

Wylfa Newydd Project

6.2.15 ES Volume B - Introduction to the environmental assessments B15 - Shipping and navigation

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15 Shipping and navigation

15.1 Introduction

15.1.1 This chapter provides an introduction to the technical basis for the shipping and navigation assessment for the Wylfa Newydd Project. It includes a summary of legislation, policy and guidance; key points arising in consultation that have guided the shipping and navigation assessment; and assessment methodologies and criteria.

15.1.2 The term ‘shipping and navigation’ refers to shipping movements and navigational procedures that could potentially affect maritime safety. The assessment evaluates all navigational possibilities that could be reasonably foreseeable, by which the siting, construction, operation and decommissioning of the Power Station Site could cause or contribute to an obstruction of, or danger to, navigation or marine emergency services.

15.1.3 As part of this work, a Navigational Risk Assessment (NRA) was carried out by Associated British Ports Marine Environmental Research (ABPmer) to identify the existing vessel activity and navigational features in the Wylfa Newydd Development Area, which is presented in appendix D15-1 (Navigational Risk Assessment) (Application Reference Number: 6.4.99) of this Environmental Statement. This chapter should be read in conjunction with appendix D15-1 (Application Reference Number: 6.4.99).

15.1.4 The appendix (Application Reference Number: 6.4.99) has considered all vessels currently navigating within the waters adjacent to the Power Station Site, including recreational craft, commercial ferries, commercial traffic, commercial fishing vessels, marine dredging vessels, military vessels and emergency response activities.

15.1.5 Due to the specific methodology required by maritime regulators, shipping and navigation as a receptor has been assessed within this chapter under a methodology that differs slightly from that used within other chapters of this Environmental Statement. Rather than an assessment purely of effects on navigation, this chapter focuses on risk management: it is based on a risk assessment. The assessment is required to demonstrate that sufficient controls are, or would be, in place for the assessed risk to be reduced to As Low As Reasonably Practicable.

15.1.6 The environmental effects associated with additional shipping vessel movements are considered within other chapters of this Environmental Statement:

- chapter D5 (air quality) (Application Reference Number: 6.4.5) for potential air quality effects associated with additional shipping movements;
- chapter D6 (noise and vibration) (Application Reference Number: 6.4.6) for potential noise effects associated with additional shipping movements; and

- chapter D13 (the marine environment) (Application Reference Number: 6.4.13) for the potential effects of additional shipping movements on the marine environment.

15.1.7 The decommissioning process is not anticipated to occur for over 60 years. Decommissioning would require a further Environmental Impact Assessment (EIA) under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999. The design life of the Marine Off-Loading Facility (MOLF) is not intended to support MOLF usage during the decommissioning phase; however, it will remain in place following the construction of the Power Station.

15.1.8 This chapter sets out the methodology for the full assessment of effects for shipping and navigation, which is included in chapter D15 (shipping and navigation) (Application Reference Number: 6.4.15) for the WNDA Development.

15.2 Legislation, policy and guidance

15.2.1 The following legislation, policy and guidance have been used to inform the scope and content of the shipping and navigation assessment; assist in the identification of potential effects and mitigation; and influence the design of the Wylfa Newydd Project to reduce the significance of effects.

Key legislation

15.2.2 The relevant legislation and how it relates to the shipping and navigation assessment are set out in table B15-1.

Table B15-1 Summary of key legislation

Legislation	Description
Harbours, Docks and Piers Clauses Act 1847	National legislation placing statutory responsibility on the Harbour Master to ensure navigation and safety within the harbour limits. This Act consolidated certain provisions authorising the making and improving of harbours, docks and piers.
British Transport Docks Act 1972	National legislation placing statutory responsibility on the Harbour Master to ensure navigational safety within the harbour limits. Under such legislation, the Harbour Master may issue general or specific directions to control movements of vessels within their statutory harbour authority.
Convention on International Regulations for Preventing Collisions at Sea 1972 (as amended)	Published by the International Maritime Organization (IMO) (a specialised agency of the United Nations) and setting out, among other

Legislation	Description
	things, the navigation rules to be followed by ships and other vessels at sea to prevent collisions between two or more vessels.
Marine and Coastal Access Act 2009	This Act provides the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a system for improved management and protection of the marine and coastal environment. It established a strategic marine planning system which includes production of a Marine Policy Statement, and streamlines the marine licensing system.
Maritime Spatial Planning Directive (EU Directive 89/2014)	Established the framework for marine planning for all EU member states in order to manage the increasing levels of marine activities being carried out. Under this Directive, member states must have their marine plans in place by 31 March 2021.

Key policy

15.2.3 The relevant national and local plans and policies, and how these relate to the shipping and navigation assessment, are described in table B15-2.

Table B15-2 Summary of key policy

Policy	Description
<i>Overarching National Policy Statement for Energy (EN-1) [RD1]</i>	Sets out the Government's policy for delivery of major energy infrastructure. Paragraph 5.13.10 states: " <i>Water-borne or rail transport is preferred over road transport at all stages of the project, where cost effective.</i> "
<i>National Policy Statement for Nuclear Power Generation (EN-6) (NPS EN-6) [RD2]</i>	NPS EN-6 states requirements for the applicant to take account of climate change adaptation measures and assess effects on coastal processes and intertidal deposition. NPS EN-6 states requirements for the applicant to consider the effects on navigation. Paragraph C.9.37 states: " <i>Responses highlighted that there are plans for a Liquefied Natural Gas (LNG)</i>

Policy	Description
	<i>facility at Amlwch</i> " which would increase the navigational risk in the area.
<i>National Policy Statement for Ports</i> [RD3]	The MOLF does not meet 'the relevant quantity' threshold under the Planning Act 2008, and therefore is not, on its own, a nationally significant infrastructure project. However, the National Policy Statement for Ports does contain relevant guidance that has informed the shipping and navigation assessments.
<i>Wales Transport Strategy 2008</i> [RD4]	<p>This Strategy outlines how the transport policy approach is more responsive in its delivery of the Government's wider policy agenda and attempts to be flexible in reflecting different regional circumstances. The four main regions in Wales were represented by a regional transport consortium, created through partnerships between neighbouring local authorities. Taith was the regional transport partnership that represented the six local authorities in north Wales. This partnership has now ceased operations. The Wales Transport Strategy promotes sustainable transport networks that safeguard the environment while strengthening economic and social life. Key identified priorities include:</p> <ul style="list-style-type: none"> • reducing greenhouse gas emissions and other impacts; • integrating local transport; • improving access between key settlements and sites; • enhancing international connectivity; and • increasing safety and security.
<i>UK Marine Policy Statement 2011</i> [RD5]	The Marine Policy Statement was adopted in 2011 for the purpose of Section 44 of the Marine and Coastal Access Act 2009. The Marine Policy Statement is the framework for preparing marine plans and taking decisions affecting the marine environment. The Marine Policy Statement aims to facilitate and support the formulation of marine plans, ensuring that marine resources are used in a

Policy	Description
	<p>sustainable way in line with a number of high level marine objectives with the view to:</p> <ul style="list-style-type: none"> • promoting sustainable economic development; • enabling the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change and ocean acidification and adapt to their effects; • ensuring a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and our heritage assets; and • contributing to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues.
<i>Welsh National Marine Plan</i> [RD6]	<p>The Welsh Government is currently developing the first Welsh National Marine Plan utilising the framework and high level objectives for marine planning outlined in the Marine Policy Statement. The purpose of the Plan is to manage marine activities in a sustainable way, taking into account economic, social and environmental priorities. The goals and principles of the Well-being of Future Generations (Wales) Act 2015 are a key focus in developing the Plan.</p>
<i>Planning Policy Wales (Edition 9)</i> [RD7]	<p>This Document sets out the land use planning policies of the Welsh Government, forming a strategic framework to guide development.</p> <p>Chapter B3 (traffic and transport) (Application Reference Number: 6.2.3) sets out the objectives of the Welsh Government for extending choice in transport and securing accessibility in a way that supports sustainable development and helps to tackle the causes of climate change by encouraging a more effective and efficient transport system. A number of relevant clauses</p>

Policy	Description
	<p>from the transport chapter were used to inform this chapter.</p> <ul style="list-style-type: none"> Clause 8.5.1 states: “Local authorities should utilise available powers to reduce the need to use trunk roads and other through routes for short, local journeys.” Clause 8.5.3 states: “The strategic significance of freight access to industry and commerce should be taken into consideration by planning authorities. Wherever possible, they should promote the carriage of freight, water or pipeline rather than by road... Wherever possible, new facilities should be located adjacent to railways and/or ports to promote modal transfer.” Clause 8.5.6 states: “Planning authorities should seek to promote the use of ports and inland waterways by the protection or provision of access to them and by the retention or provision of appropriate wharf, dock, and harbour and rail transfer facilities. The provision of these facilities needs to be weighed against environmental considerations such as the loss or erosion of estuarine habitats.” Clause 8.5.7 states: “Great care must be taken to minimise the adverse impacts of new transport infrastructure or improvements to existing infrastructure, on the natural, historic and built environment and on local communities, where neighbourhood severance should especially be avoided. Routes should make the best use of existing landforms and other landscape features to reduce noise and visual effects, subject to safety and other environmental considerations. Where no other alternative routes or options are practicable, transport infrastructure schemes should provide mitigation measures to minimise the impacts caused by their construction and operation.”

Key guidance

15.2.4 The shipping and navigation assessment has been undertaken in line with a number of key technical guidance documents. These guidance documents are widely used across the UK and represent standard good practice for the assessment for the various consenting regimes. These are summarised in Table B15-3.

Table B15-3 Summary of key guidance

Guidance	Description
<i>Revised Guidelines for Formal Safety Assessment for use in the IMO rule-making process</i> [RD8]	The guidelines provide a basis for making decisions in accordance with the formal safety assessment methodology. It is a rational and systematic process for assessing the risks relating to maritime safety and the protection of the marine environment.
<i>United Nations Convention on the Law of the Sea</i> [RD9]	An international protocol relating to laws of the sea. Article 60(7) relates to provisions for artificial islands, installations and structures in the exclusive economic zone. The UK Government has a responsibility to ensure that these measures are implemented in order to honour its commitment to this protocol.
<i>Methodology for Assessing the Marine Navigational Safety and Emergency Response Risks of Offshore Renewable Energy Installations (OREIs)</i> [RD10]	This guidance has been prepared to include data gained through operational knowledge since 2005, together with recent Marine Guidance Notes produced by the Maritime and Coastguard Agency and to enable risk assessment of all OREI types, including the associated emergency response issue.
<i>Marine Guidance Note 543 Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – UK Navigational Practice, Safety and Emergency Response</i> [RD11]	This Marine Guidance Note highlights issues to be considered when assessing the impact on navigational safety and emergency response, caused by offshore renewable energy installation developments. A significant proportion of the guidance is deemed relevant to the navigation aspects of the Wylfa Newydd Project.
<i>International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)</i> [RD12]	The STCW sets qualification standards for masters, officers and watch personnel on seagoing merchant ships. STCW was adopted in 1978 by conference at the IMO in London, and entered into force in 1984. The convention was significantly amended in 1995.

Guidance	Description
Port Marine Safety Code [RD13]	The Port Marine Safety Code sets out a national standard for every aspect of port marine safety. Its aim is to enhance safety for everyone who uses or works in the port marine environment. It applies to all harbour authorities and other marine facilities, berths and terminals in the UK.

15.3 Consultation

15.3.1 This section provides a topic-specific account of scoping, statutory and non-statutory consultation undertaken to support the assessment. For a full overview of the environmental consultation activities undertaken for the Wylfa Newydd Project, please refer to chapter A6 (EIA Scoping Report and Addendum) (Application Reference Number: 6.1.6) and chapter A7 (consultation with environmental stakeholders) (Application Reference Number: 6.1.7).

Planning Inspectorate Scoping Opinion

15.3.2 In March 2016, Horizon submitted an updated Wylfa Newydd Project EIA Scoping Report to the Planning Inspectorate. In May 2017, Horizon submitted an Addendum to the March 2016 Wylfa Newydd Project EIA Scoping Report to the Planning Inspectorate. Following a period of consultation with stakeholders, a further Scoping Opinion was received from the Secretary of State (via the Planning Inspectorate) on 14 June. For the marine aspects of the Wylfa Newydd Project, Horizon also requested a screening and Scoping Opinion from Natural Resources Wales under Regulations 11 and 13 from Schedules 2 and 4 of the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017. The responses were received and relevant comments are detailed below.

15.3.3 The Wylfa Newydd Project EIA Scoping Report, Addendum and the subsequent Scoping Opinions inform the approach to the assessment. Table B15-4 provides an account of how comments raised by stakeholders in the Scoping Opinion have been considered in the shipping and navigation assessment.

Table B15-4 Key issues raised through Scoping

Key issue raised	Action taken
“No reference is made to the assessment of shipping during the operation of the proposed development.” (Planning Inspectorate)	Addressed in chapter D15 (Application Reference Number: 6.4.15) and appendix D15-1 (Application Reference Number: 6.4.99) of this Environmental Statement, which comprise a detailed assessment of shipping during construction and operational phases of the proposed development. Upon

Key issue raised	Action taken
	recommendation from the Maritime and Coastguard Agency, decommissioning does not require consideration within the NRA.
<p>“Trinity House would like to see a Navigational Risk Assessment included in the Environmental Statement, including comprehensive vessel traffic analysis in accordance with the requirements of MGN-543 [Marine Guidance Note 543 [RD11]].” (Trinity House)</p>	<p>Appendix D15-1 (Application Reference Number: 6.4.99) forms the NRA and considers the shipping traffic baseline and analyses the predicted impact of additional shipping related to the MOLF. Vessel simulations have been undertaken and are referenced in appendix D15-1 (Application Reference Number: 6.4.99). Cumulative effects have also been considered within appendix D15-1 (Application Reference Number: 6.4.99) and additionally in this Environmental Statement within volume I (Application Reference Numbers: 6.9.1 to 6.9.5).</p>
<p>Much of the works below the high-water mark will require a marine licence from Natural Resources Wales but the risk mitigation measures for some obstructions such as the MOLF, breakwaters and the cooling water intakes and outfalls should be considered at this stage. Such works will require to be marked as deemed necessary by Trinity House and early consultation on this matter is recommended. (Trinity House)</p>	<p>Appendix D15-1 (Application Reference Number: 6.4.99) describes the risk mitigation measures taken to improve the navigational safety of the area during the construction and operation of the MOLF, including, but not limited to, aids to navigation. A meeting was held with Trinity House on 22 May 2017 to discuss and agree the aids to navigation configuration during the aforementioned phases. The location of markers and buoys indicating the breakwaters, MOLF and lay-by berth were agreed. It was also agreed that the intakes and outfall did not require demarcation.</p> <p>These measures will be further described in the Marine Licence application.</p>
<p>“In particular, the Secretary of State recommends consideration should be</p>	<p>Impacts on shipping are assessed in chapter D15 (Application</p>

Key issue raised	Action taken
<p>given to discharges to the air and water and to potential impacts on migratory species and to impacts on shipping and fishing areas.”</p> <p>(Planning Inspectorate response to May 3 Scoping Opinion)</p>	<p>Reference Number: 6.4.15) of this Environmental Statement. These impacts relate directly to the navigational safety of the waters immediately surrounding the Power Station Site. Potential impacts on fishing areas, migratory species and discharges to the air and water are considered within other discipline chapters of this Environmental Statement.</p>
<p>“The Environmental Statement should also set out what types of potentially non-nuclear accidents/disasters may have been identified (for example major oil leaks from shipping using the MOLF) even if they have been subsequently scope from further consideration.”</p> <p>(Isle of Anglesey County Council (IACC) response to May 3 Scoping Opinion)</p>	<p>A number of accidents have been considered in appendix D15-1 (Application Reference Number: 6.4.99) and the effects of these accidents have been assessed and assigned a significance classification within chapter D15 (Application Reference Number: 6.4.15) of this Environmental Statement.</p>
<p>“The Council had understood from recent discussion with Horizon Nuclear Power that a separate chapter on shipping and navigation was to be provided in the Environmental Statement. Clarification on whether this is still the intention would be welcome.”</p> <p>(the IACC response to May 3 Scoping Opinion)</p>	<p>This is confirmed. Chapter D15 (Application Reference Number: 6.4.15) provides the assessment of effects on shipping and navigation as a result of the Wylfa Newydd Project.</p>

Statutory consultation

Pre-Application Consultation Stage One

15.3.4 The aim of Pre-Application Consultation Stage One, undertaken in late 2014, was to share information available at the time with Horizon’s key consultees and stakeholders, in order to consider feedback in ongoing design development. There were no key issues raised during Pre-Application Stage One that required consideration in the shipping and navigation assessment.

Pre-Application Consultation Stage Two

15.3.5 In September 2016, Horizon shared a Preliminary Environmental Information Report as part of Pre-Application Consultation Stage Two. This presented

preliminary details of the predicted environmental effects and mitigation measures for any adverse effects identified. Table B15-5 outlines how key issues raised during Pre-Application Consultation Stage Two have been considered in the assessment.

Table B15-5 Key issues raised during Pre-Application Stage Two

Key issue raised	Action taken
<p>“All consultees are land based recreation, when the topic area refers to coastal and offshore activities, and believe additional bodies should be consulted including the RYA [Royal Yachting Association], MCA [Maritime and Coastguard Agency], WCU [Welsh Canoeing Union] and the Welsh Rowing Association”.</p> <p>“ZTV [zone of theoretical visibility] - needs to extend to sea as there are important views from the sea experienced by recreation users e.g. sea kayakers, sailing craft. Anglesey is widely regarded as a 'world class' destination for kayaking”. (the IACC)</p>	<p>The assessment of effects on shipping and navigation is set out in chapter D15 (shipping and navigation) (Application Reference Number: 6.4.15). Consultation with shipping organisations was undertaken as part of that assessment at the risk identification workshop hosted by ABPmer, and the meeting with MCA in September 2017; note that both these are referenced in table B15-7 in this chapter.</p> <p>The public access and recreation assessment has focussed on informal recreational uses of the inshore waters within 2km of the Wylfa Newydd Development Area.</p>
	<p>The assessment of effects on recreational users is set out in section 4.5 of chapter D4 (public access and recreation) (Application Reference Number: 6.4.4) and includes an assessment of the reduction of recreational amenity as a result of noise, and visual intrusion and loss of access.</p>
<p>“Recognise that the site setting description is a summary, and the definitions provided are helpful. Refer to Secretary of State's scoping opinion at 2.40 which asks for the ES [Environmental Statement] to explain</p>	<p>The ZTVs presented in chapter D10 (landscape and visual) (Application Reference Number: 6.4.10) include offshore visibility.</p> <p>The Wylfa Newydd Development Area has been drawn in such a way that it incorporates areas in which development work could occur, including shipping movements</p>

Key issue raised	Action taken
<p>why the development area extends beyond the MOLF". (the IACC)</p>	<p>to assist in the construction of the MOLF and installation of navigation markers. Chapter D15 (Application Reference Number: 6.4.15) describes the study area, which includes key navigational features such as the Skerries Traffic Separation Scheme and Holyhead North Disposal Site; these are critical to assessing the navigational risk in the area.</p>

Pre-Application Consultation Stage Three

15.3.6 There were no key issues raised during Pre-Application Consultation Stage Three that required consideration in the shipping and navigation assessment.

Consultation on Additional Land

15.3.7 In February 2018, Horizon undertook consultation on additional land that had not been consulted on previously. The additional land was required to:

- accommodate proposals to create or enhance wetland sites across Anglesey as Ecological Compensation Sites;
- create two new ecological mitigation areas, and minor changes to the connection to the national grid at the Wylfa Newydd Development Area; and
- update the order limits for the A5025 Off-Line Highway Improvements, and minor refinements to the boundaries of the Off-Site Power Station Facilities and Logistics Centre.

15.3.8 The feedback from the consultation has been reviewed and there were no shipping and navigation issues raised.

Non-statutory consultation

Environmental Impact Assessment Progress Report

15.3.9 An EIA Progress Report was provided to the IACC and Natural Resources Wales in 2016 with updated information on the design development and associated environmental assessment. There were no key issues raised during the feedback that required consideration within the shipping and navigation assessment.

Draft Environmental Statement

15.3.10 During September 2017, draft Environmental Statement chapters were provided to statutory and key non-statutory stakeholders. Table B15-6

outlines key issues raised and how these have been addressed within the Environmental Statement.

Table B15-6 Key issues raised in response to the Draft Environmental Statement

Key issue raised	Action taken
<p>The content of both documents (B15 and D15) is noted especially in relation to vessel movements and the time frame in which this will occur. It is also noted that the main thrust of the documents consider navigational issues with vessels but does not appear to consider the potential impact of a fire on board especially if the vessel is alongside at the MOLF. It is also worthy to note that industrial accidents involving a vessel do not appear to be covered – this could include the accidental flooding of a vessel alongside.</p> <p>(North Wales Fire and Rescue)</p>	<p>Please refer to appendix D15-1 (Application Reference Number: 6.4.99) where the two scenarios mentioned (plus many more) are considered as part of the hazard identification process and subsequent risk assessment. Following the ranking of these risks, only those considered to be most onerous were taken forward to the formal safety assessment and therefore assessed in chapter D15 (Application Reference Number: 6.4.15). Additionally, sections 15.5.12 and 15.5.13 in chapter D15 (Application Reference Number: 6.4.15) consider the scenario of dredge/construction plant on-board fire.</p>
<p>Whilst the documents outline the area of sea considered as part of the scoping work reference to a map would be of benefit to aid discussion and for clarity.</p> <p>(North Wales Fire and Rescue)</p>	<p>Please refer to appendix D15-1 (Application Reference Number: 6.4.99), which contains all relevant figures for the shipping and navigation assessment.</p>

Topic-specific stakeholder engagement

15.3.11 In addition to the three formal stages of consultation outlined above, topic-specific consultation has been undertaken with relevant stakeholders. Table B15-7 summarises the details of the consultation that has taken place with respect to the shipping and navigation assessment.

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Table B15-7 Summary of topic specific consultation

Date	Stakeholder	Title and format	Issue arising	Action taken
30 September 2016	Maritime and Coastguard Agency	NRA methodology meeting	<p>It might not be possible to establish a statutory safety zone without gaining a harbour empowerment order. This is typically used around a marine site with construction activity, major maintenance or decommissioning activities. The zone is normally monitored by support craft and/or guard vessels. Currently, as the Wylfa area is outside of a Harbour Authority area, the establishment of a safety zone can only be achieved with consent of the Secretary of State under The Electricity Supply Regulations 2007. It would be unlikely to achieve a safety zone under this legislation for the Wylfa Newydd Project.</p> <p>Cumulative effects will need to be included in the NRA, specifically the cumulative effects that may arise due to the nearby Minesto project on Holyhead Deep disposal site.</p>	<p>Noted and taken on board within the assessment. The current intention is for Horizon Nuclear Power Wylfa Limited to gain harbour powers through the application for development consent. In which case, it is considered that a safety zone could be put in place.</p> <p>This has been noted and cumulative effects are considered in appendix D15-1 (Application Reference Number: 6.4.99) and volume I (Application reference Numbers: 6.9.1 to 6.9.5).</p>

Date	Stakeholder	Title and format	Issue arising	Action taken
			<p>Maritime and Coastguard Agency does not expect to see the decommissioning phase of the Wylfa Newydd Project included within the NRA.</p> <p>A local Maritime and Coastguard Agency representative should be invited to the navigational risk identification workshop.</p> <p>Maritime and Coastguard Agency commented that the methodology for the assessment was satisfactory in relation to statutory/regulatory requirements.</p>	<p>This has been noted and implemented throughout appendix D15-1 (Application Reference Number: 6.4.99) and chapter D15 (Application Reference Number: 6.4.15) of this Environmental Statement.</p> <p>A local Maritime and Coastguard Agency representative attended the navigation hazard identification workshop on 26 October described below.</p>
26 October 2016	Trinity House; Harbour Master Holyhead (Stena Line Ports Ltd); Port Manager Holyhead (Stena Line Ports Ltd);	Navigation hazard identification workshop	<p>There were no issues arising from this event. It served as an informative session for stakeholders concerned with the navigation of the area. Provision of background information on the Wylfa Newydd Project and discussion of navigational risk associated with the MOLF was given.</p> <p>Identification of hazard scenarios and potential controls (mitigation measures).</p>	The hazard scenarios and potential risk controls identified by the stakeholders during the workshop were taken forward and used in the analysis of appendix D15-1 (Application Reference Number: 6.4.99). Appendix D15-1 informs chapter D15 (Application Reference Number: 6.4.15) of this Environmental Statement.

Date	Stakeholder	Title and format	Issue arising	Action taken
	Pilot (Stena Line Ports Ltd); Harbour Master Amlwch; Maritime and Coastguard Agency; Royal Yachting Association; Cemaes Harbour Committee; Holyhead Sailing Club.			
22 May 2017	Trinity House	Aids to navigation – meeting to discuss and agree aids to navigation design	The configuration of aids to navigation was agreed at the meeting on 22 May. Final drawings are to be sent to Trinity House prior to submission of the Development Consent Order and the Marine Licence for review.	Drawings have been update for submission. Discussion of the aids to navigation is included within appendix D15-1 (Application Reference Number: 6.4.99).

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15.4 Topic-specific methodologies and assessment criteria

Introduction

15.4.1 The overarching approach to the EIA, including the approach to the assessment of cumulative effects, is provided in chapter B1 (introduction to the assessment process) (Application Reference Number: 6.2.1). This section outlines the specific methodology used to assess the effects of the Wylfa Newydd Project on shipping and navigation. It outlines the methods and criteria used to:

- define the study area and identify topic receptors;
- establish the environmental baseline for topic receptors;
- determine the risk of hazard scenarios; and
- identify the sensitivity of receptors, the magnitude of change and significance of effects on navigational safety.

15.4.2 The methodology for the assessment of shipping and navigation effects does not align with that set out in chapter B1 (Application Reference Number: 6.2.1). It follows the IMO's formal safety assessment process and the Department of Energy and Climate Change/Maritime and Coastguard Agency guidelines. This methodology was approved by the Maritime and Coastguard Agency during a meeting on 30 September 2016. Unlike other chapters, a risk assessment has been used to define the EIA assessment, in line with regulatory requirements. However, the assessment of significance is consistent with the other assessments within this Environmental Statement; this is described further in paragraphs 15.4.28 and 15.4.29.

Assessment of parameters

15.4.3 As outlined in chapter B1 (Application Reference Number: 6.2.1), the approach adopted for the design of the WNDA Development, Off-Site Power Station Facilities and Associated Development is to set parameters, where necessary, for the extent of the development and key aspects of that development. The final design and construction methodology would be limited to these parameters and limits of deviation. The approach to assessment of effects on shipping and navigation within the context of the parameters and limits of deviation for the WNDA Development is outlined in chapter 15 within volume D (Application Reference Number: 6.4.15).

Identification of study area

15.4.4 The study area was selected using a standard buffer distance, which is considered best practice for NRAs. For the purposes of the assessment, the study area includes the Skerries traffic separation scheme to the west and north of the Wylfa Newydd Development Area, Dulas Bay to the east and the Holyhead North Disposal Site to the south. Figure 1 in the appendix D15-1 (Application Reference Number: 6.4.99) shows the full extent of the study area.

- 15.4.5 The study area covers an area of approximately 25 nautical miles by 18 nautical miles, extending out from the marine works.
- 15.4.6 The Skerries traffic separation scheme is regularly used by vessels transiting to and from ports on the north coast of Wales and on the north-west coast of England, in particular Liverpool. It is located four nautical miles from the coastline.
- 15.4.7 Territorial waters extend 12 nautical miles from the coast where that country has sovereignty. There is also the exclusive economic zone for each country, which extends 200 nautical miles from the coast where that country has rights over the marine resources in that area. The Irish Sea is completely within the UK and Irish exclusive economic zone, so there are no international waters in the Irish Sea.

Risk assessment

- 15.4.8 As described in paragraph 15.4.2 above, the shipping and navigation assessment is based on a different approach from that adopted in other Environmental Statement topic chapters. As dictated by maritime regulatory requirements, a risk-based assessment was carried out initially; this was informed through consultation with the Maritime and Coastguard Agency and is detailed in appendix D15-1 (Application Reference Number: 6.4.99) of this Environmental Statement.
- 15.4.9 A navigational hazard identification workshop was held on 26 October 2016 with local stakeholders to identify navigational safety concerns relative to the NRA's scope, and the level of risk for a number of hazard scenarios. A total of 23 hazard scenarios were identified for the construction phase and 20 hazard scenarios for the operational phase (see appendix D15-1 (Application Reference Number: 6.4.99) for further detail of this workshop).
- 15.4.10 For the 43 hazard scenarios identified, the attendees considered the possible hazard scenarios according to their 'most likely' and 'worst credible' outcomes. The assessment of risk is based upon the descriptions of the most likely and worst credible, to determine a likely frequency and outcome for each hazard occurring.
- 15.4.11 In making the assessment, the outcome of each hazard scenario on the receptors of 'people, environment, property and business' was evaluated to give a baseline risk with no mitigation measures in place.
- 15.4.12 Each of the 43 hazard scenarios were then considered in light of risk controls which are available at, or can be deployed at, the Wylfa Newydd Development Area in response to a marine emergency. It should be noted that the risk controls, in the context of marine safety, relate to process, practices and available resources that are in existence irrespective of the project scheme. These are considered 'good practice' mitigation in line with the common terminology of the Environmental Statement. However, for the safety assessment, the term controls was used to align with the formal safety assessment methodology. These might include (for example) international regulations (such as the International Regulations for Preventing Collisions at Sea 1972) or training of personnel (such as the International Standards of

Training, Certification and Watchkeeping for Seafarers) [RD12] or search and rescue provision (such as the UK coastguard service).

15.4.13 After determining which risk controls were applicable to each hazard scenario, a risk score was calculated by determining the 'likelihood reduction' and 'consequence reduction' for each risk control.

15.4.14 Additional controls, equivalent to additional mitigation measures, were then identified by the stakeholders in attendance at the workshop and documented to ensure that risk levels were maintained to As Low As Reasonably Practicable. These additional controls are safety recommendations, which were then assigned a likelihood and consequence reduction to allow the calculation of the residual risk score.

15.4.15 The risk scores associated with each of the 43 hazard scenarios were set on a numerical scale, as shown in table B15-8.

Table B15-8 Classification of risks by risk score

Classification	Risk score
Very high risk	9.00 – 10.00
High risk	6.00 – 8.99
Significant risk	5.00 – 5.99
Moderate risk	4.00 – 4.99
Low	1.00 – 3.99
Negligible	0.01 – 0.99

15.4.16 Following the risk assessment, those hazard scenarios identified as 'significant risk' or above, once the risk controls were included, were taken forward for a formal safety assessment, as detailed within appendix D15-1 (Application Reference Number: 6.4.99) of this Environmental Statement.

Identification of baseline conditions

15.4.17 This section gives a broad outline of the methods by which baseline data have been collected. The full methodology for the characterisation of the commercial shipping and recreational navigation baseline is provided within appendix D15-1 (Application Reference Number: 6.4.99) of this Environmental Statement.

15.4.18 Automatic Identification System data from 2015 have been used for commercial shipping. The data have been provided through agreement with the Marine Management Organisation and decoded by ABPmer to create a geodatabase of anonymised vessel transits.

15.4.19 Data for recreational activity in the study area have been collated using a variety of methods from the following sources: local yacht and sailing clubs; the Royal Yachting Association routeing information; race route maps; analysis of passage plans and yachting guides.

15.4.20 Navigational features of significance have been identified using Admiralty Chart No. 1977 entitled Holyhead to Great Ormes Head.

15.4.21 Historical maritime incidents have been identified by pooling data from the call out data records held by the Royal National Lifeboat Institution and Marine Accident Investigation Branch incident records.

15.4.22 Information on the metocean environment within the study area has been acknowledged from various third party sources. This includes: automatic identification systems data; recreational activity; navigational features; maritime incidents; and MetOcean data, taken from surveys by Titan Environmental Surveys.

Safety assessment

15.4.23 This section details how the safety assessment methodology used within appendix D15-1 (Application Reference Number: 6.4.99) has been adapted for incorporation into the Environmental Statement, having regard for the generic Environmental Statement methodology as set out in chapter B1 (Application Reference Number: 6.2.1).

15.4.24 The assessment carried out in this chapter uses sensitivity of the vessel or navigation receptor and magnitude of the effect to assess the significance of the risk. The significance is assessed using a combination of the matrix, set out in chapter B1 (Application Reference Number: 6.2.1) as per EIA guidelines, and a degree of professional judgement. This is a similar process to that used in appendix D15-1. However, to provide consistency with the overarching methodology of this Environmental Statement, the terminology of the criteria and definitions used within appendix D15-1 has been modified as outlined below.

Sensitivity of receptors

15.4.25 A vessel or navigation receptor can be sensitive only if there is a pathway through which an effect can be transmitted between the source activity and the receptor. When a receptor is exposed to an effect, the overall sensitivity of the receptor has been determined, guided by professional judgement.

15.4.26 Table B15-9 defines topic specific receptor sensitivity criteria that have been based on the generic criteria outlined within chapter B1 (Application Reference Number: 6.2.1) of this Environmental Statement. Table B15-9 also shows how these compare to those within appendix D15-1 (Application Reference Number: 6.4.99). The general criteria are the same for both; however, the terminology used within appendix D15-1 (Application Reference Number: 6.4.99) differs slightly from the classification assigned to the same sensitivity in this Environmental Statement. Professional judgement has been used to interpret appendix D15-1 (Application Reference Number: 6.4.99) and adapt its outcomes to be consistent with the EIA methodology, representing the effort to keep the Environmental Statement as consistent as reasonably practicable.

Table B15-9 Receptor sensitivity

Classification	General criteria	Sensitivity term (as assigned by ABPmer within appendix D15-1)
High	High to very high level of safety impact for vessel and navigation receptors. Limited ability to adapt to impact.	Very high/high
Medium	Medium level of safety impact for vessel and navigation receptors. Some ability to adapt to impact.	Medium
Low	Low level of safety impact for vessel and navigation receptors. Ability to adapt to majority of impact.	Low
Negligible	Negligible level of safety impact for vessel and navigation receptors. Ability to adapt to all of impact.	Negligible

Magnitude of change

15.4.27 The magnitude measures the scale or extent of the change from the baseline condition, irrespective of the sensitivity of the receptor affected. When assessing the magnitude of an effect, the geographical extent, the duration and the frequency are considered. Determining the overall magnitude of navigational effects also incorporates a degree of subjectivity, as decisions are based on expert opinion in combination with baseline data.

Table B15-10 defines topic specific magnitude criteria that have been based on the generic criteria outlined within chapter B1 (Application Reference Number: 6.2.1) of this Environmental Statement. Table B15-10 also provides a comparison of terminology with that used within the appendix D15-1 (Application Reference Number: 6.4.99). Professional judgement has been used to interpret appendix D15-1 and adapt its outcomes to be consistent with the EIA methodology, representing the effort to keep the Environmental Statement as consistent as reasonably practicable.

Table B15-10 Magnitude of change

Magnitude of effect	General criteria	Magnitude (as assigned by ABPmer within appendix D15-1)
Large	Impacts geographical area beyond the extent of marine works/operational area. Impact present on a permanent basis throughout the operational phase. Impact occurs very frequently to constantly/permantly.	Large negative
Medium	Impact localised to geographical extent of marine works/operational area. Impact present on a permanent basis throughout the operational phase. Impact occurs frequently.	Medium negative
Small	Impact localised to geographical extent of marine works/operational area. Impact present on a temporary basis. Impact relatively infrequent.	Small negative
Negligible	No impact on vessel or navigational receptors.	Neutral

Assessment of significance

15.4.28 Figure B1-2 in chapter B1 (Application Reference Number: 6.2.1) of this Environmental Statement sets out how the significance classification is derived from the generic matrix. Professional judgement is applied to derive the significance based on the assigned magnitude and sensitivity. This stage of the assessment does not differ from other chapters in the Environmental Statement.

15.4.29 In line with the assessment methodology described in chapter B1 (Application Reference Number: 6.2.1), the significance of an effect on navigational receptors has first considered the adoption of good practice mitigation measures; see appendix D15-1 (Application Reference Number: 6.4.99) of this Environmental Statement.

15.4.30 Following adoption of these measures, additional mitigation is then proposed, if required, to reduce any significant effects identified; effects classified as 'moderate' or 'major' are considered to be significant. This is equivalent to a classification in the appendix D15-1 (Application Reference Number: 6.4.99) of 'significant' or above. Residual effects are then described following the application of additional mitigation.

Limitations

15.4.31 It is recognised that vessel activity is variable as it is dependent on numerous factors, including weather conditions, tides, seasonal factors, quotas (in the case of fishing vessels) and the migration of fish species.

15.4.32 This variability has been taken into account as far as possible by using long-term, desk-based research and consultation with local stakeholders to inform an up-to-date baseline.

15.5 References

Table B15-11 Schedule of references

ID	Reference
RD1	Department of Energy and Climate Change. 2011. <i>Overarching National Policy Statement for Energy (EN-1)</i> . London: The Stationery Office.
RD2	Department of Energy and Climate Change. 2011. <i>National Policy Statement for Nuclear Power Generation (EN-6)</i> . London: The Stationery Office.
RD3	Department for Transport. 2012. <i>National Policy Statement for Ports</i> . London: The Stationery Office.
RD4	Welsh Assembly Government. 2008. <i>The Wales Transport Strategy – One Wales: Connecting the Nation</i> . [Online]. [Accessed: 23 May 2017] Available from: https://www.bridgend.gov.uk/media/145187/WD31.pdf .
RD5	HM Government. 2011. <i>UK Marine Policy Statement</i> . London: The Stationery Office.
RD6	Welsh Government 2015. <i>The Welsh National Marine Plan</i> . [Online]. [Accessed: 8 May 2017]. Available from: http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/welsh-national-marine-plan/?lang=en .
RD7	Welsh Government. 2016. <i>Planning Policy Wales</i> . Edition 9. [Online]. [Accessed: 8 May 2017]. Available from: http://gov.wales/topics/planning/policy/ppw/?lang=en .
RD8	International Maritime Organization & International Conference on Training and Certification of Seafarers. 1996. <i>STCW 95: International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW Convention) ... and Seafarer's Training, Certification, and Watchkeeping Code (STCW Code), including resolution 2 of the 1995 STCW Conference</i> . London: International Maritime Organization.
RD9	UN. 1982. <i>United Nations Convention on the Law of the Sea</i> . [Online]. [Accessed: 8 May 2017]. Available from: http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf .
RD10	Department for Transport, MCA. 2013. <i>Methodology for Assessing the Marine Navigational Safety and Emergency Response Risks of Offshore Renewable Energy Installations (OREI)</i> . London: The Stationery Office.
RD11	Maritime and Coastguard Agency. 2016. <i>Marine Guidance Note 543 (MGN 543 Merchant + Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs)</i> . [Online]. [Accessed: 8 May 2017]. Available from:

ID	Reference
	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/502021/MGN_543.pdf .
RD12	International Maritime Organization. 2013. <i>Revised Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule-making process</i> . [Online]. [Accessed: 8 May 2017]. Available from: http://research.dnv.com/skj/IMO/MSC-MEPC%202_Circ%2012%20FSA%20Guidelines%20Rev%20III.pdf .
RD13	Department for Transport. 2016. <i>Port Marine Safety Code</i> . London: The Stationery Office.

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