

2.1 INTRODUCTION

2.1.1 This chapter describes the broad principles of the methodology that has been applied in undertaking the EIA. In so doing, it describes the approach that has been used to identify, evaluate and mitigate environmental effects. It also sets out the proposed temporal, spatial and technical scope of the EIA. Further details on individual topics are given in each of the topic chapters.

2.2 BASIS OF THE ASSESSMENT

Overview

2.2.1 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. It has been transposed into English law for nationally significant infrastructure projects (NSIPs) by the 2009 EIA Regulations.

2.2.2 The primary objective of an EIA is inscribed under Article 2 of the above Directive, which states 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.'

2.2.3 Article 8 of the Directive also states that,

'The results of consultations and information gathered pursuant to [the EIA procedure] must be taken into consideration in the development consent procedure.'

2.2.4 The EIA is reported in an ES. The purpose of the ES is to inform the decision-maker and to provide a source of information for the public, regarding the significant environmental issues attached to the development during its construction, occupation and (where relevant) decommissioning.

- 2.2.5 The environmental effects of the proposed development are being assessed for each relevant environmental topic (eg water quality, commercial fisheries, traffic, socio-economics etc) by comparing baseline environmental conditions (ie the situation without the proposed development) with the conditions that would prevail were the proposal to be constructed and operated.
- 2.2.6 Effects are predicted in relation to environmental receptors, that is: people (eg residents of buildings, users of facilities, employees of businesses), built resources (eg listed buildings) and natural resources (eg a site of ecological importance).
- 2.2.7 In addition to the relevant Directive, and where relevant, the EIA is being undertaken with reference to the following documents, amongst others:
- *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, SI 2009 No. 2263;*
 - *Circular 2/99 Environmental Impact Assessment, DETR, 1999;*
 - *Environmental Impact Assessment: A Guide to the Procedures, DETR, 2000;*
 - *Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment – A Good Practice Guide, DoE, 1995;*
 - *Note on EIA for Local Planning Authorities, ODPM, 2004;*
 - *Guidelines for Environmental Impact Assessment, IEMA, 2004; and*
 - *Using the Rochdale Envelope, Advice Note 9, IPC, 2011.*

Assessment Process

- 2.2.8 Flexibility to respond to commercial opportunities and emerging economic circumstances is essential if the Project is to proceed and be successful. In common with similar authorisations for planning permission, the Development Consent Order (DCO) is expressed permissively (ie the whole development need not be built), and certain features such as design and siting of structures will be left for subsequent approval by the local planning authority. The environmental assessment, however, is based on the maximum development that could be built.

- 2.2.9 This does, however, introduce some complexity into the EIA process common to many large scale developments, which are dependent on market conditions for their delivery. The 2009 EIA Regulations require an ES to provide a description of the location, design and size of the scheme to enable the likely significant environmental effects to be assessed and to enable the IPC, statutory consultees and the public to make a properly informed response.
- 2.2.10 A balance has to be sought, therefore, between defining the proposals in sufficient detail to assess their impacts, while leaving enough flexibility to enable the development to be successfully delivered under emerging market conditions.
- 2.2.11 As shown in *Figure 4.1*, parts of AMEP have been divided into separate “land parcels”. Within these parcels, parameters are fixed as to appropriate levels of development with respect to height, massing and density. These parameters provide an “envelope” for assessing the impacts of the development. These parameters are detailed in *Figure 4.2*.
- 2.2.12 These parameters ensure that all of the objectives for the proposed development can be delivered. The EIA takes account of all the reasonable variations in the form of the development that would be permissible under the parameters, and presents the likely significant effects of these where appropriate.
- 2.2.13 If the actual development is varied in any substantial way, such that its impacts may be materially worse than predicted, then a further application would need to be submitted prior to construction or implementation of any divergent elements.
- 2.2.14 A *Project Specification*, referring to the *Code of Construction Practice* for the AMEP, is included as *Annex 4.1*. This provides a link between the environmental information provided in the ES and the description of the Project in those areas where flexibility is provided. It specifies the parameters, principles, constraints and restrictions, within which the more flexible elements of the scheme are to be contained; this provides sufficient information to enable the ES to assess the likely significant environmental impacts.

2.3 *DEFINING THE SIGNIFICANCE OF ENVIRONMENTAL EFFECTS*

2.3.1 The 2009 EIA Regulations require an ES to report on those environmental effects arising from a project that are considered likely to be significant.

2.3.2 While there is no statutory definition of what constitutes a significant effect, it is clear that the primary purpose of reporting an assessment of any effect of a project is to aid the decision-maker so that it is properly informed when making its decision. In many cases, such as for noise, there are accepted methods for quantifying effects and determining the threshold of significance. In others, such as visual impact, the effects cannot be measured scientifically and only established practice or guidance offers an approach to assessing the significance of effects. In these cases it is necessary to define more qualitative criteria and thresholds.

2.3.3 On this basis, a significant effect has been defined for the purposes of this Project, as an effect that, either in isolation or in combination with others, should – in the opinion of the team carrying out the EIA – be taken into account in the decision-making process.

2.3.4 This definition of a significant effect requires a specific framework for each environmental topic considered in the assessment in order to predict the significance of the effects that may arise. The criteria used to judge significance are explained as part of the assessment methodology for each environmental topic (see *Chapters 7 to 24*) in both *Volumes 1 and 2*.

2.3.5 In identifying significant effects, the EIA takes into account their nature and duration, as follows:

- ***Site-specific effects:*** Effects that result from a geographically localised impact and which are significant primarily at a neighbourhood or district level.
- ***Wider effects:*** Effects that are individually significant at a regional level, but which may not be significant locally.
- ***Positive effects:*** Effects that have a beneficial influence on receptors and resources.
- ***Negative effects:*** Effects that have an adverse influence on receptors or resources.

- **Temporary effects:** Effects that persist for a limited period only, due for example to particular construction activities (eg noise and vibration from construction plant). Where possible, the likely duration of effects is identified.
- **Permanent effects:** Effects resulting from an irreversible change to the baseline environment (eg land take) or which persist for the foreseeable future (eg noise and vibration from operation).
- **Direct effects:** Effects that arise from the impact of activities that form an integral part of the Project (eg new infrastructure).
- **Indirect effects:** Effects that arise from the impact of activities not explicitly forming part of the Project.
- **Secondary effects:** Effects that arise as a result of an initial effect of the scheme (eg reduced amenity of a community facility as a result of construction noise and vibration).
- **Cumulative effects:** Those effects which arise over time due to the effect of the Project and the effect of other developments.
- **In-combination effects:** Those effects which occur where a number of separate effects from the Project, such as noise and air quality, affect a single receptor, for example people.

2.3.6

In general terms, there are three stages required to enable the significance of impacts to be identified, as follows:

- Identification of the baseline conditions and the sensitivity and importance of receptors.
- Identification of the magnitude of change (impacts) upon each receptor.
- Identification of the impact significance, which is the product of a combination of the above two variables.

2.4 *MITIGATION OF ENVIRONMENTAL EFFECTS*

- 2.4.1 Schedule 4 of the 2009 EIA Regulations requires that where significant effects are identified, *'a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment'* should be included in the ES.
- 2.4.2 The achievement of high environmental standards is integral to Able's proposed development. Measures to avoid, reduce and if necessary mitigate environmental impacts are built into the scheme parameters.
- 2.4.3 For each significant adverse effect of the proposed development identified during the EIA, the specialists undertaking the assessments identified mitigation measures consistent with statutory requirements and good practice in their respective field. These measures are to be committed to through a number of routes, for example by proposed requirements or through the *Code of Construction Practice (Annex 4.2)* or equivalent.
- 2.4.4 Residual effects (assuming mitigation options are applied) are classified as non-significant or still significant (albeit reduced), as appropriate. Where effects are still significant, the extent of any amelioration is reported in the ES.

2.5 *SCOPE OF THE ASSESSMENT*

Technical Scope

- 2.5.1 The range of environmental topics addressed in this ES is referred to as the technical scope. This section of the ES considers how the technical scope of the ES for the Project has been identified and is recorded.

Table 2.1 *Technical Scope*

Technical Scope	Volume 1 AMEP	Volume 2 Compensation Site
Geology, hydrogeology and ground conditions	✓	✓
Hydrodynamic and sedimentary regime	✓	✓
Water quality and sediment quality	✓	✓
Aquatic ecology	✓	✓
Terrestrial ecology and birds	✓	✓
Commercial fisheries	✓	
Drainage and flood risk	✓	✓
Commercial and recreational navigation	✓	
Traffic and transport	✓	✓
Noise and Vibration	✓	✓
Air Quality	✓	✓
Historic Environment	✓	✓
Light	✓	
Landscape and visual	✓	✓
Socio-economics	✓	✓
Aviation	✓	
Waste	✓	✓
Health	✓	
Cumulative and in-combination	✓	

2.5.2 Potential environmental topics in relation to the Project were evaluated, with reference to the previously undertaken scoping exercise. This exercise was carried out in order to determine, amongst other things, the extent to which environmental topics should be included in the EIA, having regard to whether they are likely to give rise to significant effects.

2.5.3 The findings of this exercise were reported in a *Scoping Report* (ERM, 2010) (document number TR03001/APP/14b). The *Scoping Report* was submitted to the IPC on 17 September 2010. As noted in *Chapter 1*, the IPC subsequently responded with their formal opinion on the *Scoping Report*, including the opinions of consultees – this is included in document TR03001/APP/14b.

2.5.4 Following the completion of the scoping exercise, and taking into account the views of the IPC as set out in their *Scoping Opinion*, it was decided that the topics set out in *Chapters 7 to 24* should form the technical scope addressed in the EIA and reported in the ES.

2.5.5 This list differs from the topics set out in the *Scoping Report* in five

principal respects:

- A separate chapter on the environmental effects associated with the generation and elimination of waste has been prepared (*Chapter 23* of this document).
- A chapter bringing together the potential health impacts of the Project has also been prepared (*Chapter 24*).
- Two separate chapters split out aquatic (*Chapter 10*) and terrestrial ecology (*Chapter 11*).
- *Chapter 18* has been renamed Historic Environment, following a request by English Heritage.
- The scope of the noise chapter has been expanded to also include consideration of vibration effects (*Chapter 16*).

2.5.6 Since the *Scoping Report* was written there have been some changes to the proposed Project. The technical scope takes account of these changes.

Spatial Scope

2.5.7 The spatial, or geographical, scope of the assessment takes into account the following factors:

- the physical extent of the proposed works, as defined by the scheme design;
- the nature of the baseline environment and the manner in which the impacts are likely to be propagated; and
- the pattern of governmental administrative boundaries, which provide the planning and policy context for the Project.

2.5.8 For example, any potential effects on, for instance, soil contamination, would tend to be confined to those areas physically disturbed by the works, whilst the effects of noise or visual intrusion could potentially be experienced at some distance from the Project.

2.5.9 In most cases the impact is likely to affect interests for a limited area around the Project. However, for some issues (such as socio-economics) the impact may affect regional level interests, or even be an impact of national or international significance.

2.5.10 Where appropriate, study areas are defined for environmental topics within *Chapters 7 to 24 in Volume 1* and *Chapters 31 to 43 in Volume 2*.

Temporal Scope

Overview

2.5.11 The temporal scope of the assessment refers to the time periods over which impacts may be experienced. This is established for each topic individually, and where appropriate through discussion with the relevant statutory consultees.

In general, the following terms are used regarding temporary effects:

- *Short-Term* – the impact is temporary and lasts for up to 12 months;
- *Medium-Term* – the impact occurs for up to 5 years; and
- *Long-Term* – the impact remains for a substantial time, perhaps permanently.

Construction Phase

2.5.12 Construction phase impacts may potentially arise during the whole of the construction works, which is expected to be two years for the harbour works. The development of the manufacturing facilities is likely to be over a longer timescale.

2.5.13 Concurrent construction of each of the core components of the AMEP (ie the new quay, and the onshore manufacture and assembly facilities) would represent the most concentrated construction activity, during which period construction disruption impacts would be expected to be greatest. The EIA, therefore, assesses this scenario.

2.5.14 The assessment also, where appropriate, takes into account the time of day during which works are likely to be undertaken, notably whether they are undertaken during daytime or night-time periods.

Operational Phase

2.5.15 For the operational phase, the temporal scope is determined by the predicted date of AMEP commencing operation, which is taken to be 2014. For certain environmental topics, where effects are dependent on longer term considerations, such as natural or planned restoration or flood risk, which can affect ecology and landscape, the operational phase is taken to commence at the proposed opening date for assessment purposes.

2.5.16 Similarly, the traffic assessment (and assessments related to traffic, principally noise and air quality) takes account of development and transport growth into future years. Where a gradual increase in an effect, such as noise from port traffic growth, occurs, the temporal scope of the assessment extends beyond the date of opening of the works.

Decommissioning Phase

2.5.17 Decommissioning can form an important phase in the overall life of a development, particularly where there may be potential impacts on the land on which it was built.

2.5.18 As described in *Chapter 4*, AMEP is designed to have a long term future, adjusting to market demands over time. However, the potential for decommissioning certain elements will be given detailed consideration in the design and use of materials in the AMEP, in order to ensure that materials can be re-used safely and efficiently.

Consideration of Alternatives

2.5.19 The 2009 EIA Regulations require, amongst other things, that the main alternatives to any scheme that have been considered are outlined in the ES. The principal reasons for their rejection in favour of the chosen scheme should also be given, taking into account the environmental effects.

2.5.20 This requirement is reiterated in the *Scoping Opinion* (at page 15, paragraph 2.43), and also given emphasis in the *National Policy Statement (NPS) for Ports*. Although the NPS states that, 'From a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option.' (page 24, paragraph 4.9.1), it goes on to state in the following paragraph that,

- '*applicants are obliged to include in their ES factual information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the*

environmental, social and economic effects and including, where relevant, technical and commercial feasibility; and

- *in some circumstances there are specific legislative requirements, notably under the Habitats Directive, for the applicant and decision-maker to consider alternatives. These should also be identified in the ES by the applicant.'*

2.5.21 Alternatives that have been considered by Able are fully reported in the ES. *Annex 4.4* includes details of alternative solutions considered. *Chapter 6* of this volume describes in detail a number of alternative sites in the UK that have the potential to serve the offshore wind market.

Consultation

2.5.22 The EIA process requires extensive consultation with statutory regulators and other key stakeholders. Able has consulted with key stakeholders from an early stage, from pre-scoping, through assessment and right up to finalisation of the ES and submission of the application. Summaries of consultees submissions and responses to these submissions are included in *Annex 2.2*.

2.6 CUMULATIVE AND IN-COMBINATION EFFECTS

Introduction

2.6.1 This section sets out how the cumulative and in-combination effects detailed in each of the topic chapters have been identified and assessed.

2.6.2 Other schemes in the vicinity of the Project which have been granted permission (whether in outline or full) but not completed, or for which an application for consent has been submitted but not determined, are considered in conjunction with the Project in the assessment of cumulative impacts in the EIA, where relevant information is available. The assessment of cumulative impacts is an integral part of the EIA process and ensures that all aspects of potential impacts from the Project have been addressed to ensure minimum impact on communities and the natural environment.

2.6.3 Cumulative impacts are those impacts which arise over time due to the effect of the Project and the effect of other developments.

2.6.4 In-combination impacts are those which occur where a number of separate impacts from the Project, such as noise and air quality, affect a single receptor, for example people.

Legislation, Policy and Guidance

General

2.6.5 Where relevant to do so, an EIA considers the impact of the proposed Project both alone and cumulatively with other projects. This is because several developments with insignificant impacts individually can together have a cumulative effect that is significant. Examples are:

- incremental noise from a number of separate developments; or
- combined effect of individual impacts, eg noise, dust and visual, from one development on a particular receptor.

EC Directive (85/337/EEC) (as amended) - Article 3

2.6.6 This Directive relates to public and private projects and defines projects as:

- *'the execution of construction works or of other installations or schemes,*
- *other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources'.*

2.6.7 The Directive states that,

'(t)he environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with the Articles 4 to 11, the direct and indirect effects of a project on the following factors:

- *human beings, fauna and flora,*
- *soil, water, air, climate and the landscape,*
- *material assets and cultural heritage,*
- *the inter-action between the factors mentioned in the first and second indents.'*

*EC Directive (85/337/EEC) (as amended) - Annex III Selection Criteria
Referred to in Article 4 (3)*

2.6.8 This Annex states that,

'(t)he characteristics of projects must be considered having regard in particular to:

- *the size of the project,*
- *the cumulation with other projects,*
- *the use of natural resources*
- *the production of waste*
- *pollution and nuisances*
- *risk of accidents, having regard in particular to substances or technologies used.'* (emphasis added)

*EC Directive (85/337/EEC) (as amended) - Annex IV Information Referred To
In Article 5 (1)*

2.6.9 This Annex states that,

'This description (of the likely significant effects of the proposed project on the environment) should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects of the project.' (emphasis added).

National Policy Statements

2.6.10 The Ports NPS states that,

'(w)hen considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence).' (paragraph 4.7.3).

Circular 02/99: Environmental impact assessment

2.6.11 This document provides guidance on the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. It states that,

'in judging whether the effects of a development are likely to be significant, local planning authorities should always have regard to the possible cumulative effects with any existing or approved development.' (paragraph 46, emphasis added).

2.6.12 This document provides good practice guidance on the assessment of cumulative effects on environmental receptors and provides practical examples. It defines three types of impact:

- **Indirect impacts:** *Impacts on the environment, which are not a direct result of the project, often produced away from or as a result of a complex pathway. Sometimes referred to as second or third level impacts or secondary impacts;*
- **Cumulative impacts:** *Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project;*
- **Impact interactions:** (here called in-combination impacts): *The reactions between impacts whether between the impacts of just one project or between the impacts of other projects in the areas.’ (EU, 1999)*

Consultation

2.6.13 Letters were issued to statutory consultees and regulators, requesting information on any potential projects that may act cumulatively with the proposed AMEP site, as follows:

- Local Government Yorkshire & Humber;
- North Lincolnshire Council;
- West Lindsey District Council;
- North East Lincolnshire Council;
- East Riding of Yorkshire Council;
- Hull City Council;
- Lincolnshire County Council.
- Directorate of Airspace Policy;
- Natural England;
- Environment Agency;
- Yorkshire Forward;
- Marine Management Organisation;
- Highways Agency;
- ABP Humber Estuary Services;
- Anglian Water;
- Yorkshire Water; and
- The Crown Estate.

Responses received are included as *Annex 2.2*.

Cumulative Impacts

- 2.6.14 Cumulative Impacts were identified throughout the EIA process, through considering the projects impacts in tandem with the potential impacts of the various projects identified. A schedule of projects identified as significant through the consultation exercise is included as *Annex 2.3*. The locations of these projects, identified as having the potential to act cumulatively with the Project, are set out on *Annex 2.3*.
- 2.6.15 This list has been developed in order to develop a clear picture of what projects are in the planning stages or have been consented. It also considers other projects which already exist in the area and those which are currently being developed or are in the planning process. The cumulative impact of overlapping, temporally or spatially, of this Project and other projects has been assessed in each of the relevant topic chapters of the ES.

In-combination Impacts

- 2.6.16 Receptors which suffer from negative impacts as a result of the combination of more than one impact were identified by developing a matrix. It was based on the individual topic assessments and professional judgement as to whether the identified receptors suffer from in-combination impacts, and whether these impacts are considered not significant or significant. In-combination impacts of both AMEP and the Compensation Site are reported in *Chapter 44*.