



The Sizewell C Project

6.2 Volume 1 Introduction to the Environmental Statement

Chapter 6 EIA Methodology

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6. EIA Methodology

6.1 Introduction

6.1.1 This chapter of the **Environmental Statement (ES)** describes the generic approach and methodology which has been applied to undertake the Environmental Impact Assessment (EIA) for the Sizewell C Project. As the Sizewell C Project is categorised as a Nationally Significant Infrastructure Project (NSIP) by the Planning Act 2008, an EIA is required that conforms with the Infrastructure Planning (EIA) Regulations 2017 (Ref. 6.1). Furthermore, works subject to a marine licence need to be assessed under the requirements of the Marine Works (EIA) Regulations 2007 (Ref. 6.2). These sets of regulations have been referred to as the Infrastructure Planning EIA Regulations, Marine Works EIA Regulations or the EIA Regulations collectively hereafter.

6.1.2 **Chapter 1** of this volume of the **ES** sets out the requirements of Schedule 4 of the Infrastructure Planning EIA Regulations and Schedule 3 of the Marine Works EIA Regulations regarding the provision of information within the **ES** and where it is located.

6.1.3 This chapter presents:

- an overview of the EIA process;
- a summary of the EIA scoping undertaken to define the scope of the **ES**;
- the structure of the environmental topic chapters;
- the general assessment methodology including the approach adopted to define the baseline environment and assessment of impacts;
- any general assumptions and limitations;
- the approach taken to assessing cumulative impacts; and
- the approach taken to assessing transboundary impacts.

6.2 The EIA process

a) Overview of the EIA process

6.2.1 EIA is a systematic process that examines the potential impacts and effects of a proposed development on the environment. The main stages of the EIA

process undertaken for the Sizewell C Project are as follows, as also illustrated in **Plate 6.1**:

- scoping, which identified the potential environmental issues associated with the proposed development and the scope of assessments to be considered in the EIA;
- baseline assessment to establish the characteristics of the baseline environment;
- detailed assessment of the proposed development, including determining likely significant effects and identifying mitigation measures and enhancement opportunities;
- iteration of the design of the proposed development to embed mitigation and enhancement within the proposals;
- assessment of cumulative impacts with other projects and plans;
- assessment of residual effects;
- consultation with stakeholders throughout the process; and
- production of the **ES**, reporting the results of the EIA, for submission to the Planning Inspectorate as part of the application for development consent.

6.2.2 The EIA process is iterative in nature, meaning that at the stage of identifying the environmental impacts, opportunities are sought to refine the proposals to avoid reduce or mitigate potential significant adverse effects, as far as reasonably practicable. In addition, the early stages of the process allow for the identification of opportunities to provide possible environmental enhancements or social and economic benefits.

6.2.3 In accordance with the Planning Act 2008 and best practice, the EIA process involves consultation with stakeholders which is also an iterative process, with the EIA taking account of relevant submissions and engagement. An overview of this consultation and, in particular, how this has informed the development of the Sizewell C Project proposals is provided in the Consultation Report submitted with the Application. Where relevant, consultation undertaken with stakeholders on the approach and methodologies applied to the technical assessments is summarised in **Appendices 6D to 6Y** of this volume.

b) Guidance

6.2.4 This **ES** has been prepared in accordance with the requirements of the EIA Regulations and current EIA guidance together with applicable best practice guidance and case law relating to the EIA process, including:

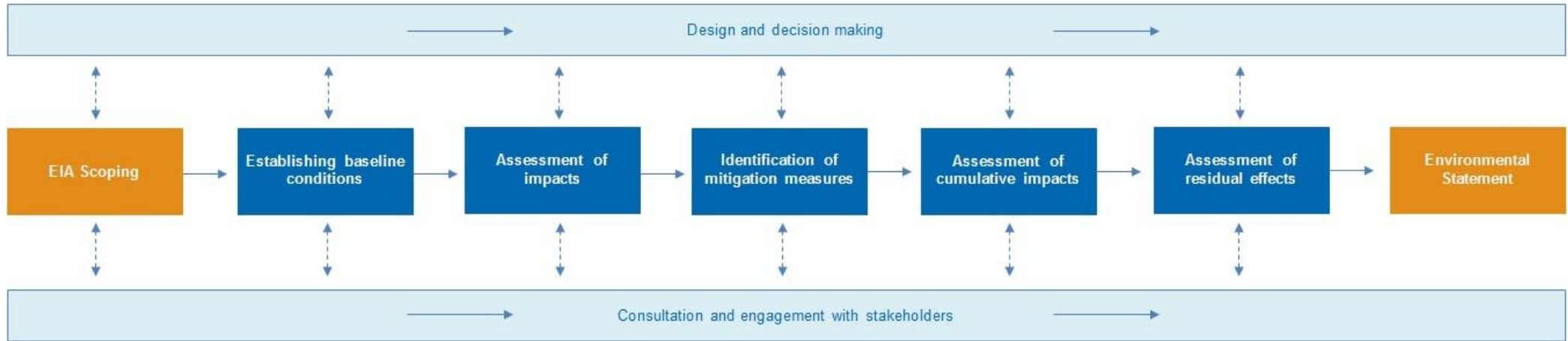
- The Planning Act 2008: Guidance on the Pre-application Process (March 2015) (Ref. 6.3).
- Ministry of Housing, Communities and Local Government (MHCLG) Planning Practice Guidance – Environmental Impact Assessment (2019) (Ref. 6.4).
- Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, 2004 (amended 2006) (Ref. 6.5).
- European Commission Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999) (Ref. 6.6).
- IEMA EIA Guide to Shaping Quality Development (2015) (Ref. 6.7).
- IEMA EIA Guide to Delivering Quality Development (2016) (Ref. 6.8).
- IEMA Delivering Proportionate EIA (2017) (Ref. 6.9).
- IEMA ES Review Criteria (2018) (where applicable) (Ref. 6.10).

6.2.5 Furthermore, the Planning Inspectorate has published a series of non-statutory advice notes that are intended to provide advice and information on a range of issues arising throughout the NSIP application process. Of particular relevance to the EIA are:

- Advice note three: EIA consultation and notification (August 2017) (Ref. 6.11).
- Advice note seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (December 2017) (Ref. 6.12).
- Advice note nine: Rochdale Envelope (July 2018) (Ref. 6.13).
- Advice note ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (November 2017) (Ref. 6.14).
- Advice note eleven: Working with public bodies in the infrastructure planning process (November 2017) (Ref. 6.15).

- Advice note twelve: Transboundary impacts and process (March 2018) (Ref. 6.16).
- Advice note seventeen: Cumulative effects assessment (August 2019) (Ref. 6.17).

Plate 6.1: The main stages of the EIA process for the Sizewell C Project



6.3 EIA scoping

a) Overview

- 6.3.1 Establishing the scope of the assessment in a rigorous and transparent manner is an important early step in the EIA. EIA scoping involves outlining the proposed content, assessment methodologies, and the key matters to be considered in an EIA Scoping Report. Issues that are scoped into the EIA are judged likely, without effective mitigation, to cause significant effects. Issues that are scoped out of the EIA are those which are considered not likely to lead to significant effects, regardless of mitigation.
- 6.3.2 SZC Co. submitted an EIA Scoping Report to the Planning Inspectorate in April 2014, alongside a written request for a scoping opinion in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended). The Secretary of State considered the EIA Scoping Report and, after consulting the prescribed bodies, set out what information should be included in the **ES**. The scoping opinion identified that consultees were satisfied that the proposed approach to the EIA was generally suitable and reflected the discussions with stakeholders.
- 6.3.3 In May 2019, SZC Co. submitted a new EIA Scoping Report to the Planning Inspectorate, as the proposed development had evolved substantially, particularly with regards to the temporary and permanent off-site associated development sites. Furthermore, new Infrastructure Planning EIA Regulations had come into force transposing the 2014 amendments to the EIA Directive (Ref. 6.18) into UK law. The 2019 EIA Scoping Report built largely on the 2014 Scoping Report and scoping opinion. These are included in **Appendix 6A** of this volume.
- 6.3.4 A new scoping opinion was published by the Planning Inspectorate in July 2019, as provided in **Appendix 6B** of this volume. SZC Co. has taken into account the 2014 and 2019 scoping opinions in its preparation of the **ES** and further refinement of the methodologies for the topic assessments has been undertaken in consultation with key consultees.
- 6.3.5 As recommended in Paragraph 3.3.1 of the scoping opinion, **Appendix 6C** to this volume provides a summary of the comments received from the Planning Inspectorate on the proposed EIA scope and assessment methodology, together with an explanation to demonstrate how the assessment has taken into account the opinion. This appendix also details how, and where, these comments have been addressed within the **ES** or other documents supporting the Application.

6.3.6 Where aspects of the methodology have changed in response to comments raised in the EIA scoping opinion, or from other consultation, these are indicated in the relevant technical assessment methodology appendices included in **Appendices 6D to 6Y** of this volume.

b) **Topics scoped in to the EIA**

6.3.7 As a result of the EIA scoping process and subsequent consideration of potential effects, the following technical topics have been included within the EIA and considered on a site by site basis:

- Noise and vibration, provided in **Volume 2, Chapter 11** of the **ES** (Doc Ref. 6.3), and **Volumes 3 to 9, Chapter 4** of the **ES** (Doc Ref. 6.4-6.10).
- Air quality, provided in **Volume 2, Chapter 12**, and **Volumes 3 to 9, Chapter 5** of the **ES**.
- Landscape and visual, provided in **Volume 2, Chapter 13**, and **Volumes 3 to 9, Chapter 6** of the **ES**.
- Terrestrial ecology and ornithology provided in **Volume 2, Chapter 14**, and **Volumes 3 to 9, Chapter 7** of the **ES**.
- Amenity and recreation, provided in **Volume 2, Chapter 15**, and **Volumes 3 to 9, Chapter 8** of the **ES**.
- Terrestrial historic environment, provided in **Volume 2, Chapter 16**, and **Volumes 3 to 9, Chapter 9** of the **ES**.
- Soils and agriculture, provided in **Volume 2, Chapter 17**, and **Volumes 3 to 9, Chapter 10** of the **ES**.
- Geology and land quality, provided in **Volume 2, Chapter 18**, and **Volumes 3 to 9, Chapter 11** of the **ES**.
- Groundwater and surface water (including flood risk), provided in **Volume 2, Chapter 19**, and **Volumes 3 to 9, Chapter 12** of the **ES**.

6.3.8 In addition to the above, a number of project-wide technical environmental assessments are considered and are presented in **Volume 2** of the **ES**. These include:

- Conventional Waste Management and Material Resources, provided in **Volume 2, Chapter 8**.
- Socio-economics, provided in **Volume 2, Chapter 9**.

- Transport, provided in **Volume 2, Chapter 10**.
- Climate Change, provided in **Volume 2, Chapter 26**.
- Major Accidents and Disasters, provided in **Volume 2, Chapter 27**.
- Health and Wellbeing, provided in **Volume 2, Chapter 28**.

6.3.9 The assessment of marine historic environment, coastal geomorphology and hydrodynamics, marine water and sediment quality, marine ecology and marine navigation have been considered in relation to the main development site only and reported in **Volume 2, Chapters 20 to 24** of the **ES**. There is no potential for the off-site associated development sites to impact on the coastal or marine environment, on the basis the sites are located inland remote from the coast; there is no associated marine infrastructure; and there are no activities or operations (e.g. discharges) from the proposed off-site associated to the marine environment. Where associated development forms part of the main development site, for example the beach landing facility, this is assessed in the main development site chapters in **Volume 2** of the **ES**.

6.3.10 In accordance with the Scoping Opinion 2019, the consideration of spent fuel and radioactive waste management, and radiological effects, has only been undertaken in relation to the main development site and reported in **Volume 2, Chapters 7 and 25** of the **ES**, respectively. This is because the associated development sites have not previously included, and are not proposed to include, any nuclear infrastructure or have nuclear material present during construction or operation. Therefore, there is no potential for the associated development sites to have radiological impacts on the surrounding environment.

6.4 Structure of the environmental topic technical chapters

6.4.1 The outcomes of the EIA process are presented within the **ES** in topic-specific chapters. As noted in **Chapter 1** of this volume, the **ES** comprises ten volumes. **Volume 2** presents the assessment of the proposed main development site. **Volumes 3 to 9** are for the off-site associated developments and **Volume 10** considers the cumulative and transboundary effects associated with the proposed development.

6.4.2 The topic-specific chapters are generally structured as follows:

- Introduction – provides details on the scope of the assessment and content of the chapter.

- Legislation, policy and guidance – provides a summary of the topic-specific legislation, policy and guidance that is relevant to the specific site, noting that a summary of general legislation, policy and guidance relevant to the technical assessment is provided in **Appendices 6D to 6Y** of this volume.
- Methodology – provides details on the scope and a summary of the methodology adopted, including the assessment criteria and any site-specific variations to the methodology, noting that a summary of general methodology relevant to the technical assessment is provided in **Appendices 6D to 6Y** of this volume.
- Baseline environment – describes the characteristics of the baseline environment for the site and surroundings and identifies the receptors/features which have the potential to be impacted.
- Environmental design and mitigation – describes mitigation measures and enhancement opportunities which have been identified through the iterative EIA process and have been incorporated into the design of the proposed development, or are required as standard practice or due to legislative requirements.
- Assessment – presents and discusses the findings of the impact assessment, with reference to the different phases of the proposed development.
- Mitigation and monitoring – provides details of any additional mitigation measures and monitoring that have been identified to prevent, reduce or, where possible, offset likely significant effects.
- Residual effects – identifies the anticipated effects of the proposed development following the implementation of all mitigation measures.

6.5 EIA methodology

- 6.5.1 The EIA Regulations require that an **ES** should identify, describe and assess the potential impacts of a proposed development on the environment. This section of the **ES** outlines the general EIA methodology used throughout the **ES** for a consistent identification of likely significant effects. Details relating to the specific assessment methodologies of individual technical topics are provided in **Appendices 6D to 6Y** of this volume, as well as a summary in the individual topic chapters, provided in **Volumes 2 to 9** of the **ES**.

a) Study area

6.5.2 The geographical extent of each assessment is set out in the environmental topic assessment chapters, provided in **Volumes 2 to 9** of the **ES**. The geographical extent of the study area varies depending on the environmental topic and the specific receptors under consideration for that topic, and the development proposed at that location. In each case, the study area is of sufficient size to encompass the spatial extent over which impacts relevant to that topic may occur. Some environmental effects will be confined within the boundaries of the development sites, whilst others, such as noise and visual effects, extend beyond the site boundaries.

b) Establishing the characteristics of the baseline environment

i. Current baseline

6.5.3 In order to assess the likely significant effects of the proposed development, it is first necessary to determine the baseline conditions in the absence of the proposed development.

6.5.4 Establishing the baseline conditions of a site and surrounding area allows an accurate assessment of the potential change to the environment, and therefore determination of the significance of environmental effects. Understanding the baseline conditions also assists in the identification of the most appropriate mitigation which could be employed to minimise any significant effects and environmental enhancements.

6.5.5 Baseline conditions have been determined using the results of on-site surveys and investigations, desk-based data searches, or a combination of these. The approach taken is presented within each technical methodology, provided in **Appendices 6D to 6Y** of this volume, and as appropriate in the assessment chapter.

6.5.6 Baseline conditions typically describe the current (at the time of writing the **ES**) environmental condition of a site and surrounding area. However, in some cases it is necessary to consider a future baseline (the environmental conditions at the site in the future in the absence of the proposed development).

ii. Future baseline

6.5.7 The future baseline describes the theoretical situation that would exist in the absence of the proposed development. It is typically based upon extrapolating the current baseline using technical knowledge of changes (e.g. habitat change over time and traffic and waste growth over time) to predict the environmental conditions at a defined and relevant point in time in the

future. For example, the environmental conditions against which future changes can be predicted include climate change, consented developments and other factors including predicted population and traffic changes.

6.5.8 The environmental topic chapters have presented the future baseline where it is considered likely that the baseline would change, in the absence of the Sizewell C Project. Where no changes to the baseline environment in the absence of the proposed development are expected, this is also stated.

c) **Assessment**

i. **Assessment scenarios**

6.5.9 Following the characterisation of baseline conditions, the technical topic chapters of this **ES** present an assessment of the scenarios summarised, as appropriate to the site-specific assessments.

6.5.10 The environmental assessment reported in this **ES** has evaluated impacts for the key assessment years or scenarios for the Sizewell C Project. The assessment years or scenarios are based on the principal Sizewell C Project phases and periods when there will be a peak in development activity potentially impacting the receptor(s) being assessed.

6.5.11 For the Sizewell C Project, broadly the EIA has considered the potential impacts and likely significant effects of the following Sizewell C Project phases or scenarios:

- Construction of the off-site associated development.
- Construction of the main development site.
- Likely peak years in construction, including the ‘early years peak’ when the main development site and associated development sites are under construction, and the ‘peak’ year of the main development site construction, when the associated development sites are operational.
- Removal and reinstatement phase of the off-site associated development sites (where appropriate).
- Restoration and landscaping of the main development site following the completion of construction (including removal of temporary development).
- Operation of the Sizewell C nuclear power station, including maintenance.

- 6.5.12 It should be noted, however, that the peak years with regard to proposed activities and/or potential impacts may differ between topics and development sites. Further details on the assessment years are provided in the relevant site-specific volumes and environmental topic chapters.
- 6.5.13 Maintenance activities have been considered as part of the operational phase assessment. Where specific environmental effects associated with maintenance activities that differ from typical operational effects have been identified, these are specifically assessed. Otherwise the effects are considered to be comparable to the operational effects assessed.
- 6.5.14 The **ES** also includes a high-level assessment of the decommissioning of the Sizewell C nuclear power station. As decommissioning is anticipated to take place at the end of electricity generation (anticipated 60 years after commencement of operation), it is not deemed possible to accurately undertake a full detailed assessment at this stage. Instead, the potential environmental impacts that may occur and their broad scope is described in **Volume 2, Chapter 5** of the **ES**.
- 6.5.15 Under current legislation, prior to decommissioning, SZC Co. would need to prepare a new EIA under the Nuclear Reactors (EIA for Decommissioning) Regulations 1999 (Ref. 6.19) and the Marine Works (EIA) Regulations 2007 (Ref. 6.2). This requires the submission of a new **ES** and a period of public consultation.

ii. [Parameter approach](#)

- 6.5.16 A number of details within the Sizewell C Project design, construction programme and activities, and operation of the Sizewell C nuclear power station will remain under consideration after the grant of the DCO. This approach, as established by case law, means that some aspects of the design will be detailed at the time of the Application, while others will remain outline in nature within clearly defined, fixed parameters. This approach is known as the parameter approach or ‘Rochdale Envelope’ approach. Planning Inspectorate Advice Note 9: Use of the ‘Rochdale Envelope’ (2018) (Ref. 6.13) provides guidance on the degree of flexibility that is considered appropriate in relation to an application for development consent.
- 6.5.17 This approach provides flexibility for the implementation of development consent by defining parameters that present the likely worst case within which the development could be brought forward. By assuming the proposed development is constructed within the defined set of parameters, the environmental effects associated with the development would be no worse than the effects associated with the parameters, and therefore, the

conclusions of the assessment would remain robust, even if the final development details changed within the set parameters.

6.5.18 For example, the parameters used within this EIA include parameter plans for the locations and dimensions of buildings and structures (with greater flexibility for smaller structures) and elevation parameters for buildings as well as cranes and other large plant used during construction. **Volume 2, Chapters 2 and 3** of the **ES** and **Volumes 3 to 9, Chapter 2** of the **ES** define the parameters assessed within this **ES**.

iii. [Environmental screening](#)

6.5.19 Some aspects of the Sizewell C Project have been screened for the potential to give rise to significant effects prior to being progressed to full assessment. These include the following minor off-site works proposed as part of the Sizewell C Project:

- Proposed works to create a marsh harrier habitat improvement area to the west of Westleton (if required), fen meadow compensation areas near Benhall and Halesworth, and off-site sports facilities at Leiston, provided in **Volume 2** of the **ES** for further information.
- Proposed new Yoxford roundabout and other highway improvements, provided in **Volume 7** of the **ES** (Doc Ref. 6.8).
- Proposed level crossing upgrades on the Saxmundham to Leiston branch line, provided in **Volume 9** of the **ES**.

6.5.20 The environmental screening includes a review of the proposed off-site works listed above to identify potentially significant effects on a topic-by-topic basis. Proposed works that have been screened out from further assessment are reported in the technical assessment chapters in each of the above volumes. Where the potential for significant effects is identified, the proposed works are screened into the full assessment.

iv. [Assessment of effects and determining significance](#)

6.5.21 In the context of the general methodology used in this **ES**, the terms ‘impact’ and ‘effect’ are distinctly different. The EIA Regulations state that an assessment of environmental impacts is required; however, the impacts of the proposed development may or may not result in significant effects on the environment. It is the reporting of effects that is required by Schedule 4 of the Infrastructure Planning EIA Regulations and Schedule 3 of the Marine Works EIA Regulations.

- 6.5.22 For consistency, and in an attempt to allow comparison between topics, a generic methodology has been applied, where appropriate. The methodology followed by most environmental topics is designed to consider whether impacts of the proposed development would have any effect on the identified resources or receptors.
- 6.5.23 Assessments broadly consider the value/sensitivity of resources/receptors that could be affected and the magnitude of impact or change likely to occur in order to classify effects. The classification of effects also requires the consideration of:
- whether the impacts are beneficial or adverse;
 - whether the impacts are permanent or temporary;
 - impact duration (short-, medium- or long-term);
 - impact nature (direct or indirect, reversible or irreversible);
 - the extent and complexity of the impact; and
 - whether a particular impact occurs in isolation or is cumulative or interactive with another impact.
- 6.5.24 Topic-specific timeframes are provided in **Appendices 6D to 6Y** of this volume, as well as in the individual topic chapters provided in **Volumes 2 to 9** of the **ES**.
- 6.5.25 For each environmental topic, the categories of resource/receptor value/sensitivity and magnitude of impact or change are appropriately described and defined. The following sections provide the generic criteria for the definition of resource/receptor sensitivity, impact magnitude and scale of effect.
- 6.5.26 Topic-specific criteria on the approach to the assessment and references to the standards and guidelines that have been used for the definition of impact magnitude and resource/receptor sensitivity are provided in **Appendices 6D to 6Y** of this Volume, as well as in the individual topic chapters provided in **Volumes 2 to 9** of the **ES**. Environmental topics broadly follow the approach set out in the following sections and any deviations from this approach are explained and justified, where appropriate.
- v. [Receptor value/sensitivity](#)
- 6.5.27 The value of a receptor is a function of a range of factors (for example biodiversity value, social/community value and economic value). For some environmental topics, the value of a receptor/feature is defined in legislation

(for example Sites of Special Scientific Interest (SSSIs), Areas of Outstanding Natural Beauty (AONB) and Scheduled Monuments) or determined within a defined geographical context (for example international, national, regional, local).

6.5.28 The sensitivity of an environmental receptor is a function of its capacity to accommodate changes in baseline conditions and its capacity to recover if it is affected. Changes in baseline conditions may result from the development and/or as a result of natural ongoing natural processes.

6.5.29 In order to help define the value and sensitivity of receptors/resources, generic guidelines are provided in **Table 6.1**. Topic-specific criteria are provided within **Appendices 6D to 6Y** of this volume.

Table 6.1: Generic guidelines for the assessment of value/sensitivity

Value/ Sensitivity	Guidelines
High	<p>Value</p> <p>Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site/receptor (for example designated features of international/national importance, Areas of Outstanding Natural Beauty (AONB), Special Areas of Conservation (SACs), Special Protection Area (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), Scheduled Ancient Monuments, Air Quality Management Areas (AQMAs)).</p> <p>Sensitivity</p> <p>Feature/receptor has a very low capacity to accommodate the proposed form of change.</p>
Medium	<p>Value</p> <p>Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness and character of the site/receptor (for example designated features of regional or county importance, such as County Wildlife Sites (CWSs), Local Biodiversity Action Plan (BAP) habitats, locally listed buildings and Heritage Coast etc.).</p> <p>Sensitivity</p> <p>Feature/receptor has a low capacity to accommodate the proposed form of change.</p>
Low	<p>Value</p> <p>Feature/receptor only possesses characteristics which are locally significant. Feature/receptor not designated or only designated at a district or local level (for example local nature reserve, locally significant archaeological site).</p> <p>Sensitivity</p> <p>Feature/receptor has some tolerance to accommodate the proposed change.</p>
Very Low	<p>Value</p> <p>Feature/receptor characteristics do not make a significant contribution to local character or distinctiveness. Feature/receptor not designated.</p>

Value/ Sensitivity	Guidelines
	Sensitivity Feature/receptor is generally tolerant of the proposed change.

vi. Magnitude

- 6.5.30 The magnitude of a potential impact refers to the extent of change, which includes consideration of the area over which the impact occurs, the duration (i.e. the time for which the impact is expected to last prior to recovery or replacement of the receptor/feature), the likelihood (i.e. the chance that the impact would occur) and reversibility.
- 6.5.31 In order to help define magnitude, generic guidelines are provided in **Table 6.2**. Topic-specific criteria are provided within **Appendices 6D to 6Y** of this Volume.

Table 6.2: Generic guidelines for the assessment of magnitude

Magnitude	Guidelines
High	Large-scale changes over the whole development area and potentially beyond (such as off-site) to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Medium	Medium-scale changes over the majority of the development area and potentially beyond to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Low	Noticeable but small-scale changes over part of the development area and potentially beyond, to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Very low	Noticeable, but very small-scale change, or barely discernible changes over a small part of the development area and potentially beyond, to key characteristics or features of the particular environmental aspect's character or distinctiveness.

vii. Classification of effects

- 6.5.32 Following the classification of the magnitude of the impact and the value/sensitivity of the receptor/feature, the effect is classified. An example of an effects matrix used to classify effects is provided in **Table 6.3**. The generic definitions of each of the different levels of effect, which can be adverse, beneficial or neutral are shown in **Table 6.4**.

Table 6.3: Classification of effects

		Value/Sensitivity of Receptor			
		Very Low	Low	Medium	High
Magnitude	Very low	Negligible	Negligible	Minor	Minor
	Low	Negligible	Minor	Minor	Moderate
	Medium	Minor	Minor	Moderate	Major
	High	Minor	Moderate	Major	Major

Table 6.4: Generic effect definitions

Effect	Description
Major	Effects which are likely to be important considerations at a national to regional level because they contribute to achieving national/regional objectives, or, which are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Effects that are likely to be important considerations at a regional and local level.
Minor	Effects that could be important considerations at a local level.
Negligible	An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

viii. Significance

6.5.33 The concept of ‘significance’ is central to the EIA process; it aids the identification of the principal effects of the proposed development and, accordingly, where mitigation is required.

6.5.34 As a general rule, major and moderate effects are considered to be ‘significant’, whilst minor and negligible effects are considered to be ‘not significant’. However, it should be noted that whilst the example matrix in **Table 6.4** provides an appropriate framework for the consistent assessment of impacts across environmental topics, there is still an important role for professional judgement which can also be applied, where necessary. A professional’s awareness of the relative balance of importance between the value/sensitivity of a receptor/feature and the magnitude of impact can help in moderating the significance of an effect.

d) Approach to mitigation

6.5.35 Mitigation measures can be defined as those measures that are envisaged to prevent, reduce and, where relevant, offset any potential significant adverse effects. The mitigation approach adopted for the proposed development takes the form of a hierarchy, whereby priority is given to preventing significant effects. If prevention is not possible, the approach is to reduce or abate the effects followed, if necessary, by repair (restoring or

reinstating) or offsetting/compensating for those effects. Each of these means of reducing potentially significant effects falls under the broad heading of ‘mitigation’.

6.5.36 Mitigation opportunities have been identified throughout the evolution of the proposed development, through four formal consultation stages, informal engagement with statutory and non-statutory stakeholders and the EIA process. Potential significant adverse effects have fed back into the design process to establish whether they can be avoided or otherwise mitigated in accordance with the mitigation hierarchy.

6.5.37 The technical topic chapters of this **ES** categorise mitigation under three main headings in accordance with the IEMA EIA Guide to Shaping Quality Development (Ref. 6.7):

- Primary mitigation: This is often referred to as ‘embedded mitigation’ and includes modifications to the location or design of the development made during the pre-application phase that are an inherent part of the Sizewell C Project, become a fundamental part of the design for which consent is sought, and do not require additional action to be taken. Examples include architectural treatment of proposed facilities to be in keeping with similar adjacent buildings in external appearance, reduction in the height of a building to reduce visual impact, and identifying key habitat that is safeguarded to remain unaffected by the development’s layout and operation.
- Secondary mitigation: This is often referred to as ‘additional mitigation’ and includes actions that will require further activity in order to achieve the anticipated outcome. These would be detailed in the **ES** topic chapters or defined plans, and would be secured as part of the development consent requirements by the Secretary of State or through planning obligations. For example, describing certain lighting limits, which will be subject to the submission of a detailed lighting layout as a condition of approval; commitment to the implementation of an agreed scheme of archaeological investigation or undertaking additional ground investigation.
- Tertiary mitigation: This will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices. For example, applying emission controls to an industrial stack to meet the requirements of the Industrial Emissions Directive (Directive 2010/75/EU); or standard industry practice measures contained within the **Code of Construction Practice (CoCP)** (Doc Ref. 8.11).

6.5.38 Primary and tertiary mitigation (i.e. embedded and good practice measures) are considered to form part of the proposed development and therefore, the initial assessment of effects reported in the technical topic chapters of the **ES** takes account of these measures. If significant adverse effects are identified despite the implementation of primary and tertiary mitigation, the need for secondary mitigation has been considered, developed and proposed within the technical topic chapters before determining residual effects. Some secondary mitigation measures will also be detailed, and implementation secured through the **CoCP**, these are differentiated from the good practice measures.

e) **Residual effects**

6.5.39 The **ES** reports on the residual effects, which are the anticipated effects of the proposed development following the implementation of secondary mitigation measures, over and above the primary and tertiary measures assumed to already have been incorporated into the design. A clear statement is then made as to whether the residual effects are significant or not significant, and whether the likely residual effect is adverse, beneficial or neutral.

6.6 **Consideration of related applications**

6.6.1 As described in **Chapter 2** of this volume, two separate planning applications have been submitted under the Town and Country Planning Act 1990 to East Suffolk Council (and its predecessor, Suffolk Coastal District Council) which are related to the Sizewell C Project – the Aldhurst Farm habitat creation scheme (application Ref. DC/14/4224/FUL – granted permission in March 2015¹) and the Sizewell B relocated facilities project (application Ref. DC/19/1637/FUL – granted permission in November 2019).

a) **Aldhurst Farm habitat creation scheme**

6.6.2 Aldhurst Farm habitat creation scheme was largely constructed in 2015 and 2016 and, therefore, the habitats created as part of the scheme have been considered to form part of the existing baseline and, where appropriate, have been considered as a sensitive receptor within the EIA. However, as the purpose of the Aldhurst Farm scheme was to compensate for any future land-take from the Sizewell Marshes Site of Special Scientific Interest (SSSI)

¹ The application for Aldhurst Farm Habitat Creation was granted permission by Suffolk Coastal District Council prior to the creation of East Suffolk Council.

should the Sizewell C Project be granted consent and built, the scheme has also been considered to form part of primary mitigation within this ES.

b) Sizewell B relocated facilities

- 6.6.3 As the Sizewell B relocated facilities works are also included within the proposed development subject to the Application, these have been considered to form part of the Sizewell C Project. The **ES** for the Sizewell B relocated facilities works is provided in **Appendix 2A** of this volume. The technical assessments presented within **Volume 2** of this **ES** provide a summary of the effects and mitigation identified within the Sizewell B relocated facilities ES for works to be undertaken pursuant to the existing planning consent granted by East Suffolk Council under the Town and Country Planning Act 1990, including the assessment of Sizewell B relocated facilities works being constructed concurrently with Phases 1 and 2 of the other main development site works. Where relevant, **Volume 2** technical assessments also provide an explanation of the implications of any project design changes made since the preparation of the Sizewell B relocated facilities ES.
- 6.6.4 The Sizewell B relocated facilities ES scoped out the assessment of conventional waste and material resource use, socio-economics, air quality, and soils and agriculture, as no potential for likely significant effects from the Sizewell B relocated facilities works on their own in relation to these technical topics were identified. The assessments for these technical topics presented within **Volume 2** of this ES also account for the effects of the Sizewell B relocated facilities works to be undertaken concurrently with the construction on the main development site.
- 6.6.5 Furthermore, as the Sizewell B relocated facilities works are located above the mean high-water spring (MHWS) mark, they are not considered to result in direct effects on the marine environment and are, therefore, not referred to within the technical assessments for coastal geomorphology and hydrodynamics, marine water quality and sediments, marine ecology and fisheries, marine navigation and marine historic environment.
- 6.6.6 Whilst the technical assessments presented within **Volume 2** of this **ES** assume that the first part of Sizewell B relocated facilities works would be completed pursuant to its existing planning permission, it is alternatively possible that the entirety of the Sizewell B relocated facilities works could be carried out under the DCO. This would mean that all of the Sizewell B relocated facilities works would be undertaken concurrently with the other Sizewell C Project works. An environmental assessment of the alternative implementation scenario is presented in **Volume 2, Appendix 6A**.

6.7 Assumptions and limitations

6.7.1 A number of general assumptions have been made within the EIA, which are set out below. Assumptions specific to certain environmental aspects are discussed in the relevant technical chapters of this **ES**.

6.7.2 General assumptions and limitations include:

- the current reported baseline is considered to be the existing state as at the time of submitting the application; the future baseline can only be defined as far as change can reasonably be predicted, for example, the future air quality baseline is based on monitoring, published data and guidance from DEFRA and the local authorities;
- information provided by third parties, including publicly available information and databases, is correct at the time of publication;
- where certain aspects of the proposed development will not be finalised until later in the design process, in order to accommodate this required flexibility and at the same time maintain a rigorous EIA process a reasonable ‘worst-case’ approach has been taken for each topic assessment, this includes the use of ‘worst-case’ assumptions or parameters;
- programme assumptions for construction of Sizewell C:
 - The early years peak traffic would occur in 2023. For a worst-case assessment all associated development sites and early works at the main development site are assumed to be under construction at this time.
 - It is assumed that the peak construction year traffic would be in 2028 when the main development site construction traffic will be at its busiest in terms of freight and workforce movements, and all associated development site would be operational.
 - It is assumed that the Sizewell C nuclear power station would be operational by 2034.
- it is assumed that the potentially cumulative schemes will take place as per the descriptions made publicly available at the time of writing this **ES**, unless otherwise specified in the technical chapter; and
- decommissioning of the Sizewell C nuclear power station has been assessed qualitatively only, as decommissioning activities are not anticipated to commence for another 60 years or more, and there is therefore greater uncertainty on the future baseline and methods for

decommissioning. Furthermore, decommissioning would be subject to a further EIA.

6.8 Inter-relationships and cumulative effects

6.8.1 Regulation 5(2)(e) of the Infrastructure Planning EIA Regulations states that the EIA must assess the interaction between the different factors such as population and human health, biodiversity and land, soils and water. For the purpose of this **ES**, and set out in the Scoping Report 2019, such interactions are referred to as ‘inter-relationships’ (as referred to in the Advice note seventeen: Cumulative effects assessment (August 2019)) (Ref. 6.17). Further details on the consideration of ‘inter-relationships’ are provided below.

The EIA Regulations also require that the **ES** includes consideration of cumulative effects. Schedule 4 of the Infrastructure Planning EIA Regulations and Schedule 3 of the Marine Works EIA Regulations state that the **ES** should provide a description of:

“the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

6.8.2 Accordingly, the **ES** considers:

- ‘Inter-relationships’ that occur when the individual environmental effects of the proposed development combine together with one another and lead to significant effects on a single receptor (e.g. air quality and noise impacts occurring on the same receptor).
- ‘Project-wide effects’ that occur when impacts of the main development site and associated developments combine.
- ‘Cumulative effects with other projects’ that arise as a result of the proposed development in combination with other projects and/or development plans within the Zone of Influence (Zoi) of the proposed development.

6.8.3 **Volume 10, Chapter 1** of the **ES** (Doc Ref. 6.11) presents the approach and methodology to the assessment of cumulative effects, however a summary is also provided below.

a) Inter-relationship effects

- 6.8.4 There is no established methodology for assessing the effects on sensitive receptors or resources resulting from the interaction or inter-relationship of different effects.
- 6.8.5 The assessment of inter-relationship effects associated with the Sizewell C Project is presented within the technical chapters within **Volumes 2 to 9** of the **ES**. Where no inter-relationship effects are predicted, or are considered inherently within the assessment, a clear statement is made within the relevant chapter. Where potential inter-relationships haven't been assessed in the technical chapters, these are covered in **ES Volume 10, Chapter 2**.
- 6.8.6 A two stage screening exercise was undertaken to identify the potential inter-relationship effects associated with the construction and operation of the Sizewell C Project. The first stage of the screening exercise was to identify where resources and/or receptors could be affected by more than one type of effect (usually where they were considered in more than one technical chapter or assessment). The second stage of the assessment was to provide a summary of the inter-relationship effects that are considered within the technical chapters of **Volumes 2 to 9** of the **ES** in order to avoid duplication of assessments already undertaken.
- 6.8.7 As part of Stage 2 of the screening exercise, it was identified where there is the potential for a receptor to be impacted by an effect reported in another technical chapter. This includes the identification of:
- inter-relationship effects that are identified and assessed as appropriate in the receptor chapter, for example the Terrestrial Ecology and Ornithology chapter assesses how impacts of construction on groundwater and surface water effect the associated ecology.
 - Inter-relationship effects where more than one impact on a particular resource or receptor has been identified, and the potential for combined effects has been qualitatively assessed, for example the combined effect of changes in noise and air quality on the health and well-being of people, is qualitatively assessed and reported in the Health and Wellbeing chapter.
 - Inter-relationship effects where more than one impact on a particular resource or receptor has been identified and no further assessment is provided within **Volumes 2 to 9** of the **ES**.
- 6.8.8 **Volume 10, Chapter 2** and **Appendix 2A** of the **ES** presents the assessment of the identified potential inter-relationship effects that are not considered within the technical assessments in **Volumes 2 to 9** of the **ES**.

b) Project-wide effects

- 6.8.9 The assessment of project-wide cumulative effects is presented in **Volume 10, Chapter 3** of the **ES**. This considers where effects from two or more discrete parts of the proposed development (for example, between the main development site and an associated development such as the proposed rail extension route) have the potential to combine to result in a larger effect overall. This also includes a qualitative assessment of any inter-relationship effects on a project wide basis.
- 6.8.10 Project-wide effects have been set out for the following stages, where relevant:
- Construction assessment scenario which comprises:
 - Construction at the main development site, including removal and reinstatement of temporary development at the later stages of construction;
 - Construction, operation and removal and reinstatement of temporary associated developments (i.e. northern park and ride, southern park and ride, freight management facility and green rail route);
 - Operational assessment scenario which comprises:
 - Operation of the permanent development at the main development site; and
 - Operation of permanent associated developments (i.e. two village bypass, Sizewell link road, highway and rail improvements).
- 6.8.11 For some assessments, the construction phase impacts for the Sizewell C Project are assessed for the early years of construction (assumed 2023) and the peak year of construction at the main development site (assumed 2028).
- 6.8.12 It is noted that technical assessments included in **Volume 2** of the **ES** already present a project-wide effects assessment, and therefore, these have not been repeated in **Volume 10** of the **ES**. In addition, there are a number of topic assessments presented in **Volume 2** of the **ES** which are specific to the main development site only and do not have the potential to give rise to significant cumulative effects with other components of the Sizewell C Project, therefore no project-wide assessment is presented.
- 6.8.13 The project-wide effects assessment presented in **Volume 10, Chapter 3** of the **ES** only considers whether additional significant effects are likely to occur

as a result of the combination of effects related to the following technical assessments:

- noise and vibration;
- air quality;
- landscape and visual impact assessment;
- terrestrial ecology and ornithology;
- amenity and recreation;
- terrestrial historic environment;
- soils and agriculture;
- geology and land quality; and
- groundwater and surface water (including flood risk).

c) [Cumulative effects with other projects, plans and programmes](#)

6.8.14 The assessment of cumulative effects with other projects, plans and programmes has been undertaken on the basis of the extent of likely interaction between the proposed development and other reasonably foreseeable schemes that may come forward. This is presented in **Volume 10, Chapter 4** of the **ES**.

6.8.15 A staged process has been followed to assess cumulative impacts with other projects, plans and programmes as recommended by Advice note seventeen: Cumulative effects assessment (August 2019) (Ref. 6.17), which includes:

- Stage 1: establishing a Zone of Influence (Zoi) and 'long list' of non-SizeWell C projects, plans and programmes.
- Stage 2: establishing a 'short list' of projects, plans and programmes for the assessment.
- Stage 3: information gathering.
- Stage 4: assessment.

6.8.16 The Zoi of the proposed development, within which any potential effects of the proposed development may combine with the effects arising from other developments, has been defined by the environmental topic specialists. Further details on each of the ZOIs is provided within each of the technical

sections of **Volume 10, Chapter 4** of the **ES**. This includes additional information on how the ZOI has been identified and how it differs between each of the Sizewell C Project sites.

6.9 Transboundary effects

- 6.9.1 The United Nations Economic Commission for Europe's (UNECE) 'Espoo Convention', was adopted in 1991 to encourage and improve the cooperation between European Economic Area (EEA) States in assessing the transboundary environmental impacts of their developments. The Espoo Convention is implemented through the EU Directive 2014/52/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment (the EIA Directive), and the EIA Regulations.
- 6.9.2 Under this legislation, the Secretary of State is obliged to form a view on the potential for transboundary impacts and consult with relevant European Member States.
- 6.9.3 The EIA Directive implements requirements on transboundary consultation and requires all significant transboundary issues to be assessed through the EIA process. The Planning Inspectorate's Advice Note 12 (2018) (Ref. 6.16) provides further information on the requirements and sets out how the Secretary of State will meet his or her obligations in this regard. A wide range of activities are listed in Annex 1 of the Espoo Convention, which includes thermal power stations with a heat output of 300 MW and all nuclear power stations. As such, it is necessary to consider whether the proposed development is likely to have a significant transboundary effect.
- 6.9.4 A screening exercise has been undertaken to determine the potential for transboundary impacts based upon the outcomes of the EIA and other relevant assessments and concluded that no such impacts are likely. This is provided in **Volume 10, Chapter 5** and **Volume 10, Appendix 5A** of the **ES**.

References

- 6.1 Parliament of the United Kingdom, The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended), (London, 2017).
- 6.2 Parliament of the United Kingdom, The Marine Works (Environmental Impact Assessment) Regulations 2007, (London, 2007).
- 6.3 Department for Communities and Local Government, Planning Act 2008: Guidance on the pre-application process, (London, 2015).
- 6.4 Ministry of Housing, Communities and Local Government (MHCG), Planning Practice Guidance: Environmental Impact Assessment. (As updated, 15 March 2019) Institute of Environmental Management and Assessment (IEMA), Guidelines for Environmental Impact Assessment, (2004, 2006).
- 6.5 Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, 2004 (amended 2006).
- 6.6 European Commission Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999).
- 6.7 Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to Shaping Quality Development (2015).
- 6.8 Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to Delivering Quality Development (2016).
- 6.9 Institute of Environmental Management and Assessment, Delivering Proportionate EIA (2017).
- 6.10 Institute of Environmental Management and Assessment ES Review Criteria (2018).
- 6.11 The Planning Inspectorate, Advice note three: EIA consultation and notification (August 2017).
- 6.12 The Planning Inspectorate, Advice note seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (December 2017).
- 6.13 The Planning Inspectorate, Advice note nine: Use of the 'Rochdale Envelope' (July 2018).
- 6.14 The Planning Inspectorate, Advice note ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (November 2017).

- 6.15 The Planning Inspectorate, Advice note eleven: Working with public bodies in the infrastructure planning process (November 2017).
- 6.16 The Planning Inspectorate, Advice note twelve: Transboundary impacts (March 2018).
- 6.17 The Planning Inspectorate, Advice note seventeen: Cumulative effects assessment (August 2019).
- 6.18 The European Commission, Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (2014).
- 6.19 Parliament of the United Kingdom, Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999, (London, 1999).