is focussed on the high-level of aims of the PEI. We would welcome further information pertaining to the specific survey methodologies to be adopted for assessment of impacts on each receptor and for a preliminary assessment of key potential impacts associated with the development and in-combination with other plans/projects.	Technical chapters present relevant survey methodologies in detail, alongside assessment of impacts and cumulative impacts. All surveys methodologies have been discussed and agreed with stakeholders through the EPP.
Natural England	08/12/2017 Scoping Response	It is the view of Natural England that the most appropriate form for a PEI to adopt is that of a draft Environmental Statement (ES). This would reassure Natural England and other key stakeholders, that the Applicant's approach to EIA is appropriate and to allow time for areas of concern to be raised and resolved prior to submission of the final ES to PINS It is, therefore, sensible to maximise the opportunities in pre-application for open and constructive dialogue, to reduce the risk of an application being rejected by PINS. It is also our experience that if too many issues are left unresolved at application then this causes increased pressure for all involved during the Examination process. As such we would expect emphasis on effective pre-application engagement between the developer and Natural England and the PEI to present sufficient detail such that an assessment of the Applicant's approach to EIA can be identified. Timeframes post PEI should also allow sufficient time to resolve any issues raised during the process; noting that 6 months is proving to be insufficient where there are complex and contentious issues still to be resolved.	Noted. This PEIR has taken the form of a draft ES and the Applicant will continue to use the ETGs as a mechanism to engage with stakeholders during the pre-application stage.
The Planning Inspectorate	25/01/2018 Planning Inspectorate Meeting	The Applicant enquired whether their understanding was correct and matters that it had not been agreed in the Scoping Opinion could be scoped out from the EIA with relevant consultee agreement and through justification in the ES. The Inspectorate confirmed that this was the correct interpretation of the Regulations and the advisable course of action would involve	Topics which have been scoped out are detailed in each relevant technical chapter.

Consultee	Date/ Document	Comment	Response / where addressed in the PEIR
		providing an explicit agreement log presenting all matter that had been scoped out. The agreements could be reached through the ETG process, documenting consultees' opinions, and providing detailed reasoning within the Preliminary Environmental Information report and later in the Environmental Statement.	

5.3.2 Royal HaskoningDHV as Competent Experts

17. Royal HaskoningDHV has provided environmental, development and consenting support on over 14GW of renewable energy projects across 26 UK offshore wind farms. Their EIA activities and ESs are accredited by the Institute of Environmental Management and Assessment (IEMA) under the EIA Quality Mark Scheme. This demonstrates Royal HaskoningDHV's commitment to ensuring EIA is undertaken at high quality and in accordance with best practice.
18. Royal HaskoningDHV's lead authors are senior and chartered professionals with a significant track record in undertaking technical assessment and EIA in their discipline. The team undertaking the EIA for the proposed East Anglia TWO project are predominantly Royal HaskoningDHV professional consultants. The team is comprised of a dedicated core team of EIA professionals who take the lead role in the co-ordination and management of the EIA and the preparation of the ES. The core team is then supported by a wider team of technical specialists taking responsibility of the data collection, data analysis and technical impact assessment.
19. Some of the technical assessment and associated PEIR chapters are undertaken by specialist consultancies outside Royal HaskoningDHV. These include **Chapter 13 Commercial Fisheries, Chapter 14 Shipping and Navigation, Chapter 15 Civil and Military Aviation and Radar, Chapter 23 Onshore Ornithology, Chapter 28 Seascape, Landscape and Visual Impact Assessment and Chapter 29 Landscape and Visual Impact Assessment. Appendix 5.1** provides statements of competencies for all experts who have contributed to the EIA for the proposed East Anglia TWO project.
20. In addition, technical consultation (such as through the EPP discussed below) provides additional expert input into the assessment process. This has allowed a consensus to be reached on the scope and approach to the impacts included within the EIA, and the comprehensiveness and suitability of data used.

5.3.3 The Evidence Plan Process

21. The East Anglia TWO EIA team is committed to wide and open consultation with stakeholders and community. A key part of this consultation effort is targeted engagement with regulators and interested stakeholders through the EPP and its associated ETGs.
22. The EPP is a mechanism to help agree the information to be supplied to the Planning Inspectorate as part of the DCO application for the project to ensure compliance with the EIA Regulations and the Habitats Regulations.
23. The EPP aims to assist all parties in the process during the evolution of the proposed DCO application, by:
 - Giving greater certainty to all parties on the amount and range of evidence to be presented within the application;
 - Providing structure and efficiency to discussion and sequential identification of key environmental and consenting issues;
 - Enabling time and resource requirements to be planned and optimised for all parties;
 - Helping address and agree issues earlier in the pre-application stage where possible so that robust, streamlined decisions can be taken, and additional data can be collected as required; and
 - Providing a platform to debate advice on one topic between multiple agencies / stakeholders.
24. The EPP is a non-statutory, voluntary process, and there are no legal obligations associated with it. It does not replace or duplicate existing requirements, the plans are formulated to fit with the Planning Act 2008 DCO application process, including the statutory pre-application consultation processes.
25. The EPP is a framework within which statutory consultees and the Applicant ensure that the Habitat Regulations Assessment (HRA) process and agreed elements of the EIA process are completed in a way that is satisfactory to all parties involved. A steering group is formed, chaired by the Planning Inspectorate and made up of representatives from the Applicant (and its advisors), Natural England and the MMO. The steering group is responsible for overseeing progress of the Evidence Plan, agreeing resolution of any issues that emerge during the Plan process, ensuring that progress is maintained and providing sign-off for decisions of ETGs.
26. As part of the EPP ETGs have been set up as displayed in **Table 5.2** below. These groups are designed to streamline the process and ensure that the most relevant

technical experts from each organisation are represented on the ETGs, and attend ETG meetings.

Table 5.2 Group Structure for the East Anglia TWO Evidence Plan Process

Expert Topic Groups	Membership
Benthic Ecology	MMO Natural England Cefas
Fish and Shellfish Ecology	MMO Natural England Cefas
Marine Mammals	MMO Natural England The Wildlife Trust Whale and Dolphin Conservation
Ornithology	MMO Natural England RSPB
Physical Processes	Cefas MMO Natural England

27. The ETGs have the following functions:

- Agree the relevance, appropriateness and sufficiency of data for a specific assessment (including both site specific and contextual) and determine whether to continue or halt specific survey work and / or analysis);
- Agree the methods for data analysis;
- Agree realistic worst case parameters for the assessment(s);
- Agree methods for assessment(s) (including where possible interpretation of impact and levels of significance and potential mitigation or management measures); and
- Agree whether and when to change the evidence requirements and collect additional evidence, including how these should be collected and analysed, updating the plan and timetable as necessary.

28. The process is iterative and each group works through the above functions and agrees as much as they can during the pre-application period, with any outstanding areas of disagreement clearly documented.

29. Although the EPP is not part of the statutory consultation, it provides the audit trail for documents produced by the Applicant, which have been formally consulted upon. It is hoped that the minutes from meetings will help form the basis for Statements of Common Ground (SoCGs) and relevant sections of the Consultation Report, which will be submitted as part of the DCO application.

30. In addition to the EPP, onshore ETGs have been formed with the Local Planning Authorities and stakeholders with relevant expertise to the topic group, as shown in **Table 5.3**.

Table 5.3 Group Structure for the East Anglia TWO Onshore Expert Topic Groups

Onshore Topic Groups	Membership
Air Quality	Environment Agency Suffolk Coastal and Waveney District Councils Suffolk County Council
Archaeology and Cultural Heritage	Historic England Suffolk Preservation Society Suffolk Coastal and Waveney District Councils Suffolk County Council
Ground Conditions and Contamination	Environment Agency Suffolk Coastal and Waveney District Councils Suffolk County Council
Landfall and Coastal Processes	Suffolk Coastal and Waveney District Councils Suffolk County Council Environment Agency Natural England
Landscape and Visual Impact	Natural England Historic England Norfolk County Council Suffolk County Council Suffolk Coastal and Waveney District Councils Suffolk Coast and Heaths AONB
Noise and Vibration	Environment Agency

Onshore Topic Groups	Membership
	Suffolk Coastal and Waveney District Councils Suffolk County Council
Onshore Ecology and Ornithology	Natural England Environment Agency Suffolk Wildlife Trust RSPB Suffolk County Council Suffolk Coastal and Waveney District Councils
Site Selection	Natural England Historic England Environment Agency RSPB Suffolk County Council Suffolk Coastal and Waveney District Councils
Seascape, Landscape and Visual Impact	Historic England Natural England Norfolk County Council Suffolk Coast and Heaths AONB Suffolk Coastal and Waveney District Councils Suffolk County Council
Traffic and Transport	Highways England Suffolk Coastal and Waveney District Councils Suffolk County Council
Water Resources and Flood Risk	Anglian Water Environment Agency Suffolk Coastal and Waveney District Councils Suffolk County Council
Socio-economics and Tourism	Suffolk Coastal and Waveney District Councils Suffolk County Council Norfolk County Council Suffolk Coast and Heaths AONB Suffolk Destination Management Organisation

Onshore Topic Groups	Membership
	Visit East Anglia Visit Suffolk Great Yarmouth Tourism Business Improvement Area Ltd New Anglia Local Enterprise Partnership

5.4 The Project Design Envelope

31. The proposed East Anglia TWO project will be based on a project design envelope (or ‘Rochdale Envelope’) approach. It is recognised by the Planning Inspectorate (The Planning Inspectorate 2018) that, at the time of submitting an application, offshore wind developers may not know the precise nature and arrangement of infrastructure and associated infrastructure that make up the proposed development. This is due to a number of factors such as the evolution of technology and the need for further detailed surveys (especially geotechnical surveys) which are required before a final design and layout can be determined. This flexibility is important as it prevents consent being granted for specific infrastructure or a particular layout which is not possible or optimal by the time of construction, which may be several years after the DCO application was made.
32. The general principle of the assessment, under the project design envelope approach, is that for each receptor and potential impact, the impact assessment will be based on assessing project design parameters likely to result in the maximum adverse effect (i.e. the worst case scenario). If a combination of design parameters leads to a scenario that cannot realistically occur then the worst case scenario will be reconsidered and a realistic set of worst case parameters will be assessed. The end result will be an EIA based on clearly defined environmental parameters that will define the range of development possibilities and hence the likely environmental impacts that could result from the project.
33. Using the Rochdale envelope approach means that receptor-specific potential impacts draw on the options from within the wider envelope that represent the most realistic worst-case-scenario. It is also worth noting that under this approach the combination of project options constituting the realistic worst case scenario may differ from one receptor to another and from one impact to another.
34. In accordance with the accepted industry approach, the impact assessment is being undertaken based on a realistic worst case scenario of predicted impacts, which are set out within each topic chapter. The project design envelope for the proposed East Anglia TWO project is detailed in **Chapter 6 Project Description**.

5.5 Characterisation of the Existing Environment

35. Characterisation (a description) of the existing environment has been undertaken to determine the baseline conditions in the area covered by the project and relevant surrounding study areas. This characterisation has followed the steps listed below and are detailed in each technical chapter:

- Study areas defined for each receptor based on the relevant characteristics of the receptor (e.g. mobility/range);
- Review available information;
- Review likely or potential impacts that might be expected to arise from the project;
- Determine if sufficient data are available to make the EIA judgements with sufficient confidence;
- If further data required, ensure data gathered are targeted and directed at answering the key question and filling key data gaps; and
- Review information gathered to ensure the environment can be sufficiently characterised in sufficient detail and the data are suitable to make the EIA judgements with sufficient confidence.

36. The applicant has collated a significant amount of existing data from a number of sources. These are detailed in each technical chapter.

37. The specific approach to establishing a robust baseline (upon which impacts can be assessed) is set out under each chapter within this PEIR. This approach is based on feedback in the Scoping Opinion, and subsequent consultation with stakeholders. The approach has also evolved and adapted as new data have been collected and the design of the project has advanced.

5.5.1 Study Area

38. Study areas have been defined for each topic at the relevant scale, and are stated within the topic chapters. These have been determined by a number of factors such as the distribution of receptors, footprint of potential impact, or administrative / management boundaries (e.g. territorial waters, International Council for the Exploration of the Seas (ICES) rectangles) and where possible these have been agreed with regulators or advisors.

5.6 Assessment of Impacts

39. The approach to making balanced assessments for the project has been guided by the Royal HaskoningDHV EIA team and technical specialists using available data, new data, experience and expert judgement. In order to provide a consistent framework and system of common tools and terms, a matrix approach has been

used to frame and present the judgements made. For each topic, the most relevant and latest guidance or best practice has been used and therefore definitions of sensitivity and magnitude of impact are tailored to each receptor. These definitions are detailed fully in each technical chapter. The impact assessment considers the potential for impacts during the construction, operation and maintenance, and decommissioning phases of the project.

40. Impacts can be classified as follows:

- Direct impacts: these may arise from impacts associated with the construction, operation and maintenance, or decommissioning of the project;
- Indirect impacts: these may be experienced by a receptor that is removed (e.g. in space or time) from the direct impact (e.g. noise impacts upon fish which are a prey resource for fish or mammals).
- Inter-relationships between impacts; or
- Cumulative impacts: these may occur as a result of the project in conjunction with other existing or planned projects within the study area for each receptor.

5.6.1 Impact Identification

41. The assessment will use the conceptual ‘source-pathway-receptor’ model. The model identifies potential impacts resulting from the proposed activities on the environment and sensitive receptors within it. This process provides an easy to follow assessment route between impact sources and potentially sensitive receptors ensuring a transparent impact assessment. The aspects of this model are defined as follows:

- Source – the origin of a potential impact (i.e. an activity such as cable installation and a resultant effect e.g. re-suspension of sediments);
- Pathway – the means by which the effect of the activity could impact a receptor (e.g. for the example above, re-suspended sediment could settle and smother seabed); and
- Receptor – the element of the receiving environment that is impacted (this could either be a component of the physical, ecological or human environment such as water quality or benthic habitat, e.g. for the above example, species living on or in the seabed).

42. In general, the impact assessment for each topic will use this model when considering the potential impacts arising during the construction, operation and maintenance and decommissioning phases of the proposed East Anglia TWO offshore windfarm. In some cases it is appropriate to use other models for

assessment, for example for the Shipping and Navigation assessment where a risk assessment approach is required instead.

5.6.2 Significance of the Impact

43. The significance of impacts is evaluated with reference to definitive standards, accepted criteria, technical guidance or legislation where these exist, for each topic. Where it is not possible to quantify impacts, and where a qualitative or semi-qualitative assessment is made, a reasoned framework for the assessment is provided.
44. Where guidance is available for defining sensitivity and magnitude (whether from professional guidance or UK Government publications or bespoke definitions agreed with stakeholders) this is referred to. If such sources are available but have not been used then a justification for not using these are given.
45. Specific significance definitions for impacts have been developed, giving due regard to both sensitivity of the receptor and magnitude of the effect.

5.6.3 Determining Receptor Value and Sensitivity

46. The characterisation of the existing environment helps to determine the receptor sensitivity in order to assess the potential impacts upon it.
47. Receptor value considers whether, for example, the receptor is rare, has protected or threatened status, importance at local, regional, national or international scale, and in the case of biological receptors whether the receptor has a key role in the ecosystem function.
48. The ability of a receptor to adapt to change, tolerate, and/or recover from potential impacts will be key in assessing its sensitivity to the impact under consideration. For ecological receptors, tolerance could relate to short term changes in the physical environment; for human environment receptors, tolerance could relate to impacts upon socio-economics or safety. The time required for recovery will be an important consideration in determining receptor sensitivity.
49. The overall receptor sensitivity is determined by considering a combination of value, adaptability, tolerance and recoverability. This is achieved through applying known research and information on the status and sensitivity of the feature under consideration coupled with professional judgement and past experience.
50. Expert judgement is particularly important when determining the sensitivity of receptors. For example, an Annex II species (under the Habitats Directive) would have a high inherent value, but may be tolerant to an impact or have high recoverability. In this case, sensitivity should reflect the ecological robustness of

the species and not necessarily default to its protected status. Example definitions of the different sensitivity levels for a generic receptor are given in **Table 5.4**.

Table 5.4 Example Definition of Different Sensitivity Levels for a Generic Receptor

Sensitivity	Definition
High	Individual receptor has very limited or no capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Medium	Individual receptor has limited capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Low	Individual receptor has some tolerance to accommodate, adapt or recover from the anticipated impact.
Negligible	Individual receptor is generally tolerant to and can accommodate or recover from the anticipated impact.

51. The definitions of sensitivity given within each chapter are relevant to that particular EIA topic and are clearly defined by the assessor within the context of that assessment.

52. In addition, for some assessment the value of a receptor may also be an element to add to the assessment where relevant, for instance if a receptor is designated or has economic value.

53. Example definitions of the value levels for a generic receptor are given in **Table 5.5**.

Table 5.5 Example Definitions of the Value Levels for a Generic Receptor

Value	Definition
High	Internationally / nationally important (for example internationally or nationally protected site)
Medium	Regionally important / regionally protected site
Low	Locally important / rare but with high potential for mitigation
Negligible	Not considered to be important (for example common or widespread)

54. The terms 'high value' and 'high sensitivity' are not necessarily linked within a particular impact and it is important not to inflate impact significance specifically because a feature is valued'. For example, a receptor could be of high value (e.g. an Annex I habitat) but have a low or negligible physical / ecological sensitivity to an effect.

5.6.4 Predicting the Magnitude of Impacts

55. In order to predict the significance of an impact, it is fundamental to establish the magnitude and probability of an impact occurring through a consideration of:

- Scale or spatial extent (small scale to large scale or most of the population or a few individuals);
- Duration (short term to long term);
- Likelihood of impact occurring;
- Frequency; and
- Nature of change relative to the baseline.

56. Example definitions of the magnitude levels for a generic receptor are given in **Table 5.6**.

Table 5.6 Example of Definitions of the Magnitude Levels for a Generic Receptor

Value	Definition
High	Fundamental, permanent / irreversible changes, over the whole receptor, and / or fundamental alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Medium	Considerable, permanent / irreversible changes, over the majority of the receptor, and / or discernible alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Low	Discernible, temporary (throughout project duration) change, over a minority of the receptor, and / or limited but discernible alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Negligible	Discernible, temporary (for part of the project duration) change, or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the particular receptor's character or distinctiveness.

5.6.5 Evaluation of Significance

57. Subsequent to establishing the sensitivity and magnitude, the impact significance has been predicted by using quantitative or qualitative criteria, as appropriate, to ensure a robust assessment. Where possible the matrix presented in **Table 5.7** has been used to aid assessment of impact significance, based on expert judgement, to facilitate a consistent approach throughout the EIA. For each section of the PEIR, however, best practice methodology (based on the latest available guidance) is followed and, when more appropriate, an alternative approach to the use of a matrix may be used. Where an alternative approach is used, this is fully explained and justified within the relevant chapter.

Table 5.7 Significance of Impacts

		Negative Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

58. **Table 5.7** provides an indication of the significance of impacts used in the assessment process for the majority of parameters. In general, impacts which are of major or moderate significance are considered to be significant under the EIA Regulations. It is possible that a moderate impact may not be considered significant under the EIA Regulations however; in these cases a justification and rationale is provided in the impact assessment text.

59. A description of the approach to impact assessment and the interpretation of significance levels is provided within each chapter of this PEIR. This approach ensures that the definition of impacts is transparent and relevant to each topic under consideration.

5.6.6 Confidence

60. Once an assessment of a potential impact has been made, it is necessary to assign a confidence value to the assessment to assist in the understanding of the judgement. This is undertaken on a simple scale of high-medium-low, where high confidence assessments are made on the basis of robust evidence, medium confidence assessment being based, for example, on academic or scientific studies / papers, with lower confidence assessments being based, for example, on extrapolation and use of proxies.

5.6.7 Mitigation

61. Where an impact assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts, mitigation measures have been considered and discussed with the statutory consultees in order to avoid impacts or reduce them to acceptable levels and, if possible, to enhance the environment.

62. For the purposes of the EIA, two types of mitigation have been defined:

- Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and are included and assessed in the EIA; and
- Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted as a project commitment.

63. All mitigation associated with the proposed East Anglia TWO project is identified and described in more detail in the relevant chapters of the PEIR (chapters 7 – 30).

5.6.8 Assessing Residual Impacts

64. Following initial assessment, if the impact does not require additional mitigation (or none is possible) the residual impact will remain the same. If however, additional mitigation is proposed required there will should be an assessment of the post-mitigation residual impact. Inter-relationships

65. The impact assessment also considers the inter-relationship of impacts on individual receptors. For example, a landscape and visual effect and noise impact may cumulatively impact on a single receptor. This has been covered within each technical chapter in the inter-relationship section.

5.7 Cumulative Impact Assessment

5.7.1 Cumulative Impacts with the Proposed East Anglia ONE North Project

66. The proposed East Anglia TWO project and proposed East Anglia ONE North project are currently being developed in parallel but they will be submitted as two separate DCO applications. The assessment presented in this PEIR will assess the impacts of the proposed East Anglia TWO project alone and, through the use of appropriate assessment scenarios, cumulatively with the proposed East Anglia ONE North project.

67. The offshore topic assessments (chapters 7 – 17) will assess the interaction of the proposed East Anglia TWO and East Anglia ONE North projects following the standard cumulative impact assessment approach as described in **section 6.7.2**.

68. The proposed onshore development area, which includes landfall area, cable corridor and substation site, has been developed to allow for the construction of both the proposed East Anglia TWO and East Anglia ONE North projects. At this stage it is not known whether both projects would be constructed simultaneously or sequentially. Therefore the onshore topic assessments (chapters 18 – 27) will include two cumulative assessment scenarios which are considered to represent

the two worst case scenarios for construction of the onshore infrastructure. These are:

- **Scenario 1** will assess the impacts of the proposed East Anglia TWO and East Anglia ONE North projects being built simultaneously (at the same time); and
- **Scenario 2** will assess the impacts of the proposed East Anglia TWO and East Anglia ONE North projects being built sequentially. For the onshore infrastructure, this scenario assumes construction of the first project and full reinstatement, followed by the construction of the second project.

69. Following this assessment, for each onshore topic, the scenario which is considered to give rise to the most significant impacts will be taken forward for further cumulative impact assessment with other developments as described **section 6.7.2**.

70. Details of the infrastructure requirements and construction methodology relevant to each scenario can be found in **Chapter 6 Project Description**.

5.7.2 Cumulative Impact with other Developments

71. Cumulative Impact Assessment (CIA) is undertaken as part of each topic impact assessment. The scope of the CIA (in terms of relevant issues and projects) has been established with consultees (including other developers) as the EIA has progressed. In addition, experience from previous projects such as East Anglia ONE and East Anglia THREE, the wider Southern North Sea, and other UK projects has been considered as well as continuing work from industry-wide initiatives with regard to cumulative impact.

72. The Planning Inspectorate Advice Note Nine and its complementary guidance in Advice Note 17 (Planning Inspectorate 2018; 2015) advise that the following plans and projects should be considered in the CIA:

- Projects that are under construction;
- Permitted applications, not yet implemented;
- Submitted applications not yet determined;
- Projects on the Planning Inspectorate's Programme of Projects;
- Development identified in relevant Development Plans, with weight being given as they move closer to adoption and recognising that much information on any relevant proposals will be limited; and
- Projects identified in other policy documents as development reasonably likely to come forward.

73. Where it is helpful to do so 'Tiers' of these other projects' development statuses have been defined as well as the availability of information to be used within the CIA. This approach is based on the three tier system proposed in Planning Inspectorate Advice Note 17. In some technical chapters, a more refined tiering system based on the guidance issued by JNCC and Natural England in September 2013 is employed and involves six tiers as presented below (East Anglia THREE Limited 2013):

- Tier 1: built and operational projects;
- Tier 2: projects under construction plus Tier 1 projects;
- Tier 3: projects that have been consented (but construction has not yet commenced) plus Tiers 1 and 2;
- Tier 4: projects that have an application submitted to the appropriate regulatory body that have not yet been determined, plus Tiers 1-3;
- Tier 5: projects that the regulatory body are expecting to be submitted for determination (e.g. projects listed under the Planning Inspectorate programme of projects), plus Tiers 1-4; and
- Tier 6: projects that have been identified in relevant strategic plans or programmes plus Tiers 1-5.

74. The CIA is a two part process in which an initial list of projects with the potential to interact with the proposed East Anglia TWO project is identified, based on the potential mechanism of interaction. The tiered approach is then adopted to enable further assessment based on the availability of information for each project.

75. In line with the RenewableUK CIA Guidelines for offshore wind farms (RenewableUK 2013), the approach to CIA attempts to incorporate an appropriate level of pragmatism. This is demonstrated in the confidence levels applied to the understanding of other projects (either their design or their likely impacts), particularly those that are known but currently lack detailed design documentation, such as those projects at the scoping stage only. Projects can be considered in the CIA only where it is considered that there is sufficient detail with which to undertake a meaningful assessment. Where there is a lack of specific information in the public domain, such as how and when (or if) projects will be built, it is not always possible to undertake a meaningful CIA.

76. Where projects which were sufficiently implemented during baseline survey these are considered as part of the baseline for the EIA in line with Advice Note seventeen (the Planning Inspectorate 2015).

77. Offshore cumulative impacts may arise from interactions with the following activities and industries:

- Other offshore wind farms;
- Aggregate extraction and dredging;
- Licensed disposal sites;
- Sub-sea cables and pipelines;
- Potential port/harbour development; and
- Oil and gas activities.

78. Onshore plans or projects to be taken into consideration include (but are not limited to):

- Other energy generation or transmission infrastructure;
- Building/housing developments;
- Installation or upgrade of roads;
- Installation or upgrade of cables and pipelines;
- Coastal protection works; and
- National Grid works.

79. Sizewell C New Nuclear Power Station is a sensitive proposed development in the local area. The cumulative assessment presented in this PEIR assess where possible the potential cumulative impacts of the proposed East Anglia TWO project and Sizewell C New Nuclear Power Station. As further information regarding Sizewell C becomes available, the cumulative assessment will be updated for the Environmental Statement submitted with the proposed East Anglia TWO project DCO application.

80. The Applicant recognises that there is the potential for future proposed National Grid Ventures projects in the local area. However, at this stage, in accordance with The Planning Inspectorate Advice Note seventeen there is currently insufficient information within the public domain to enable the National Grid Ventures projects to be considered within the cumulative impact assessment presented in this PEIR.

81. The list of plans or projects included in the CIA is specific to each topic and is detailed in each technical chapter (chapters 7-30) and is being developed as part of on-going consultation with technical consultees.

5.8 Transboundary Impact Assessment

82. The United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment in a Transboundary Context (referred to as the Espoo Convention) requires that assessments are extended across borders between Parties of the Convention when a planned activity may cause significant adverse transboundary impacts.
83. Regulation 32 of the EIA regulations sets procedures to address issues associated with a development that might have a significant impact on the environment in another European Member State.
84. The procedures involve providing information to the Member State and for the Planning Inspectorate to enter into consultation with that State regarding the significant impacts of the development and the associated mitigation measures. Further advice on transboundary issues, in particular with regard to consultation is provided in the Planning Inspectorate Advice Note 12 (Planning Inspectorate 2018a).
85. In June 2018 the Planning Inspectorate issued a Transboundary Impacts Screening Matrix in accordance with Regulation 32 of the EIA Regulations and published a notification in the London Gazette inviting relevant European Economic Area (EEA) Member States to notify the Planning Inspectorate if they wish to be consulted on the proposed East Anglia TWO project. Separate to this formal consultation process the Applicant has consulted transboundary commercial fisherman and other transboundary consultees (including Rijkswaterstaat (The Netherlands) and Scottish Natural Heritage) based on previous experience from developing East Anglia ONE and East Anglia THREE.
86. More details regarding this transboundary consultation are detailed in the relevant technical chapters (chapters 7 - 17). Note that given that the geographical footprint of onshore construction impacts from this project are highly localised (see Chapters 18 - 30) and that there are no emissions such as gases or waste fluids associated with operation which could cause indirect far-field impact there is no pathway for transboundary effects from the onshore sources.
87. Potential transboundary impacts have been approached in a similar way to other cumulative impacts, with a clear audit trail provided to demonstrate why projects have been included or excluded. In accordance with the advice detailed above, relevant EEA member states have been consulted through targeted consultation including meetings with transboundary commercial fishermen and statutory consultees; and through the consultation on the PEIR.

5.9 Summary of Compliance with 2017 EIA Regulations

88. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 specifies the information to be included in the ESs for Nationally Significant Infrastructure Projects. **Table 5.8** summarises these requirements and signposts where these details can be found within this PEIR.

Table 5.8 2017 EIA Regulations: Information for Inclusion in Environmental Statements

Information for Inclusion in Environmental Statements	How has this information been provided within the East Anglia TWO PEIR
<p>A description of the development, including in particular—</p> <ul style="list-style-type: none"> • a description of the location of the development; • a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases; • a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; • an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases. 	<p>Chapter 6 Project Description provides a detailed description of the project including its location and physical characteristics onshore and offshore. This chapter also describes the main characteristics of the tasks required during the construction, operation and decommissioning phases of the project, setting out estimated durations of tasks, materials required and equipment likely to be used. The chapter also considers approaches to waste management and use of natural resources.</p> <p>Further details of impacts such as potential impacts on noise (Chapter 25 Noise and Vibration), air quality (Chapter 19 Air Quality), landscape (Chapter 29 Landscape and Visual Impact), land use (Chapter 21 Land Use), water (Chapter 20 Water Resources and Flood Risk) and other natural resources (Chapter 22 Onshore Ecology) are provided in dedicated technical impact assessment chapters and their technical appendices.</p>
<p>A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.</p>	<p>The reasonable alternatives considered in the development of the proposed project design are discussed and presented in Chapter 4 Site Selection and Assessment of Alternatives and its technical appendices. The process of the design development for the project, the consultation undertaken and how the views expressed during consultation have influenced the design development decisions and final project design are summarised within Chapter 4 Site Selection and Assessment of Alternatives. The comparative environmental effects of key design decisions and options considered are also presented</p>

Information for Inclusion in Environmental Statements	How has this information been provided within the East Anglia TWO PEIR
	as part of Chapter 4 Site Selection and Assessment of Alternatives .
<p>A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.</p>	<p>For each of the technical assessment chapters within the ES, a detailed baseline environment is described, as agreed through the scoping and EPP processes. In many cases this uses survey information gathered specifically to support the robust EIA for the proposed East Anglia TWO project.</p> <p>In all relevant technical assessment chapters, the likely evolution of the baseline without the implementation of the project is also presented.</p>
<p>A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.</p>	<p>This requirement is fulfilled in the following impact assessment chapters within the ES.</p> <p><u>Population and Human Health</u></p> <ul style="list-style-type: none"> • Chapter 27 – Human Health <p><u>Biodiversity</u></p> <ul style="list-style-type: none"> • Chapter 9 Benthic Ecology • Chapter 10 Fish and Shellfish Ecology • Chapter 11 Marine Mammals • Chapter 11 Ornithology • Chapter 22 Onshore Ecology • Chapter 23 Onshore Ornithology <p><u>Land</u></p> <ul style="list-style-type: none"> • Chapter 20 Water Resources and Flood Risk • Chapter 21 Land Use and Agriculture <p><u>Water</u></p> <ul style="list-style-type: none"> • Chapter 20 Water Resources and Flood Risk <p><u>Soil</u></p> <ul style="list-style-type: none"> • Chapter 18 Ground Conditions and Contamination • Chapter 21 Land Use <p><u>Air</u></p> <ul style="list-style-type: none"> • Chapter 19 Air Quality <p><u>Climate</u></p> <ul style="list-style-type: none"> • Chapter 2 Need for the Project • Chapter 3 Policy and Legislative Context <p>Climate change effects are also considered in a number of technical chapters including:</p>

Information for Inclusion in Environmental Statements	How has this information been provided within the East Anglia TWO PEIR
	<ul style="list-style-type: none"> • Chapter 7 Marine Geology, Oceanography and Physical Processes • Chapter 20 Water Resources and Flood Risk <p><u>Material assets</u></p> <ul style="list-style-type: none"> • Chapter 7 Marine Geology, Oceanography and Physical Processes • Chapter 17 Infrastructure and Other Users • Chapter 18 Ground Conditions and Contamination • Chapter 20 Water Resources and Flood Risk • Chapter 21 Land Use • Chapter 26 Traffic and Transport • Chapter 30 Socio-Economics and Tourism and Recreation <p><u>Cultural heritage, including architectural and archaeological aspects</u></p> <ul style="list-style-type: none"> • Chapter 16 Marine Archaeology and Cultural Heritage • Chapter 24 Archaeology and Cultural Heritage <p><u>Landscape</u></p> <ul style="list-style-type: none"> • Chapter 28 Offshore Seascape, Landscape and Visual Amenity • Chapter 29 Landscape and Visual Impact
<p>A description of the likely significant effects of the development on the environment resulting from, inter alia—</p> <p>a. the construction and existence of the development, including, where relevant, demolition works;</p> <p>b. the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>c. the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>d. the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>e. the cumulation of effects with other existing and/or approved projects, taking</p>	<p>The significant effects arising from the proposed development alone and cumulatively with other relevant developments have been comprehensively assessed within each technical assessment within this PEIR (Chapters 7 – 30).</p> <p>Potential impacts from major accidents or disasters are discussed in Chapter 6 Project Description.</p> <p>Potential implications of climate change are discussed within relevant technical chapters and are addressed specifically in Chapter 2 Need for the Project.</p> <p>Technologies and materials likely to be deployed in the project are discussed in Chapter 6 Project Description and throughout the technical assessment chapters.</p> <p>Chapter 5 EIA Methodology sets out the generalised EIA methodology including cumulative impact assessment and interrelationships used in this PEIR to</p>

Information for Inclusion in Environmental Statements	How has this information been provided within the East Anglia TWO PEIR
<p>into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>f. the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;</p> <p>g. the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC and Directive 2009/147/EC.</p>	<p>ensure a consistency of approach. Each technical chapter presents the detailed and specific assessment data analysis, and impact assessment methodologies applied to assess each potential impact identified. Each technical chapter also considers the potential cumulative impacts of the project taken together with other relevant projects and the potential interrelationships between impacts.</p>
<p>A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.</p>	<p>Forecasting methods used to identify and assess significant effects on the environment are discussed in the overall EIA methodology in Chapter 5 EIA Methodology and are also covered in more specific detail in each technical chapter EIA methodology and impact assessment.</p>
<p>A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.</p>	<p>Mitigation measures include embedded mitigation, which are design decisions taken to reduce environmental impact of the project as part of the design development and additional mitigation measures which are proposed as ways of further reducing the assessed likely significant environmental impacts. Each technical assessment chapter includes an explanation of the embedded mitigation measures and where appropriate additional mitigations proposed.</p> <p>Any proposed monitoring will be presented in the ES as part of the DCO application.</p>
<p>A description of the expected significant</p>	<p>Potential impacts from major accidents or disasters are discussed in Chapter 6 Project Description.</p>

Information for Inclusion in Environmental Statements	How has this information been provided within the East Anglia TWO PEIR
<p>adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.</p>	<p>A Navigational Risk Assessment has also been prepared and is included as Appendix 14.1 to Chapter 14 Shipping and Navigation.</p>
<p>A non-technical summary of the information provided in respect of the above requirements.</p>	<p>A suitable non-technical summary is provided as part of this PEIR.</p>
<p>A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.</p>	<p>A suitable reference list is provided at the end of each chapter. Where important documents are cited or are not available as references they are provided as technical appendices to each chapter.</p>
<p>Competent Expert Regulation 14(4): In order to ensure the completeness and quality of the environmental statement—</p> <ul style="list-style-type: none"> (a) the applicant must ensure that the environmental statement is prepared by competent experts; and (b) the environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts 	<p>The competency of the EIA team and experts is discussed in (section 5.3.2 and Appendix 5.1).</p>

5.10 References

East Anglia THREE Limited (2013) JNCC and Natural England Suggested Tiers for Cumulative Impact Assessment. Available at:

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