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5 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

5.1 Introduction

- 5.1.1 This section outlines the process of Environmental Impact Assessment (EIA) that has been undertaken for the proposed Rampion Offshore Wind Farm (the Project). The assessment process has been undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations). An overview of the ongoing stakeholder engagement and consultation process is also provided within this section. However, full details of the consultation undertaken during the development of the Project are documented in the Consultation Report (Document 5.1).

5.2 Environmental Impact Assessment Process

- 5.2.1 The purpose of EIA is to provide an independent assessment of a project's likely environmental impacts.
- 5.2.2 The EIA Regulations transpose the EIA requirements of the consolidated EIA Directive (2011/92/EU) and apply to all Nationally Significant Infrastructure Projects (NSIPs) that require development consent under the Planning Act 2008.
- 5.2.3 As an offshore wind farm development, the Project is considered under Schedule 2 of the EIA Regulations as "industrial (energy) installations for the production of electricity, steam and hot water (projects not included in Schedule 1)" and Annex II of the EIA Directive, as "installations for the harnessing of wind power for energy production (wind farms)". NSIPs under Schedule 2 require an EIA where they are likely to have significant impact on the environment by virtue of factors such as their nature, size or location. The applicant may request a screening opinion from the Secretary of State on the need for EIA, under Regulation 6(a). The EIA Regulations also provide for the applicant to make a request for a scoping opinion from the Secretary of State that sets out the information that must be provided in the Environmental Statement (ES).
- 5.2.4 This ES provides information to those from whom consents and authorisations are sought to enable them to assess the potential environmental impacts of the proposed development. This information can also be used by affected parties to evaluate the acceptability of the development and its potential impact.
- 5.2.5 The EIA process typically comprises a series of phases, which are shown in Figure 5.1. The EIA for the Project has comprised:

- Identification of the baseline, through desk-based assessment and surveys;
- Assessment of impacts (their magnitude and significance including any indirect, secondary and cumulative impacts);
- Development of mitigation measures and enhancement measures (where necessary); and
- Identification of residual impacts.

5.2.6 The EIA has been undertaken with regard to the following published best-practice guidance: *Guidelines for Environmental Impact Assessment*, published by IEMA (2004).

5.2.7 A Non-Technical Summary (NTS) has also been prepared to accompany this ES. This presents a brief description of the proposed development, identifies and describes the potential environmental impacts of the proposed development, and sets out measures to mitigate adverse impacts in less technical language. It is designed to enable stakeholders with less technical knowledge to understand the Project and its potential impacts.

Rochdale Envelope

5.2.8 Owing to the complexity of developing large offshore wind farms, it is not possible to make final design decisions for a number of elements of the Project, such as the foundation type, array layout, turbine model, or certain elements of the onshore cable route and substation at this stage. Flexibility in the design process is essential to ensure that the development can take account of environmental, technological and economic factors that may arise during the development process.

5.2.9 The established principle of the Rochdale Envelope has been adopted for the purpose of preserving essential flexibility within some major elements of the Project. This principle applies a 'worst-case' approach to the assessment of the different impacts associated with the Project, as established through relevant case law (R v Rochdale MBC ex parte Tew [1999 3PLR74] and R v Rochdale MBC ex parte Milne [2001 81PCR27]).

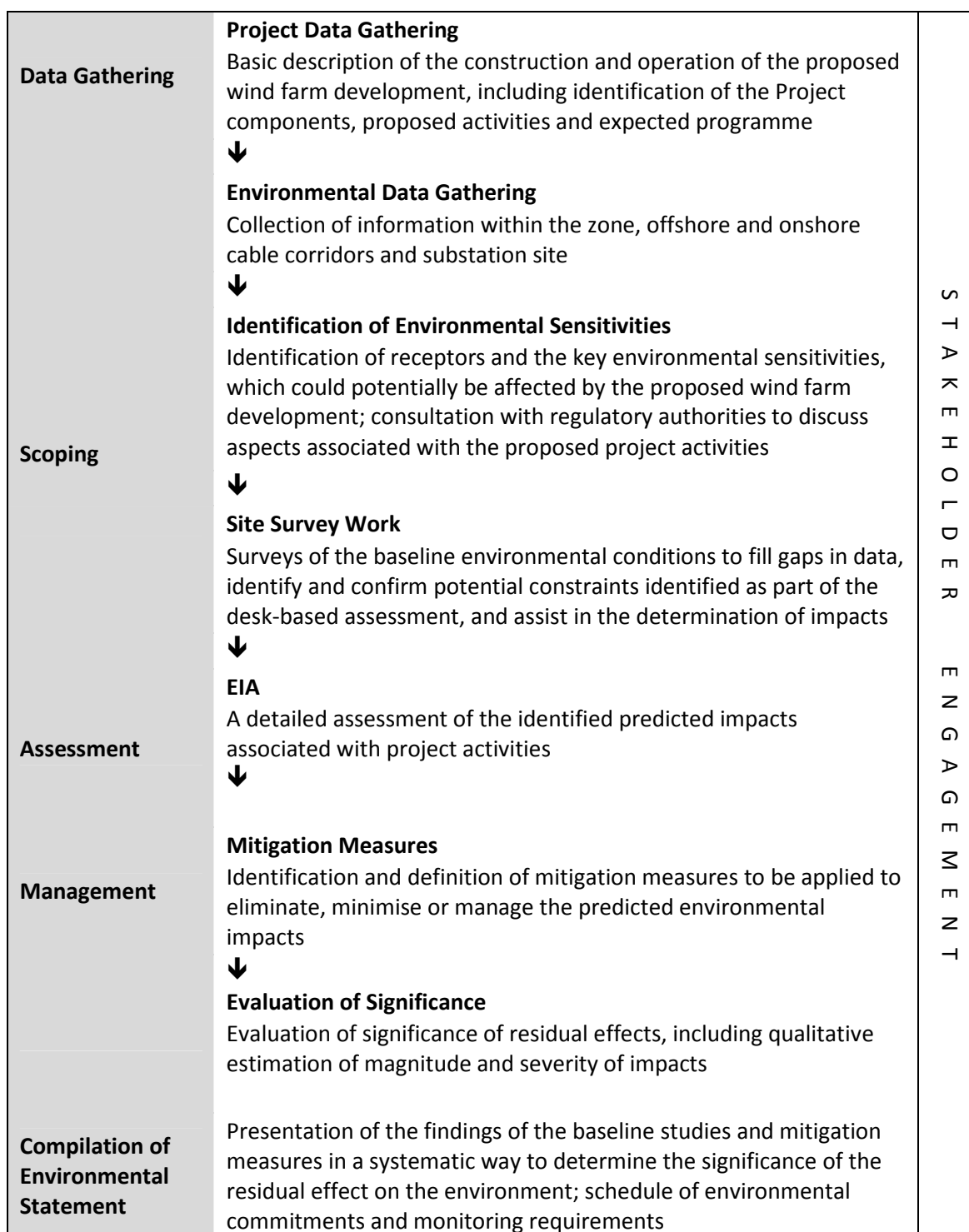


Figure 5.1: The EIA Process

- 5.2.10 The environmental assessment of an 'envelope' is an approach that has been used on numerous occasions in the application for consents for offshore wind farms when the final form of a project cannot be defined. The ES typically describes an assessment capturing the range of potential development scenarios of the proposed project by describing the maximum environmental impacts that can arise from the 'worst-case' scenario, thereby defining the "Rochdale Envelope".
- 5.2.11 The implications of Rochdale case law for DCO applications have been summarised in the Planning Inspectorate's 'Advice note nine: Rochdale Envelope' (Republished April 2012 (version 2)). The advice note acknowledges that some flexibility on the nature of the Project description is acceptable, provided that the approach has been fully consulted on, all parties fully understand the implications of the flexibility proposed and the record of that consultation process is captured and presented alongside the DCO application. The advice note further stresses that any proposed flexibility applied to the description of the Project assessed must be fully compliant with the requirements of the EIA Regulations.
- 5.2.12 Therefore, this ES assesses a maximum adverse scenario (the 'realistic worst case') in environmental terms. The 'realistic worst-case scenario' may differ for each topic, as the significance and magnitude of any particular impact may differ for different receptors. For example, the design and installation of turbine foundations have very different implications for benthic invertebrates and marine species (such as fish, diving birds and marine mammals) sensitive to underwater noise. If gravity base foundations are used they impact upon the widest seabed area, but are relatively "low-noise" during installation; conversely if monopile foundations are selected they have a relatively low seabed 'take', but would generate highest levels of underwater noise during installation.
- 5.2.13 In order to determine the worst-case for the various design options which are still under consideration, the authors of the relevant chapters (technical experts) were presented with the options and asked, using either modeled results, or their professional judgement, to determine which option constituted the worst-case. In several sections a number of worst-cases were identified, and all have been assessed. For example, in Section 12 (Seascape, Landscape and Visual Impact) visualisations of two layout options have been included in the assessment from some viewpoints, covering both the 175 and 100 turbine development scenarios.
- 5.2.14 Section 2 (Project Description) presents the breadth of the design options being considered for the Project. The potential for design issues to influence the magnitude of impacts on various features of the environment are indicated in Table 5.1 and Table 5.2.

5.2.15 Within each of the individual assessment sections of this ES (Section 6 to 29) an explanation is given of the realistic worst-case in that situation, upon which the subsequent impact assessment has been made.

Table 5.1: Potential for design issues to affect magnitude of impacts - offshore

Section	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Design feature	Physical Environment	Benthos	Fish and Shellfish	Nature Conservation	Marine Mammals	Marine Ornithology	Seascape/Landscape	Archaeology	Navigation	Telecoms	Aviation	Socio-Economics	Commercial Fisheries	Other Marine Users
Wind Farm Site Layouts														
Wind Turbines														
Foundations														
Offshore Substation														
Cables														
Navigation and Aviation Marking														
Construction and Installation														
Operation and Maintenance														
Decommissioning														

 Denotes design features, which have the potential to influence the magnitude of impacts on the relevant receptor.

Table 5.2: Potential for design issues to affect magnitude of impacts - onshore

Section	20	21	22	23	24	25	26	27	28	29
Design feature	Agriculture & Soils	Air Quality	Ground Conditions	Hydrology	Ecology	Archaeology & Cultural Heritage	Landscape & Visual	Noise & Vibration	Socio-economics	Transport
Landfall installation										
Onshore Cable Installation										
Onshore Substation Construction										
Onshore Substation Operation										
Decommissioning										

 Denotes design features, which have the potential to influence the magnitude of impacts on the relevant receptor.

5.3 Data Gathering and Consultation

Desk-based Data Collection

5.3.1 Initial data-gathering letters were issued to consultees in July and November 2010. The following organisations were contacted to obtain relevant baseline information:

- Mid Sussex Badger Protection Group;
- Badger Trust West Sussex;
- South Downs Badger Protection Group;
- Sussex Bat Group;
- Sussex Wildlife Trust;
- Sussex Biodiversity Records Centre;
- RSPB – South East Regional Office;
- Natural England;
- Sussex Ornithological Society;
- English Heritage;
- Horsham District Council;
 - Contaminated land
 - Planning applications
 - Tree preservation orders
- Adur District Council;
 - Contaminated land
 - Planning applications
 - Tree preservation orders
- Mid Sussex District Council;
 - Contaminated land
 - Planning applications
 - Tree preservation orders

- Worthing Borough Council;
 - Contaminated land
 - Planning applications
 - Tree preservation orders
- West Sussex County Council;
 - Ecology
 - Archaeology
 - Public rights of way
 - Landscape
 - Minerals and waste
 - Traffic
- South Downs National Park Authority;
 - Landscape
 - Planning applications
 - Public rights of way
- Coastal Heritage Centre, Brighton;
- Environment Agency;
- Centre for Environment, Fisheries and Aquaculture Science;
- Joint Nature Conservation Committee;
- Various fishermen's groups, both in the UK and abroad (France, Belgium and Holland);
- Sussex Inshore Fisheries and Conservation Authority;
- Sussex Seasearch;
- Booth Museum of Natural History; and
- Balanced Seas (the regional Marine Conservation Zone project);

- 5.3.2 A review was undertaken of relevant data/information from publicly available sources and from relevant information provided by the consultees listed above. Further details of the data reviewed are provided in the individual assessment sections of this ES.

5.4 Scoping

- 5.4.1 Although not a mandatory phase of the UK EIA process, scoping is often undertaken to refine the scope of an EIA and to ensure that it is robust in its approach. Regulation 8 of the EIA Regulations allows a prospective applicant to ask the Secretary of State for a scoping opinion, which would set out the information that should be provided in an ES.
- 5.4.2 As part of the scoping phase of the EIA, a Scoping Report was prepared by E.ON to set out the proposed approach to EIA in respect of the proposed development. The Scoping Report was submitted to the Infrastructure Planning Commission (IPC) in September 2010. A Scoping Opinion was received from the IPC in October 2010. A copy of the Scoping Report and Scoping Opinion including consultee comments are included in Appendices 5.1 and 5.2 respectively. The points raised during the scoping phase have been summarised within the individual assessment sections of this ES. Consultation meetings were also held during 2011 and 2012 to discuss the proposed development, assess issues and scope surveys with:
- Natural England;
 - Environment Agency;
 - West Sussex County Council;
 - Worthing Borough Council;
 - English Heritage; and
 - Marine Management Organisation.

5.5 Pre-application Engagement and Consultation

- 5.5.1 An extensive programme of engagement has been undertaken with regard to the Project; details of which are provided in the Consultation Report (Document 5.1).

- 5.5.2 From early on in the Project development E.ON has met with statutory organisations, non-statutory organisations, Members of Parliament, council leaders, councillors and senior officials working in county councils and local authorities in the wider area potentially affected by the Project. County councils and local authorities have a key role as advisers with local knowledge and experience, coupled with an ability to provide a conduit to stakeholder organisations and the wider community within their area of competence.
- 5.5.3 E.ON identified over 2000 stakeholder organisations throughout the region, and have engaged with them throughout the pre-application phase through letters, newsletters and workshops.
- 5.5.4 Six project liaison groups (PLGs) have been established that supplement the commitment to the community, which encourage a two-way information dissemination process with a focus on six key areas of interest (Table 5.3). The PLG's have met a number of times during the pre-application period.

Table 5.3: Project Liaison Groups

Project liaison group (PLG)	Inaugural meeting
Business and tourism	November 2011
Commercial fishing	November 2011
Community (including hard to reach groups)	November 2011
Environment, conservation and sustainability	November 2011
Sea users	November 2011
County councils and local authorities (officials)	November 2010 (prior to formal PLG status)

- 5.5.5 A Statement of Community Consultation (SoCC) was prepared in accordance with the requirements of the Planning Act, and published in January 2012. A 12-week community consultation was undertaken from February to May 2012, in accordance with the SoCC. During this period, over 4700 people attended public exhibitions in the area, and more than 1500 responses were received. Details of these are provided in the Consultation Report (Document 5.1), along with details of E.ON's response to the issues raised.
- 5.5.6 The Draft ES was published in June 2012, and formed the Preliminary Environmental Information for Consultation with Statutory Consultees, Local Authorities and Landowners, as required by the Planning Act. The Draft ES was made available on the Rampion webpages, and in local town council offices, and publicised in Local newspapers as part of the formal Section 42 and Section 48 consultations. The responses to these consultations are included in full in the Consultation Report (Document 5.1), and, where appropriate, have been used to refine the proposals and update the ES. A short summary of the main responses on each subject has been included in the relevant impacts Section (6-30) of this ES.

5.6 Baseline Studies

- 5.6.1 In order to supplement the baseline data obtained through desktop studies and consultation, a number of baseline surveys and technical studies have been carried out to gather additional environmental and engineering information for the proposed development, the results of which have been used to fully inform the ES. These studies/surveys are as follows.

Offshore

- Geophysical and geotechnical surveys of the seabed to provide baseline information on depth to seabed, sediment type and underlying geology;
- Intertidal benthic ecology survey to provide information on the ecological features of the intertidal area at the landfall;
- Offshore benthic ecology survey to provide information on the types of habitat present on the seabed in the wind farm area and along the cable corridor;
- Offshore fish surveys to provide information on the fish species present in and around the wind farm;
- Offshore bird and marine mammal surveys to inform the baseline description;
- Navigation study to determine existing levels of vessel movement around the proposed wind farm;
- Fisheries study to detailed existing levels of commercial and recreational usage of fishing grounds around the proposed wind farm;
- Sediment hydrodynamic studies to inform the assessment of effects on the physical environment such as sediment movement and changes to wave patterns and heights;
- Underwater noise modelling to inform the assessment of effects on fish, marine mammals and humans; and
- Landscape impact assessment (viewpoint photography).

Onshore

- Site walkover (attended by representatives from engineering team, environmental team and land agents);
- Onshore ecological surveys:
 - Extended Phase 1 habitat survey

- Phase 2 botanical surveys of selected areas including woodland, scrub and trees, hedges, grassland, marshy grassland and swamp, tall herb and fern, coastal habitats and watercourses and ponds
- Badger surveys
- Otter surveys
- Water Vole surveys
- Great Crested Newt surveys
- Reptile surveys
- Aquatic invertebrate surveys
- Terrestrial invertebrate surveys
- Dormouse surveys
- Bat surveys
- Tree surveys
- Archaeological surveys:
 - Field reconnaissance survey
 - Geophysical survey
- Landscape and visual surveys:
 - Initial vantage point surveys
 - Viewpoint photography
 - Field survey
- Baseline noise monitoring.

5.6.2 The data collected through these surveys/studies have been used to define the existing baseline conditions against which likely significant effects have been measured and predicted, and to help define the mitigation measures required. More information on these and other studies is provided in the appropriate sections of this ES.

5.7 Impact Identification and Assessment

5.7.1 Impacts comprise identifiable changes to the baseline environment. These can be:

- Direct (e.g. loss of habitat to accommodate the Project);
- Indirect (e.g. pollution downstream arising from silt deposition during earthworks);
- Short-term/temporary (e.g. dust generated during construction);
- Medium-term (e.g. cutting back of planting which is allowed to regenerate); and
- Long-term/permanent (e.g. improvement in air quality).

5.7.2 Impacts can be either beneficial (e.g. introduction of planting to screen visually detracting elements) or adverse (e.g. loss of an attractive environmental component).

5.7.3 Impact assessments have been undertaken based on comparisons between the environmental conditions immediately prior to the assumed construction of the Project and the predicted environment conditions resulting from project implementation. Impacts have been defined in accordance with accepted terminology and standardised methodologies to predict the magnitude of impact (change) resulting from the Project.

5.7.4 Assessments have been undertaken for the construction period and the operational period of the Project. Some environmental topics have also included further assessment beyond the operational period to take account of factors such as predicted traffic growth. The potential impacts of future project decommissioning have also been assessed as far as possible, and a commitment to carry out further environmental assessment work to assess decommissioning options where relevant has been made.

5.8 Identification of Environmental Effects

5.8.1 Professional judgement, defined thresholds, established criteria and standards have been used to report the environmental effects of impacts.

5.8.2 Environmental effects are formulated as a function of the receptor/resource value and sensitivity, and the predicted magnitude of impact (or change). Effects can be referred to as either prior to, or following establishment of, environmental mitigation.

5.9 Environmental Mitigation

5.9.1 There is a widely accepted strategy for mitigation and this has been followed when considering the methods of dealing with the environmental impacts of the proposed development. The strategy comprises the steps listed in Table 5.4. In addition to reducing any adverse impacts, consideration has been given to providing opportunities for environmental enhancement. Where

specific mitigation measures have been agreed in relation to the reduction of impacts to particular environmental features, these are detailed in the relevant sections.

Table 5.4: Mitigation Strategy

Avoidance	Where viable, the Project will be redesigned to avoid impacts. This will also be considered during the assessment of alternative sites/routes.
Reduction	Reduction will be considered when all options for the avoidance of impacts have been exhausted or deemed impractical. For example, by considering different building alignments to reduce visual impact.
Compensation	Where the potential for avoiding and reducing impacts has been exhausted, consideration will be given to compensating for residual impacts to make the proposal more environmentally acceptable.
Remediation	Where adverse effects are unavoidable, consideration will be given to limiting the level of impact by undertaking remedial work.

5.10 Significance of Environmental Effects

5.10.1 The significance of an environmental effect have been established by way of reference to:

- The importance/value of affected resources;
- The number and sensitivity of affected receptors;
- Impact magnitude;
- Duration, frequency and extent of effect; and
- The reversibility of effect.

5.10.2 The following generic significance criteria have been applied across all EIA topics to ensure identified environmental effects are assessed in a comparable manner, except where such criteria are not applicable due to other prevailing standards and/or established thresholds (e.g. EU limit values for air emissions).

- **Major:** These effects are key factors in the decision-making process and are generally (but not exclusively) associated with sites and features of national importance and resources/features that are unique and, if lost, cannot be replaced or relocated;

- **Major/Moderate:** These effects are important considerations at a regional or district scale but, if adverse, are potential concerns to the Project depending upon the relative importance attached to the issue during the decision making process;
- **Moderate:** These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues;
- **Minor:** These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the Project; and
- **Negligible:** These effects are beneath levels of perception, within normal bounds of variation, or within the margin of forecasting error.

5.10.3 Published best practice guidelines have been used, where available and appropriate, including those published by the Institute of Environmental Management and Assessment, the Institute of Ecology and Environmental Management, the Institute of Field Archaeologists and the Landscape Institute.

5.10.4 The assessment of the significance of the effects has been carried out on the residual impacts, i.e. those remaining after mitigation. It is the residual effects (i.e. post-mitigation effects) that the EC Directives and EIA Regulations require the competent authority determining the development application to consider as part of the decision-making process.

5.10.5 The EIA has addressed the following three stages of the proposed offshore wind farm development:

- **Construction:** All those works, activities and processes that will be required to build the proposed development;
- **Operation:** The developed scheme completed and in operation; and
- **Decommissioning:** All works and processes required to undertake the closure and dismantling of the development.

5.11 Cumulative Impacts and Impact Interactions

5.11.1 Cumulative impacts are those that may result from the combined or incremental effects of future activities from other proposed developments (i.e. future developments not included as part of the baseline). While a single activity may itself result in an insignificant impact, it may, when combined with other impacts (significant or insignificant) in the same geographical area and occurring at the same time, result in a cumulative impact that is significant.

- 5.11.2 Assessment of cumulative impacts has been undertaken using IEMA's EIA guidance and the 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions', prepared for the European Commission (EC) (DG X1) (see Section 31 – Cumulative and Secondary Impact and Impacts Interactions).
- 5.11.3 This ES also considers the potential for different impacts to interact on the same receptor, both within and outside the immediate area of the development (see Section 31 – Cumulative and Secondary Impacts and Impact Interactions).

5.12 Transboundary Impacts

- 5.12.1 Transboundary impacts (i.e. impacts that cross the border of the UK into neighbouring countries) are also considered during the EIA process. Regulation 24 of the EIA Regulations requires that, where the application is for EIA development, and where the Secretary of State is of a view that it will have significant effects on the environment of another member state or receives a request for involvement from another European Economic Association (EEA) Member State, The Secretary of State must undertake a prescribed process of consultation and notification.
- 5.12.2 In the context of the Project, the potential transboundary impacts relate to effects on species of conservation importance (particularly birds) that constitute part of the populations upon which special protection areas (SPAs) or special areas of conservation (SACs) are designated outside of the UK. The installation, operation and decommissioning phases could affect such species as they migrate and thereby generate transboundary effects. The potential for transboundary effects also extends to effects on fishermen from other EU countries who have rights to fish in the area. Where appropriate, the potential for transboundary effects are discussed in the relevant technical sections.

5.13 Assumptions and Technical Difficulties

- 5.13.1 The Project-specific aspects of this ES have drawn upon existing literature, project specific documentation, personal communications with local and national experts and site-specific surveys and studies. Every effort has been made to obtain data concerning the existing environment and to accurately predict the effect of the proposed development. Assumptions adopted in the evaluation of impacts are reported in the relevant sections. However, these assumptions are often implicit, relying on expert professional judgement. Where technical deficiencies are known, or it has been necessary to make assumptions, these are documented.

5.14 References

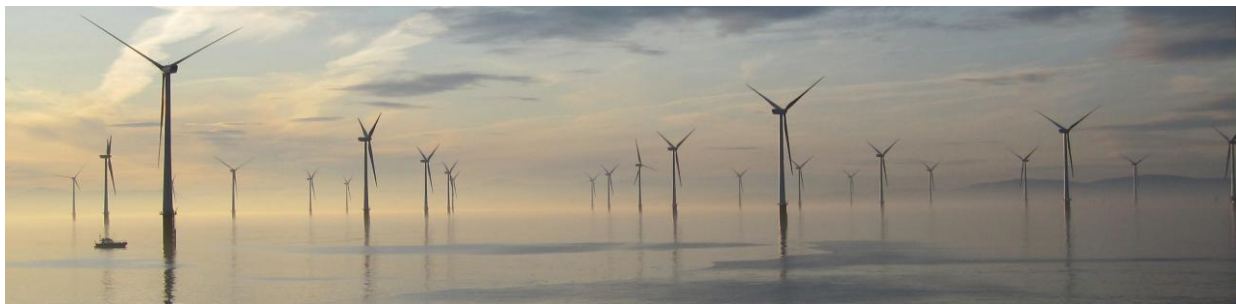
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