



AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement – Volume 1 – Chapter 4 EIA Methodology

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Document Ref: 6.1.4

PINS Ref.: EN020022

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PINS REF.: EN020022

DOCUMENT: 6.1.4

DATE: 14 NOVEMBER 2019

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DOCUMENT

Document	6.1.4 Environmental Statement – Volume 1 – Chapter 4 EIA Methodology
Revision	001
Document Owner	WSP UK Limited
Prepared By	H. Jenner
Date	2 October 2019
Approved By	U. Stevenson
Date	25 October 2019

CONTENTS

4.	EIA METHODOLOGY	4-1
4.1.	INTRODUCTION	4-1
4.2.	SCOPE OF EIA	4-2
4.3.	BASELINE CONDITIONS	4-7
4.4.	ASSESSMENT OF THE PROPOSED DEVELOPMENT	4-8
4.5.	TRANSBOUNDARY EFFECTS	4-14
4.6.	CUMULATIVE EFFECTS	4-15
4.7.	APPROACH TO MITIGATION AND ENHANCEMENT	4-16
4.8.	RESIDUAL EFFECTS	4-18
4.9.	FORMAT OF THE ES CHAPTERS	4-18
4.10.	CONSULTATION	4-19

REFERENCES

TABLES

Table 4.1 - Definitions of ‘magnitude’ of impact	4-12
Table 4.2 - Matrix for classifying the significance of effects	4-13
Table 4.3 - ES Chapter Structure	4-18

APPENDICES

Appendix 4.1 – Screening for Major Accidents and Disasters

4. EIA METHODOLOGY

4.1. INTRODUCTION

4.1.1.1. This chapter of the Environmental Statement ('ES') sets out the overall approach to the Environmental Impact Assessment ('EIA') process for the Proposed Development.

4.1.1.2. The assessment of environmental impacts has been conducted in accordance with relevant best practice guidance (see Section 4.1.2 below). The following key stages form the basis of the assessment process:

- Scoping the EIA to determine the issues to be addressed and how they will be assessed, including consultation with statutory and non-statutory bodies and relevant stakeholders;
- Establishing a robust environmental baseline through desk-based assessment, surveys and modelling, identifying future trends;
- Assessment and design iteration whereby the likely significant effects of the development are assessed and feedback is provided to the design and engineering team(s) to modify the development in order to prevent, reduce and, where possible, offset any significant adverse effects on the environment;
- Assessment of the environmental impacts of the final scheme (their significance, including any indirect, secondary and cumulative impacts);
- Identification of further measures to mitigate adverse impacts and enhancement measures (where necessary); and
- Assessment of residual environmental impacts and their significance.

4.1.1.3. The EIA process has been undertaken in parallel with the route selection and design development which has allowed opportunities to reduce or avoid impacts to be designed into the Proposed Development and the Development Consent Order ('DCO') Requirements. DCO Requirements are equivalent to planning conditions.

4.1.2. EIA GUIDANCE

4.1.2.1. The EIA has been carried out in accordance with the requirements of the EIA Regulations. Appendix 1.1 (Requirements of the EIA Regulations and their location within the ES) of the ES Volume 3 (document reference 6.3.1.1) provides a schedule of the information requirements of the EIA Regulations and where the information in relation to those requirements can be found within the ES.

4.1.2.2. In addition, the approach to the EIA and production of the ES has had regard to the guidance and advice provided within the following:

- Overarching National Policy Statement for Energy (EN-1) (Department of Energy and Climate Change, 2011);
- PINS Advice Note six: Preparation and submission of application documents (Planning Inspectorate, 2016);
- PINS Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (Planning Inspectorate, 2017);
- PINS Advice Note Nine: Rochdale Envelope (Planning Inspectorate, 2018);
- PINS Advice Note twelve: Transboundary Impacts and Process (Planning Inspectorate, 2018);
- PINS Advice Note Seventeen: Cumulative Effects Assessment (Planning Inspectorate, 2019);
- PINS Advice Note Eighteen: The Water Framework Directive (Planning Inspectorate, 2017);
- Environmental topic specific guidance;
- Guidelines for Environmental Impact Assessment (IEMA, 2004);
- Special Report – The State of Environmental Impact Assessment in the UK – (IEMA, 2011);
- Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017);
- Environmental Impact Assessment Guide to: Delivering Quality Development (IEMA, 2015); and
- Relevant guidance issued by other government and non-governmental organisations.

4.2. SCOPE OF EIA

4.2.1. SCOPING PROCESS

- 4.2.1.1. The proposed scope of the EIA was defined by the Scoping Report, Appendix 5.2 (EIA Scoping Report) of the ES Volume 1 (document reference 6.3.5.2), which was submitted to the Planning Inspectorate ('PINS') on 29 October 2018 and was consulted upon with the relevant Local Planning Authorities ('LPAs'), statutory consultees and other stakeholders. A Scoping Opinion, Appendix 5.3 (EIA Scoping Opinion) was received from PINS, on behalf of the Secretary of State on 7 December 2018. The Scoping Report and Scoping Opinion can be viewed in Appendix 5.2 (EIA Scoping Report) and Appendix 5.3 (EIA Scoping Opinion).

4.2.1.2. The ‘Scoping’ stage of the EIA identified the environmental topics where the Proposed Development has the potential to give rise to significant effects. These topics are considered in Chapters 6 to 28 of this ES. Aspects scoped out of the EIA are detailed in the Scoping Report.

4.2.1.3. For further detail on ‘Scoping’ see Chapter 5 (Consultation) of the ES Volume 1 (document reference 6.1.5).

4.2.2. TECHNICAL SCOPE

4.2.2.1. In line with the EIA Regulations, the ES must be based on the most recent Scoping Opinion. An explanation of how the scope of the EIA has taken into account the PINS Scoping Opinion (Planning Inspectorate, 2018) regarding ES Chapters 1 to 5 is provided in Appendix 5.3 (Scoping Opinion Responses) of the ES Volume 3 (document reference 6.3.5) with specialist responses provided to ‘Aspect Based Scoping Tables’ appended to each of the topic chapters 6 to 28.

4.2.2.2. Since submission of the Scoping Report to PINS in October 2018, several changes in the proposed structure of the ES have been adopted. These changes are outlined below:

Water Chapters

4.2.2.3. At Scoping stage, Chapter 19 (Water Resources and Flood Risk) of the ES Volume 1 (document reference 6.1.19) included both ‘Groundwater’ as well as ‘Surface Water Resources and Flood Risk’. These aspects have now been split into two chapters; Chapter 19 (Groundwater) and Chapter 20 (Surface Water Resources and Flood Risk) of the ES Volume 1 (document reference 6.1.20), to help the general focus and presentation of the respective topics and flow for the reader.

Electric and Magnetic Fields

4.2.2.4. The impacts from electric and magnetic fields (‘EMF’) from the Proposed Development are not assessed within a standalone chapter in the ES as proposed by the Scoping Report (WSP and Natural Power, 2018). Instead the assessment of EMF is outlined in Appendix 3.7 (Onshore Electric and Magnetic Field Report) (document reference 6.3.3.7) and covered within Chapter 26 (Human Health) of the ES Volume 1 (document reference 6.1.26); and Chapter 9 Fish and Shellfish of the ES Volume 1 (document reference 6.1.9 and Chapter 10 Marine Mammals and Basking Sharks of the ES Volume 1 (document reference 6.1.10).

Shipping and Navigation and Other Marine Users

4.2.2.5. At Scoping stage, ‘Shipping and Navigation’ and ‘Other Marine Users’ were proposed as two separate chapters. These two chapters were combined at PEIR stage to reduce overlap and titled ‘Chapter 13 (Shipping, Navigation and Other Marine Users)’ of the ES Volume 1 (document reference 6.1.13) within this ES.

Major Accidents and Disasters

- 4.2.2.6. The EIA Regulations require that the ES should include a description of the expected significant effects deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the Project. This includes both man-made and naturally occurring events.
- 4.2.2.7. A screening exercise has been undertaken to determine the types of major accidents and/or disasters relevant to the Proposed Development under the Regulations, these include:
- vulnerability of the development to major accidents and disasters, which may then give rise to significant adverse effects on the environment; and
 - major accidents and disasters arising from development which may give rise to significant adverse effects on the environment.
- 4.2.2.8. Where there is potential for significant environmental effects, and the major accident or disaster is screened in, these are assessed in the relevant topic chapters of this ES. The screening exercise is based on a Source-Pathway-Receptor model and considers the following:
- Source - Likely major accidents and/or disasters using available guidance (Cabinet Office, 2017) (Dawson, 2016);
 - Source - Scheme description (the Proposed Development is not within the scope of the Control of Major Accident Hazards ('COMAH') Regulations);
 - Pathway – Aspects of the Proposed Development which may interact with or give rise to natural and man-made hazards; and
 - Receptor – Identified environmental topics or receptors for major accidents and disasters and relevant chapter of the PEIR and ES.
- 4.2.2.9. The results of the screening exercise for major accidents and disasters are presented in Appendix 4.1 (Screening for Major Accidents and Disasters) of the ES Volume 3 (document reference 6.3.4.1) and a summary presented below:
- Flooding has been screened in and is considered in Chapter 20 (Surface Water Resources and Flood Risk);
 - Severe weather has been screened in and is considered in Chapter 28 (Carbon and Climate Change) of the ES Volume 1 (document reference 6.1.28);
 - Space weather has been screened out due to no impact on receptors;
 - Volcanic eruptions have been screened out as there is no source;
 - Poor air quality has been screened out in line with likely emissions predicted in Chapter 23 (Air Quality) of the ES Volume 1 (document reference 6.1.23);

- Earthquakes and ground instability have been screened out as there is no source;
- Wildfires have been screened out as there is no source;
- Human and animal diseases have been screened out as there is no pathway;
- Electricity and system failures have been screened out as there is no impact on receptors;
- Major transport accidents have been screened in and considered in Chapter 22 (Traffic and Transport) of the ES Volume 1 (document reference 6.1.22) and Chapter 13 (Shipping, Navigation and Other Marine Users);
- Industrial and urban accidents been screened out as there is no source;
- Industrial action has been screened out as there is no pathway;
- Public disorder and malicious attacks have been screened out as there is as there is no impact on receptors;
- Unexploded ordnance has been screened out with onshore and marine Unexploded Ordnance ('UXO') risk management procedures implemented;
- Electromagnetic fields have been screened in and considered in Chapter 26 (Human Health); and
- Exposure to high voltage is screened in and considered in Chapter 3 (Description of the Proposed Development) of the ES Volume 1 (document reference 6.1.3).

4.2.3. GEOGRAPHICAL SCOPE

- 4.2.3.1. The Project is a proposed HVDC marine and underground electric power transmission link between the south coast of England (Lovedean, Hampshire) and Normandy in France. The Project comprises three principal elements, being the Onshore Components in the UK, the Marine Components between the UK and French coastlines and the Onshore Components in France, as described in Chapter 3 (Description of the Proposed Development).
- 4.2.3.2. The Proposed Development, which the DCO Application seeks consent for, comprises the UK Onshore Components and the Marine Components of AQUIND Interconnector within the UK Marine Area to the UK Exclusive Economic Zone ('EEZ') Boundary Line.
- 4.2.3.3. The assessment of transboundary and cumulative effects considers effects likely to be experienced in other European Economic Area ('EEA') States that arise in combination with the Proposed Development and cumulative projects. Further detail on the assessment of transboundary effects is given in Section 4.5 and Chapter 29 (Cumulative Effects) of the ES Volume 1 (document reference 6.1.29).

4.2.3.4. The Order Limits of the DCO Application encompass the land required to build and operate, and maintain the Proposed Development, including working areas for cable installation, construction compounds, dredging and laydown areas. These Order Limits are shown on the Works Plans (document reference 2.6) within which the Proposed Development may be carried out.

4.2.3.5. For each of the topics assessed, the environmental baseline of the relevant study areas is defined in each of the topic specific Chapters (Chapters 6 to 28), which vary by topic and are dependent on the established zone of influence through assessment.

4.2.4. TEMPORAL SCOPE

4.2.4.1. Environmental effects are classified as either permanent or temporary. Permanent are those changes which are irreversible or will last for the foreseeable period. The duration of temporary effects of construction are as follows:

- short-term: less than one year;
- medium-term: one to five years; and
- long-term: greater than five years.

4.2.4.2. Where appropriate, each topic chapter considers the duration of effects from construction activities relevant to the receptor groups.

4.2.4.3. Information regarding the Proposed Development, the period of construction activity and the period of operation, contained within Chapter 3 (Description of the Proposed Development), has been used in Chapters 6 to 28 to predict the duration of effects.

4.2.4.4. The following are the main programme assumptions relating to the Proposed Development with regards to construction, operation and decommissioning stages:

4.2.4.5. **Construction Stage:** Onshore and Marine Components of the Proposed Development are anticipated to be undertaken concurrently between 2021–2024.

4.2.4.6. **Operational Stage:** The Proposed Development (and the Project as a whole) is anticipated to be commissioned and operational in 2024.

4.2.4.7. **Decommissioning:** The Applicant is seeking consent to install and operate the Proposed Development for an indefinite period. The Marine Components and the Onshore Components will be designed, manufactured and installed to meet the minimum service life of 40 years.

4.3. BASELINE CONDITIONS

- 4.3.1.1. For each of the topics assessed, the environmental baseline of the relevant study areas has been established. The baseline is a description of the current status of the environment in and around the area in which the Proposed Development is located. It provides a description of the status and trends of environmental factors against which significant effects can be compared and evaluated.
- 4.3.1.2. The EIA Regulations require the ES to include a description of the current state of the environment and an outline of what is likely to happen to the environment should the project in question not be implemented, which includes considering the ‘future baseline’.
- 4.3.1.3. The baseline has been established through consultation with relevant authorities and organisations, a desktop review of available data, including that generated from consultation, baseline surveys and the interpretation of that information.
- 4.3.1.4. Baseline surveys have been carried out by competent experts in a number of different study areas, in line with the methodologies outlined in the ES topic chapters. Where appropriate, survey methodologies have been agreed with the LPAs or other relevant stakeholders.
- 4.3.1.5. The surveys and other baseline data sources included in the ES provide a sufficiently robust evidence base to allow the likely significant effects of the Proposed Development on the environment to be identified and assessed.
- 4.3.1.6. In most cases, the baseline represents the environmental conditions of the Site and the surrounding area at the time of the assessment. Dates of desk-based data used for assessment purposes are referenced in individual chapters and all specialist surveys were undertaken during the period 2017-2019.
- 4.3.1.7. As part of the baseline analysis sensitive receptors are identified. Sensitive receptors are receptors that could be affected by the Proposed Development. The type of receptor varies depending on the topic being assessed.
- 4.3.1.8. The current baseline of the Site, relevant to the Onshore Components, includes:
- At Section 1, The Converter Station Area, located in close proximity to the existing Lovedean substation within a rural area and surrounded by agricultural fields;
 - Sections 2 to 3 traverse into semi improved fields of lowland meadow at Kings Pond, continuing south through Section 4 along busy highways through to urban residential areas;
 - The Site within Section 4 to 8 includes a portion of Farlington Playing Fields and the edge of Kendall’s Stadium and associated sports grounds, all of which are grassland;

- Sections 8 to 9, Milton Common, formerly a landfill site, is included within the Order Limits, with the University of Portsmouth adjacent to the west, and the allotments included; and
- Section 10, the Landfall at Eastney, is located within an existing car park west of Fort Cumberland, used for access to Eastney Beach.

4.3.1.9. The current baseline relevant to Marine Components includes the Marine Cable Corridor which extends from Mean High Water Springs at Eastney out to the UK/France EEZ Boundary Line within the UK Marine Area.

4.3.1.10. A full description of the relevant baseline is provided within Chapters 6 to 28. Figure 3.13 (document reference 6.2.3.13) illustrates key environmental constraints associated with the Site.

4.3.2. FUTURE BASELINE

4.3.2.1. The EIA Regulations require inclusion of:

“A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge”.

4.3.2.2. The future baseline has been outlined within Chapters 6 to 28, providing a description of the evolution of the environmental characteristics of each topic’s study area, without the Proposed Development over the minimum service life of 40 years. Some assessments have taken into account specific future baselines, for example, Traffic and Transport, Air Quality and Noise and Vibration have based their construction assessments on a future baseline year of 2026.

4.3.2.3. The 2026 future baseline year data has been determined from the Sub-Regional Transport Model (‘SRTM’) which provides the most appropriate available data to form the basis of the assessments for traffic, air quality and noise.

4.4. ASSESSMENT OF THE PROPOSED DEVELOPMENT

4.4.1. BASIS OF THE ASSESSMENT

4.4.1.1. The assessment considers impacts at the construction, operation and decommissioning stages. The definitions of these are presented below:

- 4.4.1.2. **Construction (Site Preparation and Installation):** Site preparation includes enabling works required to prepare for construction including for Onshore: connection works to the Lovedean Substation, site establishment and laydown, temporary drainage, earthworks and remediation (if required); and for Marine: seabed preparation including boulder and sandwave clearance. The Marine and Onshore Components will be designed, manufactured and installed to meet the minimum service life of 40 years. All equipment would be decommissioned in an appropriate manner, agreed with relevant stakeholders and all materials reused and recycled where possible.
- 4.4.1.3. **Operation (including repair and maintenance):** This includes the operation of the interconnector and all components (detailed in Chapter 3 (Description of the Proposed Development)) including the Converter Station, Onshore and Marine Cables and the Fibre Optic Cable ('FOC') Infrastructure.
- 4.4.1.4. **Decommissioning:** For the Onshore and Marine Cables, this could include consideration of leaving the cables in situ, removal of the entire cable or removal of sections of the cable. Decommissioning of the Converter Station will involve each item of equipment being removed for recycling or disposal, as appropriate. Civil works would be removed to return the Site to its previous state, as far as practicable.
- 4.4.1.5. The ES provides a comprehensive description of the Proposed Development used to inform the EIA at Chapter 3 (Description of the Proposed Development).

4.4.2. LEVEL OF DESIGN DETAIL

- 4.4.2.1. Although the design progression of the Proposed Development has been through an extensive process (as demonstrated in the Design and Access Statement), including consultation with the community and stakeholders, the Applicant will have a continuing need to refine the proposals, particularly following the appointment of contractors. The detailed design of each component of the Proposed Development is to be confirmed pursuant to a DCO Requirement, to be approved by the relevant discharging authorities.
- 4.4.2.2. The Applicant has adopted a parameter based approach which defines the envelopes within which the construction of the Proposed Development would be undertaken. These parameters are defined within the certified Application drawings and the draft DCO, namely:
- Works Plans – which identify the extent of the proposed works and the limits of deviation ('LOD') within which the Proposed Development and works may be carried out;
 - Authorised Development – which establishes the works that could take place within each works area;

- Parameter Plans – which, for the Converter Station, set out the zones within which the buildings, structures and works must be located; and
- Parameter Tables – which define maximum building dimensions for the Converter Station components.

- 4.4.2.3. The parameters approach presents the maximum envelope within which the built development may be undertaken and as assessment of the parameters ensures the comprehensive 'worst case' assessment of the full area within which the Proposed Development could be brought forward. This ensures the assessment of environmental effects associated with the Proposed Development will be the worst case, and that the actual development to be carried out within the parameters would be no worse than the effects reported in this ES. The detailed design and construction methodology for the Proposed Development will be developed within these parameters without the need for further assessment (though design approvals will be required to confirm compliance with the assessed parameters).
- 4.4.2.4. Whilst the Onshore Cable Route, Marine Cable Route and FOC Infrastructure at the Landfall are subject to more limited parameters/limits of deviation, greater flexibility is required for the Converter Station due to the need for the contractor to have flexibility to optimise the design solution within the parameters following the contract award.
- 4.4.2.5. The detailed design of the Converter Station would therefore, pursuant to a DCO Requirement, be controlled by the relevant parameter plan zones shown on the Converter Station Parameter Plans and in accordance with the maximum dimensions set out in the Parameter Table. To provide further control for the approval of the detailed design of the Converter Station the Design and Access Statement establishes a series of 'design principles' with which (in accordance with the relevant DCO Requirement) the detailed design would be in accordance. In addition, there are two siting options for the Converter Station, one of which would be required to be confirmed pursuant to a DCO Requirement. This is discussed in more detail in Chapter 3 (Description of the Proposed Development).
- 4.4.2.6. Illustrative plans detailing the landscaping measures to be implemented in connection with the Converter Station are submitted, together with landscaping design principles contained within the Outline Landscape and Biodiversity Strategy (document reference 6.10). The final landscaping to be implemented will be required to be in accordance with those plans and principles and submitted for approval pursuant to the relevant DCO Requirement.
- 4.4.2.7. Chapter 3 (Description of the Proposed Development) provides the description of the development which forms the basis of the Application and EIA.

4.4.3. DETERMINING THE SIGNIFICANCE OF EFFECTS

4.4.3.1. Several criteria are used to determine the significance of the potential effects of the Proposed Development and whether or not they are 'significant'. The effects will be assessed quantitatively wherever possible.

4.4.3.2. The significance rating for an effect will take account of the following criteria:

- Likelihood of occurrence;
- Geographical extent;
- Adherence of the proposals to legislation and planning policy;
- Adherence of the proposals to international, national and local standards;
- Sensitivity of the receiving environment or other receptor;
- Value of the affected resource;
- Whether the effect is temporary or permanent;
- Whether the effect is short, medium, or long-term in duration;
- Whether the effect is reversible or irreversible; and
- Inter-relationship between effects (cumulatively, transboundary and in terms of potential effect interactions).

4.4.3.3. In determining the significance of a potential effect, the magnitude of impact arising from the Proposed Development is correlated with the sensitivity/value of the particular receptor under consideration.

4.4.3.1. Any deviations from these criteria, for example due to application of topic-specific industry guidance, have been included in the topic assessment chapters, where relevant.

4.4.4. MAGNITUDE OF IMPACT

4.4.4.1. The magnitude relates to the level at which the receptor will be impacted, using the duration of the impact, timing, scale, size and frequency to determine the magnitude of the impact to each receptor. Magnitude of impact is evaluated in accordance with the definitions set out in Table 4.1 below. The definitions of magnitude in Table 4.1 are generic and have been tailored for some receptors (e.g. marine ornithology). Any deviations from these definitions have been included in the assessment chapters where relevant.

Table 4.1 - Definitions of ‘magnitude’ of impact

Magnitude of Impact	Definition
High	Total loss or major alteration to key elements/features of the baseline (i.e. pre-development) conditions.
Medium	Partial loss or alteration to one or more elements/features of the baseline (i.e. pre-development) conditions.
Low	Minor shift away from baseline (i.e. pre-development) conditions.
Negligible	Very slight change from baseline (i.e. pre-development) conditions.

4.4.5. SENSITIVITY/VALUE OF THE RECEPTOR

- 4.4.5.1. Sensitivity/value is understood as the sensitivity of the environmental receptor to change, including its capacity to accommodate changes the relevant project may bring about. The sensitivity is assigned at the receptor level, and as such details regarding sensitivity/value will be provided within the receptor specific assessments presented in the ES. This may be defined in terms of quality, value, rarity or importance, and be classed as negligible, low, medium, or high. For certain assessment areas, guidance can be taken from value attributed to elements through designation or protection under law, e.g. ecological resources given various levels of protection under law.
- 4.4.5.2. Any deviations from these definitions, for example due to application of topic-specific industry guidance, have been included in the topic assessment chapters where relevant.

4.4.6. SIGNIFICANCE OF THE EFFECT

- 4.4.6.1. For the assessments, the correlation of the magnitude of change to the environment against the sensitivity of the particular receptor determines a qualitative expression for the significance of the effect, which determines the relevance of the effects to the terms that are used in this ES to assess significance.
- 4.4.6.2. The significance of effect has, save where stated otherwise in individual topic chapters, been determined using the matrix below in Table 4.2.

Table 4.2 - Matrix for classifying the significance of effects

		Sensitivity of receptor/receiving environment to change			
		High	Medium	Low	Negligible
Magnitude of Impact	High	Major	Major to Moderate	Moderate	Negligible
	Medium	Major to Moderate	Moderate	Minor to Moderate	Negligible
	Low	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

- 4.4.6.3. The significance of the effect has been qualified where appropriate with respect to the international, national, regional or local scale over which it may be felt. The significance of an effect may also be affected by its duration (e.g. the length of the installation period) and by its reversibility, i.e. the degree to which a site could be returned to its baseline conditions following decommissioning.
- 4.4.6.4. The significance of effects reflects judgements as to the importance or sensitivity of the affected receptor(s) and the nature and magnitude of the predicted changes.
- 4.4.6.5. A standard outline methodology has been adopted, wherever possible, in order to identify the significance of potential effects. This methodology has, where appropriate, been refined to be topic specific for individual assessments according to best practice and guidance for certain technical disciplines. This section therefore offers a broad outline of the methodology and further detail is provided in the individual ES topic chapters, where appropriate.
- 4.4.6.6. Best practice and guidance requires that certain technical disciplines are required to follow topic-specific criteria for determining significance. Where this is the case, the criteria to be used has been presented clearly in the EIA methodology section of the specific topic chapters within the ES, as appropriate.
- 4.4.6.7. In accordance with the matrix provided in Table 4.2, the following terms have been used in the ES, unless otherwise stated within individual chapters, to determine describe the significance of effects:
- **Major beneficial or adverse effect** – where the Proposed Development would cause a large improvement or deterioration to the existing environment which will likely (but not exclusively) feature nationally or internationally important assets;

- **Moderate beneficial or adverse effect** – where the Proposed Development would cause a noticeable improvement or deterioration to the existing environment at a regional or local scale;
- **Minor beneficial or adverse effect** – where the Proposed Development would cause a small improvement or deterioration to the existing environment; and
- **Negligible** – no discernible improvement or deterioration to the existing environment as a result of the Proposed Development will occur.

4.4.6.8. Effects deemed to be significant, for the purposes of assessment, are those which are described as ‘**moderate**’, ‘**moderate to major**’ or ‘**major**’. Whether they do so shall be determined by a qualitative analysis of the specific environmental impact that is identified. Where an assessment differs to this approach, a clear justification as to why is provided.

4.4.6.9. Where applicable, professional judgement has been applied, with justification on how significance has been determined detailed within each technical assessment of the ES, as appropriate.

4.5. TRANSBOUNDARY EFFECTS

4.5.1.1. The EIA Regulations require a description to be provided of any transboundary impacts that will be experienced due to the Proposed Development. The assessment of transboundary effects relates to the effects experienced in other EEA States as a consequence of the Proposed Development. The assessment of transboundary effects does not consider effects experienced in other EEA States as a consequence of the Project components located within France in isolation, with those effects being identified and considered in connection with obtainment of the relevant consents within that jurisdiction. This approach was set out in the Scoping Report (WSP and Natural Power, 2018) and confirmed as acceptable by the PINS Scoping Opinion (Planning Inspectorate, 2018) (Appendix 5.2 (EIA Scoping Report) and 5.3 (EIA Scoping Opinion)).

4.5.1.2. Regulation 32 of the EIA Regulations details the procedure for consulting on the potential for transboundary effects with other European Member States PINS Advice Note Twelve (Planning Inspectorate, 2018)) also provides further advice on the assessment of transboundary effects, which the assessment has been undertaken in line with.

4.5.1.3. On 2 April 2019, PINS issued a Transboundary Impacts Screening Matrix in accordance with Regulation 32 of the EIA Regulations. Spain confirmed they wished to participate in the EIA procedure for examining the Application as an interested party. Germany and Denmark confirmed they did not intend to participate in the EIA procedure. Belgium, France and the Netherlands did not respond to the notification provided to them by PINS.

4.5.1.4. The potential for transboundary effects is considered on a topic by topic basis in the marine technical chapters of this ES (Chapters 6-14). This is because it is considered that the Onshore Components will not give rise to any environmental effects outside of the UK.

4.6. CUMULATIVE EFFECTS

4.6.1.1. Schedule 4 of the EIA Regulations require the likely significant environmental effects of a development to be considered cumulatively, including the interaction of different effects arising as a consequence of the Proposed Development on the same receptors and also the effects of the Proposed Development in combination with effects as a consequence of other existing and/or approved projects.

4.6.1.2. For the purpose of this ES cumulative effects have been defined under two categories; intra-project effects and inter-project effects. These types of cumulative effects are explained below:

- **Intra-project effects:** The interaction and combination of environmental effects, and indirect effects of the Proposed Development affecting the same receptor.
- **Inter-project effects:** The interaction and combination of environmental effects of the Proposed Development with existing, approved projects or proposed projects and activities affecting the same receptor. The approach taken to the assessment of inter-project effects follows the PINS Advice Note seventeen (Planning Inspectorate, 2019) which provides guidance on how to undertake a cumulative effects assessment.

4.6.1.3. Inter-project effects are considered in the individual topic specific chapters, so as to identify all receptors that are affected. A summary of any significant inter-project effects is provided in Chapter 29 (Cumulative Effects)

4.6.1.4. Intra-project effects, being interaction and combination of the individual effects identified for each topic specific EIA, are identified Chapter 29 (Cumulative Effects), where the identified topic specific effects on receptors can be more readily be drawn together so as to identify all likely significant effects on a particular receptor.

4.6.1.5. Inter-project effects where impacts are not limited to national jurisdictions are considered transboundary effects. As discussed in section 4.5, the environmental effects of the elements of the Project located in France are to be considered in connection with obtainment of the relevant consents within that jurisdiction. The potential for inter-project effects to arise in connection with the French elements of the Project has been considered in the chapters of this ES related to the marine environment (where it is considered there may be the potential for the same receptor to be affected by both the UK and French Components of the Project).

4.7. APPROACH TO MITIGATION AND ENHANCEMENT

- 4.7.1.1. The identification of mitigation measures follows the principles of avoidance if possible, reduction where avoidance cannot be achieved, or compensation where reduction cannot be achieved or would not achieve practicable levels of mitigation.
- 4.7.1.2. Although not strictly mitigation, enhancement measures are proposals which seek to provide an environmental improvement, for example in the quality of the existing habitat through habitat creation.
- 4.7.1.3. Mitigation measures have been identified throughout the evolution of the Proposed Development through consultation with communities and stakeholders, with the identification of potential for any significant adverse effects considered through the design process.
- 4.7.1.4. Onshore and Marine Outline Construction Environmental Management Plans ('CEMP') have been prepared to support the Application. The purpose of the CEMPs is to establish good management practices to ensure that the construction work considers aspects of environmental protection within the context of compliance with relevant legislation and minimise impacts on both the general public and the environment. The Outline CEMPs will set out the overarching principles for environmental management of the Onshore and Marine construction of the Proposed Development. The Outline CEMPs will comprise both embedded and additional mitigation measures.
- 4.7.1.5. Assuming the DCO is granted, the Applicant will appoint relevant Contractors who will have demonstrated that they are competent in managing the effects of construction on the environment. This is important as it will be the duty of the contractors to follow the environmental management and mitigation arrangements prescribed in the Onshore and Marine Outline CEMPs, to minimise environmental risks and ensure compliance with any relevant requirements of the DCO.
- 4.7.1.6. The approach to mitigation in the ES is discussed further below.

4.7.2. EMBEDDED MITIGATION

- 4.7.2.1. Embedded mitigation includes those measures that have been incorporated into the design of the Proposed Development and are inherent to the development for which consent is sought (as controlled by the parameters approach as set out above).
- 4.7.2.2. The EIA process has fed into the optioneering and design process, in order to optimise the Proposed Development, where practicable. In this assessment, embedded mitigation is included in the project design (see Category 2 Drawings) and Chapter 3 (Description of the Proposed Development). For example, the Parameter Plans and design principles which will control the detailed design of the Converter Station will ensure that the layout of the equipment would be positioned so that the noise levels emitted are directed away from sensitive receptors, mitigating noise producing equipment at source.

4.7.2.3. The predicted impacts of the Proposed Development are assessed with these measures already in place and the measures are set out prior to the assessment in each technical chapter (Chapters 6 – 28).

4.7.2.4. Embedded mitigation is categorised as the following:

- **Construction Measures:** inherent site-specific measures related to construction, e.g. Trenchless Techniques, Framework Construction Traffic Management Plan, marine measures that constitute industry standard plans or best practice.
- **Design Measures:** These are measures embedded in the scheme design as part of the DCO Application and therefore are integral to the Converter Station Parameter Plan, Design Principles or Works Plan, e.g. the location and parameters of the Converter Station, Landscape Mitigation Plan or the Outline Landscape and Biodiversity Strategy.
- **Other Measures:** These are other measures which have been identified which are neither design nor construction mitigation (e.g. standard operating/Health and Safety measures).

4.7.3. ADDITIONAL MITIGATION

4.7.3.1. Additional mitigation includes measures that are not incorporated into the design of the Proposed Development, are not standard measures and require further activity to achieve the required outcome of avoiding or reducing the impacts of the Proposed Development.

4.7.3.2. Additional mitigation is therefore categorised as:

- **Construction Measures:** Measures relating to how the Proposed Development could be constructed e.g. dust suppression. These will be aligned with the Outline CEMPs (Marine and Onshore) (document references 6.5 and 6.9), Materials Management Plan ('MMP') and Site Waste Management Plan ('SWMP').
- **Detailed Design Measures:** e.g. details of lighting design, noise barriers.

4.7.3.3. Additional mitigation measures are described under the sub-headings 'Proposed Mitigation' (Chapters 6 to 14) or 'Proposed Mitigation and Enhancement' (Chapters 15 to 28) within each technical chapter.

4.7.3.4. The Mitigation Schedule (document reference 6.6) sets out the mitigation controls and other best practice measures identified in the ES.

4.7.4. MONITORING

4.7.4.1. The EIA Regulations also make the provision, where appropriate, for monitoring of potential significant adverse effects. For example, this may comprise monitoring water quality where the risk of water pollution has been identified as a potentially significant effect so that remedial action can be taken if needed. Monitoring arrangements have therefore been proposed, where appropriate, as part of the

mitigation within this ES, and summarised in Section 7 of the Onshore Outline CEMP (document reference 6.9, note that no monitoring has been proposed in the Marine Outline CEMP).

4.7.4.2. Mitigation measures may be expressed as ‘commitments’ and will be binding obligations enforceable pursuant to management documents, imposed by requirements within the DCO.

4.7.4.3. The Mitigation Schedule (document reference 6.6) lists the commitments made by the Applicant in terms of mitigating the significant impacts of the Proposed Development, which are to be secured through DCO Requirements (Draft Development Consent Order, document reference 3.1).

4.8. RESIDUAL EFFECTS

4.8.1.1. Residual effects are those effects that remain from the predicted impacts of the Proposed Development once additional mitigation and any enhancements have been implemented.

4.9. FORMAT OF THE ES CHAPTERS

4.9.1.1. The environmental topics considered as part of this ES are included in Chapters 6 to 28. This comprises both onshore and marine environmental topics.

4.9.1.2. The reporting of environmental information within each chapter follows a standard structure as outlined below.

Table 4.3 - ES Chapter Structure

ES Chapter Structure	Content
Scope of the Assessment	Introduction to the content of the chapter, definition and description of the Study Area(s) with reference to specific guidance.
Legislation, Policy and Guidance	Summary of legislation relevant to the topic, including: national, regional, marine spatial and local planning policies and guidance that have been considered and used to conduct the assessment.
Scoping Opinion and Consultation	Summary of Scoping Opinion and Consultation responses, including Consultation prior to PEIR, Statutory Consultation, Post-PEIR Consultation and Elements scoped into and out of the assessment.
Assessment Methodology	Definition of the methodology, technical and temporal scope and the assessment of magnitude and significance of impact.
Baseline Environment	Description of the baseline environment over appropriate timescales, setting out future baseline.

Predicted Impacts (onshore) / Impact Assessment (marine)	Sets out the embedded mitigation measures and impacts of the Proposed Development. Assessment of the potential effects, divided into construction, operation and decommissioning (Onshore) and construction/decommissioning and operation (Marine), and Transboundary effects.
Cumulative Effects Assessment	Confirmation of the Zone of Influence for the Cumulative Effects Assessment and projects. An assessment of effects is then included.
Proposed Mitigation (and Enhancement)	Additional mitigation and/or enhancement measures proposed.
Residual Effects	Summary of the residual effects identified which the Proposed Development is likely to have after additional mitigation and enhancement measures have been implemented.
References	List of all sources cited within the chapter.

- 4.9.1.3. The methodologies for individual topic assessments and the extent of study areas for those topics have been developed in consultation with statutory bodies and individual stakeholders to ensure the most appropriate techniques are used. Where applicable, the baseline studies are correlated to ensure that the methodologies and extent are compatible and provide common data and understanding between topics. For example, shared data following traffic modelling is applied to the Traffic and Transport, Air Quality and Noise and Vibration assessments. This allows the prediction of indirect and cumulative effects as well as direct effects on sensitive receptors.

4.10. CONSULTATION

- 4.10.1.1. The Applicant is committed to ensuring that the local community, residents, those persons with an interest in the land that may be affected by the Proposed Development, local interest groups, businesses, local authorities, visitors and local highway users, have the opportunity to consider the Proposed Development and comment on its proposals.

Chapter 5 (Consultation) provides a summary of the Consultation undertaken to date. The Consultation Report (document reference 5.1) provides further information on the consultation process and is available to view alongside the ES.

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