European Offshore Wind Deployment Centre
Environmental Statement

Chapter 15: Shipping and Navigation

A project part-funded by the European Union under the European Economic Plan for Recovery in the field of Energy

15 SHIPPING AND NAVIGATION

15.1 Introduction

1 This section summarises the work undertaken as part of the Navigation Risk Assessment (NRA) by Anatec UK Ltd to identify the baseline vessel activity and navigational features in the vicinity of the proposed European Offshore Wind Deployment Centre (EOWDC) and to assess the potential impacts associated with the different phases of the development. Planned mitigation measures to manage the impacts, which have been identified in consultation with maritime stakeholders, are also documented.

2 The following technical reports support this chapter and can be found as:

- Navigational Risk Assessment (Appendix 15.1)

15.1.1 Methodology Consultation

3 The methodology applied was based on the DECC Guidelines "Methodology for Assessing the Marine Navigational Safety Risks of Offshore Windfarms, Version Date: 7th September 2005".

4 Extensive consultation on navigational issues has been carried out with stakeholders during the evolution of the proposed development. This following list section briefly summarises the key consultees:

- Aberdeen Harbour
- Marine Safety Forum
- NorthLink ferries
- Craig Group
- Gulf Offshore
- Trico
- Shell Marine
- Scottish Fishermen's Federation
- Other Marine Stakeholders

5 A hazard review workshop was held in Aberdeen on the 25 August 2010, hosted by Aberdeen Harbour. The purpose of the workshop was to identify and review the potential navigational hazards associated with the proposed development of the EOWDC.

6 Various consultation exercises have also been carried out by the project over a number of years including several public events which allowed all stakeholders to contribute opinions on the proposals.

15.1.2 Key Guidance Documents

7 The following key guidance documents have been referred to:

- MCA Marine Guidance Notice 371, Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues MCA Wind Farm: "Shipping Route" Template

- DECC, U.K. Government, Methodology for Assessing the Marine Navigational Safety Risks of Offshore Windfarms, Version Date: 7th September 2005
- IMO, Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule Making Process, 5th April 2002
- MCA Marine Guidance Notice 372 (M+F), Guidance to Mariners Operating in the Vicinity of UK OREIs, August 2008
- IALA Recommendation O-139 On The Marking of Man-Made Offshore Structures, Edition 1, Dec 2008

15.1.3 Data Information and Sources

8 The following data sources have been used within this assessment:

- AIS and Radar Survey 1 (Anatec, 24 March – 7 April 2009)
- AIS and Radar Survey 2 (Anatec, 21 September – 5 October 2009)
- AIS and Radar Survey 3 (Anatec, 9 April – 23 April 2010)
- AIS and Radar Survey 4 (Anatec, 1 November – 15 November 2010)
- AIS and Radar Survey 5 (Anatec, 18 February – 4 March 2011)
- RYA, UK Coastal Atlas
- EOWDC Commercial Fisheries Assessment (Chapter 21 of this ES)

15.2 Baseline Assessment

9 A baseline assessment gives account to:

- shipping and navigational practices
- Aberdeen Harbour
- oil and gas infrastructure
- MoD Exercise Areas
- metocean data
- hydrographic data

10 Due to the proximity of the site to Aberdeen Harbour particular attention was placed on detailing information on this port.

11 Aberdeen Harbour is the principal commercial port serving the northeast of Scotland with approximately 16,000 ship movements in 2009 handling approximately 4.5 million tonnes of import and export goods. The port is the main marine support centre for the North Sea oil and gas industry. In addition to the oil and gas support services there are regular shipping services to Orkney, Shetland and Scandinavia via Ro-Ro services for passengers and cargo, with 142,468 passengers passing through the port in 2009.

12 The port also has a large modern fish market and although there are no commercial fisheries within the area of jurisdiction of Aberdeen Harbour or proximity, deep-sea fishing vessels and a number of locally registered potters land their catches at the Aberdeen fish market.

13 The nearest proposed turbine within the EOWDC site would be located over 2 nautical miles (nm) from the northern limits of Aberdeen Harbour.

14 There is a designated anchorage area just to the north of the Aberdeen Harbour boundary, which was established in 2010 (see Figure 2.2).

15 Figure 15.1 presents details on shipping as gathered in the AIS and radar during a two week survey in November 2010.

15.3 Impact Assessment

15.3.1 Impact Assessment Methodology

16 The AIS and radar survey data were analysed and further consultation was carried out to assess the potential impacts of the proposed development on shipping and navigation. Through this process, the main shipping and navigation hazard scenarios identified were as follows:

- commercial shipping impact within EOWDC site
- not under command vessel collision
- dragging anchor event
- ship-to-ship collisions
- recreational vessel collisions
- fishing vessel collisions
- fishing vessel gear snagging

17 Further assessment of these scenarios was carried out using qualitative and quantitative techniques. A number of consultation meetings were held with key stakeholders and a Hazard Workshop was carried out in August 2010 in-line with the DECC Guidelines.

18 In addition to the above scenarios, the NRA also assessed the potential impact of the development on a number of factors as outlined in the DECC Guidelines, including:

- visual navigation
- marine radar systems
- communications and position fixing
- search and rescue
- aids to navigation
- anchoring (sea room availability and the potential of cable interaction)

19 The main conclusions of this work are as follows:

- the proposed EOWDC site has been relocated and reduced in size such that it would not affect the main navigation routes in the area, including the bulk of shipping heading to/from Aberdeen Harbour
- moving the site to the north has provided a 0.25 nm separation between the nearest wind turbine and the designated anchorage area in Aberdeen Bay
- consultation with Aberdeen Harbour Board and other users of the area, such as NorthLink Ferries, indicated the site is acceptable in terms of navigational safety
- there is limited fishing and recreational vessel activity in the area
- in the hazard review workshop involving local navigational stakeholders, all hazards were identified to be low

- following identification of the key navigational hazards, risk analyses were carried out to investigate selected hazards in more detail. The overall annual level of risk due to the presence of the proposed EOWDC was estimated to increase by approximately 1 in 404 years (base case) and 1 in 367 years (future case based on traffic growth estimates over the life of the development). The majority of this risk is from passing powered ship collisions with the wind turbines, followed by fishing vessel collisions
- the risks associated with recreational craft interaction with the proposed EOWDC structures (blade/mast and vessel/structure collisions) were qualitatively assessed and concluded to be as low as reasonably practicable given the mitigation measures planned
- a quantitative assessment estimated that, compared to the background marine accident risk levels in the UK, the increase in risk to both people and the environment caused by the proposed EOWDC is low

20 It was concluded that with the correct mitigation measures in place (see Table 15.1) the shipping and navigational impact of the EOWDC development is Low.

21 This outcome was found to be the same for all phases of the development; during construction, operation and decommissioning, although it was noted that the mitigation measures may vary for each phase.

22 No cumulative and in-combination effects were identified throughout the process.

23 The following table summarises the main mitigation measures identified during the NRA.

TABLE 15.1 **Mitigation Measures Identified during the NRA**	
Mitigation	**Description**
Site selection	Site selected to avoid significant navigational impacts, eg, located away from main anchorage area and navigation lanes to/from Aberdeen following consultation with Aberdeen Harbour, etc.
Marked on Admiralty Charts	EOWDC would be charted by the UK Hydrographic Office using the magenta turbine tower chart symbol found in publication "NP 5011 - Symbols and Abbreviations used in Admiralty Charts". Submarine cables associated with the project would also be charted on the appropriate scale charts.
Information Circulation	Appropriate liaison to ensure information on the wind farm and special activities is circulated in Notices to Mariners, Navigation Information Broadcasts and other appropriate media.
Marking and Lighting	Structures to be marked and lit in-line with Northern Lighthouse Board and International Association of Marine Aids to Navigation and Lighthouses (IALA) guidance.
Turbine Air Draught	Lowest point of rotor sweep at least 22 m above Mean High Water Springs as per RYA and MCA recommendations.
Cable Protection	Cables to be buried to suitable depth based on cable protection study taking into account fishing and anchoring practices in Aberdeen Bay. Periodic inspection of the cable to ensure it remains buried. Positions of cable routes notified to Kingfisher Information Services (KIS) for inclusion in cable awareness charts and plotters for the fishing industry.
Compliance with MCA's Marine Guidance Notice (MGN) 371 including Annex 5	Annex 5 specifies "Standards and procedures for generator shutdown and other operational requirements in the event of a search and rescue, counter pollution or salvage incident in or around an OREI."
Formulation of an Emergency Response Cooperation Plan (ERCoP) as per MCA template	The Applicant would use the draft template created by the MCA to formulate an emergency response plan and site Safety Management Systems, in consultation with the MCA.

15.4 Summary

24 The Shipping and Navigation Assessment was carried out in accordance with the regulations and guidance.

25 Throughout the project marine navigational marking would be provided in accordance and consultation with the NLB requirements, which would comply with IALA and the additional requirements of MCA. It is also noted that there is a requirement to mark selected structures with lights for aviation as per Civil Aviation Authority (CAA) requirements.

26 One of the main elements of the process has been extensive consultation with the key navigation stakeholders to ensure the site design is optimised. Having achieved this, it was identified that the shipping and navigation impacts associated with the development would be Low, provided the correct mitigation measures are implemented.