

European Offshore Wind Deployment Centre Environmental Statement

Chapter 4: EIA Methodology, Scoping and Consultation



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4 ENVIRONMENTAL IMPACT ASSESSMENT (EIA), SCOPING AND CONSULTATION

4.1 Scoping

- 1 Regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations Scotland 2000 makes provision for developers to seek a formal opinion on the scope of what should be included in the ES.
- 2 In August 2010, a 'Request for an Environmental Impact Assessment Scoping Opinion' was made to Marine Scotland for a proposed deployment centre in Aberdeen Bay (see Appendix 4.1). In October 2010 two figures were updated within the Request for Scoping Opinion document to show the Maritime and Coastguard Agency (MCA) designated anchorage area (2a and 12a) and these were sent to Marine Scotland (see Appendix 4.1).
- 3 The request contained information on the proposal, the proposed content of this Environmental Statement (ES) and the proposed desk and study methods which would be used to collect information for the studies presented in the ES.
- 4 The request was circulated to a large number of statutory and non-statutory consultees. Copies of scoping responses from these consultees are presented in Appendix 4.2. Table 4.1 below provides a summary of the main responses received during this scoping process and where in the ES they are addressed. The issues highlighted in the table are arranged in order of topic and are not attributed to individual consultees.

TABLE 4.1 Summary of Scoping Responses Received		
Topic	Issues	Relevant Section
Shipping and Navigation	<p>Location of EOWDC should not change and no additional wind turbines added.</p> <p>Proximity of Maritime and Coastguard Agency Designated Anchorage Area.</p> <p>Notice to Mariners, Radio Navigation Warning and publication in appropriate bulletins will be required stating nature and timescale of works.</p> <p>NRA to be carried out in accordance with MCA MGN 271.</p> <p>Recreational sailing should be considered.</p>	<p>EOWDC remains as Layout 039.</p> <p>Export cable corridor is outwith the designated anchorage area.</p> <p>Chapter 15</p>
Ornithology	<p>Appropriate duration of survey data at the time of ES submission.</p> <p>Impacts to red-throated diver and common scoter, does the methodology allow sufficient data to assess these species.</p> <p>Consideration of migrant waterfowl.</p>	Chapter 10
Marine Mammals	Ensure mitigation and monitoring of impacts is robust.	Chapter 12
Seascape, Landscape and Visual	<p>Flexible approach of study area.</p> <p>Consideration of effects as result of differing wind turbines.</p>	Chapter 19
Cultural Heritage	Potential impacts on the setting of assets should be considered.	Chapter 20
Aviation	<p>Potential impact upon operations with Aberdeen Airport.</p> <p>Significant helicopter operations in the area.</p> <p>EOWDC to be charted on aviation maps.</p> <p>If development progresses need to provide details to Defence Geographic Agency.</p> <p>Requirement for a coordinated regional wind turbine development plan, aimed at meeting renewable energy priorities whilst addressing aviation concerns and minimising proliferation issues.</p>	Chapter 16
Ministry of Defence	Unacceptable interference to the Air Defence radar at Buchan.	Chapter 17
Coastal Processes	Highly mobile seabed. Dynamic seabed leading to possible scour and erosion around base of turbines leading to increase in material in suspension which	Chapter 8

Topic	Issues	Relevant Section
	<p>could impact dredging regime at Aberdeen. EOWDC could impact harbour and beach profile of Aberdeen beach.</p> <p>Need to address cumulative effects of devices on coastal processes upon density and location with respect to existing renewable and coastal developments.</p> <p>The baseline assessment should identify the following features and processes in the environment:</p> <ul style="list-style-type: none"> • sediments (eg composition, contaminants and particle size) • hydrodynamics (waves and tidal flows) • sedimentary environment (eg sediment re-suspension, sediment transport pathways, patterns and rates and sediment deposition) • sedimentary structures (eg protected banks) • typical suspended sediment concentrations <p>With regards to hydrodynamic modelling, model performance should be checked in order to demonstrate accuracy and should include sensitivity analysis or estimate of errors in order to enable confidence levels to be applied to model results.</p> <p>It would be helpful to see a series of contour plots showing the magnitude and spatial extent of +(ve) and -(ve) changes in current velocities between the 'pre development' and 'post development' scenarios. The assessment should also identify and quantify the relative importance of high energy low frequency events eg storm events, versus low energy high frequency processes.</p> <p>Ythan estuary is not in area considered for far-field effects. Significant changes in sediment mobility should be considered here.</p> <p>Esnure development is unlikely to have adverse effects on erosion on adjacent coast.</p> <p>Ensure no obstructions to net northerly sediment movement in the Bay.</p>	
Marking of Turbines	Aviation Warning Lighting - project will fall under requirements of Air Navigation Order 2009 Article 220.	Chapter 3

TABLE 4.1 Summary of Scoping Responses Received		
Topic	Issues	Relevant Section
	<p>Rotor blades, nacelle and upper 2/3 of supporting mast of wind turbines should be painted white.</p> <p>Final marking and lighting recommendations to be made in a formal response through CPA consultation process and will be based on IALA Recommendation O-139 with statutory sanction from the Northern Lighthouse Board prior to deployment.</p> <p>Marking needs to be considered for recreational craft as well as much larger commercial vessels.</p>	
Socioeconomics, Recreation and Tourism	<p>Relevant economic information connected with the project to be supplied</p> <p>Recreational sailing should be considered.</p> <p>Danger of squeezing recreational craft between commercial shipping routes and the development should be considered.</p>	Chapter 15, Chapter 23 and Chapter 27
Planning	Onshore elements and offshore elements should be separated.	Chapter 1
Marine Ecology	<p>As single grabs are now being collected does this mean that the sampling strategy is randomly stratified?</p> <p>Sampling should take into account pollution around Balckdog.</p> <p>River basins comprise all surface waters (including transitional (estuaries) and coastal waters) extending to 3 nautical miles seaward from the Scottish territorial baseline. Any proposed development within these waters must have regard to the requirements of the Water Framework Directive to ensure that all surface water bodies achieve 'Good Ecological Status' and that there is no deterioration in status. The Water Framework Directive requires the consideration of chemical, ecological and hydromorphological status.</p> <p>The data held on 'Cruden Bay to Don Estuary' coastal water body should also be included in the baseline dataset. This water body is currently classified at high ecological status. Any proposed development within these waters must have regard to the requirements of the Water Framework Directive (WFD) to ensure that all surface water bodies achieve 'Good Ecological Status (GES)' and that there is no deterioration in status.</p>	Chapter 9 and Chapter 8

Topic	Issues	Relevant Section
	<p>The WFD requires the consideration of chemical, ecological and hydromorphological status.</p> <p>A baseline assessment of existing intertidal and subtidal habitats and species should be submitted. This should include any UK Biodiversity Action Plan habitats and species (eg maerl, sea pens, eel grass, horse mussels).</p> <p>Ensure references for biotope names is inserted (Marine Scotland response)</p> <p>Collieston beach is bounded by a breakwater/pier and the meiofaunal distributions may reflect this artificial situation. Therefore the sediment and the fauna distributions are localised for this area and may not represent soft sediment shores from the area of interest.</p> <p>Beach profiling to quantify erosion / modification, and the outcome discussed with Marine Scotland prior to any action being taken.</p>	
Salmon and Freshwater Pearl Mussel	The ecological status of surface water bodies which may be affected by the proposal should also be considered alongside the discussion of protected areas for salmon and freshwater pearl mussel.	Chapter 9 and Chapter 22
Migratory Fish/ diadromous fish	<p>The proposed development will need to consider, in the first instance through a desk study, potential impacts on migratory fish including salmon (<i>Salmo salar</i>), sea trout (<i>Salmo trutta</i>), sea lamprey (<i>Petromyzon marinus</i>), river lamprey (<i>Hyperoplus lanceolatus</i>) and sandeels (<i>Ammodytes marinus</i>) during all phases of the project. The potential for offshore renewable projects to impact on migratory fish will vary depending on the design and location of the development in relation to the migration routes of adults and juveniles.</p> <p>Specific questions raised by Marine Scotland to be discussed in the assessment.</p>	Chapter 9 and Chapter 22
Commercial Fishing	<p>Ongoing discussion with fishing stakeholders required.</p> <p>Cumulative impacts of fishing with other marine activities should be addressed.</p> <p>Fishing baseline information to be</p>	Chapter 21

TABLE 4.1 Summary of Scoping Responses Received		
Topic	Issues	Relevant Section
	updated.	
Site Information	Maps should be included in the ES showing the areas of seabed likely to be affected by the footprint of the turbine bases and cabling, and the area of intertidal zone that is likely to be affected by shoreline infrastructure development.	See Figures (Volume 3)
Timing of Works	The Schedule of Mitigation should include a timetable of works that takes into account all environmental sensitivities, such as fish spawning, which have been raised by SEPA, SNH or other stakeholders.	Chapter 28
Environmental Management	A Construction Environmental Management Document (CEMD) is a key management tool to implement the Schedule of Mitigation. Recommend that the principles of the CEMD are set out in the ES drawing together and outlining all the environmental constraints and commitments, proposed pollution prevention measures and mitigation as identified in the ES.	Chapter 28
Waste Management	Details of how waste will be minimised at the construction stage should be included in the ES, demonstrating that: <ul style="list-style-type: none"> • construction practices minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials • waste material generated by the proposal is reduced and re-used or recycled where appropriate on site 	Chapter 28
Conservation	Advice on designated sites and European Protected Species should be sought from SNH. For marine and transitional Special Areas of Conservation (SAC) and Special Protected Areas (SPA), these are Water Framework Directive Protected Areas. Therefore, their objectives are also River Basin Management Plan objectives. A Report to Inform the Habitats Regulation Appraisal should be included in the Application.	Chapter 14 and Chapter 29
Assessment methodology	If one or more type of foundation is to be deployed then the Rochdale approach should be applied differently ie cumulative impacts between each different type of foundation. Assessment to be carried out on the worst case scenario for wind turbines eg maximum rotor diameter Approach to assessment to be based on	All

Topic	Issues	Relevant Section
	rigorous professional judgement. Cumulative and in combination impact assessment to consider other east coast wind farm sites.	
Operation and Maintenance	Gearbox oil changes method statements and contingency plans required Major turbine service every 12 months – is this based on historic info?	Chapter 3 To be provided at appropriate time. Text based on Vattenfall O&M current experience.
Safety Zones	Section 36A does not apply in Scottish Waters. Situation may have changed.	Chapter 3 and Chapter 15
Research and Development	ES to include an outline of construction and post construction monitoring plan including research proposals.	Potential future research opportunities are covered in relevant chapters.

4.2 The Environmental Impact Assessment Regulations

5 The EIA for this project comprises the following sections:

- Non-Technical Summary
- Introduction including Legislative Framework
- Site Selection
- Project Description
- Physical Environment Baseline Description and Impact Assessment
 - Meteorological Conditions
 - Geology and Bathymetry
 - Offshore Ordnance
 - Coastal Processes
- Biological Environment Baseline Description and Impact Assessment
 - Marine Ecology to include Intertidal Ecology, Sediment and Water Quality
 - Ornithology
 - Bats
 - Marine Mammals to include Underwater Noise
 - Electromagnetic Fields
 - Conservation
- Human Environment Baseline Description and Impact Assessment
 - Shipping and Navigation
 - Aviation
 - Ministry of Defence
 - Archaeology
 - Seascape, Landscape and Visual
 - Cultural Heritage
 - Commercial Fisheries
 - Salmon and Sea Trout
 - Socioeconomics, Recreation and Tourism
 - In-Air Noise
 - Energy Use and Emissions
 - Electromagnetic Interference

- Other Marine Users
- Draft Environmental Management Plan
- Information to Inform a Habitats Regulation Appraisal
- Summary of Environmental Impact Assessment and Mitigation Measures
- Supporting Technical Appendices

6 Each Environmental Impact Assessment section aims to comprise the following information:

- Introduction
- Methodology and Guidance
- Baseline Methodology
- Impact Assessment Methodology
- Description of the Baseline Environment
- Impact Assessment – Construction, Operation and Decommissioning
 - Potential Impact
 - Mitigation
 - Residual Impact
 - Monitoring
- Cumulative Impact Assessment
- In-combination Impact Assessment

4.2.1 Impact Assessment Methodology

7 In the case of each impact, the assessment aims to describe the magnitude of effect (ie the change created by an activity in terms of spatial extent, duration and scale) and the sensitivity of each receptor. The combination of the effect and the sensitivity of the receptor are then used to derive the significance of the impact. The criteria that have been are given below:

4.2.1.1 Spatial Extent of Effect

- a national/international effect
- a regional effect
- a local effect (within 5 km of the site)
- a site-specific effect

4.2.1.2 Duration of Effect

- a long-term/permanent effect (more than 10 years)
- a medium-term effect (existing for 5 to 10 years)
- a short-term effect (existing for 1 to 5 years)
- a temporary effect (existing for less than a year)

4.2.1.3 Scale of Effect

- above accepted standards/guidelines
- within accepted standards/guidelines
- where there are no standards/guidelines available, the impact relative to background conditions

4.2.1.4 Recoverability of the Receptor

- high
- medium
- low or none

4.2.1.5 Importance of the Receptor

- high
- medium
- low

- 8 The impact significance is then given as *major*, *moderate*, *minor* or *negligible*, using the matrix in Table 4.2 as a guide in the assessment process. Not all assessments directly follow this but have used this as a guide.

		Sensitivity of Receptor			
		Very High	High	Medium	Low
Magnitude of Effect based on spatial, duration and scale of effect	Very High	Major	Major	Major	Moderate
	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

4.2.2 *Cumulative and In-combination Impact*

- 9 An important part of the EIA process is to consider cumulative and in-combination impacts.

4.2.2.1 Cumulative Impact

- 10 Schedule 3 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations Scotland 2000 requires that the potential for *cumulative impact* should be considered and where appropriate, assessed.
- 11 Cumulative impacts include, but may not be limited to, impacts that arise from the following existing and reasonably foreseeable development activities:
- other wind farms
 - aggregate extraction and dredging
 - navigation and shipping
 - established fishing activities
 - existing and planned construction subsea cables and pipelines
 - potential port / harbour development
 - oil and gas installations
- 12 The cumulative assessment addresses where predicted how impacts of the EOWDC construction and operation could interact with impacts from other industry sectors within the same region and impact sensitive receptors. This

may be through direct effects or spatially/temporally separated impacts on the same population of a receptor.

4.2.2.2 In-combination Impacts

- 13 The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) require that a Habitats Regulations Appraisal (HRA) must be conducted by a competent authority. The HRA considers the implications for European sites in view of the European sites conservation objectives, in respect of any plan or project which is not directly connected with or necessary to the management of the European site for conservation purposes and which is likely to have a significant effect on the European site either alone or *in-combination* with other plans or projects.
- 14 Therefore the term 'in-combination' is used when considering the impacts of the proposals with other plans or projects on European sites.

4.3 Consultation

- 15 As the proposal for the EOWDC has evolved over a number of years, there have been many individual stakeholder meetings involving a wide range of environmental, marine and aviation interests and over 24 public exhibition events. These discussions and events have allowed consultation with key interests and the general public on their views and comments regarding the proposal. The project has held extensive consultation with various statutory and non statutory bodies which have been useful in identifying issues which have been addressed through the EIA process and also in determining the location of the current application (see Chapter 2 Site Selection).

4.3.1 Public Exhibitions

- 16 Following an initial stakeholder workshop which took place in July 2005, a series of local consultation public exhibitions were publicised. These were held from 31st October to 10th November 2005 in Aberdeen and six other coastal North East communities. The exhibitions were organised to coincide with the ongoing feasibility study for the proposed development by Aberdeen Offshore Wind Farm Limited. Response sheets were collected and display materials were made available for inspection with representatives of the project team present to answer questions. The 2005 public exhibitions were held at:
- The Palace Hotel, Peterhead 31 Oct, 2-8 pm
 - The Kilmarnock Arms Hotel, Cruden Bay 1 Nov, 2-8 pm
 - Oceanlab, Newburgh 2 Nov, 2-8 pm
 - Kirk Centre, Ellon 3 Nov, 2-8 pm
 - Collieston Community Centre 4 Nov, 2-8 pm
 - White Horse Inn, Balmedie 7 Nov, 2-8 pm
 - Aberdeen Exhibition and Conference Centre, 8 Nov, 2-8 pm
 - Tullos Primary School foyer, Aberdeen 9 Nov, 3-8 pm
 - Beach Ballroom, Aberdeen 10 Nov, 2-8 pm
- 17 Following the 2005 consultation and ongoing stakeholder dialogue, a further series of public exhibitions was publicised and held in June 2006. The events

explained the proposed layout changes of the scheme following feedback received on environmental issues surrounding the Ythan Estuary and operational issues faced by local helicopter operators. Response sheets were collected and display materials were made available for inspection with representatives of the project team present to answer questions. The Public Consultation Exhibitions displayed a revised 23 wind turbine scheme and took place during the last two weeks in June at:

- The Palace Hotel, Peterhead 19 June, 2-8 pm
- The Kilmarnock Arms Hotel, Cruden Bay 20 June, 2-8 pm
- Oceanlab, Newburgh 21 June, 2-8 pm
- Kirk Centre, Ellon 22 June, 2-8 pm
- Collieston Community Centre, 23 June, 2-8 pm
- White Horse Inn, Balmedie 26 June, 2-8 pm
- Aberdeen Exhibition and Conference Centre, 27 June, 2-8 pm
- Tullos Primary School foyer, Aberdeen 28 June, 3-8 pm
- Patio Hotel, Aberdeen 29 June, 2-8 pm

18 These early periods of consultation helped to identify new stakeholders and interest groups in proximity to the proposal. Feedback from these stakeholders helped shape the final project design. Dialogue with stakeholders has continued as the project has moved towards the development of the EOWDC concept and the Vattenfall, Technip and Aberdeen Renewable Energy Group partnership.

19 In November 2010 briefing events for Aberdeen City and Shire councillors were held at the Town House in Aberdeen. Public exhibition events were publicised and run in November 2010 which outlined the European Offshore Wind Deployment Centre proposal and the revised 11 wind turbine layout. Response sheets were collected and display materials were made available for inspection with representatives of the project team present to answer questions. The events took place at :

- The Palace Hotel, Peterhead 22 November, 2-8 pm
- Udney Arms Hotel, Newburgh 23 November, 2-8 pm
- Kirk Centre, Ellon 24 November, 1-7pm
- Beach Ballroom, Aberdeen 25 November, 2-8 pm
- White Horse Inn, Balmedie 26 November, 2-8 pm

4.3.2 Additional Consultation

20 On the 18th February 2011 a briefing event was held for Energy Communications contacts at Aberdeen Town House. In March 2011 a project briefing session was run at the Scottish Parliament in Edinburgh for MSPs.

21 Since 2005 the project team has also presented the proposals to local community council meetings, and also responded to other ad-hoc requests for presentations / display stands including the Aberdeen Highland Games 2006.

22 The project has been a key focus of the All-Energy show over the last six years, and updates on progress were delivered at the opening business breakfast and during the main session presentations. In addition to press and media coverage, Councillor, MP & MSP briefings were given during the two day shows.

- 23 At the 2011 show a call was made to European Innovators. Wind turbine manufacturers, supply chain companies, universities and research establishments were all briefed in the project to identify possible involvement.
- 24 Information & briefings regarding the project were also available at the Aberdeen City and Shire stand at Offshore Europe 2005/2007/2009.
- 25 The project has featured in regular updates at meetings of the Aberdeen Renewable Energy Group.