
Proposed UK Offshore Renewable Energy Installations (OREI) - Guidance on Navigational Safety Issues.

Notice to Other UK Government Departments, Offshore Renewable Energy Developers, Port Authorities, Shipowners, Masters, Ships' Officers, Fishermen and Recreational Sailors.

Summary

This guidance note highlights issues that need to be taken into consideration when assessing the impact on navigational safety from offshore renewable energy developments, proposed for United Kingdom internal waters, territorial sea or in a Renewable Energy Zone, when established, beyond the territorial sea.

Key Points

- The recommendations in this guidance note should be used, primarily, by offshore renewable energy installation developers, seeking consent to undertake marine works.
- Specific annexes address issues covering; site position, structures and safety zones (Annex 1), developments, navigation, collision avoidance and communications (Annex 2), safety and mitigation measures recommended for OREI during construction, operation and decommissioning (Annex 3), search and rescue matters (Annex 4), Section 36 of the Electricity Act 1989, as amended by the Energy Act 2004 (Annex 5) and Article 60 of the United Nations Convention on the Law of the Sea (UNCLOS) (Annex 6).

Introduction:

- 1.1 Offshore Renewable Energy Installations (OREI) include offshore wind farms, marine current turbines, wave generators and any other installation, with the potential to affect marine navigation and safety, proposed for United Kingdom (UK) internal waters, territorial sea or in a Renewable Energy Zone (REZ), when established, beyond the territorial sea.
- 1.2 Recommendations in this guidance note should be taken into account by OREI developers seeking formal consent for

marine works. Failure by developers to give due regard to these recommendations may result in objections to their proposals on the grounds of navigational safety. Additional information on the process for consenting offshore windfarms and the regulatory framework is available from the Offshore Renewables Consents Unit of Department for Trade and Industry (DTI)¹. It should be noted, however, that DTI is not responsible for consenting projects in Northern Ireland internal and territorial waters.

¹ www.dti.gov.uk/energy/leg_and_reg/consents/guidance.pdf

- 1.3 The considerations and criteria contained in the attached annexes are intended to address the navigational impact of OREI proposed for UK sites. Their development necessitates the establishment of a clear consents process to deal with potential detrimental effects. The consent regime must take account of local factors, national standards and international aspects which could influence the establishment of an OREI. Under the regime, consents will not be granted if OREIs are likely to interfere with the use of recognised sea lanes essential to international navigation.
- 1.4 The Energy Act 2004 establishes a regulatory regime for OREI beyond territorial waters, in the UK's REZ, and supplements the regime which already applies in Great Britain's internal and territorial waters. Section 99 of the Act deals specifically with navigation and introduces a new section, 36B with the title "duties in relation to navigation" into section 36 of the Electricity Act 1989. The text of section 36, as amended by the Energy Act, is attached at Annex 5. Under 36B(1) a consent cannot be granted for an OREI which is likely to interfere with the use of recognised sea lanes essential to international navigation. This term is married at 36B(7) to Article 60(7) of the United Nations Convention on the Law of the Sea. The text of Article 60 is attached at Annex 6. 36B(2) consolidates into section 36 the provisions of section 34 of the Coast Protection Act 1949
- 1.5 The recommendations have been developed in consultation with DTI, the devolved government authorities for Scotland, Wales and Northern Ireland, mariners in the commercial, military, fisheries and recreational sectors, relevant associations and port authority representatives, the General Lighthouse Authorities (GLA) and emergency support services such as the Royal National Lifeboat Institution (RNLI).
- 2. How and when the recommendations should be used.**
- 2.1 This Guidance Note, as the name implies, is intended for the guidance of developers and others. Whilst non mandatory, failure to heed the guidance may result in delaying the consents process. The recommendations should be taken into account by OREI developers and their contracted environmental and risk assessors in the preparation of Scoping Reports (SR), Environmental Impact Assessments (EIA) and resulting Environmental Statements (ES).
- 2.2 These should evaluate all navigational possibilities, which could be reasonably foreseeable, by which the siting, construction, establishment and decommissioning of an OREI could cause or contribute to an obstruction of, or danger to, navigation or marine emergency services. They should also be used to assess the most favourable options to be adopted.
- 2.3 Potential navigational or communications difficulties caused to any mariners or emergency services using the site area and its environs should be assessed. Those difficulties which could contribute to a marine casualty leading to injury, death or loss of property, either at sea or amongst the population ashore, should be highlighted as well as those affecting emergency services. Consultation with local and national search and rescue authorities should be initiated and consideration given to the types of vessels and equipment which might be used in emergencies. This should include the possible use of OREI structures as emergency refuges.
- 2.4 Assessments should be made of the consequences of ships deviating from normal routes or recreational craft entering shipping routes in order to avoid proposed sites. Special regard should be given to evaluating situations which could lead to safety of navigation being compromised e.g. an increase in 'end-on' or 'crossing' encounters, reduction in sea-room or water depth for manoeuvring etc.
- 2.5 *In terms of navigational priority, these recommendations do not encourage a differentiation to be made between any types of seagoing water craft, operations, or mariners.*

3. **Annexes:**
- 3.1 The recommendations contained therein apply to all sites, whether within the jurisdiction of port limits or in open sea areas. However, port authorities may require developers to comply with their own specific criteria. In addition, where proposals within port limits could affect navigation or emergency planning, the port authorities will be under an obligation to review its safety management system, in accordance with the Port Marine Safety Code. Such reviews should be undertaken in parallel with the OREI developer's Environmental Impact Assessment and the outcome addressed in the resulting Environmental Statement.
- 3.2 OREI developers should comply with the recommendations during all phases of their planning, construction, operation and decommissioning.
- 3.3 Information concerning their navigational impact during these four phases should be promulgated in ample time to all relevant mariners, organisations and authorities.
- 3.4 Contingency arrangements to deal with marine casualties in, or adjacent to sites, including responses to environmental pollution, should be planned, and practised to test their efficiency.
- 3.5 The following annexes contain recommendations on:
- Annex 1:** Considerations on site position and structure.
- Annex 2:** Navigation, collision avoidance and communications.
- Annex 3:** Safety and mitigation measures recommended for OREI during construction, operation and decommissioning.
- Annex 4:** Standards and procedures for wind turbine generator shutdown in the event of a search and rescue, counter pollution or salvage incident in or around a wind farm.
- 3.6 The following annexes contain regulatory extracts:
- Annex 5:** Section 36 of the Electricity Act 1989 (as amended by the Energy Act 2004).
- Annex 6:** Article 60 of the United Nations Convention on the Law of the Sea (UNCLOS), relating to artificial islands, installations and structures in the exclusive economic zone.
- 3.7 **Note:** *The Maritime and Coastguard Agency (MCA) reserves the right to vary or modify these recommendations on the basis of experience or in accordance with internationally recognised standards in the interest of safety of life at sea and protection of the marine environment. As other types of offshore renewable energy installations are developed, new annexes to this document will be introduced and a revision of this Marine Guidance Note will be issued.*

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Department for
Transport

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Considerations on Site Position, Structures and Safety Zones

1. Traffic Survey

An up to date² traffic survey of the area concerned should be undertaken. This should include all vessel types and is likely to total at least four weeks duration but also taking account of seasonal variations in traffic patterns. These variations should be determined in consultation with representative recreational and fishing vessel organisations, and, where appropriate, port and navigation authorities. Whilst recognising that site-specific factors need to be taken into consideration, any such survey should, in general, assess:

- a. Proposed OREI site relative to areas used by any type of marine craft.
- b. Numbers, types and sizes of vessels presently using such areas.
- c. Non-transit uses of the areas, e.g. fishing, day cruising of leisure craft, racing, aggregate dredging, etc.
- d. Whether these areas contain transit routes used by coastal or deep-draught vessels on passage.
- e. Alignment and proximity of the site relative to adjacent shipping lanes.
- f. Whether the nearby area contains prescribed routeing schemes or precautionary areas.
- g. Whether the site lies on or near a prescribed or conventionally accepted separation zone between two opposing routes.
- h. Proximity of the site to areas used for anchorage, safe haven, port approaches and pilot boarding or landing areas.
- i. Whether the site lies within the limits of jurisdiction of a port and/or navigation authority.
- j. Proximity of the site to existing fishing grounds, or to routes used by fishing vessels to such grounds.
- k. Proximity of the site to offshore firing/bombing ranges and areas used for any marine military purposes.
- l. Proximity of the site to existing or proposed offshore oil / gas platform, marine aggregate dredging, marine archaeological sites or wrecks, or other exploration/exploitation sites.
- m. Proximity of the site relative to any designated areas for the disposal of dredging spoil.
- n. Proximity of the site to aids to navigation and/or Vessel Traffic Services (VTS) in or adjacent to the area and any impact thereon.
- o. Researched opinion using computer simulation techniques with respect to the displacement of traffic and, in particular, the creation of 'choke points' in areas of high traffic density.

² Generally within 12 months prior to submission of the Environmental Statement

2. OREI Structures

It should be determined:

- a. Whether any features of the OREI, including auxiliary platforms outside the main generator site and cabling to the shore, could pose any type of difficulty or danger to vessels underway, performing normal operations, or anchoring.

Such dangers would include clearances of wind turbine blades above the sea surface, the least depth of current turbine blades, the burial depth of cabling, etc.

Note: Recommended minimum safe (air) clearances between sea level conditions at mean high water springs (MHWS) and wind turbine rotors are that they should be suitable for the vessels types identified in the traffic survey but generally not less than 22 metres. Depths, clearances and similar features of other OREI types which might affect marine safety should be determined on a case by case basis.

- b. Whether any feature of the installation could create problems for emergency rescue services, including the use of lifeboats, helicopters and emergency towing vessels (ETVs)
- c. How rotor blade rotation and power transmission, etc., will be controlled by the designated services when this is required in an emergency.

Note: Annex 4 of this document details HM Coastguard recommended standards and procedures for the use of an Active Safety Management System (ASMS) in the event of an incident in or around an offshore wind farm.

3. Assessment of Access to and Navigation Within, or Close to , an OREI

To determine the extent to which navigation would be feasible within the OREI site itself by assessing whether:

- a. Navigation within the site would be safe :
 - i. by all vessels, or
 - ii. by specified vessel types, operations and/or sizes.
 - iii. in all directions or areas, or
 - iv. in specified directions or areas.
 - v. in specified tidal, weather or other conditions.
- b. Navigation in and/or near the site should be :
 - i. prohibited by specified vessels types, operations and/or sizes.
 - ii. prohibited in respect of specific activities,
 - iii. prohibited in all areas or directions, or
 - iv. prohibited in specified areas or directions, or
 - v. prohibited in specified tidal or weather conditions, or simply
 - vi. recommended to be avoided.
- c. Exclusion from the site could cause navigational, safety or routeing problems for vessels operating in the area.

Note : Relevant information concerning a decision to seek a "safety zone" for a particular site during any point in its construction, operation or decommissioning, should be promulgated to MCA and other interested parties without delay.

Navigation, collision avoidance and communications

1. The Effect of Tides and Tidal Streams :

It should be determined whether or not:

- i. Current maritime traffic flows and operations in the general area are affected by the depth of water in which the proposed installation is situated at various states of the tide i.e. whether the installation could pose problems at high water which do not exist at low water conditions, and vice versa.
- ii. Set and rate of the tidal stream, at any state of the tide, has a significant affect on vessels in the area of the OREI site.
- iii. Maximum rate tidal stream runs parallel to the major axis of the proposed site layout, and, if so, its effect.
- iv. The set is across the major axis of the layout at any time, and, if so, at what rate.
- v. In general, whether engine failure or other circumstance could cause vessels to be set into danger by the tidal stream.
- vi. Structures themselves could cause changes in the set and rate of the tidal stream.
- vii. Structures in the tidal stream could be such as to produce siltation, deposition of sediment or scouring, affecting navigable water depths in the windfarm area or adjacent to the area.

Note: In relation to Sub Paragraph vii above, it is considered necessary that a hydrographic survey of the site and its immediate environs be undertaken to establish a baseline. Such a survey should be undertaken to at least International Hydrographic Organization (IHO) Order 1 standard multibeam bathymetry , with final data being supplied as a digital full density data set, and erroneous soundings flagged as deleted but included in the data set.

2. Weather:

To determine if:

- i. The site, in normal, bad weather, or restricted visibility conditions, could present difficulties or dangers to craft, including sailing vessels, which might pass in close proximity to it.
- ii. The structures could create problems in the area for vessels under sail, such as wind masking, turbulence or sheer.

3. Visual Navigation and Collision Avoidance:

To assess the extent to which:

- i. Structures could block or hinder the view of other vessels under way on any route.
- ii. Structures could block or hinder the view of the coastline or of any other navigational feature such as aids to navigation, landmarks, promontories, etc.

4. **Communications, Radar and Positioning Systems :**

To provide researched opinion of a generic and, where appropriate, site specific nature concerning whether or not:

- i. Structures could produce radio interference such as shadowing, reflections or phase changes, with respect to any frequencies used for marine positioning, navigation or communications, including Automatic Identification Systems (AIS), whether ship borne, ashore or fitted to any of the proposed structures.
- ii. Structures could produce radar reflections, blind spots, shadow areas or other adverse effects:
 - a. Vessel to vessel;
 - b. Vessel to shore;
 - c. VTS radar to vessel;
 - d. Racon to/from vessel.
- iii. OREI, in general, would comply with current recommendations concerning electromagnetic interference.
- iv. Structures and generators might produce sonar interference affecting fishing, industrial or military systems used in the area.
- v. Site might produce acoustic noise which could mask prescribed sound signals.
- vi. Generators and the seabed cabling within the site and onshore might produce electro-magnetic fields affecting compasses and other navigation systems.

5. **Marine Navigational Marking :**

To determine:

- i. How the overall site would be marked by day and by night taking into account that there may be an ongoing requirement for marking on completion of decommissioning, depending on individual circumstances.
- ii. How individual structures on the perimeter of and within the site, both above and below the sea surface, would be marked by day and by night.
- iii. If the site would be marked by one or more racons and/ or,
- iv. If the site would be marked by an Automatic Identification System (AIS) transceiver, and if so, the data it would transmit.
- v. If the site would be fitted with a sound signal, and where the signal or signals would be sited.
- vi. Whether the proposed site and/or its individual generators would comply in general with markings for such structures, as required by the relevant General Lighthouse Authority (GLA) or recommended by the Maritime and Coastguard Agency, respectively.
- vii. The aids to navigation specified by the GLAs are being maintained such that the 'availability criteria', as laid down and applied by the GLAs, is met at all times. Separate detailed guidance is available from the GLAs on this matter.
- viii. The procedures that need to be put in place to respond to casualties to the aids to navigation specified by the GLAs, within the timescales laid down and specified by the GLAs.

Safety and mitigation measures recommended for OREI during construction, operation and decommissioning.

- 3.1 Mitigation and safety measures will be applied to the OREI development appropriate to the level and type of risk determined during the Environmental Impact Assessment (EIA). The specific measures to be employed will be selected in consultation with the Maritime and Coastguard Agency and will be listed in the developer's Environmental Statement (ES). These will be consistent with international standards contained in, for example, the Safety of Life at Sea (SOLAS) Convention - Chapter V, IMO Resolution A.572 (14)³ and Resolution A.671(16)⁴ and could include any or all of the following:
- i. Promulgation of information and warnings through notices to mariners and other appropriate media.
 - ii. Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC).
 - iii. Safety zones of appropriate configuration, extent and application to specified vessels.
 - iv. Designation of the site as an area to be avoided (ATBA).
 - v. Implementation of routeing measures within or near to the development.
 - vi. Monitoring by radar, AIS and/or closed circuit television (CCTV).
 - vii. Appropriate means to notify and provide evidence of the infringement of safety zones or ATBA's.
 - viii. Any other measures and procedures considered appropriate in consultation with other stakeholders.

³ General Provisions on Ships' Routeing, adopted 20 November 1985

⁴ "Safety Zones and Safety of Navigation around Offshore Installations and Structures", adopted 19 October 1989.

Standards and procedures for wind turbine generator shutdown in the event of a search and rescue, counter pollution or salvage incident in or around a wind farm.

1. Design Requirements

The wind farm should be designed and constructed to satisfy the following design requirements for emergency rotor shut-down in the event of a search and rescue (SAR), counter pollution or salvage operation in or around a wind farm:

- i. All wind turbine generators (WTGs) will be marked with clearly visible unique identification characters. The identification characters shall each be illuminated by a low-intensity light visible from a vessel thus enabling the structure to be detected at a suitable distance to avoid a collision with it. The size of the identification characters in combination with the lighting should be such that, under normal conditions of visibility and all known tidal conditions, they are clearly readable by an observer, stationed 3 metres above sea levels, and at a distance of at least 150 metres from the turbine. It is recommended that lighting for this purpose be hooded or baffled so as to avoid unnecessary light pollution or confusion with navigation marks. (Precise dimensions to be determined by the height of lights and necessary range of visibility of the identification numbers).
- ii. All WTGs should be equipped with control mechanisms that can be operated from the Central Control Room of the wind farm.
- iii. Throughout the design process for a wind farm, appropriate assessments and methods for safe shutdown should be established and agreed, through consultation with MCA and other emergency support services.
- iv. The WTG control mechanisms should allow the Control Room Operator to fix and maintain the position of the WTG blades as determined by the Maritime Rescue Co-ordination Centre or Maritime Rescue Sub Centre (MRCC/SC).
- v. Nacelle hatches should be capable of being opened from the outside. This will allow rescuers (e.g. helicopter winch-man) to gain access to the tower if tower occupants are unable to assist and when sea-borne approach is not possible.
- vi. Access ladders, although designed for entry by trained personnel using specialised equipment and procedures for turbine maintenance in calm weather, could conceivably be used, in an emergency situation, to provide refuge on the turbine structure for distressed mariners. This scenario should therefore be considered when identifying the optimum position of such ladders and take into account the prevailing wind, wave and tidal conditions.

2. Operational Requirements

- i. The Central Control Room should be manned 24 hours a day.
- ii. The Central Control Room operator should have a chart indicating the Global Positioning System (GPS) position and unique identification numbers of each of the WTGs in the wind farm.
- iii. All MRCC/SCs will be advised of the contact telephone number of the Central Control Room.

- iv. All MRCC/SCs will have a chart indicating the GPS position and unique identification number of each of the WTGs in all wind farms.

3. **Operational Procedures**

- i. Upon receiving a distress call or other emergency alert from a vessel which is concerned about a possible collision with a WTG or is already close to or within the wind farm, the MRCC/SC will establish the position of the vessel and the identification numbers of any WTGs which are visible to the vessel. The position of the vessel and identification numbers of the WTGs will be passed immediately to the Central Control Room by the MRCC/SC.
- ii. The control room operator should immediately initiate the shut-down procedure for those WTGs as requested by the MRCC/SC, and maintain the WTG in the appropriate shut-down position, again as requested by the MRCC/SC, until receiving notification from the MRCC/SC that it is safe to restart the WTG.
- iii. Communication and shutdown procedures should be tested satisfactorily at least twice a year

Note: Other types, designs and configurations of OREI will be similarly evaluated and procedures laid down by the Maritime and Coastguard Agency, in consultation with appropriate stakeholders, during the Scoping and Environmental Impact Assessment processes.

Section 36 of the Electricity Act 1989 (as amended by the Energy Act 2004)

36 Consent required for construction etc of generating stations

- (1) Subject to subsections (2) and (4) below, a generating station shall not be constructed at a relevant place (within the meaning of section 4), and a generating station at such a place shall not be extended or operated except in accordance with a consent granted by the Secretary of State.
- (2) Subsection (1) above shall not apply to a generating station whose capacity –
 - (a) does not exceed the permitted capacity, that is to say, 50 megawatts; and
 - (b) in the case of a generating station which is to be constructed or extended, will not exceed the permitted capacity when it is constructed or extended;

and an order under this subsection may make different provision for generating stations of different classes or descriptions.
- (3) The Secretary of State may by order provide that subsection (2) above shall have effect as if for the permitted capacity mentioned in paragraph (a) there were substituted such other capacity as may be specified in the order.
- (4) The Secretary of State may by order direct that subsection (1) above shall not apply to generating stations of a particular class or description, either generally or for such purposes as may be specified in the order.
- (5) A consent under this subsection –
 - (a) may include such conditions (including conditions as to the ownership or operation of the station) as appear to the Secretary of State to be appropriate; and
 - (b) shall continue in force for such a period as may be specified in or determined by or under the consent.
- (6) Any person who without reasonable excuse contravenes the provisions of this section shall be liable on summary conviction to a fine not exceeding level 5 on the standard scale.
- (7) No proceedings shall be instituted in England and Wales in respect of an offence under this section except by or on behalf of the Secretary of State.
- (8) The provisions of Schedule 8 of the Act (which relates to consents under this section and section 37 below) shall have effect.
- (9) In this Part “extension”, in relation to a generating station, includes the use by the person operating the station of any land (wherever situated) for a purpose directly related to the generation of electricity by that station and “extend” shall be construed accordingly.

36A Declarations extinguishing etc. public rights of navigation

- (1) Where a consent is granted by the Secretary of State or the Scottish Ministers in relation to –
 - (a) the construction or operation of a generating station that comprises or is to comprise (in whole or in part) renewable energy installations situated at places in relevant waters, or
 - (b) an extension that is to comprise (in whole or in part) renewable energy installations situated at places in relevant waters or an extension of such an installation,

he or (as the case may be) they may, at the same time, make a declaration under this section as respects rights of navigation so far as they pass through some or all of those places.

- (2) The Secretary of State or the Scottish Ministers may make a declaration only if the applicant for the consent made an application for such a declaration when making his application for the consent.
- (3) A declaration under this section is one declaring that the rights of navigation specified or described in it -
 - (a) are extinguished;
 - (b) are suspended for a period that is specified in the declaration;
 - (c) are suspended until such time as may be determined in accordance with provision contained in the declaration; or
 - (d) are to be exercisable subject to such restrictions or conditions, or both, as are set out in the declaration.
- (4) A declaration under this section -
 - (a) has effect, in relation to the rights specified or described in it, from the time at which it comes into force; and
 - (b) continues in force for such a period as may be specified in the declaration or as may be determined in accordance with provision contained in it.
- (5) A declaration under this section -
 - (a) must identify the renewable energy installations, or proposed renewable energy installations, by reference to which it is made;
 - (b) must specify the date on which it is to come into force, or the means by which that date is to be determined;
 - (c) may modify or revoke a previous such declaration, or a declaration under section 101 of the Energy Act 2004; and
 - (d) may make different provision in relation to different means of exercising a right of navigation.
- (6) Where a declaration is made under this section by the Secretary of State or the Scottish Ministers, or a determination is made by him or them for the purposes of a provision contained in such a declaration, he or (as the case may be) they must either -
 - (a) publish the declaration or determination in such a manner as appears to him or them to be appropriate for bringing it, as soon as is reasonably practicable, to the attention of persons likely to be affected by it; or
 - (b) secure that it is published in that manner by the applicant for the declaration.
- (7) In this section -

“consent” means a consent under section 36 above;

“extension”, in relation to a renewable energy installation, has the same meaning as in Chapter 2 of Part 3 of the Energy Act 2004

“relevant waters” means waters in or adjacent to Great Britain which are between the mean low water mark and the seaward limits of the territorial sea.

36B Duties in relation to navigation

- (1) Neither the Secretary of State nor the Scottish Ministers may grant a consent in relation to any particular offshore generating activities if he considers, or (as the case may be) they consider, that interference with the use of recognised sea lanes essential to international navigation:
 - (a) is likely to be caused by the carrying on of those activities; or
 - (b) is likely to result from their having been carried on.
- (2) It shall be the duty both of the Secretary of State and of the Scottish Ministers, in determining:
 - (a) whether to give a consent for any particular offshore generating activities, and
 - (b) what conditions to include in such a consent, to have regard to the extent and nature of any obstruction of or danger to navigation which (without amounting to interference with the use of such sea lanes) is likely to be caused by the carrying on of the activities, or is likely to result from their having been carried on.
- (3) In determining for the purposes of this section what interference, obstruction or danger is likely and its extent and nature, the Secretary of State or (as the case may be) the Scottish Ministers must have regard to the likely effect (both while being carried on and subsequently) of -
 - (a) the activities in question; and
 - (b) such other offshore generating activities as are either already the subject of consents or are activities in respect of which it appears likely that consents will be granted.
- (4) For the purposes of this section the effects of offshore generating activities include:
 - (a) how, in relation to those activities, the Secretary of State and the Scottish Ministers have exercised or will exercise their powers under section 36A above and section 101 of the Energy Act 2004 (extinguishment of public rights of navigation); and
 - (b) how, in relation to those activities, the Secretary of State has exercised or will exercise his powers under sections 94 and 95 and Chapter 3 of Part 2 of that Act (safety zones and decommissioning).
- (5) If the person who has granted a consent in relation to any offshore generating activities thinks it appropriate to do so in the interests of the safety of navigation, he may at any time vary conditions of the consent so as to modify in relation to any of the following matters the obligations imposed by those conditions -
 - (a) the provision of aids to navigation (including, in particular, lights and signals);
 - (b) the stationing of guard ships in the vicinity of the place where the activities are being or are to be carried on; or
 - (c) the taking of other measures for the purposes of, or in connection with, the control of the movement of vessels in that vicinity.

- (6) A modification in exercise of the power under subsection (5) must be set out in a notice given by the person who granted the consent to the person whose obligations are modified.
- (7) In this section –
- ‘consent’ means a consent under section 36 above;
- ‘offshore generating activities’ means –
- (a) the construction or operation of a generating station that is to comprise or comprises (in whole or in part) renewable energy installations; or
- (b) an extension of a generating station that is to comprise (in whole or in part) renewable energy installations or an extension of such an installations;
- ‘the use of recognised sea lanes essential to international navigation’ means –
- (a) anything that constitutes the use of such a sea lane for the purposes of Article 60 (7) of the United Nations Convention on the Law of the Sea 1082 (Cmnd 8941); or
- (b) any use of waters in the territorial sea adjacent to Great Britain that would fall within paragraph (a) if the waters were in a Renewable Energy Zone.
- (8) In subsection (7) ‘extension’, in relation to a renewable energy installation, has the same meaning as in Chapter 2 of Part 2 of the Energy Act 2004.

Article 60 UNCLOS - Artificial islands, installations and structures in the exclusive economic zone

1. In the exclusive economic zone, the coastal State shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of:
 - a. artificial islands;
 - b. installations and structures for the purposes provided for in article 56 and other economic purposes;
 - c. installations and structures which may interfere with the exercise of the rights of the coastal State in the zone.
2. The coastal State shall have exclusive jurisdiction over such artificial islands installations and structures, including jurisdiction with regard to customs fiscal health, safety and immigration laws and regulations.
3. Due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained. Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.
4. The coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations and structures in which it may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations and structures.
5. The breadth of the safety zones shall be determined by the coastal State taking into account applicable international standards. Such zones shall be designed to ensure that they are reasonably related to the nature and function of the artificial islands, installations or structures, and shall not exceed a distance of 500 metres around them, measured from each point of their outer edge, except as authorized by generally accepted international standards or as recommended by the competent international organization. Due notice shall be given of the extent of safety zones.
6. All ships must respect these safety zones and shall comply with generally accepted international standards regarding navigation in the vicinity of artificial islands, installations, structures and safety zones.
7. Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.
8. Artificial islands, installations and structures do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.