

East Anglia THREE

# Chapter 6

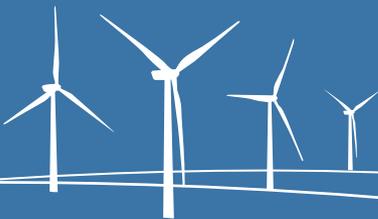
## Environmental Impact Assessment Methodology

**Environmental Statement**

Volume 1

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## Table of Contents

<b>6</b>	<b>Environmental Impact Assessment Methodology</b> .....	<b>5</b>
<b>6.1</b>	<b>Introduction</b> .....	<b>5</b>
<b>6.2</b>	<b>Requirement for EIA</b> .....	<b>5</b>
<b>6.3</b>	<b>Consultation on approach and methodology</b> .....	<b>6</b>
6.3.1	Scoping.....	6
6.3.2	The Evidence Plan Process.....	6
6.3.3	The Preliminary Environmental Information Report (PEIR) .....	7
6.3.4	The Draft Environmental Statement .....	7
<b>6.4</b>	<b>Project Specific Considerations</b> .....	<b>10</b>
6.4.1	Single Phase or Two Phased Approach to Construction .....	10
6.4.2	Worst Case.....	10
<b>6.5</b>	<b>Study Areas</b> .....	<b>11</b>
<b>6.6</b>	<b>Characterisation of the Existing Environment</b> .....	<b>11</b>
<b>6.7</b>	<b>Assessment of Impacts</b> .....	<b>12</b>
6.7.1	Impact Identification .....	13
6.7.2	Significance of the Impact .....	14
6.7.3	Impact Assessment Methodology .....	16
<b>6.8</b>	<b>Cumulative Impact Assessment (CIA)</b> .....	<b>19</b>
6.8.1	Cumulative Impacts .....	19
6.8.2	Baseline for the CIA .....	21
6.8.3	Cumulative Impact Screening and Assessment Process .....	21
<b>6.9</b>	<b>Transboundary Impact Assessment</b> .....	<b>23</b>
6.9.1	Context .....	23

<b>6.10</b>	<b>Interrelationships .....</b>	<b>24</b>
<b>6.11</b>	<b>References.....</b>	<b>25</b>

## 6 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

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### 6.1 Introduction

1. This chapter introduces the methodology used throughout the Environmental Statement (ES) assessment chapters.
2. The general methodology used complies with the requirements of the Planning Act 2008 (as amended by the Localism Act 2011) and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations). For further details see Chapter 3 Policy and Legislative Context of this ES.
3. Attention has also been given to the requirements of the Habitats and Species Regulations 2010, The Offshore Marine Conservation (Natural Habitats, &c.) (Amendment) Regulations 2010 and the Marine and Coastal Access Act (MCAA) 2009.
4. The methodology described has taken into account the most recent relevant guidance, as outlined throughout this Chapter and has also taken into account consultation undertaken by East Anglia THREE Limited (EATL) and East Anglia ONE Limited (EAOL).

### 6.2 Requirement for EIA

5. EIA is a procedure required under the terms of European Union Directive 85/337/EEC, as amended, on assessment of the effects of certain public and private projects on the environment (see Chapter 3 Policy and Legislative Context for further detail on the relevant legislation). EIA systematically examines and assesses the potential effects of a development on the environment. The EIA process includes collection of the data required to identify and assess the main effects which the development is likely to have on the environment; identify any significant adverse impacts and propose measures where possible to avoid, reduce or remedy any adverse impacts.
6. 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 consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size of location are made subject to a requirement for development consent and an assessment with regard to their effects.'*
7. The EIA process and its final findings are reported within this ES which is being submitted to the Planning Inspectorate along with supplementary documents as part of the Development Consent Order (DCO) application.

8. The purpose of the ES is to inform the decision-maker (in this case, the Secretary of State for Energy and Climate Change), stakeholders and all interested parties of any significant environmental issues that would result from the proposed project during its construction, operation and (where relevant) decommissioning.

### 6.3 Consultation on approach and methodology

#### 6.3.1 Scoping

9. A request for a scoping opinion was submitted to the Planning Inspectorate in November 2012 which outlined the proposed project and described broadly the impacts to be assessed as part of the EIA and methodology for these assessments.
10. A formal Scoping Opinion (Planning Inspectorate, 2012) was received in December 2012. The Scoping Opinion collated opinion from consultees and highlights where there is agreement on what could be scoped in or out of the EIA. Three topics were scoped out entirely: Offshore Air Quality; Offshore Airborne Noise; and Offshore Telecommunications and Interference. Topic specific points from the Scoping Opinion are referenced in the relevant consultation tables within the topic chapters (Chapters 7-29).

#### 6.3.2 The Evidence Plan Process

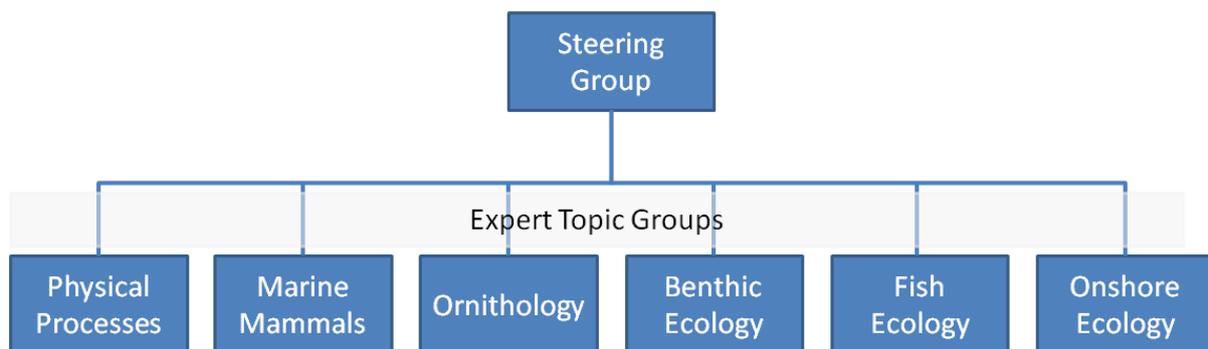
11. Throughout the EIA process an Evidence Plan has been used to help agree the ecological information required, the methodologies used in the assessment and to ensure compliance with the EIA requirements and other regulatory/policy requirements. The voluntary Evidence Plan process was introduced by the Major Infrastructure and Environment Unit (MIEU), created following Defra's Habitats Regulations Review to assist infrastructure projects of national significance in England with some key Habitats Regulations challenges. The East Anglia THREE Evidence Plan commenced on the 10<sup>th</sup> January 2013 and has continued throughout the consultation on the Preliminary Environmental Information Report (PEIR) and up to submission of the DCO. Consultation undertaken throughout the preparation of the DCO application is provided in the Consultation Report which is submitted as part of the DCO application.
12. The Evidence Plan is a framework within which statutory consultees and EATL 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 chaired by MIEU was made up of EATL, Defra, Natural England<sup>1</sup> and

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<sup>1</sup> Note that originally the Joint Nature Conservation Committee (JNCC) was also represented within this process until changes in remit led JNCC to pass this role exclusively to Natural England

the MMO, with the Planning Inspectorate attending in a facilitative role. 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 Expert Topic Groups (ETGs).

13. Within the Evidence Plan ETGs were set up as displayed in *Diagram 6.1* below. These groups were designed to streamline the process and ensure that the most relevant technical experts from each organisation were represented on the ETGs, and attended ETG meetings.



**Diagram 6.1 Group Structure for the East Anglia THREE Evidence Plan.**

14. Each ETG is responsible for agreeing the approach to addressing technical issues such as how data is collected and how it is interpreted and agreeing methodologies used within the impact assessment. The Evidence Plan process will also facilitate the production of Statements of Common Ground (SoCG) between the parties involved at the beginning of the Planning Inspectorate examination process. Documents used in the ETG meetings can be found in appendices to the relevant technical chapters including *Appendices 7.1, 10.1, 11.1 12.1, 13.2 and 23.3*

### **6.3.3 The Preliminary Environmental Information Report (PEIR)**

15. The PEIR was sent to consultees in May 2014. The PEIR was a complete as possible draft of the ES and enabled consultation on detailed methodologies prior to the completion of the final ES.

### **6.3.4 The Draft Environmental Statement**

16. A draft of this chapter was supplied to the Planning Inspectorate in advance of the DCO submission in autumn 2015. Specific comments on this chapter are included in *Table 6.1*.
17. All receptor topic specific methodological comments are included within the consultation tables of the relevant chapters.

**Table 6.1 Consultation responses**

Consultee	Date / Document	Comment	Response / where addressed in the ES
<b>PEI</b>			
Natural England	July 2014	<p>We are concerned that, using the definitions in Table 6.3 (magnitude levels to a generic receptor), it would be possible to class the magnitude of an effect incorrectly. In our view, if a magnitude is permanent and across the majority of the receptor, it may be considered a high, rather than medium magnitude.</p> <p>Note that if the magnitude of an effect is defined as medium rather than high, it potentially impacts on the impact significance matrix (Table 6.4) used in assessments throughout the document.</p> <p>Natural England therefore advises that these definition tables for the magnitude of an effect should be revisited throughout the submitted documentation, in order to ensure that medium and high definitions are clearly defined. Note that we are happy with definitions for sensitivity and value.</p>	The definitions in the Chapter are examples only. Each receptor chapter includes definitions specific to that receptor, in many cases these have been discussed and agreed with Natural England as part of the Evidence Plan process.
<b>Draft ES</b>			
The Planning Inspectorate	September 2015	The Inspectorate notes the applicant's statement at paragraph 2 that states 'the general methodology used is in accordance with' the Planning Act 2008 and the EIA Regulations. The legislation does not specify the methodology but rather the DCO application and ES need to comply with these. The applicant may wish to consider re-phrasing this sentence.	The text has been amended
The Planning Inspectorate	September 2015	Section 6.3.2 confirms that the Inspectorate was part of the Evidence Plan (EP) steering group. The applicant may wish to clarify in this section that the Inspectorate had a facilitative role. The Inspectorate did not act as arbitrator or decision maker on any issues arising from or discussed at the meetings.	The text has been amended
The Planning Inspectorate	September 2015	Paragraph 19 refers to the 'final design stage' but it is not clear from this chapter what this stage is and when it would occur. It may be that information on the final design stage is explained in other chapters to the ES; however, the applicant	This has been clarified

Consultee	Date / Document	Comment	Response / where addressed in the ES
		may wish to add a clarifying statement on this point.	
The Planning Inspectorate	September 2015	The Inspectorate notes that paragraph 29, which summarises potential projects/activities considered in relation to cumulative impacts, only refers to offshore and marine examples of projects/activities. Section 6.8 (Cumulative Impact Assessment) subsequently acknowledges that onshore projects will also be considered. The applicant may wish to clarify at paragraph 29 that onshore projects will also be considered, if that is indeed the case.	The text has been amended
The Planning Inspectorate	September 2015	In relation to assigning values to a receptor, the Inspectorate notes that Table 6.2 includes as an example of the definition of 'Low' value, receptors that are 'rare but with high potential for mitigation'. The Inspectorate is unclear how the applicant would consider such value, as it usual to take into account the anticipated effects of mitigation on potential impacts when assigning value to a receptor. The applicant may wish to clarify what this meant by this statement.	The key point here is that this is in regard to locally important receptors, which could perhaps be repopulated from other locations. Note that the definitions are only indicative and these are covered where relevant in each of the receptor chapters and defined specifically for each receptor
The Planning Inspectorate	September 2015	The Inspectorate welcomes the inclusion of the confidence assessment at Section 6.7.3.2. It is noted that the proposed confidence assessment would be provided to state confidence in the data used. The applicant may also wish to consider including a confidence level with regard to the likelihood of change/activity occurring and the degree of confidence in the assessment of the impact, such as that promoted by the Chartered Institute of Ecology and Environmental Management (CIEEM) in their Guidelines for Ecological Impact Assessment (2006). It is noted that the applicant proposes to include an 'opinion on the confidence in the accuracy of the assessment' for cumulative effects (paragraph 66). This should also be considered for the impact assessment.	The receptor chapters all include confidence levels for the data used and where relevant/appropriate discuss the confidence in the assessments. This is stated in paragraph 51 and covers all parts of the assessment both project specific and cumulative
The Planning Inspectorate	September 2015	The Inspectorate notes that 'Stage 5' of the cumulative impact assessment screening and assessment approach (as presented in Section 6.8.3) identifies a potential need to revisit a particular assessment. The Inspectorate welcomes	The projects included in the cumulative impact assessments (and in-combination assessment for HRA) have been updated for all receptor topics covered by the ES based upon

Consultee	Date / Document	Comment	Response / where addressed in the ES
		the inclusion of an opportunity to revisit the assessment, as the Inspectorate noted that Stage 3 stated that the list of cumulative projects was agreed for HRA Screening or Preliminary Environmental Information (PEI) stage. As the Inspectorate understands that the HRA Screening and PEI were carried out in May 2014, there could be the potential for the project to have changed since the production of this information. The applicant should ensure that cumulative projects and plans have been screened and assessed against the project as proposed in any DCO application. Related to the above, the applicant should clarify if 'consultation responses' as stated in Stage 5 would be the responses to the HRA Screening and PEI report.	best available information available in 2015. Where relevant stakeholder consultation has contributed to this (in particular the input of Suffolk County Council with respect to onshore projects).

## 6.4 Project Specific Considerations

### 6.4.1 Single Phase or Two Phased Approach to Construction

18. EATL are currently considering constructing the project using a Single Phase or Two Phased approach. Under the Single Phase approach the project would be constructed in one single build period and under a Two Phased approach the project would be constructed in two phases each consisting of up to 600MW (see Chapter 5 Description of the Development).
19. Each topic assessment identifies potential impacts resulting from both Single Phase and Two Phased approach within the topic chapters. The only differences between effects of the two approaches will be during the construction phase; any operational impacts would be the same regardless of the construction approach.

### 6.4.2 Worst Case

20. It is recognised 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, as outlined in the Planning Inspectorate's National Infrastructure advice note nine (the Planning Inspectorate, 2012b, see Chapter 3 Policy and Legislative Context for further details). The term used to describe the process and set of parameters adopted for a specific

project is referred to as the Rochdale Envelope<sup>2</sup> in reference to the legal precedent case law which tested this approach.

21. EATL are currently considering both a High Voltage Direct Current (HVDC) and a Low Frequency Alternative Current (LFAC) electrical solution for the proposed East Anglia THREE project. In order for the EIA to be comprehensive and adequate a worst case approach has been taken within the EIA which allows the worst case environmental impacts arising from both options to be considered, assessed and presented in this ES. A decision on the final electrical solution for the proposed East Anglia THREE project will be made during the final design stage (i.e. post-consent) and will be based on the best available technology at that time and the solution which will best minimise power loss during transmission. The range of values presented in this ES covers the worst case, for both the HVDC and the LFAC solution unless specified (see Chapter 5 Description of the Development).
22. This approach is consistent with the EIA Regulations which require ‘an indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information’.

## 6.5 Study Areas

23. 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.

## 6.6 Characterisation of the Existing Environment

24. Characterisation of the existing environment has been undertaken in order to determine the baseline conditions in the area covered by the proposed East Anglia THREE project. This followed the steps listed below:
  1. Review available relevant information;
  2. Review likely impacts;

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<sup>2</sup> Case law (for example Rochdale MBC Ex. Parte C Tew 1999) provides a legal principle that indicative sketches and layouts cannot provide the basis for determining applications for EIA development.

3. Determine if there are sufficient data to make the environmental impact assessment judgement with sufficient confidence;
  4. If further data are required ensure that data gathered are targeted and directed at answering the key question and filling key data gaps; and
  5. Review the information gathered to ensure the environment can be sufficiently characterised (i.e. described).
25. A significant amount of existing data has been collated from a number of sources including:
- Data acquisition and subsequent Zone Environmental Appraisal (ZEA) process undertaken for the East Anglia Zone;
  - Data acquisition and subsequent environmental impact assessment process undertaken for the East Anglia ONE project (including all desk top reviews and studies); and
  - Data acquisition specific to the proposed East Anglia THREE project.
26. This has provided a comprehensive suite of information to enable characterisation of the existing environment. The specific approach to establishing a robust baseline (upon which impacts are assessed) for each topic is set out under the relevant chapter within this ES.

## 6.7 Assessment of Impacts

27. Under the 2009 EIA Regulations schedule 4, an ES should include "a description of the likely significant effects of the development on the environment which should cover the direct effects and any indirect, secondary, cumulative, short medium and long term, permanent and temporary, positive and negative effects of the development resulting from (a) the existence of the development (b) the use of natural resources (c) emission of pollutants, the creation of nuisances and the elimination of waste".
28. The approach to impact identification and classification is set out at 6.7.1 below; significance at 6.7.2; impact assessment methodology at 6.7.3; cumulative impact assessment at 6.8; transboundary impact assessment at 6.9; and interrelationships at 6.10.

### 6.7.1 Impact Identification

29. The assessment approach adopts 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 parameters 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).
30. In general, the impact assessment section of each topic chapter (Chapters 7-29) uses this source-pathway-receptor principle when considering the potential impacts arising during the construction, operation and decommissioning phases of the proposed East Anglia THREE project. Where it is appropriate to use other models for assessment (for example for the navigation and shipping assessment where a risk assessment is required) the chapter text details the specific model used.
31. Impacts can be classified as follows:
- Direct impacts: these arise from impacts associated with the construction, operation or decommissioning of the proposed East Anglia THREE project (e.g. the loss of species within the footprint of the wind turbine foundation, cable installation etc.).
  - Indirect impacts: these may be experienced by a receptor that is removed (in space or time) from the direct impact (e.g. noise impacts upon fish affecting prey resource for fish or mammals). These impacts also include consideration of inter-relationships highlighted by the Planning Inspectorate’s National Infrastructure advice note nine (the Planning Inspectorate, 2012b).
  - Cumulative impacts: these can occur as a result of the proposed East Anglia THREE project in conjunction with other planned developments or activities both offshore and onshore.

32. The term ‘in-combination effects’ will also be used specifically in relation to significant effects on European Sites during the HRA process.

### 6.7.2 Significance of the Impact

33. The significance of impacts is evaluated with reference to definitive standards, accepted criteria, technical guidance or legislation where these exist, for each technical study. Where it is not possible to quantify impacts, and where a qualitative or semi-qualitative assessment is made, and a logical framework for the assessment is provided.
34. Where guidance is available for defining sensitivity and magnitude (whether from professional guidance or 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.
35. Specific significance criteria definitions for impacts have been developed, giving due regard to both sensitivity of the receptor and magnitude of the effect.

#### 6.7.2.1 Sensitivity

36. The sensitivity of the resource or receptor depends on a range of factors including:
- Rarity;
  - Scale; and
  - Robustness to change.
37. Example definitions of the different sensitivity levels for a generic receptor are given in *Table 6.2*.

**Table 6.2 Example Definitions of the Different Sensitivity levels for a Generic Receptor**

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

38. The definitions of sensitivity given within each ES chapter are relevant to that particular EIA topic and are clearly defined by the assessor within the context of that assessment.
39. In addition, for some assessments 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 an economic value.
40. Example definitions of the value levels for a generic receptor are given in *Table 6.3*.

**Table 6.3 Example Definitions of the Value Levels for a Generic Receptor**

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

41. 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 1 habitat) but have a low or negligible physical / ecological sensitivity to an effect.

#### 6.7.2.2 Magnitude

42. Magnitude of effect is used to encompass all the dimensions of the predicted impact including:
  - Nature of the change;
  - Effect size, scale or intensity;
  - Effect geographical extent and distribution (or number of individuals affected); and
  - Effect duration, frequency, reversibility.
43. Example definitions of the magnitude levels for a generic receptor are given in *Table 6.4*.

**Table 6.4 Example Definitions of the Magnitude Levels for a Generic Receptor**

Magnitude	Definition
<b>High</b>	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.
<b>Medium</b>	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.
<b>Low</b>	Discernible, temporary (throughout the proposed East Anglia THREE 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.
<b>Negligible</b>	Discernible, temporary (for part of the proposed East Anglia THREE 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.

44. The definitions of magnitude of impact for each EIA topic are outlined within the relevant ES chapter and have been clearly defined by the assessor within the context of each specific assessment.

### 6.7.3 Impact Assessment Methodology

45. Following the identification of receptor value, sensitivity and magnitude of the effect, it is possible to determine the significance of the impact. A matrix, as presented in *Table 6.5*, will be used wherever relevant. However, for some topics, a different approach may be more appropriate; for example threshold approach based on specific guidance has been used for the onshore air quality assessment. It is important that the matrix (and indeed the definitions of sensitivity and magnitude) should be used as a framework to aid understanding of how a judgement has been reached from the narrative of each impact assessment, rather than method of assessment in itself.
46. Each of the topic chapters provides the criteria, including sources and justifications, for quantifying the different levels of impact. Where possible, this is based upon quantitative and accepted criteria (for example, noise assessment guidelines, or biological removal thresholds determined through population modelling), together with the use of value judgement and expert interpretation to establish to what extent an impact is significant.

**Table 6.5 Impact Significance Matrix**

Sensitivity	Magnitude				
	High	Medium	Low	Negligible	No change
High	Major	Major	Moderate	Minor	No Impact
Medium	Major	Moderate	Minor	Negligible	No Impact
Low	Moderate	Minor	Minor	Negligible	No Impact
Negligible	Minor	Negligible	Negligible	Negligible	No Impact

47. As with the definitions of magnitude and sensitivity, the matrix used for a topic is clearly defined by the assessor within the context of that assessment. The impact significance categories are divided as shown in *Table 6.6* with generic definitions.

**Table 6.6 Impact Significance Definitions**

Impact Significance	Definition
<b>Major</b>	Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or, could result in exceedance of statutory objectives and / or breaches of legislation.
<b>Moderate</b>	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
<b>Minor</b>	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision making process.
<b>Negligible</b>	No discernible change in receptor condition.
<b>No impact</b>	No impact, therefore no change in receptor condition.

48. For the purposes of the EIA, major and moderate impacts are deemed to be significant, and, as such, require mitigation. Whilst minor impacts are not significant in their own right, these have been distinguished from other non-significant impacts as they may contribute to significant impacts cumulatively or through interactions.

#### 6.7.3.1 Embedded Mitigation, Impact and Residual Impact

49. The EIA regulations require a description of the measures envisaged to prevent, reduce and (where possible) offset any significant adverse effects on the environment.

50. Where possible, embedded mitigation, i.e. mitigation identified at an early stage (often using experience from operational projects), can include:
- The design elements aimed at reducing impacts;
  - Commitment to best practice;
  - Commitment to pre-construction surveys; and
  - Commitment to consultation.
51. Embedded mitigation is incorporated into the project design, and listed where relevant for each topic. Impacts have then been assessed with this mitigation in place.
52. Where impacts are significant and mitigation is required, impacts have been re-assessed and the post-mitigation or 'residual impact' identified. If the impact does not require mitigation (or none is possible) the residual impact will remain the same.

#### 6.7.3.2 Confidence Assessment

53. As highlighted in some of the scoping responses, given the number of uncertainties around some topics, thought has been given to the level of confidence in relation to the data used (e.g. baseline data, impact evidence base, modelling tools) and the resulting assessment conclusions. This is particularly important for the ecological assessments. For some topics (e.g. aviation or shipping and navigation) where impacts are well understood and impacts can be wholly mitigated if required (e.g. due to safety requirements) a confidence assessment is not required.
54. A simple 'high', 'medium' and 'low' scale has been used to provide an overview of the confidence in the data and information that can be used to underpin impact assessment. Definitions of confidence are presented in *Table 6.7*.

**Table 6.7 Data Confidence**

Data / Information Confidence	Types of data / Information
High	<p>East Anglia THREE Limited's (EATL) own quantitative, semi-quantitative or qualitative site specific data that are considered suitable for informing the EIA</p> <p>Peer reviewed and / or industry standard third party quantitative, semi-quantitative or qualitative data.</p>
Medium	<p>EATL's own less robust quantitative, semi-quantitative or qualitative data that is either a result of incomplete survey coverage or based on extrapolation (e.g. modelling or use of a proxy).</p> <p>Third party data supplied to or obtained by EATL that has not been subject to peer review and cannot be quality controlled (e.g. survey / modelling data from other EIAs).</p> <p>Peer reviewed and grey literature that is considered relevant, but either too old or not sufficient to inform assessment in its own right.</p>
Low	<p>There is a lack of robust data and information and / or data quality is not within EATL's control. In such cases, precautionary worst cases are likely to be required.</p> <p>Impact assessment based largely upon modelling (not underpinned by empirical evidence) or upon a combination of models which introduce uncertainty</p>

55. The use of models or multiple models can introduce uncertainty into the assessment. This is particularly the case where models are largely theoretical and for which there is limited or no clear evidence base available, or where multiple models are used which introduce precaution at every stage of the modelling process.
56. Tables of data confidence are provided at the start of each assessment chapter.

## 6.8 Cumulative Impact Assessment (CIA)

### 6.8.1 Cumulative Impacts

57. Advice note nine (the Planning Inspectorate 2012b) states:
58. *"In preparing such information, it should not be forgotten that the purpose of an EIA is to inform the examination, and decision making process. The EIA should be clear and practical.*

59. *In assessing cumulative impacts, other major development should be identified through consultation with the local planning authorities and other relevant authorities 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 Planning Inspectorate'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*
  - *Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward."*
60. Cumulative Impact Assessment (CIA) can be defined as identifying areas where the predicted impacts of the construction, operation, maintenance and decommissioning of the proposed East Anglia THREE project could interact with impacts from different industry sectors within the same region and impact sensitive receptors. This could be either through direct interaction of impacts or spatially separated impacts of the same population of a receptor.
61. Types of projects to be taken into consideration include:
- Other windfarms;
  - Aggregate extraction and dredging;
  - Licensed disposal sites;
  - Navigation and shipping;
  - Existing and planned construction of sub-sea cables and pipelines;
  - Potential port / harbour development;
  - Oil and gas installations; and
  - Onshore infrastructure projects (e.g. road, rail, building developments).

62. The CIA for each receptor topic are based on generic advice such as:
- Advice note nine (the Planning Inspectorate 2012b);
  - A Strategic Framework for Scoping Cumulative Effects (Marine Management Organisation 2014);
  - Cumulative Impact Assessment Guidelines Guiding Principles For Cumulative Impacts Assessment In Offshore Wind Farms (RenewableUK 2013); and
  - Environmental impact assessment for offshore renewable energy projects (British Standards Institute 2015)
63. Additionally, specific guidance may be available for individual topics, such as King et al (2009) which gives guidance for ornithological impacts. The CIA methodology for each topic is explained in each of the relevant chapters (Chapters 7-29) of this ES.

#### **6.8.2 Baseline for the CIA**

64. The Planning Inspectorate's National Infrastructure advice note nine (the Planning Inspectorate, 2012b) states:
65. *"The potential cumulative impacts with other major developments will also need to be carefully identified such that the likely significant impacts can be shown to have been identified and assessed against the baseline position (which would include built and operational development)."*
66. It therefore follows that the baseline against which a particular impact is assessed must take into account the status quo. This is obvious for impacts that occur once (i.e. during construction) but perhaps less obvious for on-going operational impacts. For example, with regard to mortality impacts upon mobile species, the baseline should include any existing mortality from both background and anthropogenic sources. The project-specific impact under assessment builds upon this baseline level as does any cumulative impact assessment.
67. The baseline environment offshore takes into account the characterisation of the ecology, which in turn is influenced by historic and ongoing fishing practices. Commercial fisheries are therefore not included in this list of projects to be considered above in CIA.

#### **6.8.3 Cumulative Impact Screening and Assessment Process**

68. Stages of the screening and assessment process for cumulative projects can be described as follows:

- Stage 1: Definition of study area - based on receptor ecology and / or footprint of impact (temporal and spatial). An initial list of potential projects which could have a cumulative impact with the proposed East Anglia THREE project is created. This process is undertaken for each EIA topic and each cumulative list may differ from topic to topic. The list of topics is based on a clear source-pathway-receptor model, which is the basis of the audit trail and the rationale upon which the assessment is based.

The output of Stage 1 is a 'long list' of potential projects for each receptor.

- Stage 2: Consideration of stage of project - for those projects identified in Stage 1 consideration is given to what phase each project is in i.e. a concept, in planning, consented, under construction or operational. Those projects which are operational (or potentially under construction, dependent upon the impact) may be considered as part of the baseline.

The output of stage 2 is a reduced list of projects. A commentary is provided as to why each is included or excluded.

- Stage 3: Data collation – At this stage it is important to collect the available data for potential cumulative projects and rule out (where appropriate) further consideration of projects for which there is little or no information. The most up-to-date information is gathered; where information is not available there may be a question of whether the proposed East Anglia THREE project assessment should undertake a proxy assessment for another project. It should be possible at this stage to rule out those projects where little or no cumulative impact is expected on the basis of the source-pathway-receptor model, (i.e. impact too small or too localised to be cumulative). It should also be possible to rule out those projects for which there is no reasonable information available on which to take them forward in the assessment.

The output of Stage 3 is a final reduced list of projects. A commentary is provided for each on why it is included or excluded. The list is then agreed for HRA screening or preliminary environmental information (PEI) stage.

- Stage 4: Assessment - an assessment is made of the significance of impacts where a cumulative effect between the proposed East Anglia THREE project and other relevant projects has been identified. Assessments are made for each EIA topic, with a clear audit trail provided. Where no cumulative impacts have been identified (e.g. if there is no pathway), this is highlighted. For each topic there is a clear description of the criteria used to determine whether cumulative impacts are likely and which

project(s) (if any) are included in the cumulative impact assessment. This is based upon the latest guidance for a particular topic and any discussions with the regulator and advisors.

The output of Stage 4 is an assessment of the significance of the impact which includes an opinion on the confidence in the accuracy of the assessment, covering data sources (in particular if worst case project definitions have been widely used), modelling undertaken and any other assumptions made. CIA are included in:

- Topic chapters (Chapters 7-29) within this ES; and
  - The HRA report which forms part of the DCO submission.
- Stage 5: Assessment update – dependent upon consultation responses there may be a requirement to revisit a particular assessment.

69. The output of stage 5 will be the final assessment used within the DCO submission.

## 6.9 Transboundary Impact Assessment

### 6.9.1 Context

70. 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.

71. Advice note twelve (the Planning Inspectorate 2012b) states:

72. *“As part of their request to the Secretary of State for a scoping opinion, developers are strongly encouraged to identify both the possible significant transboundary impacts or, where applicable, why they consider that there would not be any significant impacts on the environment of another EEA State. A clear way of presenting the information would be in the form of a screening matrix and developers are encouraged to adopt such an approach. This will help the Secretary of State to identify in their scoping opinion the matters to be considered in the environmental statement which relate to transboundary impacts.*

73. *It will be in a developer’s interest to engage in pre-application consultation with the relevant EEA State as early as possible as there is a risk that there may be insufficient time during the examination to allow proper consideration of transboundary impacts. Where the examining authority is not satisfied before the examination concludes that*

*measures have been provided to avoid, reduce and if possible offset the significant adverse transboundary impacts (in accordance with the objective of the Espoo Convention) there may be no alternative at that stage but to refuse development consent.”*

74. 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 at the scoping stage; through targeted consultation such as meetings with Dutch, Belgian and French commercial fishermen and statutory consultees; and through the consultation on the PEIR. This approach is in line with recent Department of Energy and Climate Change (DECC) advice (DECC, 2015).

### 6.10 Interrelationships

75. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 state in Schedule 4, Information for inclusion in environmental statements, requirement for:
76. *“A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape **and the interrelationship between the above factors**”.*
77. Advice note nine (the Planning Inspectorate, 2012) states:
78. *“The ES should not be a series of separate unrelated topic reports. The interrelationship between aspects of the proposed development should be assessed and careful consideration should be given by the developer to explain how interrelationships have been assessed in order to address the environmental impacts of the proposal as a whole. It need not necessarily follow that the maximum adverse impact in terms of any one topic impact would automatically result in the maximum potential impact when a number of topic impacts are considered collectively. In addition, individual impacts may not be significant but could become significant when their inter-relationship is assessed. It will be for the developer to demonstrate that the likely significant impacts of the project have been properly assessed.”*
79. Each topic within the assessment identifies all relevant inter-relationships, where these occur, in a simple manner. Inter-relationships assessment is also used to assess ecosystem services in the EIA. Taking the Planning Inspectorate advice into account, care needs to be taken when judging the significance of an impact on one

receptor as this relates to another; this is a matter of expert judgement and is clearly explained within each assessment topic.

## 6.11 References

British Standards Institute (2015) PD 6900:2015 Environmental impact assessment for offshore renewable energy projects – Guide, March 2015 Link:  
<http://shop.bsigroup.com/upload/271276/PD%206900.pdf> – Accessed 29/05/15

Department of Energy and Climate Change (DECC) (2015) Guidelines on the assessment of transboundary impacts of energy developments on Natura 2000 sites outside the UK, March 2015

IEEM (2006) Guidelines for Ecological Impact Assessment in the United Kingdom (version 7).

King, S., Maclean, I., Norman, T. & Prior, A. (2009) Developing guidance on ornithological cumulative impact assessment for offshore wind farm developers. COWRIE CIBIRD Stage 2.

Marine Management Organisation (2014) A Strategic Framework for Scoping Cumulative Effects, December 2014

The Planning Inspectorate (2012a) Scoping Opinion Proposed East Anglia THREE Offshore Windfarm

The Planning Inspectorate (2012b) Advice note nine: Rochdale Envelope

The Planning Inspectorate (2012c) Advice note twelve: Development with significant transboundary impacts consultation

RenewableUK (2013) Cumulative Impact Assessment Guidelines Guiding Principles For Cumulative Impacts Assessment In Offshore Wind Farms

## Chapter 6 Ends Here