

## Contents

---

Contents .....	i
List of Tables.....	ii
List of Figures.....	ii
<b>4 Process and Methodology .....</b>	<b>1</b>
<b>4.1 Introduction .....</b>	<b>1</b>
<b>4.2 The Elements of the Project Assessed .....</b>	<b>1</b>
<b>4.3 The EIA Process.....</b>	<b>1</b>
4.3.1 Scoping.....	1
4.3.2 Impact Assessment.....	2
<b>4.4 Approach to Environmental Impact Assessment .....</b>	<b>7</b>
4.4.1 Design Envelope and Embedded Mitigation .....	7
4.4.2 Identification of Effects .....	7
4.4.3 Assessment of Effects.....	8
4.4.4 Information Gaps and Limitations.....	9
4.4.5 Impact Interactions.....	9
<b>4.5 Mitigation and Monitoring .....</b>	<b>9</b>
4.5.1 Introduction.....	9
4.5.2 Embedded Mitigation.....	10
4.5.3 Additional Mitigation.....	10
4.5.4 Monitoring.....	10
<b>4.6 Assessment of Residual Effects.....</b>	<b>10</b>
<b>4.7 Cumulative Impact Assessment .....</b>	<b>10</b>
4.7.1 Requirement for Cumulative Assessment .....	10
4.7.2 The Forth and Tay Offshore Wind Developers’ Group .....	11
4.7.3 Other Projects.....	11
<b>4.8 Habitats Regulations Appraisal.....</b>	<b>15</b>
4.8.1 HRA Process.....	15
4.8.2 European Protected Species.....	17
<b>References.....</b>	<b>18</b>

## List of Tables

---

Table 4.1: Breakdown of Component Parts and Separation .....	1
Table 4.2: Matters for Inclusion in Environmental Statements as Required by Schedule 4, Part I of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.....	2
Table 4.3: Matters for Inclusion in Environmental Statements as Required by Schedule 4, Part II of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.....	4
Table 4.4: Matters for Inclusion in Environmental Statements as Required by Schedule 3 of The Marine Works (Environmental Impact Assessment) Regulations 2007 .....	4
Table 4.5: Magnitude of Effects.....	8
Table 4.6: Significance of Impacts.....	9
Table 4.7: The HRA Stages .....	16

## List of Figures

---

Figure 4.1: Other Projects Cumulative Impact Assessment.....	12
--	----

## 4 Process and Methodology

### 4.1 Introduction

- 1 This chapter describes the methodology used for the Environmental Impact Assessment (EIA) and Habitats Regulations Appraisal (HRA), the findings of which are reported in this Environmental Statement (ES).
- 2 This ES meets the requirements of the *Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000* and the *Marine Work (Environmental Impact Assessment) Regulations 2007*, referred to as the EIA Regulations in so far as they relate to the development of the Wind Farm and Offshore Transmission Works (OfTW). Tables 4.2, 4.3 and 4.4 (below) show where the necessary EIA information can be found in this ES.

### 4.2 The Elements of the Project Assessed

- 3 In order to most efficiently and effectively undertake the assessments required, each technical chapter has been split spatially to account for the transmission works within the Development Area and the Offshore Export Cable Corridor as shown in Figure 1.2. Splitting the proposed works spatially, rather than by component, will best allow assessments to take account of baseline conditions and the effects of similar activities and development. A breakdown of the Project components allocated to these areas is listed in Table 4.1 below.

**Table 4.1: Breakdown of Component Parts and Separation**

Development Area	Offshore Export Cable Corridor
Wind Turbine Generators	Offshore Export Cables
Inter-array Cables	Export Cable Landfall
Offshore Substation Platforms	
Initial sections of the Offshore Export Cables	
Meteorological Masts	
All other temporary and permanent works associated with the Wind Farm.	

### 4.3 The EIA Process

#### 4.3.1 Scoping

- 4 Scoping is a voluntary part of the EIA process which seeks to identify the potential effects which are likely to be significant and to exclude (scope out) effects which are not considered to be significant.
- 5 A Scoping Report for the Wind Farm was submitted in August 2010. Scoping identified the areas where the EIA should focus and set out the methods that would be used in the assessment. Further informal consultation has been undertaken with the relevant stakeholders for the Wind Farm and OfTW which, along with recognised best practice, has

informed the methodology for the assessment of the Project, and the scope of this ES. A summary of the relevant scoping responses and other feedback from consultation is included *Chapter 5: Stakeholder Engagement (Sections 5.4.4, 5.5.3 and 5.6.2)* and *Appendix 5A: Summary of Scoping Responses, 5C: Phase 1 Public Engagement Results* and *5D: Phase 2 Public Engagement Results*. Specific responses are referenced in each relevant technical chapter, together with an indication of how this information has been used in the preparation of this ES.

#### 4.3.2 Impact Assessment

- 6 Tables 4.2, 4.3 and 4.4 summarise where the information required by the EIA Regulations can be found in this ES. The individual technical assessments have been carried out with reference to relevant legislative and policy requirements and current best practice and where relevant this is quoted in each technical chapter.

**Table 4.2: Matters for Inclusion in Environmental Statements as Required by Schedule 4, Part I of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000**

Requirement	Location of Information in this ES
<b>Part I</b>	
1. Description of the development, including in particular:	<i>Chapter 7</i>
a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;	<i>Chapter 7</i>
a description of the main characteristics of the production process, for instance, nature and quantity of the materials used;	<i>Chapter 7</i>
an estimate by type and quantity, of expected residues and emissions (water, air, and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development.	<i>Chapters 7, 10, 11 and 12</i>
2. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular:	<i>Chapters 10 to 22</i>
population;	<i>Chapters 18, 19, 20, 21 and 22</i>
fauna and flora;	<i>Chapters 13, 14 and 15</i>
soil;	<i>Chapter 10 and Chapter 12</i>
water;	<i>Chapter 10</i>
air and climatic factors;	<i>Chapter 8</i>
material assets, including the architectural and archaeological heritage;	<i>Chapters 17, 18, 22</i>

Requirement	Location of Information in this ES
landscape;	<i>Chapter 16</i>
the inter-relationship between the above factors.	<i>Chapters 10 to 22</i>
3. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary or cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development resulting from:	<i>Chapters 10 to 22</i>
the existence of the development;	<i>Chapters 10 to 22</i>
the use of natural resources;	<i>Chapters 10 to 22</i>
the emission of pollutants, the creation of nuisances and the elimination of waste;	<i>Chapters 10 to 22</i>
and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment.	<i>Section 4.4 and the Assessment Methodology Sections from Chapters 10 to 22</i>
4. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	<i>Sections 10.1.3, 10.9, 11.3, 12.4, 12.11, 13.3, 13.11, 14.4.1, 14.11, 15.3.1, 15.10, 16.10, 16.15, 17.5, 17.11, 18.3.6, 18.9, 19.3.2, 19.10, 20.1.3, 20.8, 21.3, 21.9, 22.5, 22.9</i>  Collated mitigation in <i>Appendix 7A</i> (taken From <i>Chapters 10 to 22</i> )
5. A non-technical summary of the information provided under Paragraphs 1 –5 of this Part.	<i>Non Technical Summary</i>
6. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant or appellant in compiling the required information.	<i>Chapters 10 to 22</i>

**Table 4.3: Matters for Inclusion in Environmental Statements as Required by Schedule 4, Part II of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000**

Requirement	Location of Information in this ES
<b>Part II</b>	
1. A description of the development comprising information on the site, design and size of the development.	<i>Chapter 7</i>
2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	<i>Sections 10.1.3, 10.9, 11.3, 12.4, 12.11, 13.3, 13.11, 14.4.1, 14.11, 15.3.1, 15.10, 16.10, 16.15, 17.5, 17.11, 18.3.6, 18.9, 19.3.2, 19.10, 20.1.3, 20.8, 21.3, 21.9, 22.5, 22.9</i>  <i>Collated mitigation in Appendix 7A (taken from Chapters 10 to 22)</i>
3. The data required to identify and assess the main effects that the development is likely to have on the environment.	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
4. The main alternatives studied by the applicant and the main reasons for his choice, taking into account the environmental effects.	<i>Chapter 6</i>
5. A non-technical summary of the information provided under Paragraphs 1 – 4 of this Part.	<i>Non Technical Summary</i>

**Table 4.4: Matters for Inclusion in Environmental Statements as Required by Schedule 3 of The Marine Works (Environmental Impact Assessment) Regulations 2007**

Requirement	Location of Information in this ES
<b>Part I</b>	
1. A description of the project and of the regulated activity, including details of the following matters—	<i>Chapter 7</i>
(a) the location, size and nature of the project and the regulated activity;	<i>Chapter 1 and Chapter 7</i>
(b) the quantity and nature and source of the materials to be used in the course of the project and the regulated activity;	<i>Chapter 7</i>
(c) the quantity, nature and source of any items or materials to be deposited in the sea in the course of the project and the regulated activity; and	<i>Chapter 7</i>

Requirement	Location of Information in this ES
(d) the working methods to be used in the course of the project and the regulated activity.	<i>Chapter 7</i>
2. A description of the aspects of the environment likely to be significantly affected by the project and the regulated activity, including—	<i>Chapters 10 to 22</i>
(a) human beings, fauna and flora;	<i>Chapters 12 to 16</i>
(b) soil, water, air, climate and the landscape;	<i>Chapters 8, 10, 12 and 16</i>
(c) material assets and the cultural heritage; and	<i>Chapter 17</i>
(d) the interaction between any two or more of the things mentioned in the preceding sub-paragraphs.	<i>The Impact Interactions Sections of Chapter 10 to 22</i>
3.—(1) A description, complying with sub-paragraph (2), of the likely significant effects of the project and the regulated activity on the environment resulting from—	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(a) the nature of the activities to be carried out and the manner in which they are to be carried out;	<i>Chapter 7</i>
(b) the use of natural resources;	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(c) the emission of pollutants;	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(d) the creation of nuisances; and	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(e) the elimination of waste.	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(2) The description should cover each of the following categories of effect—	<i>Chapters 10 to 22</i>
(a) direct and indirect effects;	<i>The Impact Assessment Sections of Chapters 10 to 22</i>
(b) secondary effects;	<i>The Impact Assessment Sections of Chapters 10 to 22</i>

Requirement	Location of Information in this ES
(c) cumulative effects;	The <i>Cumulative Impacts Section</i> of Chapters 10 to 22
(d) short-term, medium-term and long-term effects;	The <i>Impact Assessment Sections</i> of Chapters 10 to 22
(e) permanent and temporary effects; and	The <i>Impact Assessment Sections</i> of Chapters 10 to 22
(f) positive and negative effects.	The <i>Impact Assessment Sections</i> of Chapters 10 to 22
4. The forecasting methods used by the applicant to assess the main effects that the project and the regulated activity are likely to have on the environment.	Section 4.4 and the <i>Assessment Methodology Sections</i> from Chapters 10 to 22
5. A description of the measures envisaged to prevent, reduce and offset any significant adverse effects of the project and the regulated activity on the environment.	Sections 10.1.3, 10.9, 11.3, 12.4, 12.11, 13.3, 13.11, 14.4.1, 14.11, 15.3.1, 15.10, 16.10, 16.15, 17.5, 17.11, 18.3.6, 18.9, 19.3.2, 19.10, 20.1.3, 20.8, 21.3, 21.9, 22.5, 22.9  Collated mitigation in <i>Appendix 7A</i> (taken From Chapters 10 to 22)
6. An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects of those alternatives and the project as proposed.	Chapter 6
7. A non-technical summary of the information provided under paragraphs 1 to 6.	<i>Non Technical Summary</i>
8. Any difficulties, such as technical deficiencies or lack of knowledge, encountered in compiling any information of a kind specified in paragraphs 1 to 6.	Chapters 10 to 22



## 4.4 Approach to Environmental Impact Assessment

### 4.4.1 Design Envelope and Embedded Mitigation

7 The use of the Design Envelope is described in *Chapter 7: Description of Development (Section 7.4)*. The concept of assessing a worst case scenario was accepted by the Courts in a series of cases referred to as the Rochdale Cases (R v Rochdale MBC ex parte Tew and the two cases of R v Rochdale MBC ex parte Milne). A design envelope is sometimes referred to as a "Rochdale Envelope".

8 The potential effects of the Project have been considered and minimised, where possible, throughout the design development process. Mitigation measures embedded in the design of the Project are referred to as Embedded Mitigation in this ES (*Section 4.5.2*). The Embedded Mitigation measures taken into account in the assessments are listed in each technical chapter. Additional Mitigation measures have been identified to reduce the impacts of the development further and these are listed again in each chapter and the residual effects identified taking account of all committed mitigation measures.

### 4.4.2 Identification of Effects

9 During the scoping process, potential significant environmental effects were identified using the following methodology:

- Identification of potential receptors and description of baseline conditions through consultation, desk based and field studies.
- Identification of the worst case scenario in relation to specific receptors within the Design Envelope (taking account of Embedded Mitigation).
- Prediction of activities that, during the different stages of the development, may result in potential environmental impacts.
- Characterisation of potential impacts including likelihood of occurrence.
- Assessment of the sensitivity of receptors and magnitude of potential impacts.
- Consideration of the relationship between receptors and impacts taking account of Embedded Mitigation measures (see *Section 4.5.2*).
- Assessment of cumulative impacts.
- Consideration of Additional Mitigation if applicable.
- Assessment of whether residual effects (after mitigation) are significant.

10 The specific assessment methodology has been adapted for assessing impacts on some receptors following consultation with relevant regulators. Specific industry best practice guidelines such as *Guidelines for Ecological Impact Assessment in Britain and Ireland- Marine and Coastal* (Institute of Ecology and Environmental Management, 2010) have been followed where appropriate.

#### 4.4.3 Assessment of Effects

- 11 For the purposes of these assessments, significance has been attributed by correlating the magnitude of the change arising from the Project with the sensitivity of the particular receptor under consideration. Categorisation of magnitude of change will vary for specific receptors/technical assessments but has broadly followed the principles of Table 4.5 below in so far as it is relevant.

**Table 4.5: Magnitude of Effects**

<b>High</b>	Total loss or major alteration to key elements/features of the baseline conditions
<b>Moderate</b>	Partial loss or alteration to one or more key elements/features of the baseline conditions
<b>Low</b>	Minor shift away from the baseline conditions
<b>Negligible</b>	Very slight change from baseline conditions

- 12 In EIA the sensitivity of the resource or receptor must be defined. The specific scale of sensitivity is dependent on the discipline but in general it may be defined in terms of quality, value, rarity or importance of the receptor being assessed. The scale of sensitivity is classed as 'Low', 'Moderate' or 'High'. In carrying out individual assessments, a more specific scale of increasing sensitivity has been defined where this is appropriate (for example see *Section 13.5*). Guidance has also been taken from the value attributed to elements through designation or protection under law.
- 13 The consideration of magnitude of potential impact and sensitivity of the receptor will determine an expression, often qualitative, for the significance of the residual positive and negative effects. This is demonstrated in Table 4.6: Significance of Impacts (below).
- 14 The significance of an effect results from the interaction between its magnitude (which is related to the extent of the physical change, its spatial extent, duration and frequency) and the value of the resource or the number and sensitivity of the receptor which might be affected.

Table 4.6: Significance of Impacts

Magnitude of Impact	Sensitivity of resource/receptor		
	Low	Moderate	High
Negligible	Negligible/Minor	Minor	Minor/Moderate
Low	Minor	Minor/Moderate	Moderate
Moderate	Minor/Moderate	Moderate	Moderate/Major
High	Moderate	Moderate/Major	Major

- 15 For the purposes of this assessment those residual positive and negative effects indicated as Major and Moderate/Major are considered significant.

#### 4.4.4 Information Gaps and Limitations

- 16 Due to the nature of EIA, scientific understanding and the design parameters outlined in *Chapter 7*, a number of assumptions are required to complete the necessary assessments. These are contained, where relevant, in each topic chapter and the assumptions are based upon industry standards, consultation with relevant bodies and professional expertise.

#### 4.4.5 Impact Interactions

- 17 Interactions between different impacts of the Project (or, where relevant, between impacts of the Project and different impacts from another project(s) in the area) on the same receptor are assessed in each topic chapter. The approach to the assessment of cumulative effects of the Project spatially and with other projects in the area is described in *Section 4.7*.

### 4.5 Mitigation and Monitoring

#### 4.5.1 Introduction

- 18 Schedule 4 Part 1 (4) of the EIA Regulations (the *Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000*) requires this ES to provide;

*“A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment”.*

- 19 For the purposes of this ES these measures are collectively referred to as Mitigation. Within the impact assessment Mitigation is applied and is considered separately as Embedded and Additional Mitigation. These as defined below (*Sections 4.5.2 and 4.5.3*) and captured within specific technical chapters and in *Appendix 7A: Draft Environmental Management Plan (EMP)*.

#### **4.5.2 Embedded Mitigation**

20 Embedded Mitigation, for the purpose of this ES, includes all mitigation assumed to be in place during the relevant phases of construction, operation and decommissioning of the Project. Embedded Mitigation is that which has been recognised as having benefits in reducing impact significance, and is generally regarded as industry standard or best practice. Specific Embedded Mitigation is included in each technical chapter.

21 Significance has been assessed with these Embedded Mitigation in place.

#### **4.5.3 Additional Mitigation**

22 Additional Mitigation is any mitigation that has been identified that is over and above industry standard or best practice. It is applied where it is considered technically and commercially viable, in the context of the outputs of the impact assessment and the environmental benefits. Additional Mitigation is included in each technical chapter where relevant.

23 Any Additional Mitigation is then taken into account, following initial impact assessment, in advance of considering residual effects.

#### **4.5.4 Monitoring**

24 Monitoring is intended to demonstrate the environmental performance of the Project once built and to contribute to the wider industry understanding of the impacts of offshore wind farm projects. A monitoring scheme will be developed and agreed with the regulatory bodies post consent determination and detailed in the EMP (*Appendix 7A*).

### **4.6 Assessment of Residual Effects**

25 Following consideration of the effectiveness of mitigation a further assessment has been undertaken and any remaining significant effects have been identified.

### **4.7 Cumulative Impact Assessment**

#### **4.7.1 Requirement for Cumulative Assessment**

26 All elements of the Project must be considered together in order to allow a full cumulative assessment to be undertaken. This means the impacts from the Offshore Export Cable Corridor need to be assessed in addition to the impacts from the Development Area. The generic impacts of Onshore Transmission Works and the two identified potential landfall locations (see *Section 7.15*) have also been considered where relevant to the technical assessment.

27 Separate consideration of the Project with other relevant projects is also required. Each technical chapter includes a list of all appropriate proposed projects that may have cumulative effects with the Project. This list of proposed projects (*Section 4.7.3*) has been identified through consultation with relevant stakeholders.

- 28 European Commission (EC) *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (1999) provides a definition of cumulative and in combination effects which has been used in this document.

*"Cumulative impacts are impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project".*

- 29 The approach to the cumulative assessment of each topic area is set out in the relevant chapters.

#### 4.7.2 The Forth and Tay Offshore Wind Developers' Group

- 30 In addition to work undertaken by the project team, Inch Cape Offshore Limited (ICOL) has collaborated with other wind farm developers in the area. Chaired by The Crown Estate, The Forth and Tay Offshore Wind Developers' Group (FTOWDG) was formed in 2009 to promote and maximise collaboration and cooperative working in assessing potential cumulative impacts. The group comprises of ICOL, Mainstream Renewable Power Ltd (as the developer of Neart na Gaoithe), and Seagreen Wind Energy Limited (the developer of the Firth of Forth Round 3 wind farm zone). Fred Olsen Renewables Limited withdrew from the group following their decision not to proceed with the Forth Array Offshore Wind Farm.

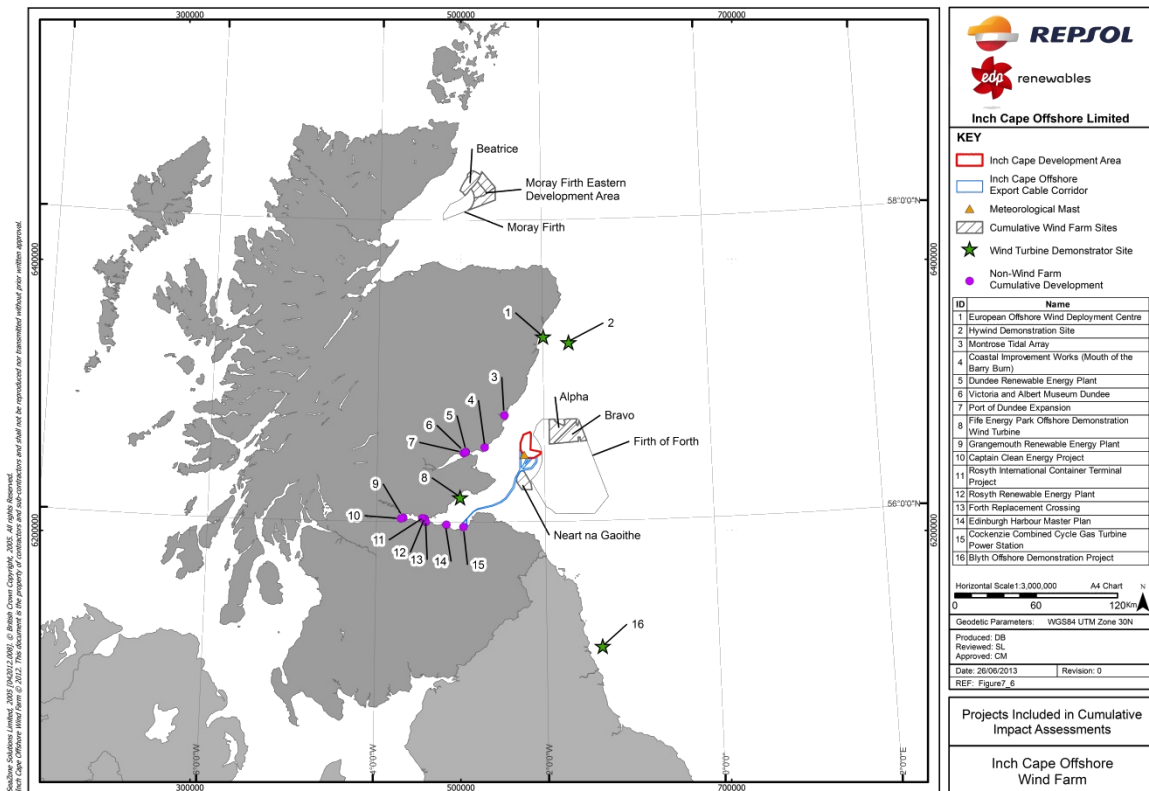
- 31 The FTOWDG initiative sought to establish a common approach in the project EIAs. Further information on FTOWDGs collaborative working is included in the relevant chapters.

- 32 FTOWDG produced the discussion document *Scottish Offshore Wind Farms – East Coast: Discussion Document (2) – Approach to Cumulative Effects Statement* in 2009 and an updated version in 2010 (see *Appendix 5B*). These documents detailed a collaborative working strategy, where opportunities for co-operation between the developers was identified, including a range of approaches to considering cumulative impacts which have been taken into account in undertaking this EIA.

#### 4.7.3 Other Projects

- 33 Based on the applicant's understanding of the status and scope of various projects at the time of commissioning this ES, a range of other projects, both onshore and offshore were identified as potentially having a cumulative impact when considered with the Inch Cape Offshore Wind Farm. These projects are shown in Figure 4.1 below and described throughout this section. It should be noted that some chapters have included consideration of additional projects which have particular relevance to the receptors considered.

**Figure 4.1: Other Projects Cumulative Impact Assessment**



**Firth of Forth and Tay Wind Farms**

34 Applications for consent have been submitted to Marine Scotland for two other offshore wind projects.

**Neart na Gaoithe**

35 The Neart na Gaoithe Offshore Wind Farm site is located approximately 15.5 km from Fife Ness and 16 km from the Isle of May. The development site lies in the outer Firth of Forth and covers an area of 105 km<sup>2</sup>. Figure 4.1 shows the location of the site. It is envisaged that the site capacity will be up to 450 MW which is anticipated will be achieved through the installation of a maximum of 125 WTGs.

36 The export cable will be HVAC. The export cable is expected to run southwards from the site and landfall at Thorntonloch beach to the south of Torness Power Station (see Figure 20.7).

**Firth of Forth Phase 1**

37 The Firth of Forth Alpha and Bravo development areas are located approximately 27 km (Alpha) and 38 km (Bravo) from Angus coast. The development sites lie in the outer Firth of Forth and cover an area of 391 km<sup>2</sup> (Alpha 197 km<sup>2</sup>, Bravo 194 km<sup>2</sup>). Figure 4.1 shows the location of the sites. It is envisaged that the site capacity of each site will be up to 525 MW (1,050 MW in total across the two sites) which is anticipated will be achieved through the installation of up to 150 WTGs (75 Alpha, 75 Bravo). Consent has already been granted for a

met mast required for this project. Although subject to a separate consent, in most cases, the met mast has been included as an element of the project. In the other cases the met mast has been assessed separately.

### **Other Offshore Wind Farms**

#### *European Offshore Wind Deployment Centre*

- 38 The proposal is to develop a Wind Deployment Centre approximately 2.4 km off shore, north of Aberdeen, with a capacity of up to 100 MW. The Deployment Centre consists of 11 WTGs. Consent was granted on 26 March 2013 and installation is estimated to start in 2015.

#### *Hywind Demonstration Site*

- 39 Located off the north-east coast of Scotland, the Hywind Demonstration Site will have a generating capacity between 12 MW and 20 MW. Up to five floating WTGs will be installed in the Demonstration Site with a capacity of between 2.4 MW and 4 MW. Installation is estimated to start in 2015.

#### *Methil (Fife Energy Park) Offshore Demonstration Wind Turbine*

- 40 This project, is located in the Firth of Forth approximately 20 m from the Energy Park in Methil. The project will generate approximately six megawatts through the installation of one WTG.

#### *Blyth Offshore Demonstration Project*

- 41 This project is located approximately located 800 m off the coast of Blyth, Northumberland. The proposed project at Blyth will comprise a maximum of 15 pre-commercial prototype WTGs to be constructed across three arrays, with a maximum number of five WTGs in each array. The earliest start date for the construction of the demonstration WTG arrays will be early 2014 and the expectation is that all three arrays will be constructed by the end of 2016.

#### *Beatrice Offshore Wind Farm (Beatrice Offshore Wind Limited)*

- 42 This offshore wind farm is located in the Moray Firth, approximately 13.5 km from the Caithness coastline. The project will have capacity of up to 1,000 MW and will have a maximum of 277 WTGs, up to three OSPs and up to three Met Masts. The project will have a construction period of up to five years, commencing 2014.

#### *Moray Firth R3 Zone 1 (Eastern Development Area) (Moray Offshore Renewables Limited)*

- 43 This zone is located at Smith Bank, approximately 22 km from the Caithness Coast in the outer Moray Firth. The Eastern Development Area (which is allocated across three sites) will have a maximum of 339 WTGs the projects have a maximum generating capacity of 1,500 MW.

**Onshore Wind Farms**

- 44 The cumulative impacts associated with all other onshore wind farms have been reviewed within *Chapter 16 in Section 16.10: Cumulative Impact and Chapter 17 in Section 17.10.3*

**Other Coastal Projects****Forth Replacement Crossing**

- 45 Work is currently underway to provide an additional road bridge crossing the Firth of Forth. Completion is due in 2016.

**Rosyth International Container Terminal Project**

- 46 This project is located in Port Babcock, Rosyth, Fife. The project proposes the development of an intermodal container terminal to increase freight capacity.

**Coastal Improvement Works at the Mouth of the Barry Burn**

- 47 These coastal improvement works are located at the Mouth of the Barry Burn and comprise the replacement of existing tank blocks and sand dunes with rock armour and the provision of retaining wall.

**Edinburgh Harbour Master Plan (Edinburgh Waterfront Development)**

- 48 This master plan establishes guidance for large scale regeneration and redevelopment in the Harbour area of Edinburgh. The Master Plan proposes mixed use development with commercial, residential, leisure and retail uses.

**Port of Dundee Expansion (Dundee Waterfront Development)**

- 49 This project identifies the potential for an additional 30 acres of land at the Port of Dundee through the reclamation of land from the River Tay.

**Other Offshore Projects****Montrose Tidal Array (GlaxoSmithKline Tidal Energy Project)**

- 50 This project has the capacity of up to 0.7 MW with 15 tidal turbine generators with gravity foundations, will be installed in two phases over 14 months.

**Other Onshore Projects****Grangemouth Renewable Energy Plant**

- 51 Located at the Port of Grangemouth, this energy plant has the capacity of up to 120 MW. Biomass fuel will be used, if feasible, to generate renewable heat.



#### Rosyth Renewable Energy Plant

- 52 This renewable energy plant is located within the Port of Rosyth and has capacity to generate up to 120 MW of renewable electricity. If feasible, renewable heat will be generated from the use of up to 1.3 million tonnes of biomass fuel per annum.

#### Dundee Renewable Energy Plant

- 53 The proposed renewable energy plant is to be sited within the Port of Dundee. The plant will export up to 100 MW of renewable electricity and up to 30 MW of renewable heat from the use of up to one million tonnes of biomass fuel per annum.

#### Victoria and Albert Museum at Dundee

- 54 Part of an overall scheme to reconnect Dundee with the water front the Victoria and Albert Museum at Dundee will house over 1,700 square metres of gallery space. It is anticipated that work will commence on site in 2013, with the Museum opening in 2015.

#### Captain Clean Energy Project (Caledonia Clean Energy Project)

- 55 This project is proposed to be located in the Port of Grangemouth, Firth of Forth. It is expected to comprise of a coal fired 600<sup>o</sup> MW Electrical Integrated Gasification and Combined Cycle power plant, exporting approximately 450 MW Electrical to grid.

#### Cockenzie Combined Cycle Gas Turbine Power Station

- 56 Located at the site of the existing Cockenzie Power Station, it is proposed to replace four existing coal-fired generating units with two gas-fired Combined Cycle Gas Turbines. The existing coal-fired station stopped generating electricity in March 2013.

## **4.8 Habitats Regulations Appraisal**

### **4.8.1 HRA Process**

- 57 This ES presents the findings of the HRA which have been undertaken (see *Section 3.3.3*) and provides the information for the Competent Authority (Marine Scotland on behalf of Scottish Ministers) to use in undertaking their Appropriate Assessments to meet the requirements of Article 6 of the *Habitats Directive* (Directive 92/43/EEC) and Regulation 48 of the *Conservation (Natural Habitats, &c.) Regulations 1994*. The European Sites which could be impacted by the works are described in *Chapter 9: Designated Nature Conservation Sites*. The information to support the HRAs presented in *Chapter 13: Natural Fish and Shellfish*, *Chapter 14: Marine Mammals* and *Chapter 15: Ornithology* assesses potential impacts on European sites which may arise as a result of development of the Project, following the steps set out in Table 4.7 below.

Table 4.7: The HRA Stages

Stage	Test	Project Requirement
Stage One	Is the proposal directly connected with or necessary to the management of the site for nature conservation?	In the case of this application for consent of the Wind Farm and its grid connection, the proposal is directly connected with or necessary to the management of the site for nature conservation. Stage Two must, therefore, be followed.
Stage Two	Is the proposal likely to have a significant effect, alone or in combination with other plans or projects, on a European site?	This test acts as a screening stage to remove proposals that do not need further consideration under Stage Three. If it can be concluded on the basis of objective information that there are no effects likely to undermine the European site's conservation objectives, despite a connection between the proposal and the European site, then the conclusion is one of no Likely Significant Effect (LSE). This step takes account of any mitigation measures implemented in the proposals. If there is a LSE on a European site, or where an LSE cannot be excluded on the basis of objective information, then an Appropriate Assessment is required (Stage Three).
Stage Three	Can it be ascertained beyond reasonable scientific doubt and in light of the best scientific knowledge in the field that the proposal, including any necessary mitigation measures, will not adversely affect the integrity of the European site?	The competent authority, in this case the Scottish Ministers (acting through Marine Scotland), carries out the Appropriate Assessment. Where a likely significant effect on a European Site has been identified the Competent Authority must consider whether the conservation objectives could be compromised and whether there could be an adverse effect on integrity of the site. Conclusions must be made on the basis of there being no reasonable scientific doubt as to the absence of adverse effects.

58 After consideration of the three stages in the HRA, if it cannot be ascertained beyond reasonable scientific doubt that the proposal will not adversely affect the integrity of a European site, the proposal can only proceed if:

- there are no alternative solutions;
- there are imperative reasons of over-riding public interest for doing so; and
- any necessary compensatory measures are taken to secure the coherence of the Natura 2000 site network which is introduced in *Section 3.3*.

59 Information to inform the Appropriate Assessment is included in *Sections 13.13, 14.13 and 15.12* and the findings of the HRAs are summarised in *Section 23.15*.

#### **4.8.2 European Protected Species**

60 The potential for impacts on European Protected Species has been assessed in technical chapters as required. European Protected Species licences will be applied for from Marine Scotland and/or Scottish Natural Heritage following the grant of consent (see *Section 3.3*).

## References

---

European Commission (1999). *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions*. Available at: <http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf> [Accessed 17 October 2012].

Great Britain Parliament (1994). *The Conservation (Natural Habitats, &c.) Regulations 1994*. Available at: <http://www.legislation.gov.uk/uksi/1994/2716/contents/made>

Great Britain Parliament (2007). *The Marine Works (Environmental Impact Assessment) Regulations 2007*. Available at: <http://www.legislation.gov.uk/uksi/2007/1518/contents/made>

Institute of Ecology and Environmental Management (2010). *Guidelines for Ecological Impact Assessment in Britain and Ireland - Marine and Coastal*. Available at: [http://www.ieem.net/data/files/Resource\\_Library/Technical\\_Guidance\\_Series/EcIA\\_Guidelines/Final\\_EcIA\\_Marine\\_01\\_Dec\\_2010.pdf](http://www.ieem.net/data/files/Resource_Library/Technical_Guidance_Series/EcIA_Guidelines/Final_EcIA_Marine_01_Dec_2010.pdf)

Scottish Parliament (2000). *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000*. Available at: <http://www.legislation.gov.uk/ssi/2000/320/contents/made>

The Council of the European Communities (1992). *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) as amended*. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:HTML> [Accessed September 2012].