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**Offshore Renewable Energy Installations**

**MGN 654 Checklist**

This document has been produced as an aid for developers to confirm the guidance in MGN 654 has been addressed within an Environmental Impact Assessment Report and/or Navigation Risk Assessment as required for development consent decisions.

Version 1

Date: April 2021

UK Technical Services Navigation

Maritime and Coastguard Agency

**MGN 654 (M+F) Safety of Navigation: Offshore Renewable Energy Installations – Guidance on UK Navigational Practice, Safety and Emergency Response**

| **MGN Section** | **Yes/No** | **Comments** |
| --- | --- | --- |
|  **4. Planning Stage – Prior to Consent** |
| **4.5 Site and Installation Co-ordinates:** Developers are responsible for ensuring that formally agreed co-ordinates and subsequent variations of site perimeters and individual OREI structures are made available, on request, to interested parties at relevant project stages, including application for consent, development, array variation, operation and decommissioning. This should be supplied as authoritative Geographical Information System (GIS) data, preferably in Environmental Systems Research Institute (ESRI) format. Metadata should facilitate the identification of the data creator, its date and purpose, and the geodetic datum used. For mariners’ use, appropriate data should also be provided with latitude and longitude coordinates in WGS84 (ETRS89) datum. |
| **4.6 Traffic Survey** – includes: |
| All vessel types | **🗸** |  |
|  At least 28 days duration, within either 12 or 24 months prior to submission of the Environmental Impact Assessment Report | **🗸** |  |
| Multiple data sources | **🗸** |  |
| Seasonal variations | **🗸** |  |
| MCA consultation | **🗸** |  |
| General Lighthouse Authority consultation | **🗸** |  |
| Chamber of Shipping and shipping company consultation | **🗸** |  |
| Recreational and fishing vessel organisations consultation | **🗸** |  |
| Port and navigation authorities consultation, as appropriate | **🗸** |  |
| **4.6.d Assessment of the cumulative and individual effects of (as appropriate):** |
| i. Proposed OREI site relative to areas used by any type of marine craft. | **🗸** |  |
| ii. Numbers, types and sizes of vessels presently using such areas | **🗸** |  |
| iii. Non-transit uses of the areas, e.g. fishing, day cruising of leisure craft, racing, aggregate dredging, personal watercraft etc. | **🗸** |  |
| iv. Whether these areas contain transit routes used by coastal, deep-draught or international scheduled vessels on passage. | **🗸** |  |
| v. Alignment and proximity of the site relative to adjacent shipping routes | **🗸** |  |
| vi. Whether the nearby area contains prescribed routeing schemes or precautionary areas | **🗸** |  |
| vii. Proximity of the site to areas used for anchorage (charted or uncharted), safe haven, port approaches and pilot boarding or landing areas. | **🗸** |  |
| viii. Whether the site lies within the jurisdiction of a port and/or navigation authority. | **🗸** |  |
| ix. Proximity of the site to existing fishing grounds, or to routes used by fishing vessels to such grounds. | **🗸** |  |
| x. Proximity of the site to offshore firing/bombing ranges and areas used for any marine military purposes. | **🗸** |  |
| xi. Proximity of the site to existing or proposed submarine cables or pipelines, offshore oil / gas platform, marine aggregate dredging, marine archaeological sites or wrecks, Marine Protected Area or other exploration/exploitation sites | **🗸** |  |
| xii. Proximity of the site to existing or proposed OREI developments, in co-operation with other relevant developers, within each round of lease awards. | **🗸** |  |
| xiii. Proximity of the site relative to any designated areas for the disposal of dredging spoil or other dumping ground | **🗸** |  |
| xiv. Proximity of the site to aids to navigation and/or Vessel Traffic Services (VTS) in or adjacent to the area and any impact thereon. | **🗸** |  |
| xv. 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 and nearby or consented OREI sites not yet constructed. | **🗸** |  |
| xvi. With reference to xv. above, the number and type of incidents to vessels which have taken place in or near to the proposed site of the OREI to assess the likelihood of such events in the future and the potential impact of such a situation. | **🗸** |  |
| xvii. Proximity of the site to areas used for recreation which depend on specific features of the area |  |  |
| **4.7 Predicted Effect of OREI on traffic and Interactive Boundaries –** where appropriate, the following should be determined: |
| a. The safe distance between a shipping route and OREI boundaries. | **🗸** |  |
| b. The width of a corridor between sites or OREIs to allow safe passage of shipping. | **🗸** |  |
|  |
| **4.8. OREI Structures – the following should be determined:** |
| a. Whether any feature of the OREI, including auxiliary platforms outside the main generator site, mooring and anchoring systems, inter-device and export cabling could pose any type of difficulty or danger to vessels underway, performing normal operations, including fishing, anchoring and emergency response. | **🗸** |  |
| b. Clearances of fixed or floating wind turbine blades above the sea surface are *not less than 22 metres (*above MHWS for fixed). Floating turbines allow for degrees of motion. | **🗸** |  |
| c. Underwater devices i. changes to charted depth ii. maximum height above seabed iii. Under Keel Clearance | **🗸****🗸****🗸** |  |
| d. Whether structure block or hinder the view of other vessels or other navigational features. | **🗸** |  |
| **4.9 The Effect of Tides, Tidal Streams and Weather:** It should be determined whether: |
| a. 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. | **🗸** |  |
| b. The 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. | **🗸** |  |
| c. The maximum rate tidal stream runs parallel to the major axis of the proposed site layout, and, if so, its effect. | **🗸** |  |
| d. The set is across the major axis of the layout at any time, and, if so, at what rate. | **🗸** |  |
| e. In general, whether engine failure or other circumstance could cause vessels to be set into danger by the tidal stream, including unpowered vessels and and small, low speed craft. | **🗸** |  |
| f. The structures themselves could cause changes in the set and rate of the tidal stream. | **🗸** |  |
| g. The structures in the tidal stream could be such as to produce siltation, deposition of sediment or scouring, affecting navigable water depths in the wind farm area or adjacent to the area | **🗸** |  |
| h. 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. | **🗸** |  |
| i. The structures could create problems in the area for vessels under sail, such as wind masking, turbulence or sheer. | **🗸** |  |
| j. In general, taking into account the prevailing winds for the area, whether engine failure or other circumstances could cause vessels to drift into danger, particularly if in conjunction with a tidal set such as referred to above.  | **🗸** |  |
| **4.10 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 or close to the site would be safe: |  |  |
| 1. for all vessels, or
2. for specified vessel types, operations and/or sizes.
3. in all directions or areas, or
4. in specified directions or areas.
5. in specified tidal, weather or other conditions
 | **🗸****🗸****🗸****🗸****🗸** |  |
| b. Navigation in and/or near the site should be prohibited or restricted: |  |  |
| 1. for specified vessels types, operations and/or sizes.
2. in respect of specific activities,
3. in all areas or directions, or
4. in specified areas or directions, or
5. in specified tidal or weather conditions,
 | **🗸****🗸****🗸****🗸** |  |
| c. Where it is not feasible for vessels to access or navigate through the site it could cause navigational, safety or routeing problems for vessels operating in the area e.g. by preventing vessels from responding to calls for assistance from persons in distress | **🗸** |  |
| d. Guidance on the calculation of safe distance of OREI boundaries from shipping routes has been considered | **🗸** |  |
| **4.11 Search and rescue, maritime assistance service, counter pollution and salvage incident response.** |
| The MCA, through HM Coastguard, is required to provide Search and Rescue and emergency response within the sea area occupied by all offshore renewable energy installations in UK waters. To ensure that such operations can be safely and effectively conducted, certain requirements must be met by developers and operators. |
| a. An ERCoP will be developed for the construction, operation and decommissioning phases of the OREI. | **🗸** |  |
| b. The MCA’s guidance document *Offshore Renewable Energy Installation: Requirements, Advice and Guidance for Search and Rescue and Emergency Response* for the design, equipment and operation requirements will be followed. | **🗸** |  |
| c. A SAR checklist will be completed to record discussions regarding the requirements, recommendations and considerations outlined in the above document (to be agreed with MCA) | **🗸** |  |
|  **4.12 Hydrography -** In order to establish a baseline, confirm the safe navigable depth, monitor seabed mobility and to identify underwater hazards, detailed and accurate hydrographic surveys are included or acknowledged for the following stages and to MCA specifications: |
| i. Pre-construction: The proposed generating assets area and proposed cable route | **🗸** |  |
| ii. On a pre-established periodicity during the life of the development | **🗸** |  |
| ii. Post-construction: Cable route(s) | **🗸** |  |
| iii. Post-decommissioning of all or part of the development: the installed generating assets area and cable route | **🗸** |  |
| **4.13 Communications, Radar and Positioning Systems -** To provide researched opinion of a generic and, where appropriate, site specific nature concerning whether: |
| a. The structures could produce radio interference such as shadowing, reflections or phase changes, and emissions with respect to any frequencies used for marine positioning, navigation and timing (PNT) or communications, including GMDSS and AIS, whether ship borne, ashore or fitted to any of the proposed structures, to: | **🗸** |  |
| i. Vessels operating at a safe navigational distance | **🗸** |  |
| ii. Vessels by the nature of their work necessarily operating at less than the safe navigational distance to the OREI, e.g. support vessels, survey vessels, SAR assets. | **🗸** |  |
| iii. Vessels by the nature of their work necessarily operating within the OREI. | **🗸** |  |
| b. The structures could produce radar reflections, blind spots, shadow areas or other adverse effects:i. Vessel to vessel; | **🗸** |  |
| ii. Vessel to shore; | **🗸** |  |
| iii. VTS radar to vessel | **🗸** |  |
| iv. Racon to/from vessel | **🗸** |  |
| c. The structures and generators might produce sonar interference affecting fishing, industrial or military systems used in the area. | **🗸** |  |
| d. The site might produce acoustic noise which could mask prescribed sound signals. | **🗸** |  |
| e. Generators and the seabed cabling within the site and onshore might produce electro-magnetic fields affecting compasses and other navigation systems. | **🗸** |  |
| **4.14 Risk mitigation measures recommended for OREI during construction, operation and decommissioning.** |
| 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 maritime safety information (MSI) dissemination methods. | **🗸** |  |
| ii. Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC). | **🗸** |  |
| iii. Safety zones of appropriate configuration, extent and application to specified vessels[[1]](#footnote-1) | **🗸** |  |
| iv. Designation of the site as an area to be avoided (ATBA). | **🗸** |  |
| v. Provision of AtoN as determined by the GLA |  |  |
| vi. Implementation of routeing measures within or near to the development. | **🗸** |  |
| vii. Monitoring by radar, AIS, CCTV or other agreed means | **🗸** |  |
| viii. Appropriate means for OREI operators to notify, and provide evidence of, the infringement of safety zones. | **🗸** |  |
| ix. Creation of an Emergency Response Cooperation Plan with the MCA’s Search and Rescue Branch for the construction phase onwards. | **🗸** |  |
| x. Use of guard vessels, where appropriate | **🗸** |  |
| xi. Update NRAs every two years e.g. at testing sites. | **🗸** |  |
| xii. Device-specific or array-specific NRAs | **🗸** |  |
| xiii. Design of OREI structures to minimise risk to contacting vessels or craft | **🗸** |  |
| xiv. Any other measures and procedures considered appropriate in consultation with other stakeholders. | **🗸** |  |

**Annex 1 Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations**

| **The following content is included:** | **Section**  | **Compliant****Yes/No** | **Comments** |
| --- | --- | --- | --- |
| **A risk claim is included that is supported by a reasoned argument and evidence** | **7** | **🗸** |  |
| **Description of the marine environment** | B3 | **🗸** |  |
| **Search and Rescue overview and assessment** | 3.3 | **🗸** |  |
| **Description of the OREI development and how it changes the marine environment** | B3 | **🗸** |  |
| **Analysis of the marine traffic, including****base case and future traffic densities and types.** | B1B2 | **🗸** |  |
| **Status of the hazard log*** **Hazard Identification**
* **Risk Assessment**
* **Influences on level of risk**
* **Tolerability of risk**
* **Risk matrix**
 | C1 & F1C2C3C4C5 | **🗸** |  |
| **Navigation Risk Assessment*** **Appropriate risk assessment**
* **MCA acceptance for assessment techniques and tools**
* **Demonstration of results**
* **Limitations**
 | D1D2D3D4 | **🗸** |  |
| **Risk control log** | E1 & G1 | **🗸** |   |

1. As per SI 2007 No 1948 “The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007. [↑](#footnote-ref-1)