Sea Link

Environmental Impact Assessment Scoping Report
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Part 5 Project Wide Effects

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5.2.1 Introduction

5.1.1.1 To align with the requirements of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended by The Town and Country Planning, and Infrastructure Planning (Environmental Impact Assessment (EIA)) (Amendment) Regulations 2018) Regulations[1] and the Institute of Environmental Management and Assessment (IEMA)'s Guidance for assessing climate mitigation[2] and adaptation[3] in EIAs, consideration has been given within this chapter to three aspects of climate change assessment:

- **Lifecycle Greenhouse Gas (GHG) Impact Assessment** – The impact of GHG emissions arising from the Project on the climate over its lifetime;
- **In-Combination Climate Change Impact (ICCI) Assessment** – Combined impact of the Project and future climate change on the receiving environment[4]; and
- **Climate Change Resilience (CCR) Assessment** – The resilience of the Project to the potential impacts of climate change.

5.2.2 Study Area

Lifecycle GHG Impact Assessment

5.1.2.1 The study area for the Lifecycle GHG Impact Assessment covers all direct GHG emissions arising from activities undertaken with the Project scoping boundary during the preconstruction, construction, operation and maintenance, and decommissioning of the Project. It also includes indirect emissions embedded within the construction materials arising as a result of the energy used for their production, as well as emissions arising from the transportation of materials, waste and construction workers.

5.1.2.2 The environmental impact associated with GHG emissions is a national and global issue. Consequently, the potential significance of the proposed Project's Lifecycle GHG emissions will be assessed by comparing the estimated GHG emissions from the Project against the reduction targets defined in The Climate Change Act 2008 (2050

[1] His Majesty's Stationery Office (HMSO) (2011). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended by The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018). [online] Available at: https://www.legislation.gov.uk/uksi/2018/695/contents/made.

[2] Institute of Environmental Management and Assessment (IEMA) (2022). Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. [online] Available at: https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance.

[3] Institute of Environmental Management and Assessment (IEMA) (2020). Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation. [online] Available at: https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020.

[4] In line with IEMA guidance, this is the combined effect of the impacts of the Project and potential climate change impacts on the receiving environment are referred to as 'in-combination impacts' and 'in-combination effects'.

Target Amendment) Order 2019[5] and associated five year, legally binding carbon budgets.

In-Combination Climate Change Impact Assessment

5.1.2.3 The study area for the ICCI Assessment is as defined in each environmental assessment within the Environmental Statement (ES), and includes all environmental receptors as identified within the assessments undertaken by the environmental disciplines for the purpose of this Project.

Climate Change Resilience Assessment

5.1.2.4 The study area for the CCR Assessment is the land within the Project Scoping Boundary, i.e., it covers the construction, operation and decommissioning of all assets and infrastructure which constitute the Project.

5.2.3 Regulatory and Planning Context

5.1.3.1 Legislation, planning policy and guidance relating to climate change, and pertinent to the Project, comprises:

Legislation

- The Climate Change Act 2008 (2050 Target Amendment) Order 2019; and
- The Carbon Budget Order 2021[6].

National Planning Policy

- National Planning Statement for Energy (NPS EN-1)[7], with particular reference to the following paragraphs:
  - Paragraphs 2.2.9 and 4.8.2 in relation to impacts on climate and adaptation;
  - paragraphs 4.1.3 to 4.1.4 in relation to adverse effects and benefits;
  - paragraphs 4.2.1, 4.2.3, 4.2.4, 4.2.8 to 4.2.10 and 5.1.2 in relation to EU Directive and ES requirements;
  - paragraphs 4.5.3 and 4.8.1 to 4.8.12 in relation to adaptation measures in response to climate projections; and
  - paragraphs 5.7.1 to 5.7.2 in relation to climate projections, flood risk and the importance of relevant mitigation.

[5] His Majesty's Stationery Office (HMSO) (2008). The Climate Change Act 2008 (2050 Target Amendment) Order 2019. [online] Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654.

[6] His Majesty's Stationery Office (HMSO) (2021). The Carbon Budget Order 2021. [online] Available at: https://www.legislation.gov.uk/ukdsi/2021/9780348222616.

[7] Department of Energy and Climate Change (DECC) (2011). National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf.

- National Planning Policy Framework (NPPF)[8] –
  - paragraphs 8, 20 and 149 in relation to adaptation, mitigation and climate change resilience;
  - paragraphs 148 and 157 in relation to flood risk and damage to property and people;
  - paragraphs 150 and 153 in relation to reduction of CO2 emissions through design and reduced energy consumption; and
  - paragraphs 155 to 165 in relation to climate projections, associated flood risk and adaptation.

National Guidance

- Planning Practice Guidance (PPG), Climate Change[9].

Local Planning Policy

- Thanet District Council Local Plan (Adopted July 2020)[10].
- Kent Environment Strategy – a strategy for environment, health and economy (March 2016)[11].
- Kent and Medway Energy and Low Emissions Strategy: Implementation Plan 2020-2023 (May 2021)[12].

5.1.3.2 The national planning policies identify the requirement for consideration of climate change resilience. Climate projections should be analysed, and appropriate climate change adaptation measures considered throughout the design process. Specific climate change risks identified within these policies include flooding, drought, coastal change, rising temperatures and associated damage to property and people.

5.1.3.3 Local planning policies identify the need to consider and, where appropriate, mitigate GHG emissions associated with new development. New development should aim for reduced or zero-carbon development by incorporating renewable or low-carbon energy sources and maximising energy efficiency where practicable, and should build in resilience to projected climate change impacts.

[8] Ministry of Housing, Communities and Local Government (MHCLG) (2019). National Planning Policy Framework (NPPF). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

[9] Ministry of Housing, Communities and Local Government (MHCLG) (2014). National Planning Practice Guidance: Climate Change. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

[10] Thanet District Council (2020). Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf.

[11] Kent County Council (2016). Kent Environment Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0020/10676/KES_Final.pdf.

[12] Kent County Council (2021). Kent and Medway Energy and Low Emissions Strategy: Implementation Plan 2020-2023. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0004/121954/Kent-and-Medway-Energy-and-Low-Emissions-Strategy-Implementation-Plan-2020-2023.pdf.

5.2.4 Baseline

Lifecycle GHG Impact Assessment

5.1.4.1 The receptor for the Lifecycle GHG Impact Assessment is the global climate. The current land use within the footprint of the Project consists predominately of arable land, managed hedgerows, and trees. Trees are present individually in some areas, as well as rows of trees and small woodland areas. The abundance of vegetation within the Project Scoping Boundary suggests a relatively high carbon sink potential. Current land use within the Project Scoping Boundary has minor levels of associated GHG emissions as the land use is largely arable. Baseline agricultural GHG emissions are dependent on soil and vegetation types present, and fuel use for the operation of vehicles and machinery. The baseline marine conditions can be found in **Part 4, Chapter 3, Benthic Ecology**.

5.1.4.2 For the GHG assessment, the baseline is a 'business as usual' scenario whereby the Project is not implemented. The Project is predominately underground however there will be above ground converter stations. A full assessment of the baseline 'business as usual' scenario will be undertaken within the ES.

In-Combination Climate Change Impact Assessment

5.1.4.3 The receptors for ICCI Assessment are receptors within the surrounding environment that will be impacted by the Project in combination with future climatic conditions. Baseline conditions for the ICCI Assessment are determined using the climate change projections data.

5.1.4.4 An initial review of UK Climate Projections 2018 (UKCP18) data[13] for the 25km grid square (637500.00, 162500.00) within which the Project is located suggests that by the 2050s time period (2040–2069), the region could experience an increase of around 2.4°C in summer mean air temperature at 1.5m, and an increase of 1.7°C in winter mean air temperature at 1.5m, compared to a 1981–2010 baseline period. For the same time period, summer mean precipitation could decrease by around 18.6%, whilst in winter it could increase by 10.0%.

Climate Change Resilience Assessment

5.1.4.5 The receptor for the CCR Assessment is the Project itself, including its construction and operation phases. The Climate Change Resilience Assessment will provide a description of how the Project will be designed to be more resilient to the climate change impacts identified during the review of the UKCP18 data. A more detailed assessment of climate change projections will be conducted for the land within the Project scoping boundary as part of the ES.

5.2.5 Embedded and Good Practice Measures

5.1.5.1 A number of measures are under consideration subject to the relevant assessments being undertaken and their needs identified and these considerations include:

[13] UK Climate Impacts programme (UKCIP) (2018) UK Climate Projections 2018 (UKCP18). [online] Available at: https://catalogue.ceda.ac.uk/uuid/c700e47ca45d4c43b213fe879863d589.

- The use of materials with a low embodied carbon;
- The use of low carbon construction techniques; and
- Designing the Project to be resilient to any significant impacts of climate change.

5.1.5.2 The considerations for the ICCI assessment will be determined by the topic specialists.

5.2.6 Potential for Significant Effects

Lifecycle GHG Impact Assessment

5.1.6.1 For the purposes of this assessment, it has been considered that any increase in GHG emissions compared to the baseline has the potential to have an impact, due to the high sensitivity of the receptor (global climate) to increases in GHG emissions. This is in line with the IEMA Guidance, which states that all GHG emissions have the potential to be significant. The application of the standard EIA significance criteria is not considered to be appropriate for climate change mitigation assessments. The GHG impacts will be put into context in terms of their impact on the UK's 5-year carbon budgets, which set legally binding targets for GHG emissions. The GHG impacts will also be put into context for the sub-sectoral budgets for energy generation. Table 5.1.1 provides the lifecycle stages, related activities and primary emission sources to be considered for the GHG assessment.

Table 5.1.1: Potential sources of GHG emissions

Lifecycle stage	Activity	Primary emission sources
Product stage	• Raw material extraction and manufacturing of products required to build the equipment for the Project. Due to the complexity of the equipment, this stage is expected to make a significant contribution to overall GHG emissions. • Transportation of materials for manufacturing.	• Embodied GHG emissions from energy use in extraction of materials and manufacture of components and equipment. • Emissions of GHG from transportation of products and materials.
Construction process stage	• On-site construction activity including emissions from construction compounds. • Transportation of construction materials (where these are not included in product-stage. • Travel of construction workers.	• Consumption of energy (electricity; other fuels) from plant, vehicles, generators, vessels and worker travel. • Fuel consumption from transportation of materials to site, where these are not included in product-stage embodied emissions. Due to the nature of the equipment, this could require shipment of certain aspects over significant distances.

	• Disposal of waste materials generated by the construction process. • Land use change. • Water use.	• GHG emissions from transportation and disposal of waste. • GHG emissions from net loss of carbon sink. • Provision of clean water, and treatment of wastewater.
Operation stage	• Operation and maintenance of the Project.	• GHG emissions from energy consumption, provision of clean water and treatment of wastewater. These operational emissions are expected to be negligible in the context of the overall GHG impact. • Leakage of potent GHGs, such as SF_6, during operation. • GHG emissions from material use and waste generation resulting from ongoing site maintenance. Emissions from routine maintenance are expected to be negligible, but the periodic replacement of components has the potential to have significant impacts given the complexity of the equipment involved.
Decommissioning stage	• On-site decommissioning activity. • Transportation and disposal of waste materials. • Worker travel.	• Consumption of energy (electricity and other fuels) from plant, vehicles, vessels and generators on site. • Emissions from the disposal and transportation of waste. This has the potential to be significant give the complexity of the equipment. • GHG emissions from transportation of workers to site.

5.1.6.2 An outline Environmental Management Plan (EMP) will be prepared to suggest mitigation measure. A Construction EMP (CEMP) will then need to be prepared and implemented at the delivery stage of the Project.

5.1.6.3 The final selection of any mitigation measures, if required, will be detailed as part of the lifecycle GHG impact assessment in the ES. This may include GHG emission mitigation measures concerning preconstruction, construction, operation and decommissioning of the Project. Since any increase in GHG emissions is considered to have an impact, the lifecycle GHG assessment is proposed to be scoped in.

In-Combination Climate Change Impact Assessment

5.1.6.4 The ICCI Assessment identifies how the resilience of various receptors in the surrounding environment is affected by a combination of future climate conditions and the Project. The climate parameters relevant to the Project are detailed in Table 5.1 below together with the rationale for scoping. On the basis of the information presented in Table 5.1.2 an ICCI Assessment is proposed to be scoped out.

Table 5.1.2: Climate parameters for the ICCI assessment of the Project

Parameter	Proposed to be scoped in/out	Rationale for scoping conclusion
Temperature change	Out	While impacts are expected as a result of projected temperature increases, for example on arable land, these temperature increases in combination with the Project are not expected to have a significant impact upon receptors identified by other environmental disciplines.
Sea level rise	Out	The Project is not located in an area that is susceptible to sea level rise due to the buried nature of the cable, even at landfall.
Precipitation change[14]	Out	Climate change may lead to an increase in substantial precipitation events that could lead to flash flooding or changes to groundwater levels. However, no significant impacts on surface water or groundwater levels are expected as a result of precipitation changes, in combination with the Project, as the flow of precipitation to ground will not be significantly hindered if SuDS principles are applied. The Project, in combination with projected changes in precipitation, is also not expected to have a significant impact upon receptors identified by other environmental disciplines.
Wind	Out	The Project, in combination with projected changes in wind patterns, is not expected to have a significant impact upon receptors identified by other environmental disciplines.

Climate Change Resilience Assessment

5.1.6.5 Climate parameters relevant to the climate change assessment are detailed in Table 5.1.3 below. On the basis of the information presented in Table 5.1.3**,** the climate change resilience review is proposed to be scoped in.

[14] Frequency and magnitude of precipitation events and droughts

Table 5.1.3: Parameters proposed to be scoped Into the Climate Change resilience assessment

Parameter	Proposed to be scoped in/out	Rationale
Extreme weather events	In	Storm damage to structures and assets are likely to the location of the Project.
Increased average temperatures and incidence of heatwaves	In	The location of the Project in the UK is not prone to regular extremes in temperatures that may result in heat stress of materials and structures however due to recent reports of materials in the UK suffering due to extreme weather conditions this has been scoped in.
Increased frequency of heavy precipitation events	In	Damage to structures and drainage systems could occur due to the nature of the Project location.
Sea level rise	In	The marine cable is to be buried under the seabed therefore it is not susceptible to sea level rise. However, throughout operation, maintenance will be required on the terrestrial cables, and there might be future access needs to the TJBs if they become submerged.

5.1.6.6 The Climate Change Resilience Assessment will qualitatively assess the Project's resilience to climate change. This will be completed in liaison with the Project's design team and the other EIA technical disciplines by considering the climate projections for the geographical location and timeframe of the Project.

5.1.6.7 A statement will be provided within the ES to describe how the Project will be adapted to improve its resilience to future climate conditions.

5.2.7 Proposed Assessment Methodology

Lifecycle GHG Impact Assessment

5.1.7.1 The GHG assessment will follow a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation and decommissioning of the Project and to identify GHG 'hot spots' (i.e. emissions sources likely to generate the largest amount of GHG emissions). This will enable the identification of priority areas for mitigation in line with the principles set out in IEMA Guidance.

5.1.7.2 In line with the World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines[15], the GHG assessment will be reported as tonnes of carbon dioxide equivalent (tCO_2e) and will consider the seven Kyoto Protocol gases:

[15] World Business Council for Sustainable Development and World Resources Institute (2001) The GHG Protocol, A Corporate Accounting and Reporting Standard.

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Sulphur hexafluoride (SF_6);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Nitrogen trifluoride (NF_3).

5.1.7.3 Expected GHG emissions arising from the construction activities, embodied carbon in materials and operational emissions of the Project, as well as baseline emissions, will be quantified using a calculation-based methodology as per the following equation, and aligned with the GHG Protocol:

Activity data x GHG emissions factor = GHG emissions

5.1.7.4 Department for Environment, Food and Rural Affairs (DEFRA) 2022 emissions factors[16] and embodied carbon data from the University of Bath Inventory of Carbon and Energy (ICE)[17] are among those that will be used as the primary data sources for calculating GHG emissions.

5.1.7.5 The sensitivity of the receptor (global climate) to increases in GHG emissions is always defined as high as any additional GHG impacts could compromise the UK's ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets. Also, the extreme importance of limiting global warming to below 2°C this century is broadly asserted by the International Paris Agreement[18] and the Climate Science Community.

5.1.7.6 When evaluating significance of the GHG emissions, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a Project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible. The crux of significance therefore is not whether a Project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

5.1.7.7 The following significance criteria in Table 5.1.4 will be used to determine the projects whole life GHG emissions and how these align with the UK's net zero compatible trajectory. Major adverse or moderate adverse effects and beneficial effects are considered to be significant. Minor adverse and negligible effects are not considered to be significant.

[16] Department for Environment, Food and Rural Affairs (DEFRA) (2022). Conversion Factors Database (2022). [online] Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022.

[17] Circular Economy (2019). Inventory of Carbon and Energy Database. [online] Available at: https://circularecology.com/embodied-carbon-footprint-database.html.

[18] United Nations Framework Convention on Climate Change (UNFCCC) (2015) Paris Agreement. [online] Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

Table 5.1.4: Significance Criteria

Level of significance	Description
Major adverse	The Project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A Project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate adverse	The Project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with the local and national policy goals for projects of this nature. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor adverse	The Project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The Project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial	The Project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

5.1.7.8 The UK carbon budgets are currently only available to 2037 (6th Carbon Budget). Where further carbon budgets are not available (7th, 8th and 9th Carbon Budget periods), these have been projected based on data published by the climate change committee (CCC). Totals for these periods have not been approved or ratified and are not legally binding, but indicative figures can provide valuable context at this stage.

5.1.7.9 Either a quantitative or qualitative lifecycle GHG assessment of the marine habitats will be undertaken during the ES to reflect the expected change in ha of habitats

Climate Change Resilience Assessment

5.1.7.10 The identification and assessment of CCR within EIA is an area of emerging practice. There is no single prescribed format for undertaking such assessments; therefore, the approach adopted to undertaking and reporting the assessment has drawn on good

practice from other similar developments and studies, and is aligned with existing guidance such as that published by IEMA[3].

5.1.7.11 The receptor for the CCR review is the Project itself, including workers, infrastructure, visitors and residents.

5.1.7.12 The CCR Assessment will consider the impact of climate on the Project by identifying likely changes to the climate and potential climate hazards over the life of the Project. The assessment will consider Climate Projections over a 60-year period from the Project's completion and fully operational year.

5.1.7.13 The baseline for the CCR Assessment will consider how resilient the Project is to current and projected future climate hazards. The current baseline will be established by understanding the historic/ current climate in the location of the Project by reviewing historic climate data obtained from the Met Office website[13]. The climate baseline will be developed using historic Met Office data obtained from a meteorological station closest to the Overall Site (Dover Harbour) (Ref. 8-7).

5.1.7.14 The CCR review will provide commentary on how the Project will be resilient to against the predicted future climate baseline using the UK Climate Projections 2018 (UKCP18)[13]. UKCP18 projections for Dover Harbour will be used to examine future climate parameters. This climate projection data will provide a probabilistic indication of how global climate change is likely to affect the Project using defined climate variables and time periods.

5.1.7.15 Climate parameters to be considered in the CCR review during the demolition, construction and operation of the Project include the following:

- extreme weather events;
- flood risk;
- sea level rise (SLR);
- temperature change; and
- rainfall change.

5.1.7.16 The CCR Assessment will qualitatively review the Project's resilience to climate change. This will be completed in liaison with the Project's design team and the other EIA technical disciplines by considering the UKCP18 projections[13] for the geographical location and timeframe of the Project (including demolition, construction and operation).

5.1.7.17 The CCR Assessment will be undertaken for the Project to identify potential climate change impacts on the Project and associated receptors, and to consider their potential consequence and likelihood of occurrence, taking account of the measures incorporated into the design of the Project.

5.1.7.18 Climate change projections for the Project during the enabling works and construction phase will be examined against receptors (including the Project itself and associated users) during this stage. Construction phase receptors of the Project include the workforce, plant, machinery and materials.

5.1.7.19 For the complete and occupied phase of the Project, potential climate change impacts will be identified using relevant projections from UKCP18 (Ref. 8-5) and the CCR review will consider their potential consequence to receptors and likelihood of occurrence, taking account of the measures incorporated into the design of the Project.

Receptors when the Project is complete and occupied may include the Project assets and their operation, maintenance and refurbishment (i.e. pavements, structures, earthworks and drainage, technology assets, etc.); and end-users (i.e. staff and commercial operators etc).

5.1.7.20 The following key terms and definitions relating to the CCR Assessment will be used:

- Climate hazard – a weather or climate related event, which has potential to do harm to environmental or community receptors or assets, for example, increased winter precipitation;
- Climate change impact – an impact from a climate hazard which affects the ability of the receptor or asset to maintain its function or purpose; and
- Consequence – any effect on the receptor or asset resulting from the climate hazard having an impact.

5.1.7.21 The criteria which will be used to determine the likelihood of a climate change hazard occurring are detailed in Table 5.1.5. The event will be defined as the climate event (such as heatwave), while the hazard will be defined as an impact on the Project caused by the climate event (such as overheated electrical equipment).

Table 5.1.5: Description of likelihood of climate change hazard

Likelihood of event	Description (probability of occurrence)
Very likely	90-100% probability that the hazard will occur.
Likely	66-90% probability that the hazard will occur.
Possible, about as likely as not	33-66% probability that the hazard will occur.
Unlikely	0-33% probability that the hazard will occur.
Very unlikely	0-10% probability that the hazard will occur.

5.1.7.22 Engagement will be undertaken with relevant environmental disciplines and the engineering design team to discuss the CCR Assessment and identify mitigation measures for incorporation into the design of the Project.

5.1.7.23 The CCR Assessment is qualitative and will provide commentary on how the Project will be resilient to climate change within the context of current and predicted future climate conditions.

5.1.7.24 Following identification of climate hazards, the likelihood and consequences will be assessed according to Table 5.1.5 and Table 5.1.7 respectively. The categories and descriptions provided below are based on the IEMA Climate Change Resilience and Adaptation guidance[3].

5.1.7.25 The ES will present mitigation measures (based on those identified by each technical discipline) to demonstrate how the Project will be adapted to increase its resilience to future climate conditions.

5.1.7.26 The CCR Assessment will assess the significance of effects by evaluating the combination of the likelihood of the climate-related impact occurring, and the

consequence, as per the risk assessment matrix in Table 5.1.8. The assessment will take into account confirmed design and mitigation measures (referred to as embedded mitigation).

Table 5.1.6: Categories for the likelihood of the climate-related impact occurring

Likelihood category	Description
High	Likelihood of climate hazard occurring is high and impact is always/ almost always going to occur.
Moderate	Likelihood of climate hazard occurring is high and impact occurs often or the likelihood of climate hazard occurring is moderate and impact is likely to occur always/ almost always.
Low	Likelihood of climate hazard occurring is high but impact rarely occurs or the likelihood of climate hazard occurring is moderate and impact sometimes occurs or the likelihood of climate hazard occurring is low and impact is likely to occur always/ almost always.
Negligible	All other eventualities - highly unlikely but theoretically possible.

Table 5.1.7: Description of consequences

Consequence of impact	Description
High	Significant disruption to construction and operations, unable to deliver services, resulting in high financial losses.
Moderate	Disruption to construction and operations and ability to deliver services, resulting in some financial losses/ cost implications.
Low	Minor disruption to construction and operations but does not significantly impact ability to deliver services.
Negligible	Negligible disruption to construction and operations, does not impact ability to deliver services.

Table 5.1.8: Significance of effect matrix (where 'S' is significant and 'NS' is not significant)

		Likelihood of climate-related impact occurring			
		Negligible	**Low**	**Moderate**	**High**
Measure of consequence	**Negligible**	Negligible (NS)	Negligible (NS)	Low (NS)	Low (NS)
	Low	Negligible (NS)	Low (NS)	Low (NS)	Moderate (S)
	Moderate	Low (NS)	Low (NS)	Moderate (S)	High (S)
	High	Low (NS)	Moderate (S)	High (S)	High (S)

5.2.8 Assumptions, Limitations and Uncertainties

5.1.8.1 Where detailed information is not available regarding energy use, types and quantities of materials used, or the embodied carbon of key features of the assets, assumptions will be made based on industry approximations and professional best practice.

5.1.8.2 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and output data will be documented as part of the assessment.

5.2 Major Accidents and Disasters

5.2.1 Introduction

5.2.1.1 This chapter considers the potential risk of a major accident or disaster causing a significant environmental effect that may arise relating to the construction, operation, maintenance, or decommissioning of the Project (as described in **Part 1, Chapter 4, Description of the Project**).

5.2.1.2 This assessment for Major Accidents and Disasters is guided by a Primer published by IEMA (2020) called, 'Major Accidents and Disasters in EIA'[19] ('the Primer). The Primer defines the following:

- **Major accident:** Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.
- **Disaster:** May be a natural hazard (e.g., earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.

5.2.1.3 This chapter considers two aspects: the vulnerability of the Project to a major accident/disaster, and the potential for the Project to cause a major accident.

5.2.1.4 This chapter:

- Identifies the major accidents and disasters topics and events that are proposed to be scoped into the environmental impact assessment and thus included within the Environmental Statement (ES);
- Identifies those major accident and disaster topics and events that are proposed to be scoped out of further assessment, with a justification provided; and
- Define the approach and methodology for identifying potential major accidents and disasters and their assessment, in the context of the Project.

5.2.2 Regulatory and Planning Context

5.2.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of major accidents and disasters associated with the

[19] Institute of Environmental Management and Assessment (IEMA) (2020). Major Accidents and Disasters in EIA: An IEMA Primer. [online] Available at: https://www.iema.net/resources/reading-room/2020/09/28/major-accidents-and-disasters-in-eia-an-iema-primer#:~:text=Major%20accidents%20and%20disasters%20should,minor%20clean%2Dup%20and%20restoration.

construction, operation, maintenance and decommissioning phases of the Project are presented below.

5.2.2.2 As per the amended EIA Directive (2014/52/EU) it is required to consider major accidents and disasters as part of the EIA process. This is transposed into law by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations') which state:

'*A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned… Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies*.'

Guidance and Advice Notes

5.2.2.3 The following core guidance documents provide the technical framework for applying a risk management process when dealing with major accidents and disasters in EIA's, in addition to other useful documents which relate to the assessment of risk:

- The International Standards Organizations ISO 311000: 2018 Risk Management – Principles and Guidelines[20]
- Defra, 2011, 'Guidelines for Environmental Risk Assessment and Management[21]
- IEMA, 2020, 'Major Accidents and Disasters in EIA: An IEMA Primer '

5.2.3 Study Area

5.2.3.1 The following factors and associated distances were taken into consideration for setting the initial study area of 20km, in order to capture any adverse consequences caused by other events, on the Project. As there is no specific regulatory guidance or standardised methodology, the preliminary Study Area distances are based on professional judgement. All distances are from the Scoping Boundary illustrated in **Figure 1.1.1 Project Scoping Boundary**:

- Manmade features:
  - Airports, airfields and ports within 10km;
  - Control of Major Accident Hazard facilities within 3km;
  - Major accident hazard pipelines within 1km;
  - Rail infrastructure within 1km;
  - Offshore Wind Farms within 1km;
  - Transmission (gas, electrical, oil/fuels) crossing the Scoping Boundary; and

[20] The International Standards Organizations (ISO) (2018). ISO 311000: 2018 Risk Management – Principles and Guidelines. [online] Available at: https://www.iso.org/standard/65694.html.

[21] Department of Food, Environment and Rural Affairs (DEFRA) (2011). Guidelines for Environmental Risk Assessment and Management Green Leaves III. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69449/pb13670-green-leaves-iii-summary-111107.pdf.

- Shipping lanes crossing the Scoping Boundary.

- Natural features with the potential to create risks within:
  - Dam failure and seismic activity - 5km; and
  - Flood risk and unstable ground conditions - 1km

5.2.4 Baseline Conditions

Baseline Environment

5.2.4.1 The baseline relevant to major accidents and disasters primarily comprises:

- features external to the Project that present a potential source of hazard to the Project itself;
- sensitive environmental receptors at risk of significant effect; and
- identified major accident and disaster risks that currently exist within the local area.

5.2.4.2 .

5.2.4.3 The baseline conditions described for major accidents and disaster events are derived from the following desk study sources:

- Technical chapters of this Scoping Report: **Part 2, (Chapters 2-12)**, **Part 3, (Chapters 2-12)** & **Part 4, (Chapters 2-10)**;
- National Risk Register 2020[22];
- British Geological Survey 'Onshore GeoIndex'[23];
- The Coal Authority Interactive Map[24];
- Health and Safety Executive's Planning Advice Web App[25];
- COMAH 2015 Public Information Search[26]; and
- Google street view maps covering the Scoping Boundary.

5.2.4.4 The baseline conditions are split into three areas:

- potential environmental receptors: receptors that could be vulnerable to a major accident or disaster as a result of the Project;

[22] Cabinet Office (2020). National Risk Register. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/952959/6.6920_CO_CCS_s_National_Risk_Register_2020_11-1-21-FINAL.pdf.

[23] British Geological Survey (BGS) (N/A). Onshore GeoIndex. [online] Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html.

[24] The Coal Authority (N/A). The Coal Authority Interactive Map. [online] Available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html.

[25] Health and Safety Executive (N/A). Health and Safety Executive's Planning Advice Web App. [online] Available at: https://www.hse.gov.uk/landuseplanning/planning-advice-web-app.htm.

[26] Health and Safety Executive (2015). COMAH 2015 Public Information Search. [online] Available at: https://notifications.hse.gov.uk/COMAH2015/Search.aspx.

- nearby major accident installations: potential linkages with other projects that could increase the risk of a major accident within the study area; and
- natural hazards and disasters: a review of existing baseline data relating to natural hazards/disasters, such as flooding or drought, that inform the likelihood of a natural disaster occurring within the study area.

Accident and Disaster Categories

5.2.4.5 Within the study area, the potential major accidents and disaster groups and categories considered are those listed in Table 5.2.1.

Table 5.2.1: Major accidents and disaster groups and categories

Groups	Categories
Natural events	Geophysical
	Hydrological
	Climatological and meteorological
	Biological
Technological or Manmade hazards	Industrial and urban accidents
	Transport accidents
	Pollution accidents
	Utility failures
	Engineering accidents and failures
	Human error/management failure
	Design error
	Sabotage/arson
	Terrorism
	Explosion (chemical, nuclear or other)

Potential Environmental Receptors

5.2.4.6 All potential receptors that could be affected by a major accident or disaster have been described and outlined within the specific environmental topic chapters in **Parts 2, 3 & 4**. Table 5.2.2 signposts the technical chapters and the potential receptors relevant to Major Accidents and Disasters. No additional receptors have been identified outside those set out within the technical chapters.

Table 5.2.2: Signpost to chapters with relevant receptors

Chapter/Appendix	Receptors
Parts 2 and 3 Suffolk Onshore Scheme and Kent Onshore Scheme	
Chapter 2 Landscape and Visual	Designated Sites
Chapter 3 Ecology and Biodiversity	Ecological receptors Notable Habitats (terrestrial and aquatic) Designated Sites
Chapter 4 Cultural Heritage	Designated heritage assets Non-designated heritage assets
Chapter 5 Water Environment	Water resources Watercourses and waterbodies Flood risk
Chapter 6 Geology and Hydrogeology	Groundwater and aquifers Land stability
Chapter 7 Agriculture and Soils	Soil BMV Agricultural Land
Chapter 8 Traffic and Transport	Roads Cycle routes Public rights of way
Chapter 9 Air Quality	Residential receptors Commercial receptors Communities
Chapter 10 Noise and Vibration	
Chapter 11 Socio-economic Recreation and Tourism	
Chapter 12 Health and Wellbeing	
Part 4 Offshore Scheme	
Chapter 2 Physical Environment	Water quality Coastal morphology Seabed morphology
Chapter 3 Benthic Ecology	Intertidal and subtidal benthic ecology
Chapter 4 Fish and Shellfish Ecology	Fish and shellfish
Chapter 5 Marine Mammals	Marine mammals
Chapter 6 Ornithology	Designated sites Bird populations
Chapter 7 Marine Archaeology	Marine archaeology
Chapter 8 Shipping and Navigation	Shipping and navigation
Chapter 9 Commercial Fisheries	Commercial fisheries
Chapter 10 Other Sea Users	Other sea users

Nearby Major Accident Hazard Installations

5.2.4.7 Table 5.2.3 outlines the two sites that fall under the Control of Major Accident Hazard Regulations 2015 (COMAH) within 3km of the Project.

Table 5.2.3: COMAH sites within 3km of Project Scoping Boundary

Operator name	Location	Address	Tier
A E M Limited	Ramsgate	Haine Industrial Estate	**COMAH Lower Tier Operator**
EDF Energy Nuclear Generation Limited	Sizewell B Power Station		**COMAH Lower Tier Operator**

Natural Hazards and Disasters

5.2.4.8 The Primer outlines examples of natural hazards in the UK. These have been used to guide the baseline data collection and assist with determining the likelihood of the identified risk. The main natural hazards that can disrupt infrastructure in the UK are outlined below.

Flooding

5.2.4.9 The Project Scoping Boundary is partly located in Flood Zone 2 & 3 in the Suffolk and Kent Onshore Scheme Scoping Boundaries. The Suffolk Onshore Scheme is situated in the hydrological catchments of the Hundred River and the neighbouring River Fromus. The Kent Onshore Scheme is situated in the hydrological catchment of the River Stour. The River Stour is a designated main river that rises as the Great Stour in Lenham and flows towards and through Canterbury, where it becomes tidal, finally discharging to the sea at Pegwell Bay.

5.2.4.10 With regard to flood risk and drainage, future baseline conditions will be forecasted, drawing on current best practice guidelines. These will consider the likely impacts of climate change on river flows, rainfall intensities, and tidal flood levels/storm surges. Further information on the baseline conditions for the Project can be found in **Part 2, Chapter 5, Water Environment** for the Suffolk Onshore Scheme and **Part 3, Chapter 5 Water Environment** for the Kent Onshore Scheme.

5.2.4.11 For the assessment of the impact of climate change on the future physical environment, the UK guidance and projection of sea level rise and changing storm conditions are applied to the baseline.

5.2.4.12 Guidance on changes in future wind and wave conditions has been provided by the Environment Agency[27]. The guidance states that wind speeds and wave height should be increased by 5% between 1990 and 2055, then by 10% for 2056 to 2115.

5.2.4.13 UKCP18[28] provides the most up-to-date assessment of climate change up to and beyond 2100. Sea level rise data along the UK coastline are available to download from the Met Office UKCP18 website at the grid square. By 2050, sea levels may rise

[27] Environment Agency (2021). Flood Risk Assessments: Climate Change Allowances. [online]. Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

[28] Met Office (2018). UK Climate Projections. [online] Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp.

by 0.25m above 2022 levels at the Kent landfall and the Suffolk landfall. This is estimated for a high emissions scenario (RCP 8.5) in the 95th percentile.

Climate

5.2.4.14 Data sourced from the UK Met Office confirm the highest daily maximum temperature in the UK to be 40.3°C, recorded in Coningsby, Lincolnshire in July 2022. The lowest daily minimum temperature on record in the UK is -27.2°C recorded in Altnaharra, Scotland in December 1995.

5.2.4.15 Further climate information was sourced from the Met Office to help understand the climate of Eastern England where this Project is located:

- mean daily maximum temperatures 6°C to 8°C (winter) and 20°C to 23°C (summer)
- days of air frost per year: Ranges from 30 (coastal areas) to 55 (well inland).

5.2.4.16 Compared to the Lake District, which receives on average about 3000mm of rain a year, much of the surrounding areas of Suffolk and Kent receive less than 700mm per year. Across the region there is, on average, about 30 rain days (rainfall greater than 1mm) in winter (December to February) and less than 25 days in summer (June to August).

5.2.4.17 The occurrence of snow is linked closely to temperature, with falls rarely occurring if the temperature is higher than 4°C, and temperatures below this are generally required for snow to lie for any length of time. The Met Office data indicates that snow falls around 20 days per year in the southeast of eastern England.

5.2.4.18 The National Risk Register states that the UK is likely to experience a trend towards warmer winters and hotter summers (HM Government, 2020). This would also lead to changing rainfall patterns, leading to heavier rainfall. Other extreme weather events such as storms and heavy snowfalls could also be expected as a result of climate change. The National Risk Register expects extreme weather events to become more frequent.

Storms and high winds

5.2.4.19 Being one of the most sheltered parts of the UK, the east of England usually experiences mean wind speeds of around 10 knots. Gales (a mean windspeed of 34 knots or more over 10 consecutive minutes) only occur on average two days a year in Suffolk and Kent.

5.2.4.20 Extreme storms are very rare in the UK; however, storms of a lower magnitude occur particularly during winter, cause issues when they do occur. In February 2020, Storms Ciara, Dennis and Jorge brought devastating floods to large swathes of Wales, northern England and the Midlands. In 2022 Storms Dudley, Eunice and Franklin brought strong winds (122mph as recorded at the needles on the Isle of Wight) and heavy rainfall causing inland flood warnings across northern England and part of Scotland. The Environment Agency estimated that 400 properties were flooded across the country, however mitigation such as temporary flood defences had protected more than 40,000 properties.

Land instability

5.2.4.21 The Kent and Suffolk Scoping Boundaries as described in **Part 1, Chapter 1, Introduction** are both located in areas with gentle to flat topography close to the coast, with agriculture, urban settlements and some hills located further into the scoping boundaries.

5.2.4.22 Earthquakes in the UK are moderately frequent but are unlikely to be powerful enough to inflict severe damage. The BGS acknowledges although the UK is distant from the nearest plate boundary, the Mid-Atlantic Ridge, earthquakes in the UK occur as crustal stresses within the tectonic plates are relieved by movement occurring on pre-existing fault planes. One of the driving forces is regional compression caused by motion of the Earth's tectonic plates and uplift resulting from the melting of the ice sheets that covered many parts of Britain thousands of years ago. The Project Scoping Boundary passes through an area of low seismicity. BGS data indicate that the Project passes through areas with a Peak Ground Acceleration of 0.02 to 0.04g. This is the second lowest of the nine BGS seismicity categories for the UK (BGS, 2022)[29]

Wildfire

5.2.4.23 The UK has a temperate climate that is not usually associated with wildfires; however, wildfires do occur annually. Wildfires generally start from human error, such as discarded cigarettes or barbeques, when ground conditions are dry after extended periods of hot, dry weather, when vegetation may have increased susceptibility to fire.

5.2.5 Scoping Methodology

5.2.5.1 In order to understand the initial risk with regards to major accidents and disasters an initial scoping screening exercise has been undertaken to identify and review the sources outlined in Table 5.2.1 and the results of this scoping exercise are included as **Appendix 5.2.A Major Accidents and Disasters Scoping Table**. The Appendix outlines the potential vulnerability of the Project to the natural, man-made and technological risks and hazards. Each hazard is assessed to identify the risk or interaction that could result in a major accident or disaster.

Establishing the proposed scope of assessment

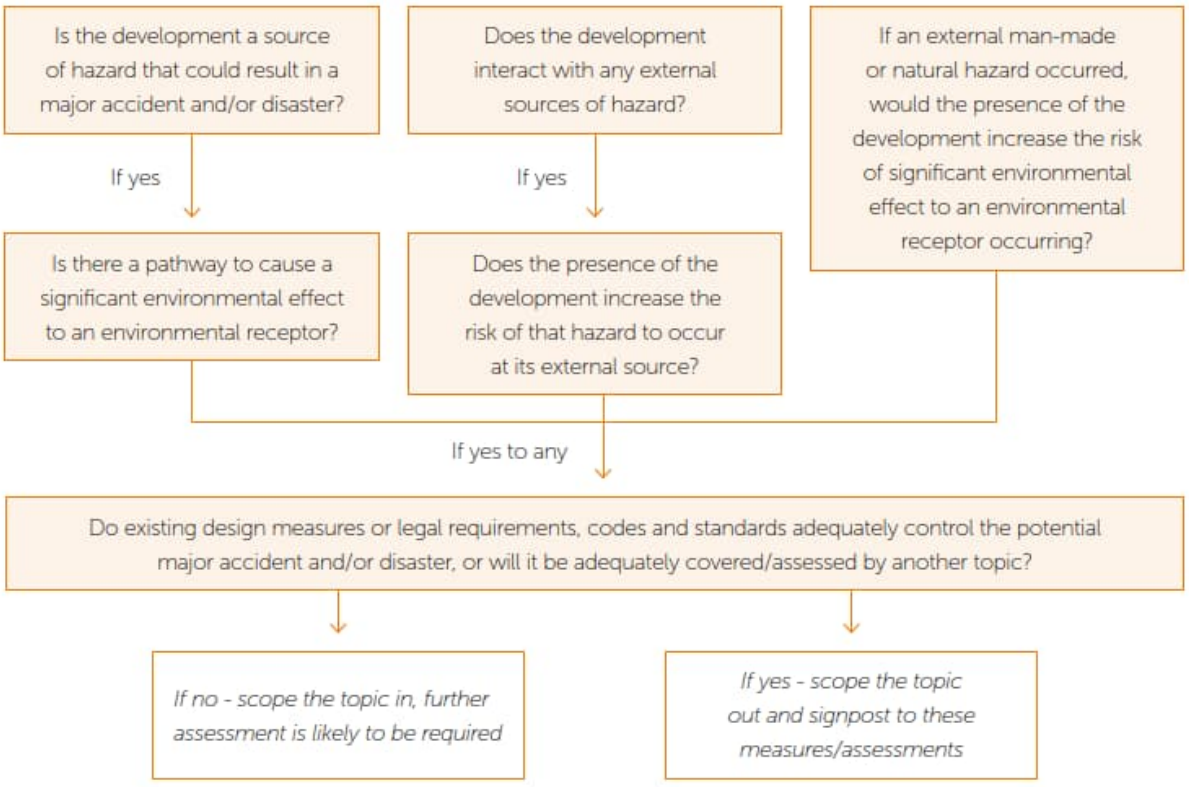
5.2.5.2 This scoping exercise focusses on identifying the potential impact sources (the development itself or other existing hazard sources) and the impact pathways that exist between these and potential receptors, that could lead to a significant environmental effect occurring. It then considers whether existing legal requirements and codes and standards are sufficient to control risks'

5.2.5.3 Each hazard was screened in turn to identify whether the Project is a potential source of hazard that could result in a major accident or disaster, or whether the Project could interact with any external source of hazard. The potential for the Project to result in the potential significant effects described in this section considers the embedded and control and management measures described in the Outline Code of Construction Practice (**Appendix 1.4.A Outline Code of Construction Practice**) and detailed in section 5 of each of the technical chapters in Parts 2, 3 and 4.

[29] British Geological Society (BGS) (2022). Seismic Hazard in the UK. [online] Available at: http://www.earthquakes.bgs.ac.uk/hazard/UKhazard.html.

5.2.5.4 Details of each of these stages are set out in the methodology set out within the Primer in Image 5.2.1 below.

Image 5.2.1 Scoping decision process flow



5.2.6 Potential for Significant Effects

5.2.6.1 The scoping screening exercise presented in **Appendix 5.2.A Major Accidents and Disasters Scoping Table** has not identified any hazard/events that are proposed to be scoped into the ES.

5.2.7 Proposed Assessment Methodology

5.2.7.1 **Appendix 5.2.A Major Accidents and Disasters Scoping Table** does not identify any hazard/events that are proposed to be scoped into the ES. Should an event/hazard need to be scoped in at a later stage this will be assessed using a staged approach as set out below:

- identify the potential risk events related to the major event types;
- screen the risk events;
- define the reasonable worth consequence should the event occur;
- identify all cross-disciplinary impacts;
- identify mitigation measures, management and, if possible, prevention;
- assess the likelihood; and

- determine the risk has been mitigated to as low as reasonably practical and identify any residual risks and their significance.

5.2.7.2 The ES would include a detailed methodology for the assessment of all major accidents and disasters considered, based on the guiding principles outlined above. Any limitations of the assessment of major accidents and disasters would also be clearly presented.

5.2.8 Conclusion

5.2.8.1 **Appendix 5.2.A Major Accidents and Disasters Scoping Table** summarises the hazard/events that are proposed to be scoped into and out of the assessment. No hazard/event is proposed to be scoped into the ES. The scoping screening assessment has shown that the vulnerability of the Project to major accidents and disasters can be mitigated or reduced by the processes and standards in place. It also outlines that the Project is unlikely to generate any potential significant effects on the environment if a major accident or disaster were to occur. The potential effects that are proposed to be scoped out of the assessment are summarised in Table 5.2.4 below.

Table 5.2.4: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
The Project	Potential vulnerability of the project to a major accident or disaster as set out in **Appendix 5.2.A Major Accidents and Disasters Scoping Table**	Construction, operation and maintenance and decommissioning	Scoped out
Receptors listed in Table 5.2.2	Potential for the Project to exacerbate existing hazard as set out in **Appendix 5.2.A Major Accidents and Disasters Scoping Table**	Construction, operation and maintenance and decommissioning	Scoped out

5.3 Combined Effects of the Project

5.2.1 Introduction

5.3.1.1 This chapter presents how the combined effects assessment will consider the potentially significant effects on shared receptors that may arise from the construction, operation, maintenance and decommissioning of the **Project as described in Part 1, Chapter 4, Description of the Project**.

5.3.1.2 This Scoping Report, the subsequent Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) has been and are proposed to be structured into parts covering the Suffolk Onshore Scheme, Kent Onshore Scheme and the Offshore Scheme. This structure is proposed for ease of presentation due to the largely geographically separate nature of the three parts, with limited potential for interrelated effects. It is however noted that the Planning Inspectorates Advice Note Nine Rochdale Envelope (2012) states:

"The ES should not be a series of separate unrelated topic reports. The inter-relationship between aspects of the proposed development should be assessed and careful consideration should be given by the developer to explain how inter-relationships 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 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."

5.3.1.3 To address the potential for inter-related effects, it is proposed that the ES will include a combined effects assessment. This document will enable the Planning Inspectorate, in the first instance, and then the Secretary of State, to consider the application for the DCO with regard to the likely effects of the Project as a whole.

5.3.1.4 It is proposed that the combined effects assessment will cover:

- An introduction and explanation of the purpose of the combined effects assessment;
- A summary of the relevant baseline information relating to the Onshore Schemes (Suffolk and Kent) and any relevant residual effects;
- A summary of the relevant baseline information relating to the Offshore Scheme and any relevant residual significant effects;
- An assessment of any predicted effects of the Project that could result over and above the residual effects presented in each of the three parts (combined effects);
- Any additional mitigation required in light of any combined effects in addition to that already proposed in each of the three parts; and
- Residual effects of the Project.

5.2.2 Potential for Combined Effects

5.3.2.1 The boundary of the Suffolk Onshore Scheme is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Suffolk County Council and the East Suffolk District local planning authority area.

5.3.2.2 The Suffolk Onshore Scheme is in an area that is predominantly rural. The settlements of Aldeburgh, Friston, Saxmundham, Leiston, and Knodishall Common are located adjacent to the Suffolk Onshore Scheme Scoping Boundary. The Sizewell nuclear site is located to the north of the Suffolk Onshore Scheme Scoping Boundary and there are two existing 400kV overhead lines that cross the Suffolk Onshore Scheme Scoping Boundary, which connect into Sizewell substation located within the nuclear site.

5.3.2.3 The boundary of the Kent Onshore Scheme is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Kent County Council and the Thanet District Council and Dover District Council local planning authority areas.

5.3.2.4 The Kent Onshore Scheme is in an area which is semi-rural although land use in the areas closest to the coast include Golf Courses and areas of nature conservation. The settlement of Cliffs End is located adjacent to the north of the Kent Onshore SchemeScoping Boundary and the settlement of Minster is also to the north, approximately 350m from the Kent Onshore Scheme Scoping Boundary. Richborough Energy Park and a wastewater treatment works are located adjacent to the south of the Kent Onshore Scheme Scoping Boundary. An existing 400kV overhead line crosses through the far western extent of the Project Scoping Boundary.

5.3.2.5 The boundary of the Offshore Scheme is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary** and is located wholly within English Territorial Waters and it lies within the East Inshore and South East Inshore Marine Plan areas. The Project Scoping Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas.

5.3.2.6 The Offshore Scheme is located to the west of London Array Offshore Wind Farm and to the east of Thanet, Greater Gabbard and Galloper Offshore Wind Farms.

5.3.2.7 Due to the geographical separation of the Suffolk and Kent Onshore Schemes, there is no potential for a combined effect to result from any of the effects proposed to be assessed within the technical chapters of the two parts. It is therefore proposed that the potential for combined effects between the Suffolk Onshore Scheme and the Kent Onshore Scheme are scoped out.

5.3.2.8 The Suffolk Onshore Scheme and the Kent Onshore Scheme both extend to the mean low water mark as illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary and Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**. The Offshore Scheme extends to the mean high water mark as illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**. The relevant aspects of the intertidal area are therefore included in both the terrestrial (**Part 2 Suffolk Onshore Scheme** and **Part 3 Kent Onshore Scheme**) and the marine (**Part 4 Offshore Scheme**) parts. Where this is the case, there is no potential for a combined effect as the effect is already assessed within the individual technical chapters in each of the parts.

5.3.2.9 The landfalls as described in **Part 1, Chapter 4, Description of the Project** will be assessed in both, onshore and offshore parts. There is no potential for a combined effect from the landfalls as the effects will be assessed within the individual technical chapters in each of the parts.

5.3.2.10 There is the potential that combined effects could conceivably occur where there is a pathway between an onshore and an offshore impact with a shared receptor.

5.3.2.11 Table 5.3.1 identifies all the receptor groups that are proposed to be scoped into the EIA and whether there is a potential theoretical pathway for a combined effect.

Table 5.3.1: Potential for combined effects

Receptor groups	Potential for a combined effect.
Landscape elements	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Seascape character	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Residential receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Designated Sites	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Ecological receptors	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Notable Habitats (terrestrial and aquatic)	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Non-designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already

Receptor groups	Potential for a combined effect.
	proposed to be assessed in the individual chapters as no theoretical pathway exists.
Water resources (existing abstractions and discharges)	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Watercourses and waterbodies	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Flood risk receptors	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.** .
BMV Agricultural Land	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Agricultural holdings	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Soil	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Public rights of way	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Cycle Routes	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Roads	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Communities	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Geology	**There is a theoretical pathway between onshore and offshore sources of impact that could**

Receptor groups	Potential for a combined effect.
	potentially result in combined effect on receptors within this receptor group.
Groundwater	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Human Health	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Marine Physical Environment	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Benthic Ecology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Fish and Shellfish Ecology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Marine Mammals	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Ornithology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Marine Archaeology	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Shipping and Navigation	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial Fisheries	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Other Sea Users	No potential for the onshore and offshore schemes to result in a combined effect beyond those already

Receptor groups	Potential for a combined effect.
	proposed to be assessed in the individual chapters as no theoretical pathway exists.
Greenhouse Gas Emissions	No potential for the onshore and offshore schemes to result in a combined effect as this will be assessed at a Project level as described in **Part 5, Chapter 1 Climate Change**.

5.3.2.12 Where Table 5.3.1 identifies the potential for a combined effect these will be screened within the ES to confirm whether or not a theoretical pathway exists for a combined effect. Where a theoretical pathway exits the source of impact, impact pathway and residual effects will be reviewed within the relevant topic chapters to identify whether there is the potential for a combined effect to occur. Where this is the case an assessment of combined effects will be made and any additional mitigation over and above that already taken into account in determining the individual residual effects will be identified and secured as required.